

*Complimentary*



# THE FIRST FIVE YEAR PLAN 1973-78

PLANNING COMMISSION  
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH  
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## FOREWORD

The Planning Commission of the Government of the People's Republic of Bangladesh has prepared a Plan for reconstruction and development of the economy taking into account the inescapable political, social and economic realities of Bangladesh. The Plan has charted a course for the nation for the coming five years.

The Plan was prepared within a year and a half of the liberation of Bangladesh. It is unusual for a country to prepare a Five Year National Development Plan within such a short time. In the case of Bangladesh, it is specially so because there was no planning machinery in the country at the time of liberation nor comprehensive and reliable data on all aspects of the economy. These may have left some gaps in the Plan. Nevertheless it was decided to launch the Five Year Plan at an early date because the Government felt the urgent need to provide a sense of direction and determine the order of priorities within the framework of which coherent and consistent policies and programmes could be formulated.

No plan, however well-formulated, can be implemented unless there is a total commitment on the part of the people of the country to work hard and make necessary sacrifices. All of us will, therefore, have to dedicate ourselves to the task of nation building with single-minded determination. I am confident that our people will devote themselves to this task with as much courage and vigour as they demonstrated during the war of liberation.

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Government of the  
People's Republic of Bangladesh  
and  
Chairman,  
Planning Commission.*

DACCA;  
November, 1973.



## PREFACE

Bangladesh inherited a poor, undiversified economy, characterised by an under-developed infra-structure, stagnant agriculture, and a rapidly growing population. She had suffered from years of colonial exploitation and missed opportunities, with debilitating effects on initiative and enterprise. Superimposed on all these were the effects of the war of liberation, which caused serious damage to physical infra-structure, dislocation in managerial and organisational apparatus and disruption in established external trading relationships. She has over the last year and a half been recovering from the ravages and disruptions of war. The First Five-Year Plan, therefore, builds on such foundations.

One could have delayed the formulation of a Plan until after the short-term task of economic recovery and reconstruction was over. However, reconstruction efforts have to be integrated into the long-term development perspective. Moreover, the nation needed a social perspective and a plan of action which would provide a sense of direction and determine the priorities.

We are aware that statistical data and empirical investigations into the various aspects of the economy were not sufficiently comprehensive and reliable to meet the full needs of planning. But it was not possible to await the results of statistical investigations, which are time consuming, before the Plan was formulated. The Plan, however, provides for adequate flexibility so as to be able to incorporate, in terms of projects and programmes, the results of subsequent analysis and additional statistical information, as soon as they are available. The Annual Plans are expected to provide the necessary mechanism of adjustment and flexibility.

The Plan was prepared with a very severe time constraint, *i.e.*, in less than a year's time. Inadequacies and gaps in the Plan were inevitable given the compulsion to produce the Plan in this short time span rather than the normal period extending over several years, during which detailed deliberations and studies must take place. Therefore, a few important issues could not be dealt with in as great a depth as we would have liked. Several study groups and technical committees were formed consisting of representatives of Ministries, Agencies, and many others outside the Government to guide and advise the Commission in its task. All of them had to work under pressure. The Commission is grateful for the unstinted support, cooperation and participation of all the Ministries and Agencies, who were concerned with the formulation of the Plan.



The Plan does not set unduly high sights lest it generates greater expectation than it is able to fulfil. Starting from a low income base and all-round deprivation as we do, we need a considerable amount of development outlay to merely provide a rapidly growing population with the minimum needs. The Government has perforce to concentrate its attention on the alleviation of suffering of those who are on the critical margin. The task of reconstruction, development and meeting the gaps caused by decades of neglect is so overwhelming that within a short period of five years only a beginning can be made in our concerted attack on poverty. The Plan recognises that the basic resource in Bangladesh is its vast manpower; projects and programmes must be so formulated as to make its maximum use within the constraints of technology and socio-political institutions. The Plan emphasises self-reliance. Economic assistance from foreign countries will, therefore, be directed towards building up our economy and developing domestic resources for a rapid reduction of our dependence on foreign assistance by the end of the Plan period.

The need for social transformation consistent with our political objectives has been foremost in our mind. But social transformation has to be consistent with our preparedness to make the new system work. Social changes without necessary preparation may, on the one hand, bring discredit to the institutional changes and on the other cause dislocation and suffering. The Plan proposes only such institutional changes as are integral to the success of the Plan and which do not tend to outstrip our ability to organise and implement. Simultaneously, it will be necessary to build up an appropriate cadre of government functionaries, motivated workers and political leadership at the grass root level who will do the ground work and prepare the country for further social changes in the next phase of our development effort.

Development is a slow and painful process. It means present sacrifice for future gains. It is specially painful for a country at a very low level of living such as Bangladesh where an increasing and significant reliance is to be placed on domestic resources for development. We can make the sacrifice, which is so essential for development, socially tolerable only if it is equitably shared by all. The room for flexibility is so small, the ability of the socio-economic system to withstand the effects of mistakes and waste is so severely limited that in the use of scarce resources as well as in experimenting with new institutions, great caution and extreme care need be exercised.

DACCA;  
November, 1973.

NURUL ISLAM  
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# TABLE OF CONTENTS

## PART I

### FRAMEWORK OF THE PLAN

| CHAPTERS  | PAGE |
|---|------|
| I Social and Political Perspectives of Planned Development .. | 1    |
| II Objective, Size and Strategy of the Plan .. ..             | 9    |
| III Structure of the Plan .. .. .                             | 31   |
| IV Domestic Resources for the Plan .. .. .                    | 37   |
| V Balance of Payments and External Resources .. ..            | 51   |
| VI Mobilisation of Labour for Development .. ..               | 67   |
| VII Implementation of the Plan .. .. .                        | 73   |

## PART II

### SECTORAL PROGRAMME

|   |     |
|---|-----|
| VIII Agriculture, Water Resources and Rural Institutions .. ..        | 83  |
| IX Industry .. .. .   | 195 |
| X Transport .. .. .   | 283 |
| XI Power, Natural Resources and Scientific and Technological Research | 323 |
| XII Physical Planning and Housing .. .. .                             | 381 |
| XIII Communication .. .. .  | 429 |
| XIV Education and Manpower .. .. .                                    | 441 |
| XV Health and Social Welfare .. .. .                                  | 497 |
| XVI Population Planning Programme .. .. .                             | 537 |

**PART I**

**FRAMEWORK OF THE PLAN**



## CHAPTER I

### SOCIAL AND POLITICAL PERSPECTIVES OF PLANNED DEVELOPMENT

#### 1.1 Democracy

The State of Bangladesh is founded on the four basic principles of democracy, nationalism, secularism and socialism. Some of these are easier to realise than the others. The country is being governed on the basis of a parliamentary democratic system. The Government of the People's Republic of Bangladesh has adopted a Constitution ensuring the democratic rights of the people. Fundamental rights of the people—freedom of speech, freedom of the press, freedom of assembly, and the rights of the people to govern themselves, are all guaranteed in the constitution.

#### 1.2 Nationalism

Bangladesh which emerged as an independent nation after a prolonged struggle for national emancipation and a tremendous sacrifice in terms of human suffering and bloodshed is irrevocably committed to maintaining the national integrity. Our nationalism, however, does not preclude us from developing close and friendly relationships with the other countries of the world. It only enjoins on us that we take upon ourselves the responsibility of bringing about the cultural, social, and economic development of the Bangalees. We cannot shift the burden of our development on to others.

#### 1.3 Secularism

True to our secular belief, we stand committed to disband all communal forces from the body politic. The War of Liberation against the colonial oppressors which we waged as one man demonstrated that Bangladesh is able to rise above religious bigotry and differences of caste and creed. Even though decades of obscurantism and religious fanaticism cannot be obliterated in one day, such bigotry will not be able to thrive on the soil of Bangladesh if communalism ceases to be a political weapon. Our struggle for emancipation has highlighted our homogeneity and our struggle against poverty will only strengthen it.

#### 1.4 Socialism

However, the ideal of socialism cannot be translated into reality as easily or as quickly as the other three principles of State policy. In Bangladesh today it remains a vision and a dream. We have already taken some steps in this direction. But much more needs to be done if we are to avoid the painful processes which some countries had to go through in their quest for a socialist way of life. We may falter midway or end up with an authoritarian social order instead of political and economic emancipation for the masses if there is no firm commitment to establish socialist institutions. Notwithstanding the differences in the transitionary process or in the broad strategies, there are certain basic conditions which all socialist countries had necessarily to fulfil for achieving their goals. We cannot be an exception to that.

#### 1.5 The Constitutional Commitment

There are several provisions in the Constitution of the People's Republic of Bangladesh to ensure the establishment of an exploitation-free society in Bangladesh. According to the constitution, (a) conditions are to be created to emancipate the toiling masses from all forces of



exploitation; (b) every citizen is to enjoy the right to work; (c) all citizens are to be assured equal opportunity so that an egalitarian society can be established; (d) enjoyment of unearned income is to be discouraged; and (e) there will be limits to private ownership of means of production as prescribed by law.

The need to limit private ownership of the means of production, and to ensure the right to work and equality of opportunity for all citizens has also been recognized by the social democratic governments of the world. Our constitution has highlighted and adopted these objectives as a social obligation. However, we have to look beyond the goals and achievements of the welfare states if exploitation is to be eliminated and egalitarianism realised in the manner of a truly socialist society.

For building a socialist society we must be able to make a correct assessment of the objective conditions obtaining in the country. Without this assessment a country may adopt a programme which is unrealistic, either too ambitious or too modest. While formulating programmes, we need not only take into account the objectives which we wish to attain but also the human agents who will be required to implement the programme. The planners in a country can only give the direction. Execution of policies and programmes depends entirely on the political will of the country and as such on the commitment and the effectiveness of the leadership, the ability of the party in power to mobilise the people, and the dedicated functioning of the government machinery. From this point of view, planning is more a political process than a mere economic device.

### **1.6 Pre-Conditions for Socialist Development**

The removal of the capitalist system of income distribution, of the private ownership of means of production and of the precapitalist mercantile or feudal forms of production relations is a necessary precondition for socialist development. Depending upon the objective conditions of the society, this may have to be done in stages, but no plan for socialist transformation can afford to ignore the basic necessity of fulfilling these pre-conditions.

A programme for socialist transformation will have to identify clearly the forms and manners in which the mercantile and feudal production relations function and measures have to be taken to eliminate them. The gradualness that may have to be introduced in the methods required for their transformation is dictated only by the needs of expedience and orderly functioning of the economy since too abrupt a dislocation at one time may seriously disturb the production system. But the society will have to be prepared for these basic changes, particularly in land ownership relations. In an economy where more than 80 per cent of the activity is dependent on agriculture, it is inconceivable to bring in socialism without the socialisation of agriculture.

### **1.7 The Need for Production and Austerity**

In an underdeveloped economy such as Bangladesh, the socialist transformation of the economy must accompany the growth of productive forces. It has to be clearly understood that anything which hampers increase in productivity or growth of productive forces and dissipates the meagre resources of the country in unproductive activities and unnecessary consumption is in contradiction with the basic principles of socialism. A traditional form of society generates values and habits that are antagonistic to the norms of productive work, manual labour and working discipline. As the democratic process protects the rights of workers and trade unions, socialism demands basic discipline from labour and management and hard



work from the population. Egalitarian distribution of social income is an essential feature of socialist development.

In a socialist society the different classes of income earners and the various professional or social and economic groups are conscious of the fact that the government will take necessary steps to ensure their due share of the national output. If all decisions affecting the lives of the people are arrived at through debates and discussions in which all professions and groups participate effectively no one's interests need suffer. In a non-socialist society an individual can increase his own income when national income remains stationary or is even declining. Changes in sectoral incomes and price changes affect different people differently. A particular group of workers can and do exact higher wages only through collective action. In such a situation a group of workers fight for wage increases without taking into account the impact of such action on the economy or the society as a whole. Such behaviour results from the lack of a co-ordinated incomes policy involving every segment of the society. The phenomenon where every one is trying to reap benefits guided by sectarian economic interests without considering the consequences of such action must be discouraged.

In a developed economy the flexibility in the economic structure and high wages enable the economy as well as the individual worker to withstand the destabilizing effect of labour unrest. Because of high rates of savings and investment and the consequent growth in income it is possible to meet the demands for periodic wage increases by trade unions and thus curb their militancy and avoid economic anarchy. When wages are high the workers are not so eager to resort to militant action for the realisation of their demands. But in a low income country such as ours the dislocation caused by labour disputes can have serious economic consequence because of the narrow economic base. It will be difficult for the society to absorb any labour unrest which is generated by sectarian wage demand unrelated to productivity or any refusal to fulfil obligations on the part of workers. Such problems cannot, however, be solved by mere coercive action. The government must succeed in convincing the people of their determination to ensure that a minimum living wage is available to all workers and that poverty and deprivation will be shared by all until such time as income has risen sufficiently before it can expect responsible behaviour from the different classes of income earners. The incomes policy must, however, apply to all members of the society irrespective of whether an individual is engaged in the public or the private sector.

Just as disciplined hard work is necessary, so also is it essential that all forms of unproductive consumption are removed from the economic system. Generation of economic surplus and its mobilisation and productive investment are the means by which productive forces have to be developed. History has no instance of any socialist development where, in the transition period, consumption has not been reduced to the essential minimum and where unnecessary luxury and conspicuous consumption were not eliminated. For a well formulated socialist plan, the basic premise has to be that the Government and the ruling party will have the will and the determination to transform a society with traditional values to a production oriented society where work, discipline and savings are the basic tenets of economic activity.

### 1.8 The Need for Cadres

A society in transition towards socialism has to accept the need to adopt radical measures to free the masses from their age-old bondage to traditional values and customs as well as from their exploiters. As long as the broad masses are unable to accept the norms of behaviour



necessary for a radical transformation of society, no amount of socialist policy adopted by the government can usher in socialism. The change in social outlook and in the institutions embodying such an outlook can never be or has never been achieved only by government functionaries. It is only a political cadre with firm roots in the people and motivated by the new ideology and willing to live and work among the people as one of them that can mobilise the masses and transform their pattern of behaviour.

A government functionary with his training and expertise can only function effectively where his duties and scope of work are clearly outlined and rules of business and code of conduct properly laid down. Where these are absent, the results are invariably chaotic because civil servants with varying background, training, expertise and responsibilities can only work harmoniously where each one knows what is expected of him. They can, therefore, be neither innovators nor catalytic agents for social change. Revolutionary thinking must precede revolutionary action by the masses.

A cadre can serve as an effective catalytic agent only so long as he totally identifies himself with the people. A government servant, on the other hand, is in effect a skilled worker and only a few amongst them would be motivated, specially in the early years of social transformation. No doubt his professional pride is an important motivating force for him to do his best. But in many cases the primary attraction for a job lies in the material incentive which the society offers a functionary for his effort. This can never be true of a political cadre. His compensation lies in the realisation of his ideals and not material rewards.

Before socialism becomes a reality, the task is to educate the public about the need for social change. The cadres are the instruments through which the task is carried out. We must, however, be aware of the fact that a cadre is as likely to degenerate as any one else. The experience of socialist countries shows that a political cadre has to be watched in the same way as any Government servant or other kinds of functionaries. Whenever a party has failed to be vigilant and to take immediate remedial measures the cadres have deviated from their goals and resorted to self-indulgence thus defeating the very purpose of their existence. It is not only the cadre at the ground level who needs to be watched but the performance of the party workers at all levels has also to be constantly reviewed so that neither complacency nor self-indulgence can overtake them. The cadres who are successful should be rewarded by conferment of higher responsibilities. Those who fail should be punished but the door for rehabilitation must be kept open for them. The highest level of party functionaries must subject themselves to self-criticism and be aware of the fact that they must personally set examples for the party workers to emulate.

### 1.9 The Objective Conditions in Bangladesh

We have indicated some of the pre-conditions for socialist transformation. These have to relate to the objective conditions within Bangladesh if a viable strategy for development towards socialism is to emerge. The prevailing constraints in building socialism in Bangladesh, therefore, need to be taken into account.

The political leadership must be dedicated to the ideals of socialism. It will have to provide the leadership in bringing about a social transformation. The party leadership must shoulder the obligation and responsibility to set examples in social behaviour and come up with bold new ideas for social action, which will give them the moral authority to effect desirable changes.

The Bangladesh Constitution has precluded the emergence of a one-party state. In a multi-party state the administration is expected to maintain an identity which is separate from the ruling party so that party cadres cannot be automatically injected into the machine to supervise its operation. All that the party cadres can do is to supervise the machine from



outside. Political cadres with adequate understanding, motivation and training to control and direct the bureaucracy as well as to mobilise the people have yet to emerge in sufficient numbers.

The problem may have been partially mitigated by giving ideological orientation to the bureaucracy. But the Government functionaries in Bangladesh are as much the product of the socio-economic environment as any one else. They are equally exposed to and affected by the social climate in the country. Indeed the heritage of the colonial structure and the past method of operations tend to influence him more than those who work outside the system. In independent Bangladesh, such alienation of a Government functionary and the people must be replaced by their positive identification with the commonman.

In a situation where cadres are yet to emerge and the bureaucracy is not sufficiently motivated the survival of exploitative elements remains a serious problem. On the land, feudal forms of production relations are reflected in unequal land ownership. These perpetuate the subjugation of the village poor through dependence for land, work, credit and other necessities of production and consumption on the affluent farmers.

Private enterprise is still dominant in the distribution system. In the prevailing conditions of scarcity they have exacted scarcity premium on items in short supply. The state agencies have not charged scarcity prices, but the intermediaries have reaped the benefits. This prevents the benefits of state ownership and trading from being passed on to the consumers. In the field of construction and indenting for foreign supplies, private enterprise is also active in Bangladesh today. In all these areas of activities scope for substantial unearned income persists without the recipients having to perform any corresponding productive function to earn it. It is difficult to devise a mechanism to subject them to social control or to collect adequate taxes from them. Their high living standards create social tension in a situation of acute scarcity and exercises an undesirable "demonstration effect" on the rest of the society.

However, along with the constraints there are also positive factors working in favour of a socialist programme. Some of these are indicated below.

The war of liberation has heightened the political consciousness of the people and has made them aware of the need for political struggle to realise a better life. The demand for social justice underlying the political struggle has thus been transformed into a widely held expectation to build a socialist economic order. All political parties are more or less inclined to work for socialism even though their strategies or interpretations vary.

In the pre-liberation period, indigenous private capital remained underdeveloped. It has also received a major set-back as a result of the nationalisation policies of the Government on 26th March, 1972. On the land, whilst feudal forms of production still survive large-scale feudal land ownership is absent and land ownership patterns are more equal than in most developing societies. The rural poor are also more aware of their strength and the advantages of collective action.

Some of the most able and skilled members of society are in Government service, in the bureaucracy and productive sectors. Given proper orientation, motivation and leadership they can use their skills to manage the economy more efficiently.

The liberation war has thrown up a whole generation of young men willing to dedicate themselves to the transformation of society. Leadership and organisation can mobilise their talent and energies towards productive ends. Finally, we have a socially homogeneous population where linguistic, religious, tribal and caste differences are not serious constraints to the development process.



### **1.10 The Socio-Political Assumptions of the Plan**

In drawing up the Five-Year Plan we have been guided by the analysis of pre-conditions for building socialism in Bangladesh which have been related to the objective conditions prevailing in the country. This Plan is thus based on the realities and capabilities of Bangladesh today. It does not assume that within five years we can approximate to the social structures prevailing in other socialist countries nor does it assume that the experience of the post-liberation period disqualifies us from all attempts to organise productive forces more efficiently and with a view to realising socialist objectives. The Plan, however, recognises the urge for social transformation among the masses. The socio-political assumptions underlying the Plan may, therefore, be summarised in the following paragraphs.

### **1.11 Investment Strategy**

The Plan cannot hope to meet the full expectations of the people with the available resources. Investment strategy has however been biased towards meeting the consumption needs of the masses and expanding employment opportunities both through preference for a labour intensive investment strategy and unconventional measures to mobilise labour. Our commitment to the principle of nationalism is indicated by an investment strategy directed to achieve a substantial decline in the degree of dependence on external assistance. This has restricted our Plan size and put limits on improving the levels of living of the masses during the Plan Period.

### **1.12 Reducing Exploitation**

Under the prevailing objective conditions elements of exploitation can only be reduced in phases if the productive process is not to be disrupted. With this end in view, the Plan spells out the need for land reforms along with extension of co-operatives with emphasis on small farmers and landless labourers. In the industrial sector investment strategy in the Plan will aim to secure the ascendancy of the public sector whilst leaving small and cottage industries largely for private initiative and enterprise. In the field of trade, both domestic and foreign, State and co-operative enterprises are to play an increasingly dominant role, leaving retail trade primarily in the hands of private traders. The Consumers Supply Corporation, a state agency, will seek to provide some safeguards to the consumer by distribution of a few essential items. In the housing sector the Plan provides for a considerable expansion of the role of the State and the co-operatives whilst seeking to impose ceilings on urban property and limiting the windfall gains of property owners. In the transport sector the strategy is to place ownership of transport facilities with state agencies and co-operatives of drivers or operators.

### **1.13. The Role of Material Incentives**

We have earlier spelt out the importance of increasing production through hard and efficient work. The Plan recognises that under the circumstances prevailing today the efficient functioning of the public sector will require material incentives to continue to play an important part in motivating those who manage and run the productive enterprises as well as the workers and the employees at all levels. It is only with the gradual development of social cohesion and a sense of solidarity with the masses as well as with an increasing ideological motivation of the people that material incentives and income differentials will become less important instruments for ensuring efficiency and enterprise.



In Bangladesh today skills in the various spheres are very scarce and they expect very high rewards. While restrictions on ownership of wealth and assets and income from property have been imposed and will be continued, any drastic limitation of remuneration from work and of income differentials arising out of differences, in skills and performance, may not only act as a disincentive against high levels of performance but may also adversely affect the flow of talents into fields which demand considerable training and acquisition of skills. In fact, in the early stages it will be necessary to provide high rewards in order to attract the flow of new entrants into areas where supply is short.

It is in this context that the recommendations of the Pay Commission and Wages Commission have to be viewed. Arbitrary cuts in income from work without reference to present supply of skills, level of responsibility and the social value of the productive functions performed, may create disequilibrium in the supply and demand for skills and jeopardise the fulfilment of the Plan target. Disparity in income from work and high rewards for exceptional performance should continue. What is necessary is to substantially reduce opportunities of earning income from unproductive activities and curbing ostentatious consumption. The elite, specially the political leadership may, however, voluntarily accept the need to share austerity in view of the prevailing scarcity and the need to promote social cohesion.

#### **1.14 Public Participation in Planning Process**

A Plan is not merely a technical and an economic document but also a socio-political document. It must be able to enthuse, mobilise and motivate people. It must provide a vision and perspective for the nation. Therefore, it is essential that people and their representatives should play a role in setting their socio-economic objectives and in its formulation. The Planning Commission is mainly involved and closely works with the political leaders in the Government, seeking their guidance and instructions on the one hand, and advising and making recommendations to them, on the other, on a day-to-day basis. It should, also be able to maintain contacts with the various groups in society such as members of Parliament, students, representatives of peasants and workers as well as other economic groups such as trade and industry. For this purpose it may be advisable to constitute regular advisory panels where the various interest groups and the Planning Commission can exchange views and experiences.

#### **1.15 The Role of the Cadres and Political Leadership**

Cadres have been identified as an essential element in the revolutionary transformation of society. A programme must, therefore, immediately be taken in hand to train up cadres during the initial phase of the development effort. Cadres will have to be carefully chosen for their motivation, personal integrity, courage and willingness to work and make sacrifices. They should be drawn from all those who share the commitment to social transformation and accept the policies of the State directed to this end. As far as possible, cadres must be drawn from areas in which they will serve. At the same time it will ensure a more direct contact with the people to be served by the cadres. Cadres must undergo a rigorous training process in ideology and policies to be implemented; their practical training must be directly applied for development work. An institutional machinery will need to be devised to ensure supervision and control over the cadres. They cannot afford to be divorced from the local political institutions but must at the same time constitute a pressure group on local leaders and administration to keep them committed to the policies of the Government.

The following functions of the cadre deserve consideration by the Government and by the party leadership. The major thrust should be towards their direct participation in the development work, educating and motivating people as to the aims and objectives



of the Plan as well as to the role of the people in the successful implementation of the Plan. They would help identify projects to be undertaken by the local government institutions, persuade people to contribute land and materials for projects, wherever necessary, ensure proper maintenance and prevent pilferage and wastage of public property and help remove, along with local agencies and offices, organisational bottlenecks. They may also cooperate with local officials, for example, in the distribution of scarce commodities, in collecting revenues and taxes in areas where evasion is considerable, and in serving as watch dogs for preventing misappropriation of public funds and materials. They will inform and educate the peasants and workers about the programmes and policies of the Government and help organise various groups for collective and cooperative action, including formation of pump groups, cooperatives, etc.

It is essential that the Ministers and party leaders personally supervise the implementation of development projects in the field and educate and give guidance and leadership to the people, removing bottlenecks and coordinating the activities of the various agencies and executive officers in the field. To accomplish the above objectives it is essential that people have confidence in the integrity and commitment of the political leadership to translate words into deeds. Economic development, in the context of acute poverty prevailing in Bangladesh requires sacrifices all around. This is particularly true for the elite so that the burden on those at the bottom does not appear intolerable.

It is specially relevant in the above context to ensure that people do not regard corruption as an endemic feature of our society. Corruption is basically an anti-social act. It is indulged in by those who have scant respect for society. It tends to misallocate resources and leads to maldistribution of income. Apart from the adverse moral consequences of corruption, there is an economic price which the society is required to pay. No society can make rapid progress if there is widespread belief in the prevalence of corrupt practices in the country, whether such beliefs have any foundation or not. Such a belief breeds resentment, cynicism, apathy and loss of faith in public activities. Where there is widespread suspicion of corruption and only half hearted attempts to root it out, even honest persons show unwillingness to take initiative and exercise independent judgment because no one is immune from suspicion. Thus everyone avoids taking personal responsibility and shares decision-making to the maximum extent possible to protect himself with resultant delay and inefficiencies. It is in this context that detection and punishment of offenders irrespective of their personal and political affiliations are necessary.



## CHAPTER II

### OBJECTIVE, SIZE AND STRATEGY OF THE PLAN

#### 2.1 Objectives of the Plan

The basic objectives of the Plan are as follows :

- (i) To reduce poverty. This is the foremost objective of the Plan. It requires an expansion of employment opportunities for the unemployed and under-employed. It also requires an acceleration in the rate of growth of national income, as well as effective fiscal and pricing policies for its equitable distribution.
- (ii) To continue and complete the work of reconstruction, and to raise output in the major sectors of the economy, particularly in agriculture and industry, to the benchmark of 1969-70 as adjusted for expansion of capacity, by 1973-74.
- (iii) To increase the rate of growth of G.D.P. to at least 5.5 per cent per annum, thus appreciably exceeding the rate of growth of population (which is estimated at present at about 3 per cent per annum). The target of increase in full time jobs is 41 lakh, just in excess of the projected increase in labour force. In addition, under-employment will be reduced. Efforts will be made, on a voluntary basis, to mobilize labour in the unorganized non-monetized sectors, with a view to expanding output and employment beyond the targets for income and employment set out above. It will be necessary in this context to strengthen the institutional framework at the local level in the form of viable, development oriented local governments for the purpose of mobilizing both human and financial resources.
- (iv) To expand the output of essential consumption items with a view to provide the minimum consumption requirements of the masses. These items include, in particular, food, clothing, edible oil, kerosene and sugar. The expansion of employment and income for the poorer people is meaningful only if essential consumption goods are available in the market at reasonable and stable prices.
- (v) To arrest the rising trend in the general price level, which has characterized the Bangladesh economy since last year and to stabilize, and reverse the rising trend in the prices of essential commodities.
- (vi) To increase per capita income at the modest rate of 2.5 per cent per annum. The distribution policy will seek to ensure that the poorer sections of the people would enjoy a rise in per capita income and consumption greater than the average while the upper income groups would have to forego a rise in per capita income and consumption. This is to be attained by various direct measures such as putting ceilings on income and wealth as well as by redistributive fiscal measures.



- (vii) To consolidate the gains made so far in the socialist transformation of Bangladesh; to extend by stages the sphere of State participation, consistently with the ability of the State to manage and organize efficiently; to ensure a wider diffusion of economic opportunities in the self-employed sectors in the urban and rural areas; and to change the institutional framework of the economy of Bangladesh at a pace consistent with concomitant changes in social and political attitudes, motivation, organization and mobilization of effort.
- (viii) To reduce dependence on foreign aid over time through mobilisation of domestic resources and the promotion of self-reliance. Maximum efforts will be made to achieve the expansion and diversification of exports and an efficient pattern of import substitution to reduce the foreign exchange gap. Import substitution in the critical sector of intermediate goods, such as fertilizer, cement, and steel, will be pursued to the limits of efficiency with a view to reducing dependence on uncertain external supplies.
- (ix) To transform the institutional and technological base of agriculture with a view to attaining self-sufficiency in foodgrains, widening employment opportunities in agriculture and stemming the flow of labour force to the cities.
- (x) To lay the groundwork for an ambitious programme of population planning and control; to ensure the total commitment of the political leadership and social consciousness to this most critical bottleneck to development efforts in Bangladesh; to build up an appropriate institutional framework for population planning; to experiment with a wide variety of techniques of family planning while retaining flexibility of approach in the light of continuous and close evaluation and research. To attain a reduction in the growth rate of population from 3 to 2.8 per cent per annum.
- (xi) To accelerate the rate of development expenditure and remedy the glaring deficiencies in the traditionally neglected fields of social and human resources development by improvement in education, health, rural housing and water supplies, etc., all of which will also help improve general capability and efficiency of work.
- (xii) To ensure a wide and equitable diffusion of income and employment opportunities throughout Bangladesh by a suitable combination of projects and programmes designed to harmonize the requirement of economic efficiency with the considerations of spatial equity. To promote mobility of labour to the areas of expanding economic opportunities.

## 2.2 Size of the Plan : Aggregate Investment and Savings

The size of the Five Year Plan has been determined in the light of the above objectives as well as resource constraints, both internal and external. Firstly, a minimum consumption basket was determined in the light of (a) past levels in normal years, allowing for the increase in population, (b) a postulated rate of increase in consumption (this was made consistent with the income growth resulting from the production programmes) and (c) socially determined minimum acceptable "norms" in some areas. Secondly, the levels of the development programmes in the social sectors, like



education, health, family planning and social welfare etc., were set by socially determined targets (keeping in view the ability of the institutional and organisational infra-structure to implement such programmes). Investment in flood control was regarded as part of the agricultural programme and a means of providing a protection to life, income and property.

In view of the rapidly increasing population, a sizeable investment is required merely to keep the economy from sliding backwards. Per capita income has registered little or no increase for many years. To attain a level of per capita consumption by 1977-78 which is not much above that of 1969-70, the Plan provides for a financial investment of about Tk. 4455 crores in the Plan period. In addition, an investment of about Tk. 585 crores is expected to take place in the non-monetized or subsistence sector.

The progress envisaged over the Plan period is constrained by the amount of domestic resources available for development, given the low level of production and income. Bangladesh suffers from a vicious circle of low levels of income, production and investment inherited from the past decades of deprivation and under-development, coupled with the consequences of a rapidly rising population. This historical process has severely limited the possibilities of augmenting the rate of saving and capital accumulation. The country has to struggle against the cumulative consequences of missed opportunities in the past. Bangladesh today has an opportunity to break the vicious circle and to take the initial significant steps towards establishing an efficient pattern of domestic capital accumulation. Agriculture, the main source for the generation of a surplus for investment in Bangladesh, was subjected to a long period of exploitation in the form of forced savings realised through adverse terms of trade. Moreover, export surplus was mostly transferred out of Bangladesh. At present Bangladesh is not in a very favourable position to generate sufficient surplus for development, and it will remain so until it is put on a growth path through a carefully determined pattern of investment, financed through savings from both within and outside agriculture. There are unconventional ways of enabling a country even as poor as Bangladesh to develop a surplus for investment and development. But this would require a radical transformation of the social, political and institutional framework of rural Bangladesh. There is a large reservoir of unemployed and underemployed labour. To devise ways to put them to work productively, while minimising demands on resources of consumption goods and capital equipments, requires not only technological innovations on a scale unknown hitherto in Bangladesh, but also a degree of social engineering, mobilisation of effort and motivation that will require determined efforts and leadership at the grassroots level to develop in a significant way. The Five-Year Plan does take cognisance of these possibilities as described later; the initial but important steps in this direction must be taken during the First Plan Period so that substantial progress can be achieved in these directions in the succeeding Plans.

In the next five years a determined effort will have to be made so that Bangladesh could emerge out of the "soft state" inherited from the past. The challenge of development is very great indeed, specially since it is necessary to reconcile democratic institutions, to which Bangladesh is wedded, with the need of radically transforming the techniques and patterns of capital accumulation.

The general level of poverty, the small size of the organised trade and industry sectors and the predominance of subsistence activities in the overwhelmingly rural



economy, severely limit the rate of mobilisation of domestic savings, within the existing socio-political framework. Moreover in whatever way domestic savings are mobilised, large imports of capital equipment and intermediate goods will be required if they are to result in productive investment. Since the industrial sector is small and undiversified, import needs increase disproportionately with the scale of development effort. But exports with their heavy concentration on one commodity, can be increased only slowly, to pay for more imports. An increase in the size of the Plan, therefore, would disproportionately increase the required rate of foreign capital inflow.

There are constraints on the scale of foreign capital inflow, which Bangladesh can receive and absorb, from the point of view of both supply and demand; loans available on easy terms are not very abundant and for those on hard terms debt service burdens build up very fast. The latter provide short-term relief but the consequential repayment obligations substantially reduce the resources available for development in subsequent Five-Year Plans. Foreign loans are not committed for a Five-Year period. They are negotiated every year and the magnitude of such loans is subject to vicissitudes of a changing economic and political environment in the rich, developed countries. An overwhelming dependence on foreign capital inflow tends to create uncertainty in the implementation of a plan. A large plan, which is formulated on the basis of expectations of large inflow of foreign capital and can not be fully implemented due to shortfalls in foreign capital inflow is liable to create frustrations and threaten the credibility of planned economic development within the country. Moreover, a high degree of aid-dependence is not without constraints on the pursuit of independent domestic and foreign policies.

While the critical limits to the overall size of the development programme are the availability of resources, both external and internal, there are areas where the ability of existing organisations and institutions, both public and private, to undertake development programmes acts as a limiting factor specially in the short run. It is not possible to increase suddenly on a large scale the supply of trained teachers, doctors, engineers, health and family planning workers and village extension workers. The Plan suggests measures for significantly augmenting the domestic capacity for Plan implementation; a large variety of institutional reforms and administrative changes have been recommended.

The impact of a development programme on the increase of output and income, as well as employment, depends on the efficiency with which the Plan is implemented. An increase in the level of efficiency in the use of existing capital stock in the various sectors of the economy, specially in agriculture, industry and transport, could make a sizeable contribution to the increase in income, beyond the level postulated in the Plan; it would also expand employment if labour intensive ways of repairing, maintaining and utilising such capital stock were vigorously pursued. However, the plan assumes that progress in this direction will be limited in the first years of the Five-Year period; its major impact will be towards the end of the Plan Period and during the subsequent plans.

Viewed in the light of past levels of development expenditures the Plan size is not ambitious. It is certainly not so compared to our requirements. Before liberation, during the period 1965-70, development expenditures in Bangladesh, including both public and private sectors, were about Tk. 1,600 crores in terms of the prevailing prices during that period. If adjustments are made for increases in import cost, consequent on exchange rate adjustment and rise in world prices as well as for the subsequent rise



in domestic costs of materials and labour, the figure for past development expenditure in 1972-73 prices would be well over Tk. 3,000 crores. Moreover, population has increased by about 25 per cent between the two planning periods so that to ensure the same per capita development expenditure during the current Plan Period it would require an aggregate plan size of nearly Tk. 4,000 crores<sup>1</sup>. The corresponding financial outlay suggested in the Five-Year Plan period is Tk. 4,455 crores—an increase of some 10 to 15 per cent above the level of 1965-70 in real terms.

Investment towards the end of the sixties was increasing but very little increase in per capita income was recorded. The present Plan is intended to reassert and greatly augment the momentum of economic development in ways that are more fully discussed in later sections. There is considerable scope for improving efficiency and obtaining a much better distribution of investment expenditure than have been accomplished in the past. Improvements in these directions will help attain the increase of 30 per cent in GNP above the benchmark level that the Plan is designed to bring about.

The Plan provides for a total financial development outlay of Tk. 4,455 crores. It includes gross fixed investment and working capital requirements of Tk. 3,769 crores as well as non-investment development expenditures of Tk. 686 crores. Non-investment development expenditures include such items as subsidy and distribution cost of fertilizer, pesticides and seeds, cost of land acquisition (which may be investment for the agency acquiring land but not for the society as a whole), wages, salaries and interest and payments during the period of construction. About eighty-nine per cent of the total financial outlay is in the public sector and the remainder is in the private sector. The preponderance of the public sector development expenditure is a reflection of the economic realities and social objectives of development planning in Bangladesh. The composition of the development outlay, domestic savings, investment and required net inflow of foreign capital are shown in the following table.

TABLE II-1  
Development Outlay and its Financing

|   |    |    |    |    | Monetized | Non-monetized |
|---|----|----|----|----|-----------|---------------|
| <b>A. In crores of Taka for Plan Period</b>       |    |    |    |    |           |               |
| 1. Development outlay:                            |    |    |    |    |           |               |
| Public  | .. | .. | .. | .. | 3,952     | ..            |
| Investment  | .. | .. | .. | .. | 3,298     | ..            |
| Non-investment                                    | .. | .. | .. | .. | 654       | ..            |
| Private   | .. | .. | .. | .. | 503       | 585           |
| Investment  | .. | .. | .. | .. | 471       | 585           |
| Non-investment                                    | .. | .. | .. | .. | 32        | ..            |
| Total Development Outlay                          | .. | .. | .. | .. | 4,455     | 585           |
| Investment  | .. | .. | .. | .. | 3,769     | ..            |
| Non-investment                                    | .. | .. | .. | .. | 686       | ..            |
| 2. Domestic Resources                             |    |    |    |    |           |               |
| Public Saving                                     | .. | .. | .. | .. | 1,618     | ..            |
| Private savings and loans from the banking system | .. | .. | .. | .. | 1,080     | 585           |
| 3. External capital inflow                        |    |    |    |    |           |               |
| Domestic resources equivalent of capital inflow   | .. | .. | .. | .. | 1,799     | ..            |
|   |    |    |    |    | 1,757     | ..            |

<sup>1</sup>These figures relate to financial outlays excluding self-financed outlays in the unorganized sector and non-monetised investment in the traditional sector.



TABLE II-1—(Contd.)

## B. Shares in percentages for selected years

|   | 1973-74 | 1977-78 |
|---|---------|---------|
| 1. Gross financial development outlay as per cent of GDP ..                   | 11.9    | 18.7    |
| 2. Gross domestic monetized saving as per cent of GDP ..                      | 4.5     | 14.2    |
| 3. External capital inflow as per cent of GDP .. ..                           | 7.4     | 5.1     |
| 4. External capital inflow as per cent of total financial development outlay. | 62.2    | 27.0    |

The total amount of external capital inflow is estimated at about Tk. 1,800 crores or about 40 per cent of total financial development outlay. The annual inflow of aid will average Tk. 360 crores per year. The absolute amount of external capital inflow required is not expected to increase over the Plan Period; as a percentage of total financial Plan outlay, external capital inflow is expected to decline from over 62 per cent in 1973-74 to as little as 27 per cent in 1977-78.

Domestic resource equivalent of external capital inflow will be less than the "c.i.f. value" of external capital inflow because some items of commodity aid will generate less net revenue in the hands of the Government than the import value of such goods. The difference is estimated to be Tk. 42 crores. Thus the domestic resource equivalent of external capital inflow will be Tk. 1,757 crores.

The planned growth and acceleration in development outlay must, therefore, be financed by additional domestic resource mobilization as the Plan proceeds. The average rate of domestic monetized saving for the Plan Period is about 9.2 per cent rising from 4.5 per cent in 1973-74 to 14.2 per cent in 1977-78. By comparison, the average rate of savings during the late sixties has been estimated variously from 8 per cent to 10 per cent. The low level of saving now estimated for 1973-74 reflects the need for some compensation for the extraordinary situation of unusually low levels of consumption for the past two years.

The acceleration in the rate of domestic resource mobilization has to be matched by sustained efforts to close the foreign exchange gap. This is predicated upon significant import substitution in some very important and large sectors, like agricultural inputs and textiles as well as on a large expansion in the exports of raw jute and jute textiles.

The problem of mobilizing domestic resources for the development effort is not only that the rate of saving has to be raised considerably, but also that a large part of total savings must be channeled into public investment. The policies for mobilizing development resources for the public sector are discussed in chapter III.

### 2.3 Strategy of the Plan

The Plan is designed to generate a rate and pattern of income growth which will not only meet a minimum consumption standard but also expand employment opportunities and ensure a socially desirable pattern of income distribution. With this end in view the basic strategy in the Plan is to concentrate on increasing output in those sectors of the economy which use large amounts of labour and to use methods of production which



are labour-intensive. Within this general strategy the overwhelming need to reduce dependence on imports of foodgrains and to improve the balance of payments by import substitution and export promotion have been major factors in determining the pattern of growth envisaged in the Plan.

#### A. Growth of Output and Income

The expected expansion of output in the main sectors of the economy is shown in the table below :

TABLE II-2  
Gross Domestic Product and its Components (Crores Tk. at 1972-73 prices)

|  | Benchmark<br>GDP | Estimated<br>Actual<br>GDP<br>1972-73 | Projected<br>GDP<br>1977-78 | Annual percentage<br>Rate of Growth<br>over Benchmark<br>GDP | Annual percentage<br>Rate of Growth<br>over Actual<br>1972-73<br>GDP |
|--|------------------|---------------------------------------|-----------------------------|--|--|
| 1. Agriculture, Livestock, Forestry and Fishery. | 2,883<br>(57.6)  | 2,407<br>(56.1)                       | 3,602<br>(55.1)             | 4.6  | 8.4  |
| 2. Manufacturing .. ..                           | 520<br>(10.4)    | 358<br>(8.3)                          | 731<br>(11.2)               | 7.1  | 15.4   |
| 3. Construction .. ..                            | 184<br>(3.7)     | 171<br>(4.0)                          | 326<br>(5.0)                | 12.1   | 13.7   |
| 4. Power and Gas .. ..                           | 15<br>(0.3)      | 15<br>(0.3)                           | 25<br>(0.4)                 | 11.0   | 11.0   |
| 5. Housing .. ..                                 | 236<br>(4.7)     | 236<br>(5.5)                          | 288<br>(4.4)                | 4.1  | 4.1  |
| 6. Trade, Transport and other Services.          | 1,165<br>(23.3)  | 1,107<br>(25.8)                       | 1,570<br>(24.0)             | 6.2  | 7.2  |
|  | 5,003            | 4,294                                 | 6,542                       | 5.5  | 8.8  |
| Per capita GDP (Taka)                            | 676              | 580                                   | 766                         | 2.5  | 5.7  |

Note—Figures in parenthesis are percentages of total. They need not exactly add up to 100 due to rounding.

The benchmark estimates are based upon but are not exactly the same as the levels of output reached in 1969-70, the last normal year before the war of liberation. They take into consideration the extension of capacity which occurred between 1969-70 and 1972-73 and assume that the existing capacity is "reasonably" utilised. The actual levels of production and income in 1972-73 are on the average about 14 per cent less than the benchmark estimates as judged by the performance of the first nine months of 1972-73. Therefore, while GDP is expected to grow at 5.5 per cent per annum, it will increase by nearly 9 per cent per annum over the level of 1972-73. It is important to remember that one-third of this rate of increase will be achieved by a recovery to the benchmark level of activity through a better utilisation of existing capacity; the other two-thirds of the planned increase require new investment and development programmes.



The Plan does not envisage any sharp structural change. It is not marked by rapid industrialisation. The share of manufacturing industry in GDP remains relatively small even at the end of the Plan Period, just over 11 per cent. A large part of this increase will take place in small scale and cottage industries. Thus the Plan avoids the pace and pattern of industrialisation based upon modern, borrowed capital intensive technology, except in areas where the choice is limited and import substitution is urgently needed. Throughout the Plan Period agriculture will continue to be the largest source not only of income and employment but also of foreign exchange earnings and savings. Expansion of agricultural output will reduce dependence on food imports; it will also provide raw materials needed by other sectors of the economy as well as provide expanding employment opportunities both directly and indirectly.

The expansion in the value added in the agricultural sector is indicated above. The value of agricultural output includes both value of agricultural inputs such as fertiliser, pesticides and seeds, etc., and the components of value added such as wages and profits. Since the value of inputs is expected to increase more rapidly than the value added by agriculture, total output of agricultural products will increase more rapidly.

The construction sector will record the highest rate of growth. Construction constitutes more than two-thirds of total investment expenditure and an acceleration in the rate of aggregate investment expenditure speeds up the rate of growth of this sector. Moreover, compared with the past, the composition of investment will be shifted towards more construction intensive activities like irrigation, drainage, minor flood control projects and housing. Even in the late sixties the rate of growth of this sector was high.

The power and gas sector will have the second highest rate of growth starting, as it does, from a very low base. Even though this is a very highly capital intensive sector with no significant direct employment or income effects, it must be expanded considerably to meet the need of other rapidly growing sectors of crucial importance. Fortunately, the growth of this sector can be based on the abundant supply of domestic natural gas.

Over the last quarter century the rate of growth of housing has been barely more than 1 per cent per year. It is planned to quadruple this historical rate of growth during the next five years. This will mean that for the first time in recent history this sector will have a rate of growth higher than that of population. The growth in the output of trade and ancillary services of about 6 per cent per annum is closely related to the rate of growth in agriculture and in the industrial sector. One quarter of GDP originates in this sector which has suffered from relative neglect in the past; it will now need to grow a little faster than GDP.

#### *B. Recovery of the Economy*

It is important to consider briefly what is involved in the transition from the actual levels of economic activities in 1972-73 to the benchmark levels. The first steps in putting the Plan into effect are to raise output from its present depressed levels in most sectors to the benchmarks laid down. This can be done without any significant new physical investment but what is entailed needs to be understood. The Plan indicates policy measures and organisational improvements, necessary for reaching the benchmark levels of output and income.



Two-thirds of the gap between the benchmark and actual GDP in 1972-73 is accounted for by the difference in agricultural output. This was almost entirely the result of unprecedented drought although it is possible that greater and better organized human effort could have compensated for part of the effect of unhelpful natural circumstances. If weather conditions are normal without the excessive drought of 1972 or cyclones like that of 1970, output is expected to recover to benchmark levels.

Nearly a quarter of the difference between benchmark and actual levels of activity is accounted for by the decline in the output of the manufacturing industries where value added in 1972-73 was 30 per cent below the benchmark. Recovery in this sector hinges on a number of interrelated factors. Outstanding among the measures required are: (a) improvement in the managerial and institutional structure; (b) successful adjustment to a new pattern of trade relations and to vastly altered sets of prices, both internal and external, as well as exchange rates; (c) resumption of regular and adequate supplies of imported raw materials and spares; (d) restoration of healthy labour management relations; and (e) provision of adequate incentives to management and workers at the enterprise level. These and other specific policy measures are dealt with in some detail in the chapter on the industrial sector.

The rest of the difference between the benchmark and actual 1972-73 GDP levels is made up of shortfalls in construction activity and in transport, trade and other services. Recovery in construction output will depend on the rate of implementation of the investment plan. It should also be reasonably easy to return to the benchmark levels for transport services once the repair of the last major damaged railway bridge is completed in September 1973 and the remaining disruptions in roadlinks removed. It will still be necessary, however, to ensure reasonably efficient use of the existing transport capacity. Trade and services should recover at the same rate as the growth of industrial output and imports.

To sum up, given favourable weather conditions it should be possible within the next year to make up two-thirds of the gap between benchmark GDP and estimated GDP in 1972-73 by bringing agricultural production back to a normal level. Given the fulfilment of the existing targets for the repair of railway bridges and road systems and the implementation of the development plan it should also be possible to attain full recovery in most other non-industrial sectors. It is much more difficult to predict recovery in manufacturing industries. That a good part of the 30 per cent decline in output will be made up during the next year can be predicted with confidence. But a complete recovery may take longer. Much, of course, will depend on the speed and imagination with which policies are implemented to ensure industrial recovery.

### *C. Employment and Distribution of Income*

Foremost among the targets of the Five-Year Plan is that of increasing the level of employment. This is because an increase in employment not only creates additional output but also makes it available to the lowest of the income groups; it thus helps to ensure the achievement of the twin objectives of growth in the national product and its optimum distribution.

Unemployment and underemployment are widespread in Bangladesh today. While no reliable estimates are available, it is frequently suggested that on the average up to 30 per cent of the available labour is not used, although much of this is concealed by work-sharing and in underemployment. During the last two decades unemployment and underemployment in Bangladesh have increased. The economy failed to provide employment for the increase in labour force.



The Five-Year Plan is designed to create enough new employment to absorb all new entrants into the labour market, as well as to reduce some of the existing unemployment and underemployment.

The table below shows that the population is expected to increase by 1.14 crores, from 7.4 crores in 1972-73 to 8.54 crores in 1977-78. If the proportion of the total population available for work does not change, the increase in the labour force would be 39.3 lakhs. The Plan must aim to exceed this figure for employment by as much as possible.

TABLE II-3  
Projection of Population and Labour Force

| Year   | Population<br>in crores |    |             |
|--|-------------------------|----|-------------|
| 1972-73  | ..                      | .. | 7.40        |
| 1973-74  | ..                      | .. | 7.62        |
| 1974-75  | ..                      | .. | 7.85        |
| 1975-76  | ..                      | .. | 8.09        |
| 1976-77  | ..                      | .. | 8.31        |
| 1977-78  | ..                      | .. | 8.54        |
| Addition to population during the plan period. |                         |    | 1.14 crores |
| Increase in labour force                       |                         |    | 39.3 lakhs  |

To attain such an increase in employment, investment must be concentrated in sectors which require relatively small amounts of capital per unit of employment and output. Within a sector, advantage must be taken of alternative techniques by choosing those requiring small quantities of capital per unit of employment.

A large proportion of investment will take place in agriculture which is one of the low capital-intensive activities. Throughout the Plan emphasis will be on various small-scale activities using labour-intensive, traditional techniques. Thus cloth weaving will largely be done by handlooms, and small scale leather goods, metal products and miscellaneous manufactures will be promoted with all the incentives they deserve.

It would, however, be wrong to think that capital-intensive investment can be avoided altogether. Economic activities have to grow in a balanced and related fashion. For example the growth of output is dependent on power and transport services provided by domestic production. These are highly capital-intensive activities. Also, capital-intensive investment has to be undertaken to reduce existing import dependence on such items as fertilizers, cement and steel.



The creation of employment opportunities in the Plan Period is given in the following table:

**TABLE II-4**  
**Reduction in Underemployment and Increase in Employment in the Five-Year Plan**  
*(Increase in 1977-78 over benchmark levels in lakhs of man-years)*

| Sector/Programme |  |       | Lakhs of man-years |
|------------------|--|-------|--------------------|
| 1.               | Crop production, livestock, forestry and fishery including ancillary processing and marketing. | ..    | 26.0               |
| 2.               | Works Programme, flood control, irrigation and related agricultural projects.                  |       | 5.0                |
| 3.               | Construction and services  | .. .. | 10.6               |
| 4.               | Industries, power and gas  | .. .. | 6.5                |
| 5.               | Social sectors (Health, Education, etc.)   | .. .. | 5.9                |
| Total ..         |  |       | <u>54.0</u>        |

It might be useful to explain the nature of the sectoral estimates of employment. Employment in a sector generally refers to the permanent employment which is created in a sector after the construction of the development project is over. Employment provided in course of construction of a project has been shown as occurring in the construction sector. Thus, the employment generated during the construction of a power plant is shown above as employment in the construction sector while employment in the power sector refers to the additional labour required to man the completed power plants. Exception to this principle has been made for the works programme, irrigation, flood control and similar "programmes" (as distinguished from sectors of production); here employment during construction has been shown against the relevant programmes themselves.

Extreme caution is needed in interpreting these figures. They show that the labour requirement of the economy will increase by 54 lakh man-years over the Plan Period. But this should not be interpreted to mean that 54 lakh additional jobs will be created. For example, much of the additional demand for 26 lakh man-years in agriculture will merely reduce underemployment of those who at present have to share work or are gainfully employed only for a fraction of the normal amount of working hours. Since work sharing results in extremely low income per head it is nearly as desirable to reduce underemployment as to increase employment in the sense of creating new jobs.

There is no way of ascertaining to what extent the additional demand for labour in agriculture will merely reduce underemployment. It will depend on a large number of institutional, locational and technological factors which cannot be predicted accurately with present knowledge. But on the reasonable assumption that the share of new jobs will be half of the additional labour requirement in agriculture, about 41 lakhs additional jobs would be created during the Plan Period. This would be just above the addition to the labour force which is estimated at 39.3 lakhs.



It may be noted that non-agricultural employment (quite a bit of it in rural areas) will increase by only about 28 lakhs. Urban employment will probably increase by less than 20 lakhs since many small industries and a good part of the provision of services, the works programme and flood control as well as irrigation projects will be located in the rural areas.

A tentative but illuminating way of looking at the employment position during the Plan Period is to conclude that of the estimated 39.3 lakh increase in labour force nearly a third will find new work in agriculture proper while the rest of the increased labour demand in agriculture will reduce existing underemployment. Nearly another 10 lakhs of the additional labour force will be retained in the rural areas through works programme, irrigation and flood control, cottage industries, ancillary services and social programmes. Thus only about 16 lakhs of the increased labour force will be found in urban areas where employment will expand by somewhat more (by about 18 lakhs) allowing some reduction in existing unemployment in these areas.

It must be understood that the location of job opportunities resolves only part of the problem. The movement of labour to the location of employment opportunities depends upon a number of factors such as wage differentials between areas, physical facilities and related matters.

One special aspect of the employment policy needs to be discussed. The objective is to maximise employment given the amount of capital investment which is postulated in the Plan. Therefore, additional employment has to be concentrated in sectors and techniques which are very highly labour-intensive. One of the consequences of such high labour intensity of incremental employment is low productivity per hour of work. Much of the incremental employment will be in traditional sectors using traditional techniques. An hour of labour will not achieve significantly more in these occupations at the end of the Plan than it did in the benchmark period.

In industry and services also there will be an attempt to promote less capital-intensive techniques than in the past. As a result, it will be unrealistic to expect much increase in output per labour hour.

Output per worker as distinguished from output per man-hour will, however, go up due to an increase in the effectiveness of employment, i.e., reduction in the extent of underemployment per worker. About a quarter of the increase in demand for labour is expected to go to reduce underemployment. In the absence of any reliable estimate of the relative magnitude of underemployment and unemployment it is not possible for us to make precise quantitative projections. But on the assumption that about two-third of the existing total of underemployment and unemployment consists of the former, value added per worker is expected to increase by more than 10 per cent over the Plan Period<sup>1</sup>.

The promotion of an equitable distribution of income is an important objective of the Plan. To achieve this a two-pronged attack on the inherited income structure will have to be made. First, it is necessary to raise as many as possible of the poorest people above the "poverty line" by providing essential consumer goods at reasonable prices. The priorities in the production programme are designed to achieve this objective. The production plan

<sup>1</sup> Very roughly, the calculations are as follows: Benchmark "effective employment" = 1 crore 80 lakhs, benchmark estimated underemployment = 53 lakhs, total benchmark employment = 2 crores 30 lakhs, benchmark value-added per worker 2,175 Taka. By the terminal year "effective employment" = 2 crores 34 lakhs and underemployment = 37 lakhs, so that total employment = 2 crores 71 lakhs and value-added per worker = 2,414 Taka.



is also oriented towards the satisfaction of the demands of the low-income groups. The production of commodities and services which have high elasticity of demand with respect to the incomes of the poorer groups is planned to expand fast. Low-income housing, cheaper varieties of textiles and various kinds of inexpensive consumption goods are among these categories of goods. Special programmes for the improvement of nutritional standards have also been formulated. The details of such programmes are discussed in later chapters.

The large inputs programme in the rural areas are to be formulated within a broad institutional framework which will make a special effort to concentrate the benefits in the hands of the smaller farmers. In the past such programmes benefited the richer farmers more than the poorer ones. Conscious and effective policies will be adopted to avoid the repetition of the past experience.

Second, measures will have to be taken to discourage high individual incomes and consumption. This will be achieved by the economic and social policies of the Government, the groundwork of which has been laid by the Nationalization measures and the Industrial Policy and by preliminary steps towards land reforms and the limitation on private ownership in the transport and foreign trade sectors. During the Plan Period additional measures will have to be devised including fiscal measures to tax unearned and high incomes.

#### 2.4 Physical Consumption and Production Targets

The Plan aims at attaining minimum consumption standards of essential consumer goods as well as at accelerating import substitution and export expansion in selected areas.

The following table indicates *per capita* consumption targets in the last year of the Plan compared with the levels in the immediate pre-Plan year, i.e., 1972-73 and the most recent "normal year", i.e., 1969-70.

TABLE II-5  
Per Capita Consumption

|   |    |    |    |    | 1969-70. | 1972-73. | 1977-78. |
|---|----|----|----|----|----------|----------|----------|
|   |    |    |    |    | 15.41    | 12.91    | 15.61    |
| 1. Rice (oz. per day)                       | .. | .. | .. | .. | 4.22     | 3.00     | 4.48     |
| 2. Sugar (lb. per year)                     | .. | .. | .. | .. | 265      | 139      | 280      |
| 3. Cigarettes (units per year)              | .. | .. | .. | .. | 7.5      | 4.96     | 8.14     |
| 4. Textiles (yards per year) <sup>1</sup>   | .. | .. | .. | .. | 0.14     | 0.16     | 0.22     |
| 5. Tea (lb. per year)                       | .. | .. | .. | .. | 1.63     | 1.64     | 3.56     |
| 6. Electricity (KWH per year)               | .. | .. | .. | .. | 5.27     | 4.93     | 21.37    |
| 7. Gas (c. ft. per year)                    | .. | .. | .. | .. | ..       | 35       | 38       |
| 8. Housing Service (Constant Taka per year) | .. | .. | .. | .. | ..       | ..       | ..       |

<sup>1</sup> 1969-70 figure for textiles is a tentative estimate based on the average for late sixties.



*Per capita* rice consumption in 1977-78 will be about 11 per cent above that in 1972-73 but only marginally higher than the relatively high 1969-70 level.

*Per capita* consumption of most other food items will increase significantly over the current year's low level but compared to 1969-70 the increase will be less substantial.

*Per capita* consumption of textiles was drastically curtailed during 1972-73. In 1977-78 it is expected to be nearly two-thirds higher than in 1972-73. As compared to the year 1969-70 the increase will be more modest, that is, about 9 per cent.

*Per capita* household consumption of electricity will more than double and that of gas more than quadruple. It should, however, be noted that the consumption of both will have geographical concentration and the absolute levels of the national average will still remain low compared to other developing countries.

One final element of consumption, housing service, needs special mention. For decades this has been a lagging component and its *per capita* availability declined significantly. The Five-year Plan puts emphasis on the growth of housing. It is planned that housing service will increase faster than population.

A description of consumption will remain incomplete in the absence of some discussion of the so-called "social consumption". In this category will fall items like health and education. Radical improvements are expected in these areas. The number of hospital beds will increase by 80 per cent to 22.2 thousand with very significant decentralisation. Enrolment in primary schools will go up to 85.9 lakh which will be 73 per cent. of the children of the relevant age-group as compared to just over 60 per cent today.

There is no denying that the average consumption level in 1977-78 will still represent dismal poverty. But compared to the circumstances obtaining today in war-torn Bangladesh it will represent a qualitatively different situation and provide a minimum material basis for further social and economic development. To realise a higher level of consumption by the end of the Plan would have implied a higher rate of dependence on external borrowing because of the severe domestic resource constraint.

Table II-6 summarises information about the major physical targets of the Five-year Plan. Corresponding information about benchmark production is also shown wherever available. Benchmark in this context refers to the levels achieved in the late sixties and not to the generally low levels in 1972-73 (except in special cases like fertilizer and water transport in which capacity in 1972-73 has been higher than the late sixties). The table shows only the more important targets leaving the details to the sector plans below. With a few exceptions, the rate of growth for each good and service mentioned in the table will be higher than that of GDP, in many cases substantially higher than the rate of growth of GDP. This is because growth in output of most of these products is aimed at both increased consumption and import-substitution. In many cases import dependence has recently been increased due to the severance of what was regional trade with Pakistan. Rapid import substitution programmes have been planned in many such cases. Outstanding among such cases are textile yarn, cloth, oil-seeds, tobacco, engineering goods, fertilizer and steel. However, import-substitution of the final product will often mean increased import of raw material. Thus, for example, the import-substitution of steel will increase the import of pig and scrap iron.



Elsewhere high growth in output will be induced by export expansion. Raw jute and leather products are examples of such cases.

Some of the very high rates of growth are reflections of very small levels of output in the base year. Examples are wheat, raw cotton and, to a lesser extent, steel and engineering. Even after such rapid growth the size of such sectors will remain small.

As already indicated, social sectors like health and education will have very high rates of growth. So will be the case for many infra-structural facilities, e. g., post and telephone.

Growth in water and road transport capacity will be higher than that of GDP while that of railway will be lower. It is believed that vast scope exists for improvement in capacity utilisation in transport. The Plan puts considerable emphasis on such improvement.

TABLE II-6  
Major Physical Targets of the Five-Year Plan

| 1                                  | Unit           | Benchmark level | Terminal Year level | Percentage Increase |
|------------------------------------|----------------|-----------------|---------------------|---------------------|
|                                    | 2              | 3               | 4                   | 5                   |
| 1. Rice .. .. .                    | Lakh Tons      | 112.40          | 150.80              | 34                  |
| 2. Wheat .. .. .                   | Lakh Tons      | 0.90            | 3.60                | 300                 |
| 3. Jute .. .. .                    | Lakh Bales     | 66.60           | 91.00               | 37                  |
| 4. Tea .. .. .                     | Lakh Lbs.      | 630             | 810                 | 29                  |
| 5. Tobacco .. .. .                 | Lakh Lbs.      | 870             | 1475                | 70                  |
| 6. Sugarcane .. .. .               | Lakh Tons      | 60              | 74.20               | 24                  |
| 7. Potato .. .. .                  | Lakh Tons      | 7.80            | 11.10               | 42                  |
| 8. Oil-seeds .. .. .               | Lakh Tons      | 2.00            | 4.00                | 100                 |
| 9. Pulses .. .. .                  | Lakh Tons      | 2.90            | 3.50                | 21                  |
| 10. Cotton .. .. .                 | Thousand Bales | 13              | 63                  | 385                 |
| 11. Milk and milk products .. .. . | Thousand Tons  | N.A.            | 1005                | ..                  |
| 12. Meat .. .. .                   | Thousand Tons  | N.A.            | 210                 | ..                  |
| 13. Eggs .. .. .                   | Lakh Units     | N.A.            | 5200                | ..                  |
| 14. Fishery .. .. .                | Thousand Tons  | N.A.            | 1021                | ..                  |
| 15. Jute textiles .. .. .          | Thousand Tons  | 587             | 766                 | 30                  |
| 16. Textile yarn .. .. .           | Lakh Lbs.      | 863             | 1975                | 129                 |
| 17. Cloth .. .. .                  | Lakh Yards     | 2792            | 7530                | 170                 |



TABLE II-6 (Contd)

|     |  |    |    | Unit           | Bench-<br>mark<br>level | Terminal<br>Year<br>level | Percent-<br>age<br>Increase |
|-----|--|----|----|----------------|-------------------------|---------------------------|-----------------------------|
| 1   |  |    |    | 2              | 3                       | 4                         | 5                           |
| 18. | Engineering goods                        | .. | .. | Thousand Tons  | 112.2                   | 425.1                     | 279                         |
| 19. | Ship-building                            | .. | .. | Lakh Taka      | 245.50                  | 810                       | 230                         |
| 20. | Steel                                    | .. | .. | Thousand Tons  | 80                      | 450                       | 463                         |
| 21. | Fertilizer                               | .. | .. | Thousand Tons  | 216                     | 1032                      | 378                         |
| 22. | Petro-chemical                           | .. | .. | Thousand Tons  | —                       | 493                       | —                           |
| 23. | Paper and Pulp                           | .. | .. | Thousand Tons  | 59.3                    | 108.9                     | 84                          |
| 24. | Sugar                                    | .. | .. | Thousand Tons  | 106.5                   | 148                       | 39                          |
| 25. | Leather                                  | .. | .. | Lakh sq. ft.   | 626                     | 1694                      | 171                         |
| 26. | Cinema House                             | .. | .. | Nos.           | 120                     | 220                       | 83                          |
| 27. | Telephone                                | .. | .. | Thousand Units | 66                      | 136                       | 106                         |
| 28. | New Post Office                          | .. | .. | Nos.           | 6600                    | 10325                     | 56                          |
| 29. | Rural Health Centres (Thana level)       | .. | .. | Nos.           | 160                     | 356                       | 123                         |
| 30. | Rural Health Sub-Centres (Union level)   | .. | .. | Nos.           | Nil                     | 698                       | ..                          |
| 31. | Hospital Beds                            | .. | .. | Thousand Units | 12.3                    | 22.2                      | 81                          |
| 32. | Primary School Enrolment                 | .. | .. | Lakh Students  | 60                      | 85.90                     | 43                          |
| 33. | Secondary School Enrolment               | .. | .. | Lakh Students  | 17                      | 26.6                      | 56                          |
| 34. | Railway : Passenger Miles                | .. | .. | Lakh Miles     | 20610                   | 25760                     | 25                          |
| 35. | Railway : Ton Miles                      | .. | .. | Lakh Miles     | 9400                    | 11190                     | 28                          |
| 36. | Buses in operation                       | .. | .. | Nos.           | 7200                    | 10030                     | 39                          |
| 37. | Trucks in operation                      | .. | .. | Nos.           | 11100                   | 14590                     | 31                          |
| 38. | Inland Water Transport : Passenger Miles | .. | .. | Lakh Miles     | 5180                    | 6810                      | 31                          |
| 39. | Inland Water Transport : Ton Miles       | .. | .. | Lakh Miles     | 3740                    | 5280                      | 41                          |
| 40. | Installed Generating Capacity            | .. | .. | Megawatts      | 545                     | 996                       | 83                          |
| 41. | Power Transmission Lines                 | .. | .. | Miles          | 647                     | 1210                      | 87                          |
| 42. | Power Distribution Lines                 | .. | .. | Miles          | 5620                    | 18130                     | 223                         |



## 2.5 Prices and Wages

The Five-Year Plan estimates are based on constant prices of 1972-73. The price movements during the Plan Period are of critical significance for the implementation of the Plan. A general rise in the price level would increase the monetary outlay required to achieve the planned investment in real terms. It will discourage private savings; furthermore, it will adversely affect domestic resource mobilisation, specially since the Plan so critically relies on the mobilisation of private savings in the form of financial assets. It will restrict exports and frustrate attempt to face the competition of synthetics in the case of the major export commodity, *i.e.* jute and jute products. The rise in prices of a few essential commodities like foodgrains, edible oil, sugar, and cloth pushes up the general price level. They raise wage costs as well as the prices of agricultural products which the agriculturists must sell in order to buy the essential consumer goods at higher prices. The adverse impact of inflation on landless labourers, small and deficit farmers in the agricultural sector and the casual workers and fixed income earners in the urban areas have highly destabilising social consequences. The Government is subjected to high pressure to provide relief, either in the form of outright grant or of test relief, which while involving employment in peripheral rural works do not yield output or increase productivity. The pressure for increases in wages is also intensified. All these lead to aggravation of the inflationary situation. There is no unutilised capacity in the economy which can be used to increase output without help of imported inputs or supplementary real domestic resources to offset the pressure of increased monetary demand. In view of the above circumstances, the Plan lays major emphasis on appropriate fiscal and monetary policies to contain inflation.

The abnormal rise in prices is the most striking feature of the current economic situation in Bangladesh. Prices have probably increased by over 80 per cent between the day of liberation and June 1973 if the seasonal factors can be eliminated although the prices of some essential consumables have increased by much more. Very briefly, the causes can be identified as: (a) the sharp decline in the level of production and supply caused particularly by the failure of four consecutive rice harvests and the disruption and slow recovery in industrial production; (b) structural adjustments due to cost increase resulting from exchange rate adjustment as well as change in the source of supply of some major inputs like raw cotton and wage increase; (c) increase in monetary demand as reflected in the sharp increase in money supply; (d) failure of the distribution system to cope with general shortage, and (e) a general rise in world prices of imports, which has particularly affected such essential items as food, edible oil, raw cotton and cotton yarn.

A few contributing factors are discussed below:

(i) *Fall in production*—Rice production in 1972-73 was about 15 per cent lower than that of 1969-70. Since in the meantime population has increased, the *per capita* rice output declined by more than 20 per cent. Even with a massive import of 28 lakh tons, there has remained a substantial gap between requirement and availability.



Industrial output in 1972-73 was about 30 per cent, lower than the normal output of 1969-70. In terms of 1969-70 output, the jute industry's output was 28 per cent lower, the output of cotton textile industry was 23 per cent lower in yarn and 3 per cent lower in cloth, and the output of sugar was only one-fifth. There was sharp decline in the output of most other industries, except fertilizer, steel and ship-building whose output surpassed 1969-70 level.

The two most important reasons for low industrial output are (a) inadequacy of management and (b) inability to motivate labour for disciplined and efficient work. In a sense, the two reasons are inter-related. Industries suffered from lack of experienced management. Other problems affecting industrial efficiency are power shortage, frequent power failures, insufficient supply of spares, transport bottlenecks, burden of inherited debt liabilities, etc.

(ii) *Transport bottleneck*—While damaged bridges, roads, etc., have curtailed the carrying capacity of the transport system, operation of transport services suffered badly due to lack of co-ordination. For lack of co-ordination and efficient management full use was not made of transport equipments. For example, barges and tugs carrying food within the country recorded much longer "turn around" period than before; there were large numbers of railway wagons which were ineffective for want of small repairs and spare parts.

(iii) *Distribution problems*—It has become evident that the prices charged by the wholesalers, sole-agents, and licence holders are far above the ex-factory costs of domestic products or the landed costs of imported goods. The big margins appropriated by the middlemen speak of the degree of imperfection of the market. While the Government has control over the prices charged by public sector industries and by the State Trading Corporation, it can do very little in controlling the prices charged by the middlemen. The large number of fair price shops set up by the Government could not meet the needs of the situation.

(iv) *Imports and exports*—At the time when there was very severe shortfalls in domestic production, imports were also much lower. Non-food imports in 1972-73 were about 30 per cent. less than what it should have been to meet the requirement. Apart from shortage of foreign exchange resource, import policies and the operation of the import trade failed to meet the challenge of the time.

(v) *Monetary management*—The limited supply of goods was the major cause of abnormal rise in the prices. But in addition the large borrowings by the nationalized enterprises from the commercial banks accentuated demand. Since liberation, money supply increased by 83 per cent. by the end of March 1973. Such a high rise in the money supply during the period in which the economy was experiencing severe shortfalls in the supply of goods led to an equivalent increase in average price levels.

One of the objectives of the Plan is to ensure that the level of prices in 1977-78 is at least slightly below what it is today. Forecasting future prices, particularly those as remote as five-year hence, is a hazardous occupation. Such forecasts should not be interpreted to mean anything more than the determination to follow certain policies with respect



to monetary demand and components of costs relative to expansion of output and productivity. Also such forecasts can be falsified by international factors even when domestic policies are consistent with the objective.

It is important to outline the time profile of the general price level between now and the terminal year. A good deal of the rise in prices in the last year has been due to structural factors. These factors have varied between industries. They have been of high significance for industries like cotton textiles which now have to pay much more in terms of take for the import of raw cotton which is the biggest component of cost. In other industries with less significant dependence on inputs which are foreign trade oriented the structural cost adjustment has been less important. As a very preliminary approximation it appears reasonable to suggest that the structural factors (such as rising world prices of imports, the opening up of new trade possibilities with India and the consequent need to allow adjustment in relative prices, would account for something like 60 per cent rise in prices) since liberation. The rest would mainly be accounted for by decline in supply and increase in monetary demand.

In principle, therefore, it would be possible to lower the general price level to not more than 60 per cent higher than the level obtaining immediately after liberation (adjusting for seasonality) once production recovers and sufficiently deflationary policies are adopted to curb monetary demand. The price objectives of the Plan for the near future are modest. The reasons should not be far to seek. While the recovery in output may be expected to be rapid provided nature is not too unkind, it may not be possible to adopt sufficiently deflationary policy in near future. To finance the required current and development expenditure consistent with the needs for economic recovery and growth, a certain amount of bank credit and monetary expansion will be required given the current ability of the Government to tax and raise revenue by curbing consumption. A realistic assessment of the possibilities along these lines shows that further growth in monetary demand may lag only a little behind the expansion in supply of goods and services.

It must be emphasised that the achievement of this modest objective would require a great deal of financial and fiscal discipline. Also, we must be able to ensure normal and steadily growing agricultural production. Finally, no clear reversal of the recent trend can be expected until and unless the next major rice harvest (aman in November-December, 1973) proves to be at least a normal one. The abnormal rise in the price of foodgrains is due to severe drought last year. If weather conditions in the latter part of 1973 are normal and implementation of the agricultural programme successful, then it is likely that the price of foodgrains will register greater decline than general prices. It should be noted that over the last one year, money incomes and wages have also considerably increased so that increased output can at best reverse the rising trend in general price to a limited extent. The need for stability in the prices of some essential items will require special measures like control of distribution.



It should be obvious that the above analysis is a very tentative one. The process of price changes in a predominantly subsistence economy can hardly be forecast with confidence. At the moment it is impossible to forecast the extent to which a bumper rice harvest through a sharp reduction in the price of rice can influence the general price level by initiating a reduction in the wage costs and in the "cost" in the large self-employed part of economy and causing a cumulative effect on the rest of the economy.

Although wages have increased less than cost of living the organised industries have witnessed a sharp rise in wage cost per unit of physical output due to inefficiency and declining productivity. A complete reversal of such trends is a necessary precondition of industrial recovery.

On the other hand, wage rates are due to be reviewed soon and there might be an upward revision. It is essential that such increases are kept to a minimum. There are important reasons why wage rates in modern industries should not be allowed to rise fast. Some of these industries, notably jute textiles, contribute an overwhelming share of the nation's exports. An increase in wages ahead of productivity in these industries will seriously jeopardise the competitive position of the relevant exports and necessitate change in the rate of exchange or adoption of equivalent measures.

In a more fundamental sense wages in modern industries need to be kept at a reasonable level even if average productivity is high. This is because of the special kind of industrialisation programme envisaged in the Plan. If small scale and cottage activities are to be promoted to ensure growth in employment it is important that the differential between wages in these enterprises and those in modern large-scale enterprises is not too high. Otherwise industrial dualism will emerge with consequent tensions. It should, therefore, be a major objective of Government policy to ensure that wages in the modern sector of the economy are not too far above the earnings elsewhere in the economy.

Within the general criteria outlined above, the structure of wages should aim at promoting incentive and efficiency. Differentials should be appropriately structured to maximise incentive to achieve higher productivity.

Given the shortage in critical supplies and inflationary situation, the Plan lays emphasis on (a) increased supply of essential items through domestic production or imports, (b) measures to contain demand and (c) institutional arrangements for more efficient physical movement of goods and a more equitable distribution thereof. The main focus of policy regarding stability of prices is to ensure adequate supply of a few items of consumption through special measures while the supply of the rest of the items will be regulated by means of overall economic and fiscal policies.

As the foregoing sections indicate, the Plan provides for an increase in the supply of foodgrains, edible oil, sugar, coarse cloth and kerosene, housing and transportation services. These constitute a very large proportion of the household budget of the poor sections of the population. Special provision has been made, in spite of an accelerated agricultural production programme, for emergency imports of foodgrains over the Plan period to meet the effects of adverse weather conditions. Long term arrangements are being made for the supply of yarn, crude oil and edible oil (oilseeds and refined) from abroad, so that interruptions in the supply of imports do not offset the domestic distribution programme.



Secondly, strict financial and fiscal discipline must be observed so that expansion of monetary demand is kept under control. The Plan envisages a high interest rate policy and considerable extension of the services of financial institutions for mobilising private savings. The excess liquidity in the hands of the public, which poses a constant threat to the stability of monetary demand, must be mopped up or immobilised.

Thirdly, the Plan emphasizes that while the organised groups of workers in the modern sector of the economy, including the public enterprises, such as industrial workers, low income government employees, teachers, health workers, etc., constitute a very vital and productive segment of society, they are nonetheless a small part of the entire population at the low stratum of the income level. The small farmers, landless labourers, the workers in the cottage industries in the rural areas, and the casual workers and self-employed in the trade and services sector in the urban areas constitute by far the largest segment of the toiling masses of Bangladesh. A disproportionate shift of real income in favour of the organised pressure groups in the urban areas, who are undoubtedly poor, would lower still further the real income of the poorer sections of the community who have inadequate bargaining power. An increase in wages of a particular group without an increase in productivity would aggravate inflation without increasing the real income of this group and add to the misery of all.

Fourthly, one of the important bottlenecks in the past has been the ineffective implementation of the import programme. The procedures of imports are being streamlined, so that delays in the distribution of import licenses as well as in the actual task of importation are minimised. The Trading Corporation of Bangladesh would restrict its operations to bulk items which yield economies of scale in handling and purchasing operations and would gradually build up expertise and market contacts in selected items. There will be greater decentralisation of the task of importation among the nationalised enterprises which are expected to make direct purchases of their import requirements of raw materials and spares so that delays could be reduced through direct contacts between domestic purchasers and overseas suppliers. The distribution of import licenses in the private sector would be so organised as to make the volume of imports by each individual importer economically worthwhile. A greater decentralisation of authority to public sector agencies in respect of purchases, which require spot decisions and which are unsuitable for the prevailing tender procedures, will be undertaken along with adequate checks and balances to prevent misuse of delegated authority. The institutional arrangements, including banking arrangements, when improved, are likely to reduce the long gap between the issuance of licenses and actual arrival of imports.

The coordination of transport facilities, starting from the ports down to major inland distribution centres is expected to improve greatly, with a more effective functioning of the transport co-ordination cell.

Lastly, it is recognised that so long as there is shortage and pressure of excess demand, there is no escape from relying upon rationing and distribution at controlled prices of the essential items. Already, foodgrains, sugar and edible oil are distributed through a rationing system. There is compulsory rationing in three cities, i.e., Dacca-Narayanganj, Chittagong



and Khulna and in the rest of the country only a part of the population is covered. While in the small cities and rural areas, employees in the public sector, including industrial workers, are covered by the rationing system, the rest of the population get occasional supplies of these three essential items, and that also is limited to the lowest income groups. It is intended to expand the coverage of the rationing system gradually, consistent with the ability of the administration to organise distribution agencies and centres throughout the country. The Consumer's Supplies Corporation would gradually cover more than the 4,000 unions (a cluster of 10 villages) as it improves and expands physical facilities and trains up staff. It is easier to undertake a public distribution system so long as the bulk of the supplies is obtained from imports or when domestic output is procured from a few suppliers. As the sources of domestic procurement multiply, so also do the difficulties in management and administration. In one field, *i.e.*, food, the Government would need to undertake domestic procurement on an extensive scale. As domestic production of food replaces imports, the sources of supply for the rationing system will become dispersed all over the country side, among the surplus farmers. The Government would have to procure from surplus farmers and surplus areas, and distribute foodgrains in the deficit rural areas as well as in the urban areas. The existing system of transportation of foodgrains from the port to the consuming centres will need to be replaced by procurement and transportation of food over all the areas of the country.

The ration shops as well as the fair price shops under the Consumers' Supplies Corporation would need adequate quantities of supplies to be run economically and efficiently, considering high overhead costs in the publicly run distribution system. The problem of management and supervision of retail shops spread all over the country is quite considerable. The government distribution system is, therefore, to be limited to a very few items which are in short supply and which can be easily managed; it should in no case attempt to supplant the existing system before making sufficient preparatory arrangements and gaining necessary experience.



## CHAPTER III

### STRUCTURE OF THE PLAN

#### 3.1 Sectoral Allocation

The Plan provides for public sector development expenditures of Tk.3952 crores, private financial development outlay of Tk.503 crores and investment in the private subsistence sector of Tk.585 crores. The structure and sectoral allocations of development outlays are shown in Table III-1. As much as one-third of the estimated Tk.503 crores of private financial development outlay would be in housing and various self-employing economic activities.<sup>1</sup> The rest would be in the organized modern sectors of industry, trade and transport, but subject to limitations placed on such investment by the Government's policy on private ownership of assets in various sectors.

A part of overall development outlays, particularly in the first year, relates to reconstruction following the destruction prior to and during the war of liberation; most of the Plan outlays are, however, for expansion of productive capacity and further development of economic and social infrastructure. The contributions of the planned development outlay to economic growth in the country is, therefore, best assessed by reference to growth during the five years beyond the level of the benchmark production levels rather than the total improvement from the depressed levels of 1972-73.

The sectoral allocations of planned development outlay have had to be made consistent with consumption targets, rates of growth of exports and of import substitution, as well as with the intersectoral relationships. Investment in industry necessitates related investment in the power and transportation sector as well as in trade and ancillary services. Investment in the social sectors such as health, education, and family planning, was determined primarily by the need to meet postulated social objectives. The main thrust of the Plan, however, is in the agricultural sector, in view of its overwhelming importance. The requirements of a high rate of growth in agriculture have been reflected in terms of interrelated investment in the rest of the economy.

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<sup>1</sup> The nature and composition of development outlays in the private subsistence sector is discussed in section 3.3 below in this chapter.



TABLE III-I  
The Structure of Planned Development Outlay

(Taka in crore)

| Sector                                  | Financial Development Outlay |                |                |                      |                       | Non-financial Development Outlay: |
|---|------------------------------|----------------|----------------|----------------------|-----------------------|-----------------------------------|
|   | Investment                   | Non-Investment | Total          | Public Sector Outlay | Private Sector Outlay | Private Subsistence Investment    |
| 1. Agriculture and Water                | 898                          | 169            | 1067<br>(24.0) | 1041<br>(26.3)       | 26<br>(5.1)           | 129<br>(22.1)                     |
| 2. Industries .. ..                     | 798                          | 79             | 877<br>(19.7)  | 738<br>(18.7)        | 139<br>(27.7)         | 18<br>(3.1)                       |
| 3. Power and Natural Resources.         | 415                          | 107            | 522<br>(11.7)  | 522<br>(13.2)        | —                     | —                                 |
| 4. Physical Planning and Housing. .. .. | 299                          | 152            | 451<br>(10.1)  | 315<br>(8.0)         | 136<br>(27.0)         | 242<br>(41.3)                     |
| 5. Transport .. ..                      | 469                          | 125            | 594<br>(13.4)  | 528<br>(13.5)        | 66<br>(13.2)          | —                                 |
| 6. Communications ..                    | —                            | —              | 114<br>(2.5)   | 114<br>(2.9)         | —                     | —                                 |
| 7. Education and Man-power              | —                            | —              | 316<br>(7.1)   | 316<br>(8.0)         | —                     | 34<br>(5.8)                       |
| 8. Health and Social Welfare            | —                            | —              | 220<br>(4.7)   | 220<br>(5.6)         | —                     | —                                 |
| 9. Family Planning ..                   | —                            | —              | 70<br>(1.6)    | 70<br>(1.8)          | —                     | —                                 |
| 10. Government .. ..                    | —                            | —              | 26<br>(0.6)    | 26<br>(0.7)          | —                     | —                                 |
| 11. Trade .. ..                         | —                            | —              | 170<br>(3.8)   | 62<br>(1.6)          | 108<br>(21.3)         | 101<br>(17.3)                     |
| 12. Miscellaneous Service ..            | —                            | —              | 28<br>(0.6)    | —                    | 28<br>(5.7)           | 61<br>(10.4)                      |
|   | 3769                         | 686            | 4455           | 3952                 | 503                   | 585                               |

1. For some sectors, distribution between investment and non-investment expenditures has not been made.

2. Figures in parenthesis indicate percentages of column totals.



Agriculture and water sector including rural institutions, irrigation and flood control has the highest share of resources, that is, about one quarter of the total. This sector includes crop production, livestock, forestry, fishery, irrigation, flood control and works programme, but excludes storage and marketing except of the rudimentary types taking place as ancillary activities. Ministry-wise allocations for Agricultural development during the First Plan Period have been shown in Table VIII-39. Storage and marketing activities are included in trade sector. Only a very small proportion of development outlay in this sector is accounted for by private monetised outlay. This is because of the inclusion in the sector of flood control and irrigation projects and works programme which are by nature public sector activities. Moreover, the small scale peasant agriculture of Bangladesh rules out large-scale projects like tube-wells and low-lift pumps to be financed by private savings alone. The public sector has to provide the initial capital for such investment, including the creation of workable institutional facilities for co-operative effort. The main function of the public sector would be to remove the difficulties standing in the way of private or co-operative effort by providing finance and technical assistance.

Industries have been allocated about 20 per cent of total financial outlay. These include the large scale, small scale and cottage industries. Petroleum refining is, however, excluded from this sector and is included in the natural resources sector. Industries also include cold storage and a telephone and cables factory which forms an integral part of the communications sector's programme. In industries, the private sector accounts for nearly one-sixth of the total outlay. This reflects the Industrial Policy as announced in January 1973. Any undertaking requiring more than Tk. 25 lakhs of fixed capital investment will have to be set up under public ownership. Since the Plan will be dominated by some very big projects in the Public sector (e.g., in petrochemicals, cement and steel), the outlay in the private sector would be a small proportion of the total allocation to the industries sector, despite the heavy emphasis in the industrial programme on small scale enterprises in terms of number of projects.

It would, however, be wrong to think that private sector will not have a very important role to play. Apart from textile weaving which will be dominated by handloom and cottage weavers, the private sector, based on modern technology, will have a crucial role to play in industries like edible oils, food processing, textile garments and products, leather products, consumer chemicals, metal products, small scale engineering and repairs, furniture and various types of consumption goods. Industries like sugar, jute textiles, large-scale cotton mills, paper, fertilizer, petrochemical, cement and steel will, however, by their very requirement of heavy investment exclude any private activity.

The transport and communications sectors claim nearly 16 per cent of the total financial development expenditure, most of it in the public sector. Transport includes rail, road, water and airways. It also includes international shipping. Communications include post office, telegraph, telephone as well as meteorological survey, radio and television. The private sector, operating mainly in road transport and smaller watercrafts, would absorb about 11 per cent of the total allocation for the transport sector. The public share is large, since heavy investment oriented facilities like railways, road building, port facilities, civil aviation and international shipping are invariably in the public sector.

The sector of power and natural resources claims about 12 per cent of the financial development expenditure, all of it being in the public sector. Power and natural resources



include electricity, gas, petroleum refining, geological surveys and scientific and technical research. The main emphasis will be on transmission and distribution of electricity with relatively small investment in power generation. There will also be sharp expansion in the production of other kinds of energy, mainly gas and petroleum refining.

About ten per cent of the total financial development expenditure goes to the sector of physical planning and housing and as much as one-third of this is in the private sector. Physical planning and housing includes private dwellings, public buildings, ancillary facilities for housing including sewerage and water supplies. It also includes tourism and related facilities. The large allocation to this sector represents a reversal of past trend. This sector has lagged far behind other sectors and way behind population growth. The relatively small share of the public sector in this sector derives from the fact that most dwelling houses, especially those located in rural areas, will be built by private individuals and co-operatives.

The five sectors listed above would absorb more than three quarters of the total development expenditure. The remainder would be distributed among Education and Manpower (7 per cent), Health and Social Welfare (4.7 per cent), Family Planning (1.6 per cent), Government (0.6 per cent), Trade (3.8 per cent.) and Miscellaneous Services (0.6 per cent). While the definition of some of these sectors requires no elaboration, the last three items need some explanation. Usually the allocations for these sectors are not specified although a comprehensive plan must allocate resources to them. Thus under trade are included allocations for retail trade, wholesale trade, warehousing, etc. In the public sector, agencies like Jute Marketing and Trading Corporations, Consumer Supplies Corporation and Warehousing Corporation will need resources to undertake capital investment. These have been provided for under the sector heading of trade. Under Government (rather than under Education and Manpower) are allocations for agencies like the proposed Civil Services Academy, the National Institute of Public Administration and the Government Officers Training Academy. These and other Government agencies and institutions require resources for capital investment, provision for which has been included under Government.

The last category refers to Miscellaneous Services in the private sector. Public investment in such service facilities (hotels, etc.) has been merged with Physical Planning. There remains, however, provision for private investment in a wide variety of services, including professions and recreational facilities.

### 3.2. Phasing of the Plan

The annual phasing of the Five-Year Plan is a difficult exercise under the best of circumstances. The financial outlay of the Annual Plan for the first year, 1973-74 has been fixed at Tk. 595 crores, of which Tk. 525 crores are in the public sector and Tk. 70 crores in the private sector. Another Tk. 80 crores of non-monetised investment will also take



place. To fulfil the Five-Year Plan targets with the starting point at this level will require a rapid growth in expenditure in the following years, almost doubling in four years (see Table III-2 below):

TABLE III-2  
Phasing of Financial Development Outlay

(Taka in crore)

| Year,   |    | Total |    | Public Sector | Private Sector |
|---------|----|-------|----|---------------|----------------|
| 1973-74 | .. | 595   | .. | 525           | 70             |
| 1974-75 | .. | 725   | .. | 645           | 80             |
| 1975-76 | .. | 870   | .. | 775           | 95             |
| 1976-77 | .. | 1040  | .. | 925           | 115            |
| 1977-78 | .. | 1225  | .. | 1082          | 143            |

The phasing is to be treated as tentative and the possibility of annual revision is implied in the Plan. In fact, there is nothing particularly 'optimal' about the phasing outlined in the above table. Adjustment for short-term developments must be made in each annual plan to ensure flexibility.

Moreover, the Plan is formulated at today's prices. The growth of development outlays indicated will have to be in real terms. In other words, the annual programme each year will have to be increased further if the price level of development goods and services rise. In each year's annual Plan the sectoral shares of development outlay have to be determined with reference to what are the critical priorities and potentials over time. Thus much of agricultural investment in tube-wells and pumps will have to be completed by the fourth year of the Plan (although substantial provision will have to be made also in the terminal year if only for replacement) to ensure the objective of foodgrains self-sufficiency by the end of the Plan. Thus the programme in this sector will have to start at a relatively higher level and accelerate less sharply.

The Plan has been so formulated as to secure intersectoral consistency for the terminal year as well as for the plan period as a whole, but full year-by-year inter-temporal consistency has not been worked out. This must be done at the time of formulating the respective annual plans. It is unlikely, however, that the sectoral investment pattern could be allowed to deviate widely from that of the overall plan. Moreover, import programmes for the intermediate years will have to be designed so as to bear the burden of adjustments needed.

### 3.3. Non-monetised Development Outlay

The Plan includes an estimate of private saving and investment in kind called investment in the subsistence sector. These types of investment are self-financing and corresponding savings do not accrue in the form of organised financial investment. Moreover, they are based not only on self-employed labour but also on self-produced inputs, i.e., they have a very low percentage of purchased inputs from the market. The required inputs are produced



either on the homestead or on the farms or are procured through informal barter or exchange from the neighbours in the village. In addition, much of subsistence investment has a large component of replacement and is short-lived.

In agriculture, non-monetised investment includes building of dykes, repair of wells, digging of small canals and making of traditional implements and their repairs. In the industrial sector, it consists of the repair and maintenance of owner operated handlooms and various rudimentary equipments for the cottage industries. The biggest component of subsistence investment is made up of construction and maintenance of rural housing. It has been assumed that about 60 per cent of the construction work in the building and repair of rural houses is traditionally undertaken in the form of subsistence investment.

The subsistence investment in education is the estimated contribution in kind received from local communities in support of new educational institutions. The other components of such investments are in trade (rural shops, improvised godowns within homesteads, etc.) and miscellaneous services (village carpenter, barber, tailor, local entertainment facilities, community buildings, charitable institutions, etc.).

The subsistence investment programme as outlined above is by and large "autonomous" in nature. These activities normally take place in rural Bangladesh. The programmes may require some encouragement from the institutional network that is being set up for rural development. But no organised effort at mobilising labour for collective actions is implied in this kind of investment. Thus the subsistence investment programme should not be mistaken for the special voluntary labour mobilisation programme for capital construction.

In the Plan voluntary labour mobilisation will play a completely different role. To the extent such labour can be mobilised it will be possible to reduce financial saving requirement. Many public sector development programmes can partly be financed by saving in the form of mobilising voluntary labour receiving no (or less than market) wage. Examples are construction of small roads, local irrigation canals, village community centres and so on. For projects which are located in the rural areas, benefits of which are visibly available to the local community, it should be possible to require the local community to donate land and labour as a precondition to the inclusion of such projects in the Plan. The essential distinction between "subsistence investment" as defined above and voluntary mobilisation of labour is that the former is largely a private enterprise activity (though predominantly of non-capitalist type) while the latter is a public sector or co-operative activity.

The amount of non-monetised investment envisaged for the plan period is Tk.585 crores, i.e., about Tk.115 crores per year on an average basis. Considering that there are about one crore rural families, the amount of average investment per family would not be more than Tk. 115 per family in a year. In 1973-74 this kind of investment is expected to be about Tk.80 per family, i.e., about Tk. 7 per month per family.



## CHAPTER IV. DOMESTIC RESOURCES FOR THE PLAN

### 4.1. Introduction

The Plan requires considerable efforts in mobilising domestic financial resources both in the public and private sectors. The required pattern of domestic resource mobilization is shown below:

TABLE IV-1.  
Components of Domestic Resources for the Plan

|   | Taka in<br>Crore | Percentage<br>of Total |
|---|------------------|------------------------|
| 1. Government revenue surplus with 1972-73 taxes and tax rates. ..                  | 537              | 20.0                   |
| 2. New taxes and increased tax rates .. ..  | 625              | 23.1                   |
| 3. Government domestic capital receipts (except from Private Sector).               | 350              | 13.0                   |
| 4. Private saving (excluding "unmonetized saving" and Time Deposits) <sup>1</sup> . | 720              | 26.7                   |
| 5. Long-term borrowing from the banking system <sup>1</sup> ..                      | 360              | 13.3                   |
| 6. Gap to be covered by additional measures .. ..                                   | 106              | 3.9                    |
| Total ..  | 2,698            | 100.0                  |

Revenue surplus derived from existing taxes, additional taxes and capital receipts is expected to finance 56 per cent of the total development outlay. Private saving is the next biggest source of finance followed by borrowing from the banking system. There still remains a gap, which has to be met by additional measures to the extent of 4 per cent of the required domestic saving.

### 4.2. Revenue Surplus from Existing Taxes

Revenue surplus from existing taxes is expected to generate no less than 43 per cent of total domestic resources. As detailed in Table IV-2 revenue receipts of Tk. 2,340 crores for the Plan period are projected on the basis of taxes and tax rates prevailing in 1972-73.

<sup>1</sup> To avoid double counting, the accumulation of time deposits, whose effects are reflected in item 5, has been excluded from item 4. This is explained later.



TABLE IV-2.

## Revenue Surplus with Existing Taxes and Tax Rates

(Taka in crore)

|   |    |    |     |    |            |
|---|----|----|-----|----|------------|
| Customs Duty ..   | .. | .. | ..  | .. | 757        |
| Excise ..   | .. | .. | ..  | .. | 626        |
| Sales Tax ..  | .. | .. | ..  | .. | 243        |
| Income Tax ..   | .. | .. | ..  | .. | 70         |
| Land Revenue ..   | .. | .. | ..  | .. | 23         |
| Other Miscellaneous Receipts ..   | .. | .. | ..  | .. | 237        |
| Gross Receipts from nationalized sector (excluding Depreciation Fund) of which: |    |    |     |    | 384        |
| Industries ..   | .. | .. | 347 |    |            |
| Banks and Financial Institutions ..   |    |    | 37  |    |            |
| Revenue Receipts ..   | .. | .. | ..  | .. | 2,340      |
| Revenue Expenditure ..  | .. | .. | ..  | .. | 1,803      |
| Revenue Surplus ..  | .. | .. | ..  | .. | <u>537</u> |

The receipts on account of major taxes, including customs duty, excise, sales tax, income tax and land revenue, are expected to be no more than about Tk. 1,700 crores on the basis of 1972-73 rates, i.e., an annual average of about Tk. 340 crores. In the first year of the Five-Year Plan the receipts from these taxes, on the basis of 1972-73 rates, are estimated to be about Tk. 300 crores. The expected receipts for the Plan period imply, therefore, an average annual rate of growth of 5 per cent to 6 per cent, about the same rate at which Gross Domestic Product is expected to grow.

The most important items of tax receipts are taxes on imports, i.e., import duty as well as sales tax on duty paid value of imports. The total value of dutiable imports is expected to increase during the Plan period by more than 25 per cent. The quantum of excisable commodities, i.e., mainly industrial production, is expected to grow at a rate no less than 7 per cent whereas income from trade and other services including construction, is expected to grow between 6 per cent to 12 per cent per year. However, the receipts from taxes other than import duties are expected to grow at a slower pace than the sectors of the economy which contribute these taxes. This reflects the fact that the present structure of taxes is not very elastic. In particular the agricultural sector is going to enjoy increased output and income but the existing system of land revenue is not responsive to growth in agriculture.



Other Miscellaneous Receipts include various minor taxes such as wealth taxes, estate duty, capital gains tax, urban property tax as well as various fees including registration fees, stamp duty, etc. Receipts from various public utilities and enterprises, excluding nationalized industries and financial institutions, are also part of miscellaneous receipts.

In the first year of the Five-Year Plan, *i.e.*, 1973-74, the receipts from these various minor heads are estimated at about Taka 36 crores, or Taka 42 crores if interest receipts on various outstanding loans are included. The total of such other receipts grew rapidly in past years, but from a low level. It is now estimated that while interest receipts may register a slight decline during the Plan period the other receipts will increase at an annual rate of 6 per cent. The total yield from this source is conservatively estimated to average about Taka 47 crores a year.

The nationalized sector, *i.e.*, manufacturing industries and financial institutions, is expected to yield an average of Taka 77 crores a year, starting with Taka 44 crores in 1973-74. The nationalized sector is expected to generate surplus at a rate which, while higher than in the past two years, would still be lower in real terms than what these enterprises generated in the 1960's. The rate of increase of surplus from this sector has been set conservatively for the earlier years of the Plan but is expected to accelerate as improvement in operating efficiency starts yielding results.

The current replacement value of assets in 313 large and medium size public sector industrial enterprises is conservatively estimated to be Taka 900 crores as compared to an original purchase value of assets estimated at Taka 517 crores. During 1973-74 gross cash receipts from the nationalized enterprises are estimated as follows:

| (Taka in crore)    |    |    |    |    |    |
|--------------------|----|----|----|----|----|
| Income tax         | .. | .. | .. | .. | 5  |
| Interest on loan   | .. | .. | .. | .. | 12 |
| Repayment of loan  | .. | .. | .. | .. | 5  |
| Surplus or profits | .. | .. | .. | .. | 22 |
| Total cash surplus | .. | .. | .. | .. | 44 |

Thus the expected total cash surplus in 1973-74 is projected to be about 5 per cent of the replacement value. In the terminal year of the Plan the target is an equivalent cash surplus of 12 per cent *plus* a depreciation fund of 4 per cent of the estimated replacement value of assets. Thus the gross cash surplus is projected to increase from 5 per cent in 1973-74 to reach 16 per cent in 1977-78 as shown below:

| Year,                        |    |    |    |    | Percentage of Replacement Value of Assets. | Revenue in Crore Takas. |
|------------------------------|----|----|----|----|--|-------------------------|
| 1973-74                      | .. | .. | .. | .. | 5  | 44                      |
| 1974-75                      | .. | .. | .. | .. | 7.5  | 68                      |
| 1975-76                      | .. | .. | .. | .. | 10   | 90                      |
| 1976-77                      | .. | .. | .. | .. | 13   | 117                     |
| 1977-78                      | .. | .. | .. | .. | 16   | 144                     |
| Total                        |    |    |    |    | ..   | 463                     |
| of which: Depreciation Fund  |    |    |    |    | ..   | 116                     |
| Tax, Debt Service and Profit |    |    |    |    | ..   | 347                     |



The surplus of Taka 347 crores from the nationalised industries must be added the surplus from the banks and insurance companies. The budget estimate for 1973-74 expects this item to yield about Taka 6 crores and a 10 per cent per annum increase is projected for later years of the Plan yielding a total revenue of Taka 37 crores for the Plan period as a whole.

Revenue expenditure is expected to register an increase of about 10 per cent per year over 1973-74. Between 1972-73 and 1973-74, however, there will be a sharp increase in revenue expenditure of no less than 31 per cent, i.e., an increase from Taka 225 crores to Taka 295 crores. The increase in revenue expenditure in the first year of the Plan has been occasioned by the need to build up an administrative and institutional structure to meet the enlarged responsibilities of a new national government and to provide reasonable infrastructure for law-enforcing agencies, as well as to accommodate the increased expenditure arising out of the recommendations of the Pay Commission. The Plan provides for growth in revenue expenditures to be contained within a limit of 10 per cent per year. The composition of the revenue expenditure in the budget for 1973-74 is shown below:

#### Revenue Expenditure in 1973-74

|                                   |     |     |     |     | (Taka in crore) |
|-----------------------------------|-----|-----|-----|-----|-----------------|
| Direct demand on revenue          | ... | ... | ... | ... | 15              |
| Civil administration              | ... | ... | ... | ... | 104             |
| Defence                           | ... | ... | ... | ... | 47              |
| Education                         | ... | ... | ... | ... | 58              |
| Health                            | ... | ... | ... | ... | 14              |
| Civil works                       | ... | ... | ... | ... | 9               |
| Interest                          | ... | ... | ... | ... | 10              |
| Other non-development expenditure | ... | ... | ... | ... | 30              |
| Contingencies                     | ... | ... | ... | ... | 8               |
| Total                             |     |     |     |     | 295             |

Total revenue expenditure for the whole Plan period projected on the above assumptions comes to Taka 1,803 crores. With revenue receipts projected on the basis of 1972-73 taxes and rates at Taka 2,340 crores, a revenue surplus of Taka 537 crores would be available for development without additional taxation.

#### 4.3 New Taxes and Increased Tax Rates

Additional tax measures, including new taxes and upward revision in the rates of existing taxes, are expected to yield Taka 625 crores or about 23 per cent of the total domestic resources for development. It represents an increase in total revenue receipts by over one-third compared to the level of receipts projected from taxes and tax rates in 1972-73.



Altogether it is a considerable tax effort. However, it is not an unrealistic target in view of the experience of other developing countries, the potentials for intensification of the tax efforts through reforms in the structure of taxes and of the rate and pattern of economic growth which is envisaged in the Plan. The tax efforts will be phased in a progressive manner over the Plan period, as the tax system is reformed and the growth of the economy is accelerated. This will also reflect a declining contribution of foreign capital inflow.

An illustrative phasing of the yield over the Plan period from additional tax measures may be as follows:

Yield from Additional Taxes.

| Fiscal Year. |     |     |     | (Taka in crore) |
|--------------|-----|-----|-----|-----------------|
| 1973-74      | ... | ... | ... | 25              |
| 1974-75      | ... | ... | ... | 60              |
| 1975-76      | ... | ... | ... | 110             |
| 1976-77      | ... | ... | ... | 175             |
| 1977-78      | ... | ... | ... | 255             |
| Plan Period  |     |     |     | 625             |

In the immediate future the main focus will be on rationalization and increase in the rates of duty on imports and domestic excisable commodities. The entire range of existing rates of import duty will be reviewed with a view to bringing closer the present widely varying rates of effective protection, except where such variations are justified by special needs for infant industry protection, by reason of differential external economics, or by the need to meet socio-political objectives. The sales taxes which are related to imports have to be similarly rationalized.

Both the import duties and sales tax on imports can be selectively increased to mop up at least a part of the scarcity premia which imported goods earn in the local market. It will be necessary to devise the system in the light of domestic demand and availability so that the scarcity-premia are siphoned-off without being passed on to a significant extent to the final consumers. The adjustment of the import duties and sales tax on imports would involve corresponding upward adjustment in the domestic excise duty in order to ensure that the protective effect of the tax and import licencing measures do not merely result in windfall profits to the domestic producers of import substitutes or to the whole-sale or retail distribution agencies.

Both in the case of excise duties and sales taxes, there are now exemptions and loopholes which do not stand rational scrutiny. For example, the standard rate of sales tax on imports is 20 per cent of the duty-paid C. and F. value of imports, but due to the many exemptions and loopholes, the revenue from this source has been barely 7.5 per cent



of the value of dutiable imports in the recent past. The rationalization of the inherited structure of taxes will be dealt with as a matter of urgency so that changes can be initiated in 1974-75.

In view of the preponderance of the public sector in modern industry and trade, a large part of the total income generated in the modern sector of the economy outside of agriculture originates in the public sector. The increased yield from the nationalized industrial and financial enterprises has already been taken into account. But the trading enterprises in the public sector must also yield profits. In the export and import sectors state enterprises have a large share. The profits which would have accrued to private traders will now accrue to public sector enterprises, if they are run efficiently. There is no escape from increasing their operating efficiency. If they are run efficiently on a no profit basis then the agents and distributors will realize larger profits. A share of such profits must be captured either by direct taxes, or by indirect fees and levies of other kinds.

The yield of income tax is very poor in Bangladesh because a large number of relatively small income earners who are self-employed or are engaged in professions and trades of various kinds can evade taxes. The net of direct income taxation does not extend with any degree of efficiency beyond corporate and salaried income. Effective methods will have to be devised to bring within the framework of direct taxation the activities in the small scale trade, industry and professions, especially since these are the sectors where private enterprise and hence the generation of private income will be concentrated.

Furthermore, agriculture which is the predominant sector of the economy largely escapes direct taxation. All holdings up to 25 bighas (about 8 acres) are exempted from land revenue. Moreover, compared to the past the terms of trade have moved in favour of agricultural producers through rising prices of agricultural output and subsidies on agricultural inputs like fertilizer and pesticides as well as on agricultural equipments like pumps and tubewells. The Plan provides for a large development programme for agricultural infrastructure, extension services and credit. Agriculture now accounts for more than half the Gross Domestic Product. As its rate of growth accelerates in response to the implementation of the development programme, agriculture must also contribute to the financing of development throughout the economy either by channelling its savings through financial institutions or by direct investment or by providing tax revenue on a much larger scale than it has done so far.

Moreover, most subsidies on agricultural inputs must be reduced and gradually eliminated and in some cases these inputs must be sold at a profit. The rentals of pumps and tube-wells are at present no higher than 5-6 per cent of the total annual value of capital cost *plus* operating costs. These rentals have to be considerably increased.

Consistently with the present policy of exempting land up to 25 bighas from land revenue, it may be possible to devise a progressive system of land taxation above this limit which would yield substantial revenues. While the initial rates could be low (perhaps a fraction of what would be the urban income tax rate on an equivalent income), these should be revised upwards gradually as agricultural growth gathers momentum. Moreover, the rates of land tax could be differentiated between more or less productive regions in the country, or between areas which would receive larger or smaller shares of modern inputs and technology in particular differentiating between irrigated and unirrigated land.



To siphon off increased income from agriculture for financing development it will be necessary to combine judiciously both direct methods of taxation and indirect methods of manipulation of terms of trade. These measures must, however, be so designed as to minimize disincentives to production.

The previous system of land revenue, as it used to be administered for the small land-owners below 25 bighas, was inefficient and unproductive of any significant revenue. In the future as incomes of small surplus farmers, especially in the irrigated areas, will rise it will be necessary to devise new systems of local rates and taxes; some of these, such as development and education cesses which are now in force, have to be revised upwards.

A new system of local government will be introduced in the near future. It will be opportune to delegate some of the developmental activities to the local Governments along with the responsibility for raising revenue by local taxes. These activities could relate to investment in the social sectors, local health and educational programmes as well as physical infrastructure including rural works programme.

The foregoing discussion relates to major tax receipts. There are wide varieties of fees and charges included in Other Miscellaneous Receipts in Table IV-2 which also offer scope for both increase in rates and considerable improvement in the efficiency of collection.

The magnitude of the tax effort as envisaged in the Plan is evident from the fact that while tax revenue as a share of GDP was only 4.75 per cent in 1972-73 and is budgeted at 6.5 per cent in 1973-74, it is projected to increase to about 10 per cent by the end of the Plan period in 1977-78. This is not an unrealistically high percentage, compared to the equivalent tax ratio in other developing countries. The present tax ratio in Bangladesh is lower than in most of the poor countries in the world even when account is taken of per capita income, rate of industrialisation and the proportion of foreign trade in national income.<sup>1</sup> The countries which have the poorest performance in terms of mobilizing domestic tax resources have a ratio of tax to GNP not lower than 8.9 per cent on the average. India had a tax ratio of 11.6 per cent in 1966-68 and Pakistan, 8.5 per cent.<sup>2</sup> It is in this perspective that the future tax efforts in Bangladesh need to be visualized.

#### 4.4. Domestic Capital Receipts

Capital receipts include depreciation provisions both by public sector agencies (see page 39 above for nationalised industries) and in respect of development projects; the capital receipts item also includes an amount for interest payments charged to development projects during the period of construction, the estimate of which has been based on an analysis of a large sample of development projects. These gross receipts are, however, offset on the expenditure side by corresponding non-investment development expenditures.

| Ratio of tax receipts to GNP in samples of developing countries by region. | Average in 1966-68 in percentages. |      |
|--|------------------------------------|------|
| Middle East and North Africa   | ..                                 | 16.1 |
| South America  | ..                                 | 14.6 |
| Tropical Africa  | ..                                 | 14.9 |
| Central America and the Caribbean  | ..                                 | 13.1 |
| Asia and Far East  | ..                                 | 11.6 |
| Average for the Sample   | ..                                 | 14.0 |

Source: J. M. F. Staff Papers, July 1971, pp. 254-329.

<sup>1</sup> Even countries like Burundi and Upper Volta, which in capita terms are poorer than Bangladesh, generate a tax ratio of 8.9 per cent.



#### 4.5 Private Savings

Gross private savings include savings invested in time deposits which are available to finance lending by the banks to investors in the public and private sectors of the economy. Private monetised savings are estimated at about 4 per cent of personal income, which is below the rate attained during the sixties. Total private savings, including both monetised and non-monetised savings, are expected to average about 6 per cent of personal income. Private saving, especially rural saving, is highly volatile from year to year, as it depends critically upon fluctuations in agricultural production as well as on the incidence of floods and cyclones which cause a loss in assets and output. Even though an acceleration in the rate of expansion of agricultural output and income is postulated in the Plan, in view of its variability a conservative estimate of private saving has been made.

With a considerable expansion of public investment in industry and in trade and services, the opportunity for private saving to finance private investment is going to be more limited than in a private enterprise economy. It will be necessary to take account of this and to develop policies and institutions that can both stimulate private saving and ensure that it is put to good use. There is scope for promoting privately financed investment in the field of agriculture. Given time, it should be possible to organise cooperatives in such a way that members will be able to make direct investments in pumps, tube-wells, power-tillers, etc. State agencies would be able to cooperate in this by providing training and repair facilities on a commercial basis. Such developments would be quite different in character from the establishment of large scale capitalistic farming ventures. With growth in rural incomes and an extension of private investment in cottage industries there will be new opportunities for the productive use of private savings.

The use to which private savings will be put is illustrated in the table below :

TABLE IV-3

#### Use of Gross Private Monetised Savings,

|   |    |    |    |    |    | (Taka in crore) |
|---|----|----|----|----|----|-----------------|
| 1. Direct non-subsistence investment  | .. | .. | .. | .. | .. | 250             |
| 2. Institutional saving in the existing programmes  | .. | .. | .. | .. | .. | 97              |
| 3. Accumulation of time deposits  | .. | .. | .. | .. | .. | 247             |
| 4. Purchase of Government bonds, debentures as well as prize bonds and additional institutional savings, including contribution to local development programmes | .. | .. | .. | .. | .. | 373             |
|   |    |    |    |    |    | <hr/> 967 <hr/> |

Item (2) above, that is, institutional savings in the existing programmes, shows how the accrual of funds in the existing schemes of life insurance, postal savings and provident funds might develop. If these schemes are made more attractive and their scope widened, a great deal should be achieved. Part of the savings to be generated under item (4) above might be used in a



similar way; for example, by bringing all wage earners, including labourers, in both the public and private organised sectors, into a pension scheme. A scheme based on a contribution of 5 per cent of the total wage and salary income earnings would raise about Tk. 4.5 crores per year from the industrial sector alone. Similar schemes could mop up a large amount of savings in the other sectors as well.

The successful mobilisation of private savings in the form of time deposits as well as in the purchase of bonds, debentures and saving certificates will require a radical transformation of the existing structure of interest rates. In recent years interest rates have not been high enough to compensate for the rise in prices that has taken place. As a result people lending money have lost in real terms and this was particularly marked last year when prices rose very rapidly. Such an increase in prices could only result from circumstances of unparalleled difficulty and will not be repeated, but a period of comparative price stability is necessary if a normal relationship between interest rates and price movements is to be re-established. In the present state of expectations, high interest rates are necessary both to convince people that they will gain by lending their savings and to make sure that savers will benefit from investing in such things as time deposits, life insurance and provident funds. If prices were expected by savers to increase at 7 per cent per annum, a rate of interest in money terms of 12 to 14 per cent would do no more than ensure a real rate of return of 5 to 7 per cent to savers.

An upward movement in interest rates will have to be substantial if speculative activity is to be prevented and if the unproductive investment of resources in real estate, the purchase of precious metals, and in hoarding stocks and other forms of inventories is to be discouraged.

The high rate of interest advocated would enable savings to be channeled towards productive investments which are specified in the Plan. In so far as high rates of interest tended to direct savings into financial forms of investment, greater stability will result.

At present there is a relative scarcity of credit in unorganised markets whether these are on the periphery of urban areas where the market is dominated by traders with money lending interests or in rural areas where the affluent farmer with financial resources to spare dominates the market. Some investment opportunities in the less organised sectors are very profitable and the diversion of capital resources to this sector from more organised markets might be highly advantageous.

Proposals for increases in rates of interest must be seen in relation to the fact that the rates of interest charged in organised markets at present are far below the social rate of return of investment that is obtainable in Bangladesh. The alternative to higher rates of interest is what presently prevails: a system of credit rationing in the organised sector of the economy in which the rate of interest is far below the rate that borrowers are prepared to pay. But the unorganised market is in an isolated position in which there is an inelastic supply of credit which is not supplemented from the organised market, and this results in a very high price to borrowers in unorganised markets. To link the two markets at higher rates of interest would result in more productive use of limited capital resources and a more efficient system of borrowing and lending. Thus the net effect of higher interest rates would not be to curtail investment but to redirect it into more productive channels. This is also



likely to increase employment opportunities because production would be increased by the more efficient use of capital. The higher price of capital (higher interest rates) would lead to a more economical use of it and to the substitution of labour for capital wherever such substitution is possible.

An increase in the price of capital is only one aspect of the efficient use of capital resources. Many would be borrowers with productive possibilities in front of them are unable to secure the capital that they need because of difficulties in making their needs for credit effective in relation to a banking organisation that is not geared to cater for their needs. In order to bring borrowers in touch with banking facilities on as large a scale as possible there has to be an expansion in the number of branches of banks that are available as well as an increased confidence in banking institutions as reliable financial intermediaries offering security to lenders and productive services to borrowers.

It is unlikely that higher interest rates will have any adverse effects on the profitability of banking operations since both lending and borrowing rates will go up. But it is possible that some operations may be undesirably affected by the incidence of higher interest rates. Cottage and small scale industries may be so affected. If they are, a number of ways exist to ensure that they are protected from the adverse consequences. The factor of overriding importance is to ensure that the cost of capital bears a proper relationship to the social rate of return that it can earn in Bangladesh today.

Another important means of mobilising private savings is to organise the contribution of local resources to public sector projects. Many projects in road building, irrigation, flood control and social services will benefit specific localities. People in such localities could be asked to contribute a proportion of the total cost of the project. Such payment could be in cash or in kind (voluntary local labour, donation of land or building, etc.). The proposed local government network could be used to organise such participation.

#### 4.6 Borrowing from the Banking System

About Tk. 360 crores are to be provided by the banking system for financing of development expenditures in the Plan. The implications of this for the expansion of monetary demand in the economy are explained below. In view of the large increase in money supply in the past year and a high rate of price inflation, future expansion in monetary demand must be kept within strict limits and carefully planned both in amount and phasing over the Plan Period as a whole.

TABLE IV-4 |

### Expansion of Credit during the Plan Period (Key Indicators)

|                                 |    |    |    |    |    |    | (Taka in crore), |
|---------------------------------|----|----|----|----|----|----|------------------|
| Money Supply, June 1973         | .. | .. | .. | .. | .. | .. | 697              |
| Money Supply, June 1978         | .. | .. | .. | .. | .. | .. | 1122             |
| Change in Money Supply of which |    |    |    |    |    |    |                  |
| Change in currency 151          |    | .. | .. | .. | .. | .. | 425              |
| Change in demand deposits 274   | .. |    |    |    |    |    |                  |



TABLE IV-4 (Contd.)

(Taka in crore)

|  |     |
|--|-----|
| Increase in time deposits .. .. .                              | 247 |
| Increase in volume of currency and total bank deposits .. ..   | 672 |
| Requirement for increased liquidity .. .. .                    | 312 |
| Credit for long-term development finance—                      |     |
| (a) Public Sector .. .. .                                      | 157 |
| (b) Private Sector .. .. .                                     | 203 |
|  | 360 |
| Percentage increase in GDP over actual level, 1972-73 .. ..    | 52% |
| Percentage increase in Money Supply .. .. .                    | 61% |
| Percentage increase in money requirement per unit of GDP .. .. | 6%  |

The increase in money supply is expected to be about Tk. 425 crores implying a 61 per cent increase over the actual level of money supply at the beginning of the Plan. The aggregate volume of liquidity will increase by about Tk. 672 crores, which will be offset to the extent of Tk. 247 crores by accumulation of time deposits. Of the total increase of Tk. 672 crores, Tk. 312 crores will be required for increased liquidity and other short-term purposes by industry and trade as well as by the agriculture sector as credit. The development outlay in the Plan includes the normal working capital needs of the development activities in terms of stocks of raw materials and inventories but it does not include the needs for monetary liquidity.

Of Tk. 312 crores set aside for short-term credit and liquidity requirements, about Tk. 195 crores are expected to be required by the agricultural sector. The details of the agricultural credit programme are given in the chapter on the sectoral plan. The credit facilities are intended to facilitate the vastly increased use of modern inputs in agriculture, as postulated in the Plan. The remainder of Tk. 117 crores are intended to meet the liquidity needs of trade and industry. This will also include some "working capital" needs of the trade sector, specially foreign trade sector, to the extent the working capital needs in the trade sector have not been fully reflected in the estimates of development outlay. While estimates of working capital needs in the productive and distributive activity are difficult enough to estimate accurately, it is far more difficult to estimate with any degree of precision the liquidity needs of trade and industry. This is specially so in view of the major change in the structure of ownership and operation of the industrial and trading enterprises in the post-liberation period. It is not only that data relating to the pre-liberation period on the liquidity needs of trade and industry for Bangladesh are not available but they are also not particularly relevant in view of the interlocking and intra-firm flow of funds between the branches of the enterprises located in both Bangladesh and Pakistan. The stipulated figure of Tk. 117 crores must, therefore, be regarded as highly tentative and subject to revision in course of the implementation of annual plans. This implies annual increase of about Tk. 23 crores over the pre-plan level. Tentatively it is assumed that about Tk. 80 crores out of Tk. 117 crores would



be in the nationalised enterprises. From the point of view of the monetary policy to be followed by the Government, these figures should be treated more as a target for credit expansion for these purposes. Given the safe limits of deficit financing and competing sources of demand for credit, an expansion of credit for short-term liquidity purposes beyond this limit will be inconsistent with the objective of price stability.

The additional bank credit for financing Plan development outlay is estimated at about Tk. 360 crores of which Tk. 203 crores are expected to finance private development outlay. Thus deficit financing to meet public sector development expenditure is expected to be no more than Tk. 157 crores. This modest amount of deficit financing by the public sector postulated in the Plan assumes that the mobilisation of tax and non-tax receipts in the public sector will be implemented with all vigour. Moreover, borrowing by the public sector from the Bangladesh Bank has to be regulated carefully to prevent any unintended increase in the cash reserves, which might lead to excessive credit being given to the private sector by the banking system. Monetary discipline will have to be strict if the volume of bank credit is to be kept within the narrowly defined limits. In the recent past, the major factors contributing to the expansion of money supply have been the financial requirements of the nationalised enterprises in the field of trade and industry and deficit financing by the Government. Proper discipline must be strictly enforced in all public sector agencies not only to prevent long-term financing through the creation of bank credit but also to prevent excessive recourse to bank financing in lieu of the generation of a current cash flow to meet short-term credit requirements.

In view of the current inflationary situation, monetary discipline will be vitally necessary in the early years of the Plan period. The timing of credit creation is crucial to the maintenance of price stability and it will need to be related to the increase in output which is likely to be accelerated towards the end of the Plan period, when development projects start yielding the larger part of the increase in output. In a predominantly agricultural economy like Bangladesh, credit creation will have to be closely related to the seasonal and annual variations in food production and the movement of marketable surpluses. Furthermore, it will also have to be related to changes in the balance of payments. A Credit Plan will be formulated every year at the same time as the Annual Plan to work out in detail the supply and demand for credit, in the public and private sectors, and take account of relevant considerations at the time. Control of credit will be easier if restrictive income and wage policies are strictly followed. In the past year the upward pressure of the money supply has been partly caused by wage increase. The wage push in turn was caused by increasing demands of the labour unions, and by the desire of the Government to provide relief to low income groups in a situation of distress, when adequate supplies of goods were not available.

The implication of the expected increase in money supply for price movements cannot be forecast with any degree of reliability in a highly volatile agricultural economy, which is in the process of recovery from damages and dislocations caused by the war of liberation. It is assumed that the increase in money supply will be offset to some extent by an increase in the degree of monetisation of the economy at a rate of a little over 1 per cent. The increase in agricultural output which is to be realised, tax measures to mobilise increases in income from the agricultural sector, and an expanded output of saleable non-subsistence crops will contribute to a rise in the rate of monetisation of the economy. Some regression of prices from their present high levels is anticipated as output increases; if the financial plan is fully implemented, price increases in future years should be held within tolerable limits.



#### 4.7 Closing the Gap

Even after all the measures indicated above have been taken, a gap of about Tk. 106 crores will still remain. There are a number of ways in which this can be closed. Improvement in the tax collecting machinery could make a greater contribution than has been allowed for, if it were pursued decisively; additional taxation sufficient to increase tax receipts by a further 4 per cent of domestic resources would suffice to close the gap. A variety of other measure designed to economise non-development expenditure, to increase savings or mobilise resources by unconventional means are available for consideration during the Plan period in the light of progress of its implementation.

#### 4.8 Conclusions

The following table summarises the various methods of financing the public and private sector financial development programmes.

TABLE IV-5

#### Pattern of Financing Development Outlay.

| <i>Public Sector</i>   |     |     |     |     |     | (Taka in crore) |
|--|-----|-----|-----|-----|-----|-----------------|
| A. Planned outlay  | ... | ..  | ... | --  | --  | 3952            |
| B. Financed by—  |     |     |     |     |     |                 |
| 1. Public saving (Revenue surplus, additional taxes, capital receipts and additional measures to close the gap). |     |     |     |     |     | 1618            |
| 2. Counterpart resources of external borrowing and grant   |     |     |     | ... |     | 1707            |
| 3. Borrowing from the banking system   |     |     | ... | --  | --  | 157             |
| 4. Borrowing from the private sector   |     |     | --  | ... | ... | 470             |
|  |     |     |     |     |     | <hr/> 3,952     |
| <i>Private Sector</i>  |     |     |     |     |     |                 |
| A. Planned outlay  | --  | ... | --  | --  | --  | 503             |
| B. Financed by—  |     |     |     |     |     |                 |
| 1. Direct financial investment   | ..  | --  | --  | --  | --  | 250             |
| 2. Borrowing from the banking system   | --  | --  | --  | --  | --  | 203             |
| 3. Borrowing from abroad   | ..  | --  | --  | --  | --  | 50              |
|  |     |     |     |     |     | <hr/> 503       |

The public sector programme is to be financed by borrowing to the extent of 43 per cent from abroad, 12 per cent from the private sector and 4 per cent from the banking system. No more than 41 per cent will be financed by savings generated in the public sector. The private sector programme is to be financed to the extent of about 50 per cent from its own resources and 50 per cent by borrowing from the banking system and abroad. However, the private sector is expected to generate more gross savings than is to be



invested directly in this sector; it lends to other sectors, both to the Government and to the banks, and at the same time it also borrows from the banking system and abroad. On balance it is a net lender to the rest of the economy.

Out of gross savings of Taka 967 crores (inclusive of time deposits) the private sector will invest Taka 250 crores directly and lend about Taka 717 crores. The following table shows the intersectoral flow of funds between the private sector and the rest of the economy.

TABLE IV-6  
Source and Use of Funds by the Private Sector.

|   |    |    |    |    |    |    | (Taka in crore) |
|---|----|----|----|----|----|----|-----------------|
| <i>Sources of Investible Funds</i>                      |    |    |    |    |    |    |                 |
| 1. Saving   | .. | .. | .. | .. | .. | .. | 967             |
| 2. Borrowing  | .. | .. | .. | .. | .. | .. | 253             |
| 3 From banking system                                   | .. | .. | .. | .. | .. | .. | 203             |
| 4 From abroad   | .. | .. | .. | .. | .. | .. | 50              |
| Total funds available                                   |    |    |    |    |    |    | 1,220           |
| <i>Use of Investible Funds</i>                          |    |    |    |    |    |    |                 |
| 1. Lending to banks by accumulating time deposits       | .. | .. | .. | .. | .. | .. | 247             |
| 2. Lending to Government—                               |    |    |    |    |    |    |                 |
| (i) Institutional saving (pension, contributions, etc.) | .. | .. | .. | .. | .. | .. | 97              |
| (ii) Purchase of Government bonds, etc.                 | .. | .. | .. | .. | .. | .. | 373             |
| 3. Self financed investment                             | .. | .. | .. | .. | .. | .. | 250             |
| 4. Investment financed by borrowing                     | .. | .. | .. | .. | .. | .. | 253             |
| Total use of funds                                      |    |    |    |    |    |    | 1,220           |

The private sector lends Tk. 717 crores to the rest of the economy and borrows Tk. 203 crores from the banking system and Tk. 50 crores from abroad ; on balance it is a net lender to the extent of Tk. 464 crores. About 25 per cent of its savings are lent to the public sector and about 25 per cent to the banking system. The rest is invested together with the amount borrowed from the banks and abroad which come to about 25 per cent also of private sector savings. Thus roughly 50 per cent of private sector investment is financed out of borrowed money.



## CHAPTER V

## BALANCE OF PAYMENTS AND EXTERNAL RESOURCES

## 5.1 Introduction

The Plan envisages a rapid expansion of export earnings to provide for the imports of consumer goods, capital goods and intermediate inputs. The production programmes in the various sectors have been devised to achieve this and to bring about an optimum pattern of import substitution. During the Plan period, the total visible imports (CIF basis) are expected to cost about Tk. 3787 crores and visible exports would be about Tk. 1988 crores (FOB basis), both at bench-mark prices.

## 5.2 Import Requirements of the Plan

Very few natural and mineral resources are known to exist in Bangladesh. Agriculture is relatively undeveloped and undiversified, being concentrated on a few crops. Intermediate and capital goods industries are few and very underdeveloped. In such circumstances, an increasing tempo of development activity leads to a rapid increase in the imports of raw materials, intermediate and capital goods. In 1973-74, on conservative estimate, requirements of a few basic raw materials, intermediate goods and essential consumer goods, excluding food, are expected to total about Tk. 200-250 crores, which is about 60-70 per cent of the total export earnings expected to be about Tk. 340 crores. These imports consist of consumer goods like sugar, edible oil and oil seeds, textiles, drugs, and medicines and raw materials and intermediate goods such as raw cotton, cotton yarn, tallow, cement, coal and C. I. sheets. This reveals how large a drain on foreign exchange earnings is caused by a limited number of essential items which barely enable Bangladesh to maintain the current level of economic activity and consumption. If imports of foodgrains are included, no surplus is left over foreign exchange earnings at present.

The intended increase in the import needs for raw materials and capital goods during the Plan period is a direct consequence of an acceleration in the rate of investment. The total value of non-foodgrain imports in 1969-70 measured at the current rate of exchange was about Tk. 400 crores. In 1973-74 they are likely to be about one-third higher. Most of this increase is a result of the rise in the average price of imports in the intervening years. The real volume of imports would hardly be 10 per cent higher than it was in the year 1969-70. The ratio of non-foodgrains imports to GDP at current prices was about 10.2 per cent in 1969-70 and is expected to rise to about 10.8 per cent in 1973-74. It is, however, uncertain whether this implies a rise in the ratio of the real value of imports to real GDP, in the absence of information about the



relative movements of the prices of imports and domestic prices. The import requirements for the Plan period are shown below.

TABLE V-1  
Imports during the Five-Year Plan

(Taka in crore)

| Year.  |    |    | Capital<br>goods | Inter-<br>mediate<br>goods | Consump-<br>tion goods<br>except<br>foodgrains | Invisi-<br>bles | Total<br>non-<br>foodgrains<br>imports | Food-<br>grains |
|--|----|----|------------------|----------------------------|--|-----------------|--|-----------------|
| 1973-74  | .. | .. | 179              | 211                        | 125  | 25              | 540                                    | ..              |
| 1974-75  | .. | .. | 237              | 247                        | 151  | 26              | 661                                    | ..              |
| 1975-76  | .. | .. | 260              | 274                        | 167  | 28              | 729                                    | ..              |
| 1976-77  | .. | .. | 273              | 309                        | 190  | 30              | 802                                    | ..              |
| 1977-78  | .. | .. | 281              | 242                        | 146  | 32              | 701                                    | ..              |
| Shipping and Aviation (phasing<br>not yet finalised).  |    |    | 45               | ..                         | ..   | ..              | 45                                     | ..              |
| Foodgrains (phasing uncertain)   |    |    | ..               | ..                         | ..   | ..              | ..                                     | 350             |
| Total  |    |    | 1275             | 1283                       | 779  | 141             | 3478                                   | 350             |
| Provision for delays, uncertain-<br>ties and shortfalls in import<br>substitution programme and<br>export projections. |    |    | ..               | ..                         | ..   | ..              | 100                                    | ..              |
|  |    |    |                  |                            | Total  | ..              | 3578                                   |                 |

The total imports and their commodity composition in the terminal year of the Plan are consistent with the commodity composition of demand for consumption and output. Projections for the intermediate years take the following factors into account: (1) the time phasing of development programme over the Plan Period, (2) the time profile of the completion of the important import substitution projects and (3) the likely time path of growth in industrial production and GDP during the Plan. The total value of non-foodgrain imports is expected to increase above the level of 1973-74 at about 10 per cent per year, while GDP will grow at about 5.5 per cent per annum. By 1976-77 non-foodgrain imports will have risen to 12.5 per cent, of the GDP. But by the last year of the Plan Period, many import substituting projects are expected to be completed



and as a consequence import/GDP ratio could decline to about 10.7 per cent. The Plan, however, provides for the effect of unforeseen leads and lags, delays and shortfalls in import substitution activities. Many of these projects are to be financed through foreign loans. There may be delays in negotiations as well as delays in the implementation of projects. Imports will provide the mechanism for adjusting the unforeseen imbalance between domestic supply and demand. The economy of Bangladesh is operating on a narrow domestic resource base and at a time when new institutions are being devised and sources of imports and new markets for exports are being explored, uncertainties are bound to be great<sup>1</sup>. Even though impact of these uncertainties will be felt throughout the Plan, the effect of delays in import substituting activities will be felt mainly in the later years of the Plan. Consequently, it has been considered prudent to provide for Tk. 100 crores of import to meet contingencies. Even if the entire amount of additional imports were needed in the last year of the Plan, the ratio of non-foodgrains imports to GDP in the final year of the Plan would be 12.2 per cent. A decline in import dependence would, therefore, still take place by the end of the Plan.

An additional factor of uncertainty in estimating the total import bill relates to the imports of foodgrains. The annual phasing of domestic production of foodgrains and the annual import requirements given in the agricultural production plan is subject to uncertainties of weather. Therefore, an additional one million tons of foodgrains imports have been allowed for to offset any possible failure of crop and to build up additional stocks. Thus the total imports of foodgrains are expected to be about 32 lakh tons for the whole period.

TABLE V-2  
Major Imports during the Plan Period

| Commodities.                         | (Taka in crore) |       |                 |       |                  |         |
|--------------------------------------|-----------------|-------|-----------------|-------|------------------|---------|
|                                      | 1969-70         |       | 1977-78         |       | Plan period.     |         |
|                                      | Qty.            | Value | Qty.            | Value | Qty.             | Value   |
| 1. Edible oil .. ..                  | ..              | 26.5  | ..              | 38.5  | ..               | 161.6   |
| 2. Cement .. 4.39 lakh tons          | ..              | 8.1   | 7.90 lakh tons  | 17.0  | 52.88 lakh tons  | 113.9   |
| 3. Sugar .. 0.20 lakh tons           | ..              | 1.6   | 0.71 lakh tons  | 14.1  | 3.72 lakh tons   | 74.3    |
| 4. Raw cotton .. 3.66 lakh bales     | ..              | 16.0  | 2.68 lakh bales | 29.0  | 22.09 lakh bales | 134.0   |
| 5. Cotton yarn .. 0.91 lakh bales    | ..              | 10.4  | 0.56 lakh bales | 8.0   | 16.18 lakh bales | 230.6   |
| 6. Textiles .. ..                    | ..              | 24.2  | ..              | 1.6   | ..               | 39.04   |
| 7. Tobacco .. 27086 tons             | ..              | 10.3  | 28214 tons      | 7.9   | 132857 tons      | 37.2    |
| 8. Machinery .. ..                   | ..              | 84.3  | ..              | 232.9 | ..               | 722.8   |
| 9. Steel .. ..                       | ..              | 28.7  | 4.26 lakh tons  | 42.6  | 21.25 lakh tons  | 212.5   |
| 10. Coal .. ..                       | ..              | 4.5   | 7.6 lakh tons   | 7.6   | 33.8 lakh tons   | 33.8    |
| 11. Other Metals and Metal Products. | N.A.            | N.A.  | ..              | 22.9  | ..               | 86.0    |
| 12. Transport Equipment              | ..              | 14.3  | ..              | 59.6  | ..               | 270.0   |
| 13. Pharmaceuticals .. ..            | ..              | 47.8  | ..              | 20.4  | ..               | 73.8    |
| 14. Other Chemicals .. ..            | ..              | ..    | ..              | 65.0  | ..               | 235.2   |
| 15. P.O.L. .. N.A.                   | ..              | 8.6   | ..              | 53.8  | ..               | 204.3   |
|                                      |                 | 285.3 |                 | 620.9 |                  | 2629.04 |

<sup>1</sup> Furthermore, in the present state of knowledge about the structural coefficients relating to the productive system as well as demand, they are invariably subject to wider degrees of error than usual. New statistical data relating to the structure of the economy of Bangladesh are in the process of being collected and, therefore, could not be fully incorporated in the Plan.



Of the total non-foodgrains imports roughly 37 per cent consists of capital goods and an equal percentage of intermediate goods. While all categories of imports rise during the early years of the Plan period, imports of both consumer goods and intermediate goods decline in the terminal year. This is because some of the important projects designed to substitute for the imports of intermediate and consumption goods such as petrochemical complex, and cement, etc., are expected to yield output in the last year of the Plan period<sup>1</sup>. The imports of non-foodgrain consumer goods and intermediate goods will be about 15 per cent higher in the last year of the Plan than in the first year, if investment activity is realised on schedule. This, however, marks a decline of about 22 per cent in the terminal year over the preceding year. In the terminal year the share of the capital goods in the total imports is the highest. A more detailed composition of imports during the Plan period as compared with 1969-70 is indicated in Table V-2. A few major items or categories of imports constitute about 70 per cent of the total import bill. The pattern of import substitution is also evident; in some cases, there is an absolute decline in the quantity or value of imports such as raw cotton (substituted by synthetics), cotton yarn, textiles, tobacco and pharmaceuticals, while in a few cases, a moderate increase is observed.

### 5.3 Projections of Foreign Exchange Earnings

Exports are projected to expand by about 43 per cent by the end of the Plan period as compared to the benchmark level of 1969-70. The rate of growth of exports is intended to be higher than the rate of growth of GDP during the Plan period. The planned rate of growth is higher than Bangladesh has ever achieved before. The main component of this major thrust in export is the promotion of exports of jute and jute goods. This will be done by exploiting the opportunity of a discontinuous upward shift in exports of raw jute to India and by aggressive price and marketing policy to arrest the declining trend in the world consumption of jute products. Past trends in exports and past policies must be radically transformed if the export earnings are to be increased sufficiently to meet the foreign exchange requirements of the Five-Year Plan, while at the same time keeping the total volume of foreign capital inflow within feasible and desirable limits.

Exports of raw jute and jute manufactures would continue to remain the mainstay of foreign exchange earnings for some years. These two exports are expected to provide about 80 per cent of the total exports by the end of the Plan period. The expansion in the export of raw jute and jute manufactures is predicated on an optimum pricing policy in the domestic and foreign market; this is discussed later. The establishment of a uniform rate of exchange for raw jute and jute goods after liberation ended the discrimination against raw jute which was practised during the twenty years of colonial rule and which acted as a disincentive towards improving the productivity of raw jute cultivation. Secondly, new prospects for the expansion of exports of raw jute have opened up with the normalisation of trade relations with India. During 1972-73, some significant advances have been made in this direction. India purchased a large volume of raw jute from Bangladesh in 1972-73 and is expected to increase its purchases in the future.

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<sup>1</sup> Foreign exchange component of the development outlay is not co-terminus with the imports of capital goods since a part of the foreign exchange component includes what is defined as intermediate goods and services.



Both in the eastern part of India and Bangladesh raw jute competes with rice as an alternative crop. Faced with the need for increasing food production the two countries need to devise, in the interest of efficient use of domestic resources, a pattern of production of raw jute and rice which would be consistent with their relative costs and demand. Indian demand for raw jute for meeting the requirements of her domestic jute manufacturing industry is increasing; it is crucial to determine how much of her needs would be supplied by Bangladesh. The increase in the production of raw jute in India in the past twenty-five years resulted from the virtual suspension of trade relations between India and Pakistan. It is expected that India will find it profitable, given an assured supply of raw jute at competitive prices from Bangladesh, to restrict her jute growing in the marginal areas where cultivation of rice or other alternative crops may be more economical and to refrain from attempting to increase output of jute to meet her increasing domestic demand for jute goods. On the basis of current possibilities, Bangladesh may expect to sell by the end of the Plan Period around 13 lakh bales to India. This is only 20 per cent. of the current use of raw jute in India. The sale of raw jute to India must be seen in the context of a volume of total trade with India, much larger than in the past. Replacement of Indian domestic production of jute by imports from Bangladesh would be a part of a mutually beneficial expansion of trade as well as a more rational and efficient allocation of productive resources within each country.

Exports of raw jute by Bangladesh are expected to be about 50 lakh bales or 8.92 lakh tons by 1977-78. This constitutes an increase of about 13 lakh bales over the average quantity exported during the half decade ending June 1970. No increase in the aggregate purchases by the non-Indian buyers above the benchmark levels is assumed in this projection. Export of jute manufactures, as distinguished from raw jute, is expected to grow at about 4 per cent per year. This is much less than the rate of growth experienced in the sixties. The past rate of growth of jute manufactures was achieved by Bangladesh by cutting into the Indian share in the world trade of sacking and hessian, the relatively low-valued types of jute manufactures. The possibilities of expansion of exports in these types of jute manufactures are rather limited in the future. Bangladesh at the moment has limited production capacity for superior types of jute manufacture. The production plans in the jute manufacturing sector are, therefore, designed to shift the product mix in the direction of non-traditional, high-valued types of jute manufactures. The number of looms in the jute manufacturing sector is to be expanded and the share of carpet-backing in the total output and exports is expected to go up. However, in spite of the shift towards high-valued types of manufactures, the rate of growth of exports achieved in the past is unlikely to be attained.

The combined export targets for raw jute and jute goods assume that the past trends in the world demand for jute and jute manufactures can be arrested by aggressive price and marketing policies designed to combat the onslaught of synthetics. Export prices will have to be low enough to enable stipulated quantity of exports to be sold in the world market. For this reason, adequate allowances have been made for the appropriate pricing of exports.

The projections of exports indicated above are thus based upon a number of assumptions. First, the downward trend in the world consumption of raw jute and jute manufactures can be arrested by appropriate and timely pricing policy. It may be possible for jute to capture a share of the expanding market foreseen by the producers of synthetics, i.e., mainly polypropylene, the major substitute for jute. Recent FAO projections indicate an increase in demand for this synthetic from 13.5 lakh tons in 1970 to 65 lakh tons in 1980. About a third of this increase in demand, that is, 17.1 lakh tons, relates to the uses for which jute and polypropylene are



- (iii) Introduction of classes VI—VIII instructions in 1530 primary schools in the afternoon where there would be no double shift for primary education to accommodate additional 2.3 lakh students (Table XIV-4.2);
- (iv) Consolidation of existing 4,000 junior and secondary schools to achieve an optimum class room size of 50, to accommodate an additional 2.0 lakh students.

In the upper level (classes IX-X), expansion would be relatively moderate. Compared to 66 per cent at the middle level only 36 per cent increase is envisaged at the upper level. An additional enrolment of 1.9 lakh will raise the enrolment level from 5.3 lakh to 7.2 lakh. The thrust would be on science and diversified education. Enrolment in science would increase by 70 per cent, agriculture by 355 per cent, home management/nursing by 275 per cent, industrial arts by 150 per cent and commerce by 36 per cent in the plan period (Table XIV-4.2).

During the Plan about 127,500 places will be created to meet the needs of science and diversified education. Of these, 64,000 will be for science, 19,500 for agriculture, 22,000 for home management/nursing, 3,000 for industrial arts and 19,000 for commerce. In order to meet the targets of enrolment, central laboratories (200) and community workshops (200) will be established in growth centres. Science teaching units will be provided in schools which does not have access to central laboratories. Wireless receiving sets will be supplied to all high schools of Bangladesh. Television will also be provided to schools with electricity.

A sum of Tk. 59.880 crore which constitutes about 18.58 per cent of the amount allocated to the Education Sector has been earmarked for the development of secondary education (Tables XIV-2). The local communities are also expected to contribute to this development, the value of which has been estimated to be about 3.407 crore. Fifty per cent of all the lands required for building new schools are expected to be donated by the villagers themselves. As in the case of the primary schools, they are also expected to donate materials and labour for reconstruction of old schools and building of new schools.



rather than by increasing output per acre, thus reducing cost per unit of tea. The domestic price of tea in the protected market was twice the world market price. However, during the Plan period the emphasis must be on increasing output per acre and on improving the quality of tea and reducing cost of production so that production and exports of tea become more remunerative. Given the anticipated increase in output which is relatively modest in view of the factors stated above, and assuming a certain increase in domestic demand, it seems unlikely that the exportable surplus would be very much more than 6 crore lbs. This is higher than the average level of exports during the sixties, which was about 5 crore lbs. This export target could be exceeded only if production increases at a faster rate than foreseen as a result of technological innovations and organisational improvements and if the export quota under the International Tea Agreement is revised upward and prospects of tea exports under the barter trade agreements improve.

Export of leather and leather products including hides and skins are expected to be more than double compared to the benchmark quantity. Exports in this sector are primarily limited by supply considerations including the capacity of the domestic tanning industry and possibilities of increasing the supply of livestock. Projections of world demand and supply suggest that there are good prospects for increasing exports, specially since Bangladesh exports are small in relation to world trade. The projection of export value is, however, conservative since it is based upon the prevailing export price. The unit price is likely to be higher because the composition of exports is expected to change in the direction of products of high value. Already by 1969-70, raw hides and skins constituted about one per cent of the total value of the hides and skins and leather taken together. It is expected to eliminate the export of hides and to move progressively into the higher stages of tanned leather processing. An overwhelming proportion of exports today consists of wet blue leather which is prepared in the first preliminary stages of tanning and is really to be regarded as only semi-tanned leather. The objective is to move towards exporting fully tanned leather and leather goods. The current surplus capacity in the tanning industry which relates mainly to semi-tanned leather has been caused by the limited supply of hides and skins. The livestock sector has barely registered an increase in output and productivity over the years. While the agricultural Plan provides for an increase in the supply of livestock, the industrial plan provides for an expansion of capacity to alter the composition of production and export mix in the direction of 'crust' and "ready to finish" forms.

Fish is expected to constitute an important item of exports; this will consist of exports of fresh water fish, predominantly to India, and marine fish, mainly to overseas markets. Market surveys indicate a possible export demand for frozen shrimp and prawns at about 70 thousand metric tons, yielding around Tk.15 crores out of a total exports of fish of Tk. 19 crores planned for 1977-78. The rest will include exports of fresh water fish to India. The target for increase in fish production is very much higher than the export target. This is because domestic consumption is expected to increase very considerably, which is highly desirable in view of the serious protein deficiency in the average diet in Bangladesh.

Before liberation, Bangladesh exported to Pakistan a large number of miscellaneous items including such manufactured products as paper, newsprint, matches, etc. These exports amounted to about Tk. 60 crores during 1969-70. They are expected to reach no more than Tk. 26 crores or so by the end of the Plan period. This is partly due to a rapid increase in domestic absorption as projected in the Plan period, specially of paper and newsprint owing to a considerable increase in the use of text books and paper in the educational sector. In some other cases like matches, the quality of exports is not high enough for a headway to be made in the international market during the Plan period. In all these cases, it is assumed that high prices secured for these items in the protected Pakistan market will not be received until improvement in quality of products is achieved in a significant way.



The composition of the export projection in terms of some major exports during the Plan period are shown in Table V-3.

TABLE V-3  
Export in 1969-70 and 1977-78

|                                    |                | 1969-70  |                    | (Taka in crore)<br>1977-78 |       |
|------------------------------------|----------------|----------|--------------------|----------------------------|-------|
|                                    |                | Quantity | Value <sup>1</sup> | Quantity                   | Value |
| Raw Jute .. ..                     | 6.26 lakh tons | 128      | 8.92 lakh tons     | 193                        |       |
| Jute goods .. ..                   | 5.72 lakh tons | 145      | 6.94 ..            | 225                        |       |
| Fish .. ..                         | N.A.           | 3        | N.A.               | 19                         |       |
| Leather and Leather products .. .. | N.A.           | 9        | N.A.               | 20                         |       |
| Tea .. ..                          | ...            | 24       | 6 crore lbs.       | 12                         |       |
| Miscellaneous Exports .. ..        | N.A.           | 60       | N.A.               | 26                         |       |
| Invisibles .. ..                   | N.A.           | ...      | N.A.               | 34                         |       |
|                                    |                | 369      |                    | 529                        |       |

Total export earnings over the Plan period as a whole would amount to about Tk. 2055 crores without making any adjustment on account of terms of trade losses. As suggested earlier, the unit prices used in the projections have been generally lower than the current levels. In addition, further flexibility in the pursuit of an optimal export price policy has been assured by incorporating a terms of trade loss in the projection. Although it is difficult to make a reliable forecast of the required changes in the terms of trade, allowances have been made for a possible decline to the extent of 2 per cent of the value of exports during 1974-75, and thereafter a decline by an additional 1 per cent per year has been assumed so that in the last year of the Plan there will be a total decline equal to 5 per cent of the export earnings. The phasing of the rate of decline in terms of trade is arbitrary but the total magnitude appears to be reasonable. Bangladesh has to pursue an appropriate price policy for exports of jute and jute goods, if the trend of her declining share in the world market is to be reversed. For a large number of new products, it will be necessary to find new outlet in world markets even in the face of established trade channels and consumer preferences of long standing. The annual phasing of exports is shown in Table V-4.

TABLE V-4  
Exports during the Plan Period<sup>2</sup>

|         |    |    |    | (Taka in crore)     |            |   |                                 |
|---------|----|----|----|---------------------|------------|---|---------------------------------|
| Year    |    |    |    | Merchandise Exports | Invisibles | Loss of earnings due to decline in terms of trade | Total Foreign Exchange Earnings |
| 1973-74 | .. | .. | .. | 315                 | 25         | ..  | 340                             |
| 1974-75 | .. | .. | .. | 376                 | 26         | 8   | 394                             |
| 1975-76 | .. | .. | .. | 413                 | 28         | 13  | 428                             |
| 1976-77 | .. | .. | .. | 453                 | 30         | 19  | 464                             |
| 1977-78 | .. | .. | .. | 498                 | 32         | 27  | 503                             |
| Total   |    |    |    | 2055                | 141        | 67  | 2129                            |

<sup>1</sup>Exports in 1969-70 are evaluated at Tk. 8 per 5 except for exports to Pakistan.

<sup>2</sup>All exports are shown at F.O.B. prices.



#### 5.4 Institutions and Policies in Foreign Trade

In the post-liberation period, there have been important changes in the institutional framework of foreign trade in Bangladesh. The direct participation by the public sector agencies in the conduct of foreign trade has greatly expanded. By now between 80 and 90 per cent of foreign trade is conducted by the public sector agencies. The extension of state participation in foreign trade has been partly due to the direct consequence of expanded state participation in the ownership of industrial enterprises. The industrial enterprises directly import their requirements of raw materials and spare parts under a system of industrial licencing. Since more than 80 per cent of the industrial assets in the large scale sector are owned by the state, an overwhelmingly large part of imports of industrial raw materials is undertaken by the state enterprises. The imports of consumer goods, raw materials and miscellaneous capital goods required by the private industrial sector are now shared between state trading agency, private industry and private commercial importers. It is the role of the last category which has significantly declined in the post-liberation period. The Trading Corporation of Bangladesh is the State agency which undertakes imports of both industrial raw materials, consumer goods and some miscellaneous equipments. The expanded role of the T.C.B. in import trade has been due partly to the disappearance after liberation of the established importers who were of Pakistani origin. In addition, the vacuum was also sought to be met to some extent by inducting new private traders in the import sector. A large number of small importers emerged, many of whom had little experience in import trade and functioned inefficiently. Consequently in 1973-74, attempts are being made to reduce the number of importers and to leave private participation in import trade in the hands of established importers. The additional reasons for the expanded role of the Trading Corporation of Bangladesh are as follows:

Firstly, there are items of import for which bulk purchase as well as bulk shipment yield economies of scale. Consequently the importation of these items by one State agency rather than by a large number of private importers is more efficient. To some extent, however, over centralisation of imports may lead to delays and bottlenecks. Therefore, the nationalised industrial sector corporations who are capable of handling the import requirements of the enterprises under them have been allowed to import directly in the interest of efficiency and speed. In short, in the case of industrial raw materials, the sector corporations import for the nationalised industries, while the T.C.B. undertakes imports for the private industries.

Secondly, in the case of barter trade where monopoly sellers abroad confront purchasers in Bangladesh, import by T.C.B. is likely to yield advantages in terms of better terms of trade. However, the volume of trade which is to be handled by T.C.B. has to be restricted to the limit of its organisational ability and expertise. For those commodities in which close contact between ultimate user and sellers is important and where knowledge of detailed product specifications cannot be easily obtained except through constant negotiations between sellers and importers, it has been thought desirable to leave the responsibility for importing to the actual user or industrial enterprises.

In the case of commodities which were previously bought from Pakistan, Bangladesh has been engaged in finding new sources of supply. It is intended to build up expertise in the T.C.B. to handle international trade in commodities which have relatively few sources of supply and in case where supply limitations make it necessary to forecast and follow short-term movements in prices closely.



The prevailing system of implementing the annual import programme is through a system of import policies covering periods of six months each. An allocation of foreign exchange for capital goods for public sector enterprises is made directly by the Government as laid down in the Annual Development Programme incorporated in the Annual Budget. For private sector enterprises, import requirements are indicated in the investment schedules prepared by the Governments and funds are allocated by the specialised credit institutions after an examination of individual applications. The allocation of raw materials for industrial enterprises, both public and private, is made through a system of import licensing, which indicates the requirements of raw materials and spares for each individual enterprise. This is based on a survey of requirements of raw materials and spares undertaken by the Ministry of Industry. The requirements are based on one shift capacity and they are specified in detail. However, the process of specification can never be complete and the survey is necessarily imperfect. Periodic revisions are made as requirements change with changes in the product-mix and in import prices. This is all the more necessary because requirements of imports are identified in terms of quantity as well as of value; the licences are usable for imports of a specific list of items in predetermined quantities. This system has created some bottlenecks and delays, but in a situation of acute scarcity of foreign exchange a system of rationing such as this can be relaxed only in the context of a more effective system of macro-economic controls to be operated by fiscal and monetary policies.

In the sphere of export trade, state participation has also been considerably enlarged. The export of raw jute has been centralised in the hands of one State enterprise called the Jute Export Corporation. There are three agencies which are engaged in the internal marketing of jute, in addition to private traders. Both private traders and internal marketing agencies channel their export through the Jute Export Corporation. The direct contact between the foreign buyers and individual private exporters no longer takes place. The offers of purchase from overseas customers are received by the Jute Export Corporation which then allocates amongst the marketing agencies and the private shippers their individual shares of exports. While the actual arrangements for physical movement and shipment of exports as well as their documentation are made by the private traders and marketing agencies, all exports are made in the name of the Jute Export Corporation at prices agreed by it. This has helped mitigate dangers of under invoicing. In the remaining export trade, private traders are engaged in exporting products originating in the private sector whereas public sector enterprises export their own outputs directly.

During the Plan Period, Bangladesh will strive to explore new markets and forge new trading links; this is made all the more necessary by the disruption of pre-liberation trade links. The expansion of trading relationship with India is one of the important new links which are being forged. Similarly, in the past one year, Bangladesh has entered into a number of bilateral trade agreements with a number of socialist countries. At present, about 10 per cent of the export trade of Bangladesh proceeds through barter agreements. Bangladesh needs to find new markets for tea, leather and leather goods, fish and miscellaneous manufactured goods in both the free market and centrally planned economies. The entry of the UK into the EEC will also affect the exports of Bangladesh. Steps will be taken to negotiate an agreement with EEC to liberalise the flow of exports from Bangladesh into EEC. The overwhelming dependence of the country on a few limited exports, specially jute and jute goods, which are exported in large volume to UK and EEC makes it all the more imperative to obtain liberal and concessional access to these markets. In the next few years, in view of the highly underdeveloped state of the economy, lack of diversification, low *per capita* income and the poverty of physical and socio-economic infra-structure, Bangladesh will remain one of the "least developed countries" of the world, as defined by the UN, and will, therefore, be eligible for special concessions in trade negotiations giving access to the markets of the developed countries.



Exploration for export markets is only partly a matter of trade negotiations and the establishment of an appropriate national and multinational framework of trade; it is also a function of appropriate pricing and export promotion policies. In view of a rise in domestic costs, wages and prices in the last year or so, the majority of the exports of Bangladesh have tended to become non-competitive in the world market. This is particularly and immediately relevant in the case of the most important exports of Bangladesh, *i.e.*, raw jute and jute exports.

In order to combat effectively the threat of synthetic substitutes, it is necessary to make downward adjustments in the price of raw jute. This is also necessary to recover the markets lost during the disturbances of 1971 and 1972. While, on the one hand, it is necessary to make a downward adjustment in export price, it is essential to ensure on the other hand that the domestic purchase price at which the state marketing agencies and private traders purchase raw jute from the farmers provide adequate incentives for the cultivation of raw jute in competition with rice and other crops. Jute is grown on about 8 per cent of the cultivated area; since a large part of this area could also be used for growing rice, the relative prices of rice and jute are most important in determining the output and supply of raw jute. In the post-liberation period the international price of rice has increased much more than that of jute with a resultant fall in the relative price of jute; this has discouraged the production of raw jute. Traditionally, jute has competed with *Aus* crop but with the new high yielding variety of rice, late *Boro* is also a competitor which has increased the opportunity cost of growing jute. The need to change the internal purchase price of raw jute in accordance with the increasing returns obtained from growing other crops can be reconciled with the need to lower the export price only by raising the effective rate of exchange for jute exports by some means.

The case of a higher effective exchange rate for jute goods is no different and, in fact, much stronger. On the one hand, the costs of production of jute manufactures have gone up due to a rise in wages and increased cost of raw jute and on the other hand, the jute industry has lost the subsidy which was derived from the export bonus scheme and which was withdrawn in the post-liberation period. The loss of managerial and entrepreneurial talent in the jute manufacturing industry after the biggest and most important units were abandoned by the Pakistanis has further eroded the profitability of this export industry. It is urgently in need of export subsidies, in addition to a considerable improvement in organisational and managerial efficiency to attain the export targets indicated in the Plan. The future of exports of jute manufactures also depends upon improvement of the product and on the successful development of new uses of jute. The importance of both technological and market research can hardly be exaggerated. The role of the proposed Jute International with its technical research centre in Bangladesh is critical in this respect. Bangladesh has already accepted this scheme and committed itself to its future development. In this respect India and Bangladesh must coordinate their efforts, both financially and organisationally, and persuade the importing countries as well as other jute producing countries such as Thailand, Nepal and Burma to participate in this international effort.

In the past, one of the important obstacles in the way of expansion of jute exports has been the lack of an assured supply as well as frequent interruptions in exports and delivery schedules. It is one of the prime objectives of the state trading agencies to remedy these deficiencies.

The manufacturing exports of Bangladesh, other than jute goods, have suffered from even a greater fall in the effective exchange rate in the post-liberation period, following the withdrawal of the export bonus scheme. They have also been subject to rises in wage and raw material



costs in this period. Consequently, they also are in need of a higher effective exchange rate. An improvement in the effective exchange rate is all the more necessary to enable them to incur additional selling costs to effect a successful entry into new markets.

The techniques of marketing, including appropriate shipping arrangements, are also important in the promotion of new exports and in the expansion of old exports in the new markets. The Export Promotion Bureau with its regional branches is being strengthened. The Bureau is charged with responsibility of promotional activities in the overseas markets. It is guided by the recommendations of an Export Promotion Council which has inter-ministerial as well as private sector representation. There are a large number of national export promotion committees which are concerned with the promotion of specific Bangladesh exports. Promotional activities including specific market studies as well as preparation of appropriate design for export products are specifically relevant in the case of the products of cottage industries. Moreover, an Export Market Development Fund has been created to promote the participation of Bangladesh in international trade fairs and to intensify other sales promotion activities in export markets abroad. Assistance will be sought from such bodies as UNCTAD and the International Trade Centre for the identification of new market possibilities and for advice on promotional activities. Finally, serious attention will be paid to quality control and the enforcement of international standards for exports.

### 5.5 Foreign Capital Inflow

The gap between exchange earnings and import requirements has to be met by capital inflow which includes grants, loans and private foreign investment. The foreign capital requirements are estimated at about 1800 crores for the five years. This requirement is estimated net of debt service payments. No estimate of required debt service payments has been made; most of the loans contracted in the post-liberation period would not involve any significant debt service payments in the next five years. All the ongoing aided projects, some of which have been reactivated in the past one year and the rest of which would also be reactivated, would involve debt service payments within the Plan period. Requirements of gross capital inflow would, therefore, be higher than the net inflow. The composition of net foreign capital inflow is shown in Table V-5:

TABLE V-5

#### Foreign Capital Inflow during the Plan

|   |    |    |    |    | (Taka, in crore) |
|---|----|----|----|----|------------------|
| 1. Payments (excluding debt service payments) .. .. .   | .. | .. | .. | .. | 3928             |
| 2. Net receipts from Exports .. .. .  | .. | .. | .. | .. | 2129             |
| 3. Required Net Capital Inflow of which :   | .. | .. | .. | .. | 1799             |
| (a) Project Credit and Aid (including project related technical assistance) ..                |    |    |    |    | 832              |
| (b) Commodity credit and Aid (including food and services under technical assistance) .. .. . | .. | .. | .. | .. | 967              |
| 4. Estimated Counterpart Fund equivalent of Capital Inflow .. .. .                            | .. | .. |    |    | 1757             |



The allocation of the net foreign capital inflow between project and commodity assistance depends upon the extent to which project loans include local cost of financing. It also depends upon how a commodity loan is defined, i.e., whether it includes to some extent the supply of equipment and machinery. In some cases, project assistance may not be available in time for the execution of the development projects as scheduled in the Plan. Foreign exchange earnings of Bangladesh may have to be spent on the import of machinery and equipment in a few cases which are otherwise financed from project loans but delay in negotiating project loan may upset the fulfilment of the Plan. Project assistance takes a particularly long time involving long drawn out negotiations with the creditors; some of the delay being inherent in the procedures and systems laid down for the negotiation of project aid by many creditor countries. It is unlikely that more than two-thirds of the investment projects will be eligible for project loan. This makes it all the more important for either the component of commodity credit to be enlarged or for project loans to include liberal financing of the local cost component of the development projects.

Project and commodity loans indicated above include technical assistance. Technical assistance in the form of services of experts and consultants as well as training facilities for Bangladesh citizens is partly tied to the projects which are financed under specific project loans. Experts are often needed for the installation of plant and machinery as well as for on the job training of the local personnel in connection with the operation and maintenance of specific foreign aided development projects. Both kinds of assistance will be needed in substantial amounts in connection with the foreign aided projects during the Plan period.

In addition, there is need for technical assistance not as a part of project loans but for projects which are financed from domestic resources as well as for foreign financed projects for which training facility and services of consultants are not available as a part of a total package of project loans and technical assistance. The choice of fields of training, number of trainees as well as the number and specialities of experts are negotiated independently. This kind of "untied" technical assistance is included above in the estimates of commodity loans. It is estimated that during the Plan period, services of experts and consultants as well as training facilities for Bangladesh abroad would cost about Tk. 35 crores.

In addition, there would be need for technical assistance for preparation of feasibility studies and reports for new development projects. The domestic capacity for undertaking such studies is limited. The services of foreign, specialised consulting firms would be required for undertaking detailed studies as well as preparing project reports. The amount estimated for this purpose is about Tk. 15 crores. Thus the total amount of technical assistance required would be about Tk. 50 crores.

The guiding principles for the use of technical assistance, as indicated above, would be as follows:

- (1) Maximum emphasis would be placed on the development of institutions within the country for training facilities, excepting where the field of training is highly specialised, numbers involved are small and cost is high. For manning the technical training institutions in the early years, services of experts should be secured while Bangladesh citizens are at the same time trained abroad to take over the training functions on their return. In short, emphasis should be placed on building up domestic institutions.



- (2) Manpower requirements in the various sectors of the economy have been worked out as part of the sectoral plans; training facilities and services of experts should be consistent with the requirements of the Plan. A proper balance should be maintained between specialisation in narrowly defined skills and that in the broad categories of skills. This is necessary for two reasons. First, it is difficult at the initial stage of development to forecast the requirements of very narrowly defined skills. Second, there must be room for flexibility and adjustment so that imbalances between supply and demand of narrowly defined skills can be rectified by mobility between skills which is facilitated if training is imparted in broad categories of skills.
- (3) There is a critical limit on the speed of absorption of foreign technical experts and advice. This is determined by the availability of local counterparts who are able to work alongside the expatriate experts to be eventually replaced. Moreover, the use of foreign consulting firms for feasibility studies or for direct involvement in the execution of development projects should, whenever possible, be combined with the use of local consulting firms or, in their absence, individual consultants. The ability to use foreign consulting firms is as critically important as the quality of foreign consulting firms; terms of reference of their work as well as adequate methods of evaluation of foreign consultants must be properly worked out, if maximum use is to be made of the foreign consulting firms.

The requirements of capital inflow are indicated in terms of disbursement or actual utilisation of capital inflow. There is a lag between commitment in the sense of signing loan or credit agreements and the actual flow of commodities or equipment under the credit agreements. This lag is very large in the case of project assistance—much larger than in the case of commodity assistance. In view of a substantial lag in the disbursement of project loans, it is necessary to build up a portfolio of projects as fast and early as possible in the Plan period so that the desired rate of disbursement can be assured for the new projects included in the Plan. Many of the ongoing projects are covered by existing credit agreements and disbursements under them will need to be expedited. Previous experience indicates that about one-third of the opening pipeline of project loans is likely to be utilised each year, whereas about 90 per cent of the opening pipeline of commodity loan is disbursed each year. From the new commitments of loans made each year no more than 55 per cent of commodity loans and 15 per cent of project loans are likely to be disbursed within the same year. With an opening pipeline of about Tk. 414 crores on June 30th, 1973, additional commitments of loans during the Plan period will need to be not less than about Tk. 1900 crores in order to ensure the required disbursement of foreign loans. This figure includes new commitment of about Tk. 1000 crores of project loan and Tk. 900 crores of commodity loans.

TABLE V-6

Time Phasing of Foreign Exchange Receipts and Payments and Required Foreign Capital Inflow

(Taka in crore)

| Year    |    | Receipts | Payments | Capital Inflow |
|---------|----|----------|----------|----------------|
| 1973-74 | .. | 340      | 710      | 370            |
| 1974-75 | .. | 394      | 742      | 348            |
| 1975-76 | .. | 428      | 794      | 366            |
| 1976-77 | .. | 464      | 848      | 384            |
| 1977-78 | .. | 503      | 834      | 331            |



The time profile of payments and receipts of foreign exchange has been based on certain arbitrary, but plausible, phasing of payments for food imports and payments for civil aviation and shipping equipment. The requirements of emergency food imports are expected to be high during 1973-74, partly because of the seasonal nature of the shortage resulting from the fact that *Aman* crop is not available until the end of 1973, and partly from the need to build up stocks. The foreign exchange expenditure on shipping and civil aviation is distributed over the last four years of the Plan period. The provision of Tk. 100 crores of foreign capital inflow for meeting uncertainty and delays in the implementation of import substituting projects is put in the last year of the Plan period.

There is an absolute decline in the requirements of capital inflow in the second year of the Plan period owing to a decline in the requirements of food imports. Thereafter there is a steady increase in capital inflow linked to the increasing tempo of development activity. However, in the last year of the Plan period there is again an absolute decline in capital inflow on the assumption that large numbers of import substituting projects would be completed. Because of the various uncertainties mentioned above and arbitrary assumptions involved in the phasing of a few important imports, the time phasing of the capital inflow is to be regarded as highly tentative. At the time of the preparation of each subsequent Annual Plan, the requirements will be revised in the light of the prevailing circumstances and the state of the balance of payments and domestic resource availability.

The cost of capital inflow must be kept as low as possible by subjecting aid offers to constant social profitability analysis. The diversification of aid-sources will also permit flexibility in the choice of projects and policies.



## CHAPTER VI

## MOBILISATION OF LABOUR FOR DEVELOPMENT

## 6.1 The Problem

In the preceding chapters the programme of mobilising resources has been outlined. The main components of this programme are public saving, private monetised saving and some autonomous parts of private non-monetised saving. The last item consists of activities undertaken by private individuals and households more or less regularly in small forms of capital construction which have been described in detail in Chapter 3.

The above programme will enable the economy to absorb 54 lakh man-years of labour force, quite a bit of it in subsistence activities of a self-employing variety. There will still remain a vast reservoir of idle man-power which cannot be provided with gainful employment because of a shortage of complementary inputs. In Bangladesh a casual observer will continue to see "a lot of work needed to be done all over the country and a lot of people going around without work". This dilemma arises from the fact that the employment of additional labour usually requires material and capital inputs, in addition to labour itself. These inputs are very scarce. Furthermore, employment also involves the payment of wages which requires the generation of saving somewhere in the economy.

Today those who are unemployed and underemployed are able to meet their "subsistence" partly by intermittent earning and partly by dependence on their families. It may, therefore, be argued that since these people are somehow able to obtain a subsistence income, they could use their idle skill and/or labour power if they had sufficient motive and opportunity to do so. Such voluntary contributions of labour would presume that there are projects where complementary capital and resource requirements are negligible. While in many areas of conventional development activity such projects are rare, one can easily identify a good many activities for which the assumption would be valid. For example, an educated young man can teach the children of his own village even if there is no conventional school. He can teach the villagers how to improve sanitary conditions in homes and villages. Youth and student labour could build a great many things, like ancillary roads and small dams, with voluntary labour and little equipment. A student engineer can participate in skill-intensive development projects during vacations.

But this cannot happen unless there is motivation to perform any of these functions without adequate direct remuneration. The potential beneficiaries are unable or unwilling to pay for these services or perform these functions themselves because the benefits of these activities are likely to accrue to the society as a whole and not exclusively to some individuals who could and were willing to pay for them.

There are several other important problems that need to be taken into account in understanding the implications of mobilising labour. Firstly, those who are underemployed or unemployed and work only casually and live off their friends and relatives may require an additional intake of consumption goods when they are put on more intensive employment. At subsistence levels of consumption the demand for food is usually directly related to the volume of physical labour. This generates additional demand for wage goods. Secondly, families who are presently meeting the consumption needs of the underemployed or unemployed members may be unwilling to bear the burden of consumption once the latter find "employment". Thirdly, location of the development projects and that of unemployed labour may not always



coincide. If those who volunteer for work are to be transported and arrangements have to be made for their food and shelter, their employment is not only not costless but may also involve costs higher than the prevailing wage rate. As a rule, therefore, voluntary activity needs to be undertaken in and around the normal place of residence. Fourthly, there is normally a need for some implements and tools which workers themselves supply and which are not usually in the conventional cost estimates of development projects since workers usually have these tools. The unemployed or underemployed who have not been engaged previously in this kind of work would need to be supplied with these tools. In formulating the programmes for the mobilisation of labour due consideration must be given to the above problems.

Mobilisation of labour need not be restricted to the unemployed or underemployed labour force; those who are employed can also be pressed into service for productive work during their leisure hours or holidays. To this group belong teachers, students, self-employed persons as well as those employed in public and private enterprises. The present educational curricula do not keep the students busy throughout the year. More than four months in a year are holidays. It is possible to reschedule the holidays in such a manner so as to coincide with peak seasons in agriculture and the construction season in the winter months.

One of the by-products of the use of students for productive work would be to establish the dignity of labour and to demonstrate that preference for white-collar work is not socially desirable or covetable. It will bring the urban elite in touch with the rural poor and may arrest the process of alienation between the rural and urban areas as well as between those who work with their hands and those who work in offices.

However, there are a few considerations which need to be kept in mind before productive utilisation of student labour can be organised. First, their employment has to be near their places of residence so that when they return home during vacations, they can be maintained by their families. Secondly, to the extent that colleges and schools are located near to the rural areas, they can also work in and around the campuses during the academic year. Thirdly, this type of employment should be so devised as not to compete with unemployed or underemployed labour. This would create social tensions because the unemployed or underemployed would tend to believe that these employment opportunities would otherwise have been available to them.

Important fields in which students and youth can be employed would be to meet labour shortage during peak seasons and to provide services which require skill but for which available resources do not permit the employment of sufficient manpower. In addition, student labour may be used for work in the utilisation of unused land in college and school campuses. The students may also act as watch-dogs for the speedy implementation of the projects in their areas, ensure that supplies of materials and inputs arrive in time, and that malpractices by the executing agencies in the field are avoided. They can also serve, after a crash programme of training, as extension agents for disseminating knowledge of new agricultural techniques. The use of students as watch-dogs over the performance of the implementing agencies, however, has to be carefully coordinated so that no conflicts and contradictions may emerge. It is evident that a planned inflow of educated manpower even without experience will substantially improve the quality and productivity of village life, whilst equipping the students with a range of practical experience which would make their formal education much more relevant to the nation's needs.

One important obstacle in the ways of using the unemployed or the underemployed among the small farmers and landless labour, either on a voluntary or on a compulsory basis, is the unequal distribution of economic and political power in the villages. If the benefits of the projects are not directly related to the daily lives of those offering unpaid labour, this type of



mobilisation of manpower is unlikely to be widespread and sustained. Even if road building or dyke construction helps the entire community, it is likely to be more helpful to the surplus farmers or bigger land-owners.

In a situation of unequal distribution of land and economic power the first step, short of drastic land reforms, is to require all economic groups in the village to provide labour services for common benefit. One way of organising such work is to require all land-owners to donate labour proportionate to his land holding, for example, one day per bigha. Part of this labour obligation may be commuted by monetary contribution instead, but it is important that some labour is given, subject to constraints of age and health, by everybody irrespective of wealth or social status in order to establish a sense of social solidarity. Over and above the obligatory labour, any amount of voluntary labour will be welcomed.

Notwithstanding the difficulties mentioned above, it will be possible to mobilise the idle labour force of the country if our elite groups participate in the nation-building activities in their areas. Already, there are instances of groups being formed in the wake of the liberation war with these ends in view. Such groups need active encouragement. Their actions are bound to exert a powerful impact on all those who profess to hold socialist and egalitarian beliefs. The mass media must give wide publicity to the activities of these groups including the difficulties which are being faced by them. The new volunteers will thus not only be motivated but will also be able to learn from the experiences of the pioneers.

## **6.2 A Programme for Labour Mobilisation**

Keeping these problems in view, a programme for labour mobilisation in rural Bangladesh centred around the institutions of local self-Government may be based on the following lines:

- (i) All males of working age in the area will be required to donate a given amount of labour in a calendar year. It may be considered whether the landless and/or destitutes be exempted from donation of labour.
- (ii) A person may get a part of his labour obligation commuted by payment of an agreed sum for every day he wishes commuted. This fund accumulated from commuted labour will be used to give employment to the destitutes and landless as a wage.
- (iii) All colleges and Universities will programme their vacations to coincide with the peak demand season for labour. During these vacations students will have to return for a minimum period in a year to their village homes. Urban based students may be organised for work in their respective campuses or localities.
- (iv) Everyone will be free to volunteer labour over and above the stipulated minimum.
- (v) As far as possible special skills of students should be used when they visit the rural areas. Whilst they must certainly undertake manual work, their comparative advantage, however, lies in utilising this higher education to the service of the farmers. For example, agricultural students can serve as extension workers, medical students can work as "barefoot" doctors and female students as family planning motivators.



- (vi) In urban areas, colleges and Universities could, in addition to the labour donated for work in villages, undertake routine volunteer work throughout the year. In these urban-based projects, there are more opportunities for using their educational skill.
- (vii) The educational curricula would have to provide special courses for equipping the students to play their new role.

### 6.3 Organisation

This programme for mobilising under-utilised labour and voluntary labour is a radical departure from traditional methods based on monetary incentives. A major organisational and political effort will be required to make such a programme an integral part of the development process rather than a short-lived gesture. The following steps are proposed to set up such a programme:

- (i) A Labour Mobilisation Committee should be immediately constituted under the Prime Minister. This committee will set up the institutional framework, formulate regulations and laws to implement it and work out the programme for deploying labour and the phasing of the programme.
- (ii) The institutional arrangements will have to be related to the proposals for local institutions now under consideration. The local institution will have to be the basic unit for organising the use of this labour. The proposed Committee must, in the light of experience and what is feasible, define the tasks of the various institutions.

The programme for mobilising labour will be incorporated in the projects included in the Plan. This will finance part of the labour component of such projects. The projects which are particularly suitable for this purpose are normally in such sectors as road construction and works programme, education, health, rural sanitation, irrigation and drainage, etc. In respect of the projects in the Plan the local authorities will receive certain resources in cash and kind from the national budget. Most projects will pay for cement, steel, skilled and even unskilled labour. Mobilised labour will provide for only that part of the labour costs which have not been budgeted for. In addition to the projects included in the Plan the local authority will also work out a series of additional projects to utilise the mobilised labour. These may be local projects which do not require use of any resources budgeted for in the Plan and require no material input component or very limited amounts which can be locally produced and financed.

Once the idea has been accepted and local Governments are organised to perform budgeting and planning tasks the local labour budgets will be made available to the planner at the time the annual plan is prepared for inclusion in the national resource budget.

Programming the available labour into productive projects must be carefully done or such labour services will be wasted. To this end, local authorities must set up planning cells which will draw up and programme the manpower budgets in consultation with local leaders.

It has not been possible to quantify this labour input into the resource budget of the First Five-Year Plan. Much depends on the development of political motivation, the transformation of social attitudes and the emergence of local institutions without which actual quantification can only be purely conjectural. The Five Year Plan does enumerate a resource gap. This gap



can be filled in part or whole by resources generated from the labour mobilisation programme. To the extent that the programme is successful it may be possible not only to cover the resource gap but increase the size of the investment programme. As experience is gathered over the next year or two a more quantitatively precise estimate may be incorporated in the mid-term revision of the Plan.

Organising a nation-wide labour mobilisation programme will take time particularly since newly elected local government institutions have yet to assume their responsibilities. It will, therefore, be necessary to initiate the programme on an interim basis through the organised student community who have already given the lead in some voluntary labour mobilisation projects. The Prime Minister may immediately set up an autonomous body to organise and programme student labour initially on a voluntary basis. Experience derived from this interim programme will provide a basis for drawing up the full fledged programme for labour mobilisation discussed earlier.

In this perspective the task for the political leadership remains the most demanding. To lead, organize and inspire such a radical programme on a sustained basis will only be possible if the leadership itself takes the lead in mobilising labour at the village level. They will have to activate local organisations by their presence and participation in local projects and will have to inspire students by leadership on the ground rather than by mere exhortations to hard work. They will have to ensure both at the national and local levels that these programmes are not diverted to promote parochial interests or that individuals or groups are not exempted from their obligations due to use of local influence or pressure from above. The leadership, students and nation will need to respond to this challenge for mobilising our abundant human energy in order to expand the frontiers of our development possibilities beyond the limits of a conventional monetised plan to accelerate the pace of social transformation in Bangladesh.



## CHAPTER VII

## THE IMPLEMENTATION OF THE PLAN

## 7.1. Planned Development and Administrative Machinery

A Plan, however well designed, is only as good as the seriousness with which its discipline and policy prescriptions are observed, the extent of political commitment behind it and the efficiency with which it is implemented. History of planning in many countries indicates that a Plan easily degenerates into an academic exercise if political leadership and administrative machinery are not seriously committed to its implementation. Plan targets will remain pious hopes if this happens which, in turn, will generate frustrations. This necessitates that Bangladesh must devise necessary institutions and policies consistent with the priorities and allocations suggested in the Plan. It will require considerable administrative, social and institutional changes if the modernisation of the economy that we are striving to bring about is to be achieved. In this chapter we are not concerned with the political aspects of such a transformation but with its administrative aspects in relation to the implementation of the Plan.

The Administrative Reorganisation Committee is at present engaged in deliberating on the present administrative structure and developing a system that will be both efficient and consistent with the country's aspirations. In the public sector of the economy implementation depends essentially on administrative actions while in the private sector of the economy the Plan must be directed more by indirect means through the application of suitable fiscal, commercial, and monetary measures rather than by direct administrative action. Heavy demands will be made on the administrative capacities of government, whether it is concerned with organising its own activities or overseeing the private sector of the economy. In each of the sectoral programmes, the appropriate institutional framework has been discussed in detail. In Bangladesh this is specially important because before liberation many of the required institutions were either absent or inadequately developed. Moreover, in several important sectors such as manufacturing industry, external and internal trade, and banking and financial institutions, there has been a major transformation in the pattern of ownership and management.

An important pre-requisite for plan implementation is the presence of a speedy decision making process. This basic need relates to the optimum degree of centralisation under the circumstances prevailing in Bangladesh today, specially when the various administrative agencies or ministries are not adequately equipped. In the day to day decision-making process which is specially relevant for the execution of development programmes, the focus of decision-making must be clearly defined. While initial inexperience and desire to avoid mistakes may have contributed to the state of over-centralisation, its continuance is not desirable. The individual ministries need to demonstrate initiative and enterprise in identifying the problems in their sectors and in taking quick remedial action. The delegation of authority and fixation of clear-cut responsibility are recognised to be the best method of ensuring the growth of initiative and responsibility. The risks involved in decentralisation are, in the long run, much less than those inherent in a system of over-centralisation. This is because the range and complexity of issues requiring quick decision are far too great to be handled by a single decision-making unit. It will involve either delay or inefficiency since adequate thought and attention cannot be given to each individual issue. Over-centralisation often makes it impossible to distinguish between more and less important issues.



The cost of a delayed decision is not less than that of a wrong decision. Decision making ability improves through a process of learning by doing as one is involved in decision-making. To minimise the risk of wrong decisions and to develop collective responsibility it is necessary to evolve inter-ministerial consultation procedures. Therefore, the next important pre-requisite for an improvement in the efficiency of development administration is inter-ministerial co-ordination and consultation on important policy issues as well as on the implementation of development programmes and projects. Inadequate co-ordination between different Ministries adversely affects the execution of development projects and smooth functioning of the economy. Inter-ministerial consultation is not easy even under the best of circumstances; it requires effective leadership for the successful operation of each of the inter-ministerial committees.

There are at present several obstacles to effective co-ordination. One is the distribution of the closely related subjects amongst a number of separate Ministries which prevents a more rational grouping of subjects which are cognate and closely related. Splitting up of related subjects into separate ministries is not necessarily an insurmountable problem if institutional arrangements are made for co-ordination at all levels. But the difficulties of co-ordination increase in proportion to the number of Ministries which need to be co-ordinated. Moreover, if passionate and aggressive promotion of individual identity of each ministry is combined with relative administrative inexperience, the adverse consequences of division into separate ministries of the closely related subjects are aggravated.

## 7.2. Machinery for Economic Planning and Policy Making

The Planning Commission is entrusted with the functions of preparing annual, five-year and perspective plans as well as formulating policies for the implementation of the plans. In addition, it has the responsibility of evaluating plan performance and monitoring of the progress of plan implementation on a continuous basis. The Planning Commission also determines external aid requirements and negotiates aid with foreign countries. The Planning Commission also has the responsibility for recommending policy measures on important economic issues. Finally, the Commission assists the various Ministries in project formulation and advise on the nature of machinery for efficient execution of plans, programmes and policies. The Planning Commission, as the above functions would suggest, should play a critical role in economic policy making as well as in advising on the appropriate institutions and administrative machinery, and the policies for the execution of plans and programmes. It must not only allocate resources on the basis of priorities in the Plan, but also evaluate and review the progress of implementation of the Plan including that of individual major projects.

The Planning Commission also has to play a key role in the technical and economic evaluation of development projects. This is specially so at the present stage when the individual ministries are not properly equipped to perform this function. As individual ministries become better equipped it may be desirable to encourage a greater decentralisation of this function. In Bangladesh, there is an acute scarcity of technical personnel for project appraisal. Given this scarcity, there is a need for the centralisation of the task of evaluation of development projects. There are additional reasons why this task should be performed by the Planning Commission. First, it is necessary to establish uniform standards for the evaluation of all schemes in all ministries. Secondly, it is absolutely essential to provide



an evaluation of a project by a body which is not involved in its initial sponsorship nor will be involved in its execution. This may contribute towards greater objectivity. Thirdly, and perhaps the most important reason why the evaluation of projects has to be centralised is that projects of one Ministry or sector are inter-related with those of another Ministry or sector. No individual Ministry can, therefore, have a comprehensive view of the worthwhileness or desirability of an individual project except with reference to the projects in other sectors and its effects on overall economic development.

Under the present arrangement projects worth Tk. 25 lakhs are to be evaluated by the individual ministries and then sent to the Planning Commission for comments. In case of Planning Commission's adverse comments, the relevant Minister is to take the final decision. For projects worth above Tk. 25 lakhs, the Planning Commission is to undertake the preliminary evaluation as to whether a project is technically and economically feasible and viable. The National Economic Council is entrusted with the function of taking the ultimate decision on the basis of the recommendations of the Planning Commission.

When the annual development programme is presented to the Cabinet, each individual project included in the Annual Plan is examined by them. The Cabinet has the final authority to select from the list of viable projects for inclusion in the budget; at that time, they also examine the total list of projects including those which are not found technically and economically viable.

The fulfilment of the targets of a Plan depends upon the discipline of a Plan being strictly observed as well as upon the policies and institutions being consistent with the priorities and requirements of the Plan. The enforcement of the discipline of a Plan would imply that there should be no deviation from the inter-sectoral and intra-sectoral allocations which are made in the plan. It is necessary to ensure that once the cabinet and the Parliament approve a Plan, *ad hoc* reallocations are not made within a sector by the individual Ministries.

However, the need for flexibility has to be provided for especially in an agricultural economy, dependent to a large extent on weather conditions where actual agricultural output and exports may deviate from the assumptions or projections made in the Plan. It is also possible that world prices as well as supply and demand of important exports and imports may undergo unforeseen changes. Also the assumptions regarding the availability of foreign assistance are subject to the greatest degree of uncertainty. All these parameters should be subject to continuous examination and study. In this context, readjustments in the Plan may be occasionally required during the Plan period. The Planning Commission will continuously evaluate all those parameters which affect the assumptions made in the Plan.

The principal instrument for ensuring flexibility in the process of formulation and implementation of a Five-Year Plan is the Annual Plan. Each Annual Plan, covering both public and private sectors should be based on an evaluation of the preceding Annual Plan. The forecasts of resources and expenditures will be reassessed every year at the time of the preparation of the Annual Plan, keeping in view the targets and projections of resources for the Five-year Plan. The Annual Plan is the means by which the Five-year Plan is made operational because expenditure decisions, fiscal, monetary and aid policies, need to be formulated each year.



Apart from preventing ad-hoc inter-sectoral reallocations, it is important to ensure not only that the development projects are properly phased over time, but also that in each year there is a consistency between sectoral and sub-sectoral programmes. The phasing of the programme of one sector is not unrelated to the phasing of another sector's programme. A perfect balancing is unlikely and, therefore, it is possible that there will be a deficit in one sector and surplus in another in a given year. The objective would be to keep the imbalances to the minimum and take necessary corrective measures. The annual planning exercise is intended to eliminate or at least minimise the possibility of imbalances between supply and demand in the case of essential commodities and critical and basic inputs which are common to many sectors like cement, steel, chemicals, transport equipment and power, and inputs to top priority sectors like agriculture. The imbalances in the course of a year between domestic supply and demand can only be corrected through adjustments in the import policy and foreign exchange budgeting.

As stated above, the development expenditures have to be co-ordinated and planned on an annual and five yearly basis with the list of resources and priorities. Similarly, corresponding policies in the sphere of price, tax, subsidy, imports and exports as well as the wide range of prevailing controls over production and trade have to be coordinated. The two most important areas of co-ordination are the tax and price policy, and foreign trade policy. The economic policies must be consistent with the targets and postulates made in the Plan. For example, if export targets are set at a level it will be necessary to pursue appropriate price and exchange rate policies to achieve that level. Similarly tax assumptions made in the Plan must be made operative by the enforcement of concrete tax proposals. To neglect the task of economic co-ordination in a complex interdependent world is to encourage misuse of resources. There will also be no sense of priorities and direction in economic affairs. If the task of economic co-ordination is done independently of the task of preparation of a Plan, then the tasks of economic co-ordination would be without any sense of direction and priorities.

In the light of the above functions of the planning machinery, there needs to be a close relationship between the planning machinery as the central co-ordinating mechanism and the highest policy making body of the country *i.e.*, the Cabinet. The link between the Cabinet and the Planning Commission is the National Economic Council. The latter is conceived as a standing Committee of the Cabinet for deliberation and decision-making on the allocation of economic resources and on all major economic policy issues. The National Economic Council is responsible for examining all policy recommendations and plans prior to their presentation before the Cabinet. Its principal functions are as follows:

- (1) To approve:
  - (a) The Five-year Plan, and
  - (b) The Annual Development Programme.
- (2) To approve economic policies recommended by the Planning Commission.
- (3) To allow changes in the Plan and sectoral readjustment within the overall Plan allocation.
- (4) To review implementation of economic plans.
- (5) To appoint such committees or bodies of experts as may be necessary to assist the Council in the performance of its functions.



In a parliamentary democracy, there could be a problem of reconciliation between the commitments or obligations of each individual Minister to his constituency or a group of Ministers to their region for a claim on scarce resources, and the collective responsibility of the Cabinet for ensuring an efficient use of national resources in the context of overall priorities which cut across the special needs of constituencies or districts. The potential conflicts can be resolved only in a political forum. In this context, the functions of the Planning Commission, as the central advisory organ of the Cabinet, can be best performed only if it is treated as such. Unless the Cabinet uses the Planning Commission as its own secretariat for analysing, advising and monitoring all development policies and programmes and performance, its utility is limited.

### 7.3. Revision of the Financial Procedures

There are two inter-related sets of issues which affect the speedy implementation of the Plan. One relates to the necessity of a continuous watch on the flow of resources and expenditures. The other issue is the need to ensure correspondence between financial expenditures and physical implementation of projects. It is essential to streamline the administrative procedures for the release of funds for development projects and for periodic reviews of the release of funds in the light of the assessment of the flow of resources and the progress of expenditures.

In order to resolve these issues it is necessary to devise an appropriate information system on the flow of resources and expenditures.

It is essential to generate a continuous flow of data on (a) tax resources and non-tax resources, (b) export earnings, including invisibles, and (c) commitment and utilisation of foreign assistance, including project and commodity assistance. The information on the flow of expenditures should include not only allocations from the Ministry of Finance to the administrative Ministries and agencies but also actual expenditures incurred by them. Delays in this regard would jeopardise the short term adjustment in the Annual and the Five-Year Plan.

The present financial accounting system is outmoded and unsuited to the needs of development planning as it does not meet the requirements of modern cost analysis and managerial control. A modernisation cell needs to be established in the Auditor-General's Office to reform the accounting system with a view to eliminating "suspense accounts", speeding up the processing and publication of aggregative accounts, and making accounting records consistent with an economic classification of the budgets. It is necessary to simplify classification of expenditures shown in budget documents whilst accounts for all Ministries and autonomous bodies should be made consistent. A uniform classification system of resources and expenditures in the budget should be worked out through consultation among the Ministry of Finance, the Planning Commission, the Central Statistical Agency and the operating agencies. The classification of budget estimates, revisions and actuals, needs to be integrated with the national accounts framework. Apart from the Government accounts, it is necessary to generate more comprehensive and adequate data on public sector operations as a whole in order to provide an overall view of financial relations between this sector and the rest of the economy; this is important both for annual budgeting and for longer-term economic planning. It is not enough that the Government accounts include the financial transactions of autonomous public entities only



to the extent that they directly affect the financial position of the Government, e.g., on the revenue side, interest and amortization payments, profit remittances to Government and on the expenditure side, loans and grants from Government out of budgeted funds. To enable a proper assessment of the role of the public sector as a whole, the receipts and outlays of autonomous public entities have to be covered more fully and should be consolidated with Government budget data.

The financial procedures for the release of funds according to Plan priorities is crucial in determining the speed with which a Plan is implemented. Once the Annual Plan including the specific projects and programmes is approved by the Cabinet, the Finance Ministry should release funds on a quarterly basis. As the information system becomes more efficient and projections become more reliable, the release of funds could be made on a half-yearly basis. During the middle of the financial year, a revision of the Plan needs to be undertaken on the basis of performance of the last six months and revised projections of resources and expenditures for the next six months. The revision of the Annual Plan is based upon the revision of the estimates of internal and external resources. It is imperative that the foreign exchange budget is prepared simultaneously with the annual budget. There is at the moment a Foreign Exchange Allocation Committee consisting of the Planning Commission and Finance Ministry to scrutinise the competing claims for foreign exchange by different sectors for both development and non-development purposes.

#### **7.4. Project Preparation and Implementation**

In the past one of the obstacles in the way of accelerating the pace of economic development has been the failure to devise and implement suitable projects. This problem still remains and must be eliminated as quickly as possible. The Planning Commission intends to strengthen its section concerned with monitoring the development performance. It also intends to review the progress in projects preparation as well as implementation at regular intervals. Time-tables will be laid down for the completion of project preparation and will be linked to the need for technical assistance where appropriate. Each Ministry or agency responsible for the preparation of projects will be asked to submit such a time-table to the Planning Commission stating the date when preparation of projects is expected to be completed. This will form the basis of verifying the progress that has been made.

In a similar way a detailed schedule will be drawn up for each project showing the progress that is expected to be accomplished by certain date. The amount of detail needed for this will vary from project to project. It is intended to start with a fairly simple system of reporting which will indicate primarily when major steps in the execution of a project are expected to be completed. Such dates will be agreed upon between the agency responsible for the project and the Planning Commission before the project starts. Failure to complete projects according to schedule will require explanation, and verification of progress will be an important part of ensuring the discipline needed for the timely execution of plans.

As soon as experience is gained with the application of a simple system of control a more sophisticated and effective system of plan preparation and reporting such as critical path analysis will be introduced. This will enable a much more detailed schedule for execution to be drawn up and will call for much closer supervision to be exercised over the execution of projects. The implication of the adoption of such a system of project control



is far-reaching. In a refined system the method of execution of projects can be improved as a consequence of attempting to reduce construction paths to a minimum by adopting an improved ordering of the execution of the work and by changing construction methods with the intention of saving time. In all cases shortening of the time taken for construction has the effect of reducing costs. This is all the more important when the cost of capital is high, as it is in Bangladesh.

All plans for the systematic execution of projects are subject to the possibility of unforeseen delay. Because of adverse weather conditions or natural disasters execution of projects may be delayed, particularly those involving earth moving or a large amount of construction. Allowances would thus have to be made for the effect of such unpredictable events on construction times. Delays in execution, however, are not always caused by natural factors or methods of execution. The availability of imported goods, the provisions of licences when these are required and failures on the part of sub-contractors are also factors which affect execution.

In some cases a simple way of monitoring the progress of a project is to compare the rate of disbursements taking place with that which was planned. This method can generally be used to detect excessively slow implementation but it is subject to difficulties if disbursements are irregular. The monitoring system should be designed to eliminate such irregularities. The exercise of full budgetary control over the execution of projects needs to be both financial, in order to verify that expenditures are rightly made and to identify increases in costs, and physical to ensure that construction has taken place on time and at the cost budgeted for. This kind of surveillance is known as performance budgeting.

It will be the responsibility of the Planning Commission to see that pressures are applied to ensure a vast improvement in performance. It will be the responsibility of the Planning Commission to ensure that in the preparation and execution of projects a properly phased programme is prepared. In every case, quarterly report will be sent by all implementing agencies to the Planning Commission indicating how project preparation or implementation is proceeding in relation to the programmes laid down. The Commission will then examine these reports and prepare a brief report for submission to the National Economic Council drawing attention to any failure to attain targets and the reasons thereof. It will also be the duty of the Planning Commission to draw the attention of the Cabinet to instances where major changes in procedures are needed. To do its task more effectively the officers of the Projects Section of the Planning Commission will spend a considerable time in the field spot-checking on the accuracy of reports on project implementation, identifying bottlenecks and directly monitoring the impact of the development plan on the performance of the economy.

#### 7.5 Administration of Local Activities

The question of people's participation in the development effort needs also to be considered in this connection. Paternalism of the government functionaries which was the dominant feature for over two centuries prior to liberation cannot work in a democratic society where



the masses are becoming increasingly politicised. Unless government operations are within their reach and comprehension, people cannot feel involved. The only way we can ensure their participation is by decentralising development activities. Small projects and various development programmes particularly in the rural areas must be implemented through the local government institutions. Such decentralization may lead to some inefficiencies in implementation at the early stages until local expertise in planning and executing development programmes has been gained. But this is unavoidable if participation of the people is to be secured. While formulating a fairly comprehensive plan for the country, the details in many areas have to be worked out by local government agencies. The National Plan must be explicated into District, Thana and Union programmes and targets, wherever possible. Local Government officers should be responsible for drawing up detailed district and thana plans under the guidance of the local government representative. Some of the issues relating to the implementation of agriculture, water and rural development programmes have been discussed in the sectoral plans. Here we would like to emphasize the need to combine technical and institutional planning at the local government level. The Zilla and the Thana Parishads will be able to act as co-ordinating authorities only if the services of the officials of the various ministries and agencies working at District/Thana levels are placed under the operational control of the Parishads. The primary role of the concerned ministries will be servicing, back-stopping and monitoring of performance.

There is an implicit assumption in the Plan that the resources made available by the National Government through the annual development plan will be augmented by the community with its own resources. The community participation and financial contributions will be realised only if the local governments can show in their plans the kind of work they will undertake out of their own resources. If a community finds that it is not only expected to implement a programme but also draw it up and where necessary and feasible make a contribution to the effort by using their own resources, they will gain confidence in their own abilities and also be more enthusiastic about the work. The responsible Ministry must be prepared to transfer funds from projects and areas which have a poor performance record to those which are doing well. However, if monitoring means a mere preparation and submission of progress reports but no follow-up action as suggested above, then we cannot hope to achieve much. To be able to encourage those who are performing well there must be enough flexibility in the Plan. Government must also be prepared to withstand undue political pressure even at the cost of becoming unpopular with those who would wish to get a share of national resources in spite of their poor performance record.

#### **7.6 Control of the Private Sector of the Economy**

The Government is in a position to control many aspects of the operation of this sector by administrative means. But it will have to be assured that the efficient operation of the private sector of the economy is not hampered by administrative controls. The Government has resolved that the private sector is to be given the fullest opportunity to contribute to the development of Bangladesh provided that the principles laid down for its operation are observed and that any outcome inimical to socialistic development is avoided.

The influence of the Government is exercised on the private sector through fiscal policy which affects the costs and revenues of businesses, through monetary policy which affects the cost and availability of funds for investment, and through commercial policy which affects the nature and volume of imports and exports. These are powerful means of controlling and influencing the actions of the private sector. But the Government recognises that the private



sector of the economy must not be forced by excessive control into a position where it loses all initiative and can survive only behind high tariff walls or strict exchange control.

The private sector can play its assigned role provided the resources needed can be made available. Considerable stringency in the availability of means to pay for imports limits the extent to which the private sector can implement its share of the Plan. The private sector may be permitted certain flexibility in terms of allocations of resources so that moderate deviations from Plan projections are not necessarily penalised. Admittedly the projection of supply and demand implicit in the Plan is subject to uncertainties.

The Government will also be able to influence the actions of the private sector and bring them into conformity with Plan objectives in a variety of other ways. Locational aspects of private sector operation will be influenced by the development of industrial estates; the provision of infrastructure by the public sector will also exert a considerable influence. The demands of the nationalised sector for products of the private sector will also be an influence helping to keep private sector operations in line with the Plan. So too will be the operations of Small Industries Corporation. Many small scale activities such as handloom weaving and cottage industries will be highly dependent on Government support which will help to ensure that the former carry out the functions laid down for them in the Plan. The concept of Industrial Associations is also proposed as an institutionalised format for interrelating the public and private sector.

#### 7.7 Structure of Services and Development Planning

The Services Reorganisation Committee established in March, 1972 has explored at length the role of the structure of services for planned economic development. A few relevant and tentative recommendations which deserve close scrutiny are as follows :

- (a) Development is a specialized task and needs specialists. Administrators should choose an area of specialization and each should receive intensive specialized training in that area ; each should also stay in the chosen area sufficiently long to acquire relevant experience while at senior levels where inter-disciplinary approach is necessary, move among linked areas only. The present system of generalist officers who are transferred frequently from one Ministry to another should be changed.
- (b) Merit and not seniority should dominate in the determination of promotion, and contact of administration officials with field level workers must be encouraged. Unless they spend a significant portion of their time at periodic intervals in the field they will not be able to clearly comprehend the problems which the people and the field level officers face in performing their activities. It is necessary to grade officers' work and to introduce strict examination system for promotion.
- (c) The responsibility of officers and chain of command in decision making must be clearly outlined. An officer cannot work effectively unless his powers, functions, and responsibilities are clearly stated. Once these are stated, he should be allowed to operate without any undue interference. The smooth functioning of the Government is greatly hampered and delayed by the outdated and cumbersome office procedure currently in force. Unless these are simplified and streamlined, the system of office work cannot be changed and it will be difficult to improve efficiency. The administrative Reorganisation Committee will lay down detailed rules and procedures for speedy disposal of work in the Government office.



- (d) The Ministries concerned with development activities must be so reorganised that they are able to perform the following three functions efficiently : (i) policy formulation, planning and evaluation of development projects, (ii) personnel management, and (iii) financial management.
- (e) The existing system of having Departments, Directorates and Corporations in addition to Ministries to carry out executive functions and responsibilities should be seriously re-examined. In such Ministries the secretariat staff should be cut down in size and serve as staff officers to the Minister rather than as a tier in the line of command.

### 7.8 Strengthening of the Statistical System of Bangladesh

The quality of statistics in Bangladesh is poor. Statistical operation has so far been conceived of as clerical compilation of whatever data are available, rather than scientific estimation of economic concepts to be used for planning and policies. There is a need for improvement in the quality of statistics and for developing a statistical system which would provide quantitative guides for planning and policies at national or sectoral levels.

The statistical system cannot be significantly improved without a thorough reorganisation of the statistical institutions. Organisationally, the present system is very much decentralised and unco-ordinated; there are as many as 18 agencies with over 2,000 employees. The main permanent agencies are two : (1) the Bangladesh Bureau of Statistics under the Ministry of Planning employing 670 employees, and (2) the Bureau of Agricultural Statistics under the Ministry of Agriculture employing 578 employees. In addition, there are two temporary organisations, namely the Population Census Commission under the Ministry of Home and the Agricultural Census Commission under the Ministry of Agriculture which are also required to produce basic statistics. The other 14 agencies are primarily engaged in processing data mostly needed for the current operation of their parent organisations.

It is proposed that the statistical system of Bangladesh should be reorganised : (a) to integrate the present decentralised statistical agencies into one statistical organisation capable of discharging its functions to produce reliable statistics needed for analysis, planning and policies; (b) to strengthen the statistical organisation by raising its status and by making provisions for appointment of an adequate number of highly qualified statisticians, economists and administrators and (c) to design the system of statistical information into a co-ordinated frame-work shifting emphasis from mere clerical compilation to scientific estimation and research.

The four principal organisations, namely (a) the Bangladesh Bureau of Statistics, (b) the Bureau of Agricultural Statistics, (c) the Population Census Commission and (d) the Agricultural Census Commission, should be integrated into one central organisation. The remaining statistical cells in various Ministries and Departments may continue to function to meet their internal requirements.



## CHAPTER VIII

## AGRICULTURE, WATER RESOURCES AND RURAL INSTITUTIONS

## 8-1 AGRICULTURE

## 8.1.1 Introduction

## A. Role of Agriculture

The economy of Bangladesh is predominantly agricultural. Of the 7.4 crore population about 90 per cent live in rural areas and over 75 per cent are engaged in agricultural activities. With a rate of population growth around 3 per cent, high initial unemployment, and limited non-agricultural employment opportunities, it is likely that for decades agriculture will have to provide the bulk of productive work opportunities to the population. This is particularly so because employment-capital ratio is low in the non-agricultural sectors.

The predominance of agriculture in our economic life also becomes evident if we look at the magnitude of its contribution to the GDP of the country. Agricultural output in recent years accounts for about 55 to 58 per cent of GDP at current prices. Approximately 40 per cent of GDP is derived from the major crops and 28 per cent from rice alone. Fishery and Livestock each contributes around 5 to 6 per cent of the GDP and Forestry about one per cent. The rate of growth in agriculture, and more particularly crops is, therefore, of crucial importance for the economic development of Bangladesh. Labour productivity and income per head in agriculture are relatively low and cannot be raised without increasing capital investment in agriculture.

## B. Structure of Agriculture

Crop production dominates agriculture in Bangladesh. Rice covers about 78 per cent of the cropped area. Other important crops are Jute, Sugarcane, Tea, Tobacco, Oilseeds, Potato and Pulses. By world standard the yield per acre for all these crops is very low. Table VIII-1 shows the acreage, production and yield of major crops (average of 1965-66 to 1969-70).

TABLE VIII-1.

Acreage, Production and Yield Rates of Major Crops in Bangladesh (Average of Years from 1965-66 to 1969-70).

| Crops.                                    | Acreage<br>(lakh acres). | Production<br>(lakh tons). | Yield<br>(Tons per acre). |
|---|--------------------------|----------------------------|---------------------------|
| Rice                                      | 239.00                   | 107.20                     | 0.447                     |
| Wheat                                     | 2.15                     | 0.69                       | 0.320                     |
| Potato                                    | 1.80                     | 6.55                       | 3.640                     |
| Sugarcane                                 | 4.21                     | 75.25                      | 18.000                    |
| Oil seeds                                 | 8.15                     | 2.61                       | 0.320                     |
| Pulses                                    | 8.68                     | 2.61                       | 0.300                     |
| Jute                                      | 23.00                    | 11.90                      | 0.517                     |
| Tobacco                                   | 1.12                     | 0.33                       | 0.296                     |
| Tea                                       | 0.99                     | 0.29                       | 0.293                     |
| Others                                    | 18.88                    | ..                         | ..                        |
| Total area of all Crops                   | 307.98                   | ..                         | ..                        |
| Net cropped area including current fallow | 224.28                   | ..                         | ..                        |



Total agricultural land (including current fallow) in Bangladesh is about 2.24 crore acres. Total cropped area in 1969-70 was estimated to be 3.284 crore acres. Aggregate cropping intensity thus works out at 146 per cent though it varies from district to district. Almost all cultivable land is now under plough and there is hardly any scope for further extension of land area.

According to the Master Survey of Agriculture of 1966, Bangladesh had about 68.7 lakh farms as against 61.4 lakh in 1960 of which 61 per cent are owner-operated and 37 per cent are owner-cum-tenant farms. Pure tenant farms are rather an insignificant proportion of the total. Approximately, 83 per cent of the farm area is cultivated by the owners themselves while 17 per cent is cultivated by the tenants mainly on the basis of sharing the crops. About 20 per cent of the rural household do not possess any land, and this number is increasing. The average size of farm in Bangladesh in 1973 is estimated to be 3.2 acres as against 3.5 acres in 1960. Approximately, 92 per cent of the farms in Bangladesh are below 7.5 acres and cover about 70 per cent of the total farm area. Almost all farms including small holdings are fragmented.

### *C. Review of Past Agricultural Development*

Agriculture in Bangladesh experienced a modest growth of about 2.5 per cent per annum from 1960-61 to 1969-70 which was less than the rate of growth of population. Growth in rice production, by and large, remained stagnant until 1958. It, however, fluctuated periodically mainly due to weather. Annual average growth rate in the fifties was 0.7 per cent as against that of population of about 2.9 per cent. As a result, there was a steady rise in foodgrain deficit in the country. Even though the average growth rate in rice output was 2.45 per cent per year in the sixties, Bangladesh had to depend on foodgrain imports on a much larger scale than in the fifties. During the period 1960-65, the annual average import of foodgrains was about 8.5 lakh tons. This went up to about 11 lakh tons during 1966-70. The actual import in 1969-70 was 15 lakh tons. The annual import requirement of foodgrains in 1972 and 1973 amounted to more than 25 lakh tons because of the war of liberation and the consequent dislocation in the economy and the unprecedented drought in 1972.

Production of jute, the major export crop, declined in the fifties but registered some increase in the late sixties. The average annual production for the period 1955-56 to 1959-60 was 57.5 lakh bales as against 65.7 lakh bales during the period 1965-66 to 1969-70. Production in 1969-70 was as high as 72 lakh bales, mainly due to the increase in acreage. The area under jute crop from 14.6 lakh acres in 1955-56/1959-60 to 22.8 lakh acres in 1965-66/1969-70. Jute acreage reached an all-time high of 24.6 lakh acres in 1969-70. The present yield rate of jute is about 3 bales per acre; it should be possible to increase this to 5-6 bales per acre. Despite the increase in production, the share of Bangladesh in the world export market of jute and allied fibres declined in the sixties. Jute has been under threat from synthetics. The external market situation requires that the export price of jute be kept at a competitive level. At the same time it is necessary to maintain the domestic price at a level relative to rice which will provide incentive for growing jute. To resolve this dilemma, the yield per acre must be increased sharply and/or the effective exchange rate for jute exports made more favourable.

Production trends of some important crops from the early sixties (1960-61 to 1964-65) to the late sixties (1965-66 to 1969-70) are shown in Table VIII-2. Production of wheat and potatoes has registered a significant increase which has been contributed by both



higher acreage and increase in yield. Wheat, however, constitutes a very small proportion of cereal acreage and production. With the exception of tobacco and oilseeds increase in the production of other crops has been contributed mostly by acreage increase. Production of pulses, fruits and vegetables has not shown any significant increase during the last decade. Production and acreage of short staple cotton declined.

Fishery, forestry and livestock sectors made very little contribution to the growth. Per capita consumption of fish has declined. The value of livestock output, e.g., milk and milk products, meat, eggs and poultry has declined from Tk. 81.8 crore in 1964-65 to Tk. 80.2 crore in 1969-70. Timber and fire-wood extraction has declined considerably.

TABLE VIII-2.

Percentage Change in Acreage, Production and Yield Rates of Crops.

| Crops.    | Acreage. | Production. | Yield. |
|-----------|----------|-------------|--------|
| Rice      | + 9.1    | +10.3       | + 1.1  |
| Jute*     | +32.9    | +10.6       | +18.1  |
| Wheat     | +45.2    | +86.5       | +28.0  |
| Potatoes  | +30.4    | +90.9       | +46.8  |
| Sugarcane | +32.4    | +53.0       | +16.1  |
| Tea       | +19.3    | +14.0       | -4.3   |
| Tobacco   | + 8.7    | +32.9       | +20.7  |
| Oilseeds  | + 1.8    | +34.5       | +32.2  |

Note—The changes relate to the average of 1965-65/1969-70 over 1950-61/1964-65.

\*In the early sixties the acreage was under reported. The change may not, therefore, reflect the actual trend.

#### D. Causes of Slow Growth in Agriculture

The poor growth in agriculture in Bangladesh during the last decade can be attributed to a number of inter-related factors. These are: (i) lack of appropriate development strategies in agriculture, (ii) lack of incentive, (iii) lack of right technology, (iv) low level of investment, (v) low absorption of high productivity inputs, (vi) ineffective implementation of the development programme and (vii) inadequate physical and institutional infrastructure.

Natural hazards caused considerable fluctuations in production of crops particularly Aus, Aman, and Jute. Development efforts were, by and large, oriented towards traditional agriculture. For example, high yielding varieties (HYV) of rice were not introduced on a wide scale until the late sixties. Their large-scale expansion was dependent upon the availability of controlled irrigation water. Water resources development, particularly irrigation coverage which accounted for about 7 per cent of the cultivated area and quickly maturing development projects received much less attention than they deserved. As a result production remained based on traditionally low yielding varieties.



Gross annual investment in agriculture during the last decade has been extremely inadequate. The use of modern inputs was very small. Though fertilizer consumption increased from 66,000 tons in 1960-61 to 2,65,000 tons in 1969-70, the quantities used were substantially less than the amount of fertilizers that could be profitably used in Bangladesh. Necessary incentives to invest in modern inputs were lacking among the farmers. The area covered under plant protection increased substantially towards the end of the sixties. It went up from 6 lakh spray acres in 1960-61 to 98 lakh spray acres in 1969-70. But the total plant protection coverage was only around 12 to 15 per cent of the cultivated land. One hundred per cent subsidy coupled with ineffective distribution arrangements resulted in wastage of both human and material resources. Consequently, the expanded plant protection work contributed very little to crop production. Distribution of improved seeds did not make much headway in the sixties and local improved seeds did not win the confidence of farmers. Low-lift pump irrigation programme which brought substantial areas under irrigation in the late sixties (6.4 lakh acres in 1969-70) was the major contributory factor in increasing boro rice output. Neither the tube-well nor the canal irrigation programme made any significant contribution. Credit-flow from public sponsored institutions to agriculture during the last decade was also quite inadequate relative to the volume of credit needed. Institutional credit sources in 1969-70 did not meet even 10 per cent of the credit needs of the farmers.

High yielding varieties of rice which were introduced in the mid sixties covered only about 6.5 lakh acres in 1969-70 as against the total rice area of 25.5 lakh acres. The impact on rice output was not, therefore, very significant. There has been rapid increase in the area under HYV in 1970-71 and 1971-72 but this still accounts for less than 5 per cent of the total rice acreage. Only small amounts of resources were allocated in the past for the development of crops other than rice. No appropriate policy was adopted to encourage their expansion. An effective extension programme for introducing improved varieties and an intensive research programme for evolving improved varieties for all these crops were lacking. Since relative price moved in favour of rice, farmers did not have sufficient incentive to increase production of other crops.

### 8.1.2 Objectives and General Strategy

#### A. Objectives

For the next one or two decades the objective of the agricultural development programme of Bangladesh must be to gradually replace the traditional and greatly unstable agriculture by a modern agriculture capable of sustained growth. This can be attained not only by exploiting all the opportunities currently available for increasing agricultural production within the present structure of the agricultural industry, but also by gradual structural transformation within agriculture, so that each individual area of the country succeeds in realising its growth potential.

While primary emphasis is to be laid on creating a modern agriculture, other important objectives of agricultural planning, should be:

1. To increase agricultural incomes.



2. To provide productive employment to the growing rural labour force, for whom prospects of non-agricultural employment will remain small for many years to come. Labour intensive methods of production as applied to the new high-yielding cereal varieties can greatly contribute to this end.
3. To reduce rural poverty and promote equality of income distribution. This is particularly relevant to Bangladesh where agriculture is dominated by small farmers and landless labourers. It is possible for agricultural growth to be accompanied by a continuation of acute poverty. This happens when technological innovations flow only to a relatively small number of big farmers and some specific regions, as exemplified by 'green revolution' in many contemporary societies. Increase in agricultural production has, in fact, made rural incomes more unequal in many countries than they were before. This cannot be allowed to happen in Bangladesh. Rising rural incomes, must therefore, be accompanied by improved income distribution, which then will reduce rural poverty, consistent with our social philosophy.
4. To contribute to the improvement of the foreign exchange situation by increasing exports and substituting imports by domestic production of agricultural and forestry products wherever it is efficient to do so. This is indeed essential for Bangladesh because of the huge import needs in terms of foodgrains, oilseeds, tobacco, cotton and forest products as well as raw materials and machinery.
5. To improve nutritional standards through increased supplies of cheap calories and proteinous food including fish, animal products, fruits, vegetables and sugar.
6. To increase the contribution of forest resources to the development of the country through an improvement in the efficiency of forest management and utilization.

#### ***B. Specific Aims of the Plan***

It is against this background of relatively long-term objectives that the agricultural development programme for the Five-Year Plan (1973-78) aims at:

1. Self-sufficiency in the production of foodgrains;
2. Creating employment opportunities for the rural unemployed and under-employed so as to enable them to attain a basic minimum level of consumption.

Self-sufficiency in foodgrain production will refer to the level of foodgrain production which will eliminate our dependence on the level of foodgrain import by the terminal year of the plan, 1977-78. Thus defined, self-sufficiency as an objective is considered desirable and justifiable because the drive for foodgrain production promises high and quick returns on capital and would bring an end to dependence on foreign sources of food.

The recommended package of improved practices in connection with the self-sufficiency drive will create employment opportunities for the rural unemployed. If for example, agricultural output grows at 5 per cent yearly, farm employment is expected to grow at  $3\frac{1}{2}$  per cent provided labour displacing mechanization is avoided. In addition, the Rural Works Programme



will have an important employment component. To the extent efforts are concentrated in given areas in the interest of the self-sufficiency drive, inter-regional disparities will result. Rural Works Programme will, therefore, have to be directed to balance the situation.

Achievement of a basic minimum nutritional standard is a key objective implicit in the search for grain self-sufficiency; yet paradoxically that search may pose a short run nutritional threat. Replacement of wheat imports by domestic rice output will somewhat reduce protein availability (wheat contains 10 per cent protein, while local and standard H. Y. V. rice 7 per cent) and create supply problems for deficit areas now fed substantially from grain imports. It will therefore, be necessary to:

- (i) arrange supply of domestically produced rice to the consumers of wheat hitherto imported;
- (ii) identify particular areas at risk, and risk groups of consumers, e.g., pregnant and lactating women, pre-school children in large families, households with no male heads, who are likely to be more deficient nutritionally, and devise schemes to help them;
- (iii) concentrate attention on improved pulse cultivation and extend and improve groundnut cultivation;
- (iv) increase the protein content of cereals (which provide 70 per cent of all protein in Bangladesh) by varietal development at Bangladesh Rice Research Institute (BRRI);
- (v) avoid a high degree of rice polishing, which can induce goitre and beri-beri;
- (vi) raise fish yields; and
- (vii) raise animals, e.g., dairy cows, beef cattle, poultry birds, sheep, etc., in areas where there are natural advantages in doing so.

### C. *The Strategy for Equitable Rural Income Distribution*

The distribution of operational farm holdings suggests that rural inequality in Bangladesh is relatively less than in other developing countries. However, there has been an increase in the number of landless labourers during the last decade. Although the strategy of seed-based technology adopted in the Five Year Plan is designed to have the widest possible application and thus benefit to some extent a large number of farmers, however, it may add to the trend of increased inequality if the large farmers continue to have greater access to inputs, credit, information and power than the small farmers.

In order to counteract the adverse effects of the new technology on income distribution, a number of specific measures are incorporated in the Plan. Thus, the agricultural plan on the whole will significantly contribute towards realisation of a socialist economic order in Bangladesh. Some of the specific measures are:

1. The agricultural plan envisages concentration of the new seed-based technology in certain areas on account of technical, institutional and financial constraints. But



the area of concentration will be distributed over almost all the districts covering approximately one-third of the total cultivated area. Such large, widely distributed "areas of concentration" together with normal "diffusion effects" will promote the sharing of benefits from the technology by a vast section of the rural population.

2. Special attention will be paid to developing rural institutions at a rapid rate. The small farmers, tenants, share-croppers and landless agricultural workers will be drawn into all credit and co-operative organizations by providing incentives and carrying out intensive promotional work. They will be given special representation in the management of such bodies. This depressed class of people will be allowed to save and repay loans in kind and by contributing labour. The credit organizations will build storage facilities so that they can accept crops for payment of debt and security for new loans.
3. A Rural Works Programme will undertake a large number of labour intensive projects all around the country. It is expected that this programme will generate a substantial volume of employment during the plan period. This programme will equally benefit the large and small landowners by ensuring better drainage, irrigation and transportation facilities.
4. Significant changes in the cropping pattern, and labour intensive techniques in farming, will raise employment in farm-work and in many areas will make work available during traditionally slack seasons.
5. A policy of withdrawing subsidies on all inputs will have a favourable effect on income distribution. It will eliminate the unjust practice of benefit being monopolised by the more influential and privileged people and regions. The elite class will not be allowed to exert their authority and influence in getting benefits from subsidies by depriving the poorer and less privileged class. Instead, they will have to pay attention to improving the efficiency of their farms.
6. The co-operative institutions will assist by organising landless labourers and involving them in decision making. Such organized labour-force will facilitate implementation of Rural Works Programme schemes and help the workers to systematically migrate towards new jobs seasonally.
7. Rural industries will be located in a dispersed manner. This will be done specially in regions outside the intensive agricultural areas, perhaps somewhat more than would be justified in terms of costs and benefits. Many of the rural industries will be co-operative based so as to ensure benefits to a large number of rural families.
8. The people in areas of special nutritional risk will be helped by encouraging consumption of groundnut protein and fish protein concentrate.

The measures suggested above are necessary but not sufficient to significantly increase rural equality and lead Bangladesh towards the cherished goal of a socialist economic order. Radical land reform measures will have to be implemented because distribution and tenure systems are the fundamental factors determining rural employment and income distribution in a predominantly agricultural society.



### 8.1.3 Physical Output Targets and Programmes

#### Crops

In order to achieve the objectives outlined in Section 8.2 the targets for crop production during the plan period have been fixed as shown in Table VIII-3.

TABLE VIII-3

Target of Production of Important Crops during the Plan Period

| Crops.                        | Unit of measurement. | Bench-mark Production. | Target in 1977-78. | Percentage increase over bench-mark. |
|-------------------------------|----------------------|------------------------|--------------------|--------------------------------------|
| Rice .. .. .                  | Lakh tons            | 112.4                  | 150.8              | 34.0                                 |
| Wheat .. .. .                 | "                    | 9                      | 3.6                | 300.0                                |
| Jute .. .. .                  | "                    | 66.6 (72.0)            | 91.0               | 37.0 (26.0)                          |
| Sugarcane .. .. .             | "                    | 60.0                   | 74.2               | 24.0                                 |
| Potato .. .. .                | "                    | 7.8                    | 11.0               | 41.0                                 |
| Oilseeds .. .. .              | "                    | 2.0                    | 4.0                | 100.0                                |
| Pulses .. .. .                | "                    | 2.9                    | 3.5                | 21.0                                 |
| Tobacco .. .. .               | Lakh pounds          | 870                    | 1,475.0            | 69.0                                 |
| Fruits and Vegetables .. .. . | Lakh tons            | 42                     | 47.0               | 12.0                                 |
| Cotton .. .. .                | Thousand bales       | 13.00                  | 63.00              | 38.4                                 |

Note: Bench-mark Production relates to the average of the 3 years from 1968-69. For Jute, the output excludes Mesta. The figures in parenthesis refers to output in 1969-70 which was the peak output of jute.

The general strategy for achieving the crop production targets is to focus attention on increasing yield per acre by the introduction of high yielding varieties of seed, application of chemical fertilizers, control of pests and diseases, adoption of improved intercultural practices, and controlled irrigation. This intensive agriculture approach will be adopted in areas of concentration with a view to fully utilizing growth potential of different regions.

#### 1. Rice and Wheat

In spite of a large rice acreage, the overall foodgrain production has not kept pace with population growth. An intensive foodgrain production programme was launched during the late sixties but achievement fell far short of expectation due to a number of contributing factors already mentioned. The annual growth rate in the production of rice during the sixties was only 2.45 per cent. Production of foodgrains as well as other crops suffered a serious setback during the War of Liberation. The preparation of the present Plan had to be undertaken keeping in view the adverse effect of the War on the whole economy.



## (a) Targets

Foodgrains production is planned to increase from the benchmark level of 113 lakh tons (achieved in the late sixties) to 154 lakh tons. This indicates an increase of 36 per cent over the plan period and 6.4 per cent per year annually compounded. The target production is planned to ensure self-sufficiency in foodgrains by 1977-78 thereby making costly imports unnecessary in the terminal year of the plan.

TABLE VIII-4.

Annual Requirement and Projected Production of Foodgrain during the Plan Period

| Year.   | Population<br>(in crore). | Foodgrain<br>consumption<br>requirement<br>(in lakh<br>tons). | Gross<br>Production of<br>foodgrains<br>(in lakh<br>tons). | Foodgrain<br>available for<br>consumption<br>(in lakh<br>tons).* | Deficit/surplus<br>(in lakh tons). |
|---------|---------------------------|---|--|--|------------------------------------|
| 1973-74 | 7.62                      | 120.4   | 120.5  | 108.4  | -12.0                              |
| 1974-75 | 7.85                      | 123.9   | 132.2  | 119.0  | -4.9                               |
| 1975-76 | 8.09                      | 127.5   | 137.9  | 124.1  | -3.4                               |
| 1976-77 | 8.31                      | 131.1   | 144.1  | 129.7  | -1.4                               |
| 1977-78 | 8.54                      | 139.0   | 154.4  | 139.0  | Nil                                |

\*After deducting 10 per cent from the gross production for seed, feed and wastage.

A number of issues need to be discussed to make some of the concepts and implications clear. First, the meaning of self-sufficiency needs to be understood. If the production plan succeeds then in 1977-78 *per capita* availability for consumption from domestic production will roughly be 16 oz. per day. Thus by implication self-sufficiency is being defined as 16 oz. daily consumption per head.

Such definition, without reference to the standard determinants of *per capita* consumption, would appear too rigid. Questions will naturally be raised as to whether such a consumption target is consistent with the postulated rate of income generation, the target of tolerable food prices and a great many other factors.

Implicit in the target is the recognition that active policies will have to be pursued with respect to many of these factors. The target *per capita* consumption has not been derived from the usual kind of projections based on observed income elasticities. A more important determinant has been the production possibility. The sequence of steps involved in arriving at the estimates was as follows: First, it was estimated by how much output could be increased if a determined effort was made. This estimate was based on detailed area and specific analysis of production possibilities for each crop. Next, it was asked whether the output level, thus determined, would be enough, given certain policies regarding distribution, to feed the population. It was found that after allowances for seed, waste, etc., *per capita* daily availability would be about 16 oz. This is a reasonable average level and can be accepted once it is ensured that the standard



deviation of consumption would be low. Finally, it was asked what policies would be necessary to keep the standard deviation low. If distribution is left entirely to the market, the objective will not be achieved. The Government must be prepared to have distribution programmes aimed at ensuring reasonable consumption for the low income groups.

At this stage it is not easy to forecast the grain price in relation to that of other goods in the context of the target of keeping consumption within the stipulated limits during the period of rising incomes, particularly in rural areas. It is possible that consumption demand will be so much higher than availability that the resulting market price will be unacceptably high, i.e., inconsistent with the permissible standard deviation even after the available Government distribution system has been fully used.

To cope with this possibility, additional provision has been made in the Plan. As can be seen from Table VIII-4 total foodgrains imports will have to be only 21.8 lakh tons for the five years if the consumption targets are adhered to and production targets are exactly achieved. In the import programming an additional provision for about 10 lakh tons has been kept to cope with the possible need to liberalise consumption beyond stipulated limits and the possible failure of some crops. If distributed over the five years, these additional imports will raise *per capita* daily consumption by 1 oz.

The uncertainty of agricultural production also needs to be taken into account to ensure sufficient flexibility. The plan shows target output for each year under assumptions of normal weather and natural conditions. It is quite possible that some crops will turn out to be worse while others will prove better than projected. In the past, standard deviation was roughly 6 per cent of mean production of rice. With the increased share of boro (which is a far less uncertain crop than others) such standard deviation should go down in future, but some variability from the projected trend would be inevitable. The additional imports are partly designed to offset such possibility. Roughly a million tons of additional imports will be needed to cover the deficit in the mid-year if the standard deviation is 4 per cent of the mean output and the crop failure is of an intensity which is no greater than one can expect to happen, on past evidence, more than once in twenty years.

#### (b) Strategy

Two broad strategies will be employed to increase production of foodgrains: (i) increase in yield rates and (ii) increase in cropped area by multiple cropping, made possible by irrigation.

The increase in yield will be achieved by introducing HYV in irrigated areas, selected rainfed areas, and in traditionally irrigated Boro areas. Supplemental irrigation will be provided to protect areas under HYV of Aus and Aman, if affected by drought. The expansion of the HYV under rainfed conditions will be at an accelerated rate in the initial years of the Plan. This is mainly because of the fact that the irrigation capacity will take some time to expand to accommodate a larger area under HYV.

Distribution of inputs, credit and technical information necessary for a successful foodgrain programme will be specifically directed to the areas under irrigation and HYV. For this, appropriate policies will be formulated and necessary transport and institutional arrangements will be made.



Keeping in view the objectives of achieving self-sufficiency in foodgrain production during the plan period, a programme has been prepared by which the present bench-mark foodgrain production level of 113 lakh tons will be raised to a total of 154 lakh tons at the end of the plan period (Table VIII-5).

As the existing deficiencies in communication, transport, organisation and institutional facilities cannot be eliminated quickly, foodgrain production is not expected to increase initially as fast as it could by mere introduction of HYVs in the rainfed areas. With increasingly efficient infra-structural supports, the production is expected to gain momentum from the third year onward.

The three major rice crops which will receive emphasis during the first Plan period with seed-based technology will be transplanted Aman, Aus and Boro. These three classes of rice constitute about 81 per cent of the total rice crop.

TABLE VIII-5

Contribution of the Rice Varieties to Production during the Plan Period.

(In lakh acres and tons)

|                                     | Bench-mark. |             | First year (1973-74). |             | Final year (1977-78). |             |
|-------------------------------------|-------------|-------------|-----------------------|-------------|-----------------------|-------------|
|                                     | Acreage.    | Production. | Acreage.              | Production. | Acreage.              | Production. |
| <b>I. Irrigated HYVs :</b>          |             |             |                       |             |                       |             |
| Aus .. .. .                         | 22          | 16          | 30                    | 22          | 4.40                  | 3.52        |
| Aman .. .. .                        | ..          | ..          | 4.00                  | 3.20        | 26.50                 | 25.51       |
| Boro .. .. .                        | 9.90        | 10.89       | 16.00                 | 18.40       | 30.60                 | 38.25       |
| Sub-Total ..                        | 10.12       | 11.05       | 20.30                 | 21.82       | 61.50                 | 67.28       |
| <b>II. Rainfed HYVs :</b>           |             |             |                       |             |                       |             |
| Aus .. .. .                         | ..          | ..          | 3.00                  | 1.35        | 11.00                 | 5.50        |
| Aman .. .. .                        | 12.50       | 6.25        | 21.00                 | 11.76       | 22.00                 | 13.20       |
| Boro (with traditional irrigation). | 3.42        | 2.25        | 3.48                  | 2.33        | 5.70                  | 4.05        |
| Sub-Total ..                        | 15.92       | 8.50        | 27.48                 | 15.44       | 38.70                 | 22.75       |
| <b>III. Local :</b>                 |             |             |                       |             |                       |             |
| Aus .. .. .                         | 79.79       | 28.72       | 75.55                 | 26.44       | 51.20                 | 16.90       |
| Aman .. .. .                        | 83.05       | 39.68       | 72.00                 | 33.84       | 58.90                 | 25.33       |
| Boro (with traditional irrigation). | 11.00       | 5.50        | 7.52                  | 3.68        | 5.00                  | 2.30        |
| Sub-Total ..                        | 173.84      | 73.90       | 155.07                | 63.96       | 115.10                | 44.53       |
| B-Aman .. .. .                      | 48.00       | 18.72       | 47.00                 | 18.33       | 44.00                 | 16.28       |
| Wheat .. .. .                       | 3.00        | .90         | 3.00                  | 1.00        | 6.00                  | 3.60        |
| Total .. .. .                       | 250.88      | 113.07      | 252.85                | 120.55      | 265.30                | 154.44      |



### Transplanted Aman

Transplanted Aman constitutes about 38 per cent of the area sown and contributes about 41 per cent of the total rice production. The increase in production of this crop is contemplated through the replacement of local varieties by IRRI-20 (or IR-5 for irrigated areas) which can be safely grown in areas which are not flooded and are also more or less free from droughts. The Planning Commission estimate that it would be safe to grow IR-20 in an area of about 30 lakhs acres which will have assured rainfall and which are relatively free from floods or standing rain water. The first thrust with IRRI-20 was made in 1970-71 with an area of one lakh sixty-seven thousand acres. This went up to 12.5 lakh acres by 1972-73. During the First Plan Period the area is expected to rise from 25 lakh acres during 1973-74 to 40 lakh acres by 1975-76. The area under rainfed HYV Aman may start showing some decline from that year as some of the Aman areas may go under supplementary irrigation (deep tubewell or low lift). The area under supplementary irrigation on the other hand will increase from 4 lakh acres in 1973-74 to 26 lakh acres by 1977-78. The area under HYV T. Aman (irrigated and rainfed) will show an increased of 288 per cent over 1972-73 acreage.

There is every likelihood that there would be some increase over the estimated production of both rainfed and irrigated high yielding varieties of T. Aman due to increased experience in cultural techniques, spill over effect and also increased efficiency in the utilisation of supplementary irrigation.

### Aus

Aus constitutes about 32 per cent of the total rice acreage and contributes about 25 per cent of the production. Experience with seed-based technology in Aus crop has not been very encouraging as suitable HYVs for growing in the Aus season had not been adequately tested. The three new varieties 'Chandina', 'Mala' and 'Purbachi' have recently been released and have proved their superiority over the local varieties and have been readily accepted by the growers. These varieties are of short duration and will be suitable for Aus season both under transplanted and broadcast conditions.

Under rainfed conditions, HYV Aus varieties will be grown in an area of 1.7 lakh acres in 1973-74. The area will gradually increase to 11 lakh acres in 1977-78, a substantial portion of which will be grown under transplanted condition in areas with assured pre-monsoon showers.

The irrigated Aus will be confined to deep tubewells and gravity irrigation areas. The area under irrigated Aus will increase from 22,000 acres in 1972-73 to 30,000 acres during 1973-74 and to 4.40 lakh acres by the terminal year of the plan period.

The traditional Aus area will consequently show some decline from about 80 lakh acres to about 51 lakh by the terminal year.

### Boro

Boro which constitutes about 9 per cent of the total rice acreage and contributes about 16 per cent of the total rice production will receive the greatest emphasis during the Plan period as it has the highest yield potential and is grown during the most stable season of the year. The new strategy will, therefore, place greater emphasis on irrigated Boro. The area under irrigated Boro will increase from about 10 lakh acres during 1972-73 to 16 lakh acres in 1973-74 and to 30.6 lakh acres by the terminal year. The traditional irrigated areas



with local varieties, on the other hand, will decline from 11 lakh acres to 5 lakh by the terminal year, as more of such areas will go either under HYVs with traditional irrigation or under modern controlled irrigation. The HYVs under traditional irrigation, at present cover about 3.4 lakh acres (1972-73) which will increase to 5.7 lakh acres by the terminal year of the Plan. The areas under HYV Boro (modern and traditional irrigation) will show an increase of about 300 per cent over the 1972-73 average.

### Broadcast Aman

Broadcast Aman accounts for 20 per cent of the total rice acreage and contributes about 17 per cent of the total production. HYVs suitable for growing under highly flooded conditions of broadcast Aman have not yet been evolved. The new seed-based technology, therefore, will not have much impact on Broadcast Aman production, the acreage and production of which, in fact, will decline from the current 48.0 lakh acres with a production of 18.7 lakh tons to 44.0 lakh acres with a production of 16.3 lakh tons (1977-78). The decrease in acreage is estimated mainly due to conversion of B. Aman land into Boro land.

The principal cropping pattern on the irrigated land during the First Plan period will, therefore, be HYV Boro followed by HYV Aman, secondly, and to a lesser extent, HYV Aus (Chandina, Mala and Purbachi) followed by HYV Anjan. In the terminal year of the Plan, Boro will contribute 29.6 per cent, T. Aman 42.4 per cent, Aus 17.2 per cent and B. Aman 10 per cent of the estimated total rice production. This is in contrast with the current pattern of production, in which Aus contributes 25.8 per cent, T. Aman 40.9 per cent, B. Aman 16.7 per cent and Boro 16.6 per cent of the total rice production. The new strategy places greater reliance on irrigated rather than on rain-fed rice culture, as this is expected to substantially reduce the extent of annual fluctuation in production caused by droughts and floods. The estimated rice area under modern irrigation at the terminal year will be 61.5 lakh acres or 23.7 per cent of the total rice acreage and will contribute about 67.3 lakh tons or about 44 per cent of the estimated total foodgrain production. This contrasts with the current rice acreage under modern irrigation of only about 4 per cent of the total rice area practically all of which under Boro, contributing about 9.8 per cent of the total foodgrain production.

Considering land development units, soil characteristics, hydrological conditions and climatic factors, 38.7 lakh acres have been earmarked for growing HYV rice crops under rainfed conditions and under traditional irrigation. This is expected to contribute about 22.75 lakh tons or 14 per cent of the total foodgrain target by 1977-78. Local varieties of rice will still be grown in about 160 lakh acres and will contribute about 41 per cent of the total foodgrain production.

Production and consumption of wheat in Bangladesh have been increasing though in comparison with rice, wheat still constitutes a small proportion of total foodgrain. With acceleration of rice production some marginal substitution of wheat consumption by rice is expected. At present a major proportion of wheat supply is met by imports. In the Plan, wheat production is proposed to be increased from the benchmark level of 0.9 lakh tons to 3.6 lakh tons in 1977-78. This increase in production is envisaged through gradual replacement of the local varieties of wheat by improved high yielding varieties and increasing area under wheat from the present 3 lakh acres to 6 lakh acres in the terminal year of the Plan.



The foodgrain production programme will be greatly dependent on irrigation by the terminal year of the Plan; keeping to the irrigation schedule will, therefore, be one of the important pre-requisites. Some of the large-scale Irrigation Projects (LSP) and 'Deep' tube-wells (DTW) will be used for double cropping with HYVs. All the low-lift Pumps (LLP) will be used for Boro while a certain percentage will also be used for supplemental irrigation in the Aman season. In calculating the area under irrigation for rice and wheat, requirements of water for other crops, insufficient water availability, mechanical failures, and other factors have been taken into consideration. Effect of such factors is expected to be felt more acutely in the initial years of the plan period but with increasing organisational and technical efficiencies the situation is expected to improve towards the final years of the plan period.

Full advantage of irrigation facilities and the HYVs will not be obtained unless adequate supply of fertilizers is assured. Considering various factors, different levels of fertilizer combinations have been suggested for the rice and wheat crops. Highest doses have been suggested for HYVs grown under irrigated conditions followed by rainfed HYVs and local varieties and none has been recommended for the broadcast Aman crops. The dose suggested for HYV Boro for the irrigated area is 90 lbs. of Urea, 46 lbs. of T.S.P. and 14 lbs. of M. P. in the final year against the bench-mark figures of 60 lbs. of Urea, 27 lbs. of TSP and 2 lbs. of M.P. per acre. The doses for the HYV Aus and Aman have been recommended to be 75 lbs., 40 lbs. and 14 lbs. of Urea, TSP and M.P. respectively against a very low benchmark of about 13 lbs. of Urea, 8 lbs. of T.S.P. and 2 lbs. of M.P. for local Aus and 15 lbs. of Urea, 4 lbs. of T.S.P. and 2 lbs. of M.P. per acre for local T. Aman. For the traditionally irrigated HYV Boro a lower dose of 50 lbs. of Urea, 23 lbs. of T.S.P. and 7 lbs. of M.P. per acre has been suggested for the terminal year.

On the basis of suggested doses, the use of commercial fertilizer for foodgrains is expected to increase three fold over the benchmark figure of 233 thousand tons (Table VIII-6). Periodical review of the programme will be necessary.

TABLE VIII-6  
Annual Input Requirement for the Foodgrain Crops during the Plan Period.

(In thousand tons).

| Inputs.               |    | Bench-mark, 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. |         |        |
|-----------------------|----|----------------------|----------|----------|----------|----------|---------|--------|
| Commercial Fertilizer | .. | 233·000              | 340·000  | 385·000  | 473·000  | 581·000  | 732·000 |        |
| Pesticides            | .. | ..                   | 10·800   | 13·400   | 15·200   | 16·100   | 17·000  | 18·000 |
| Seeds                 | .. | ..                   | 12·631   | 42·187   | 23·920   | 11·316   | 14·155  | 18·360 |

With regard to availability of seeds of IR-8 and IR-20, which will form the bulk of the HYVs in the initial years, no serious problem is expected since sufficient area is already covered by these crops. It can be reasonably assumed that considerable quantities of seeds will be exchanged by



the farmers themselves. Nevertheless, the executing agencies will have to take necessary steps for assuring the purity of seeds. In addition, varieties (Purbachi, Mala, Chandina, etc.) developed by BRRI and multiplied in the BADC farms and through registered growers will be made available to the farmers as certified seeds. The annual requirement of seeds for the Plan period has been shown in Table VIII-6.

It is estimated that 10 to 15 per cent of food crops are affected by pests and diseases annually. In order to prevent production losses, an extensive programme is envisaged to provide complete plant protection coverage in the areas with HYV. Rest of the area will receive 30 per cent coverage by the end of the Plan period. Plant protection services will be re-organised and strengthened in order to achieve the desired targets. Annual requirement of pesticides may be seen in Table VIII-6.

## 2. Jute

Jute plays a dominant role in the economy of Bangladesh. In 1947, production of jute was 12.1 lakh tons which was 80 per cent of world production of jute and allied fibres. Although world production increased from 18 lakh tons in 1949-50 to 36 lakh tons in 1969-70 the share of Bangladesh, however, declined to only about 35 per cent of the total.

There was a steady decline in the acreage and production of jute in Bangladesh during the fifties. This trend was reversed in the sixties when there was some increase in production. Jute planting was restricted in Bangladesh up to 1960 to stabilize the price of jute. This resulted in rapid extension of jute and kenaf cultivation in India, China, Thailand and other countries. Uncertainty in the supply of jute from Bangladesh together with high world prices also encouraged the growth of synthetics in developed countries posing a serious threat to jute. The yield per acre of jute remained essentially stagnant. In fact, some official statistics show that the yield declined from 4.1 bales per acre in the late fifties to 2.9 bales per acre in the late sixties. The divergence between the two figures is, however, open to question since the methods of arriving at the estimates were quite different. Formerly, the yield figures were obtained based on subjective eye estimation method, which was later replaced by scientific sample survey method. Furthermore, the acreage figures of jute were under-reported during the fifties when the Jute Regulation Act was in operation. The effect of this continued to be reflected in the official statistics until the mid sixties. Modern inputs like improved seeds, fertilizers, etc., were not applied in the previous decade and this had been one of the major factors for the poor performance of jute. During the year 1970, a pilot project on intensive cultivation of jute was launched in 54,000 acres of package-deal area and 3,03,000 acres of non-package deal area. It was clearly demonstrated that as a result of the use of improved seed, cultural practices, plant protection measures and fertilizer jute yield increased to about 4.5 bales per acre in the package-deal area and about 4.0 bales per acre in the non-package deal areas, as against 2.9 bales per acre in the non-project areas.

Bangladesh must adopt a strategy of increasing per acre yield of jute and reducing cost per unit of product. The price policy should be declared before the beginning of the sowing season. Jute production target is fixed at 91 lakh bales (excluding Mesta) by 1977-78 from the level of 72 lakh bales (excluding Mesta) in 1969-70. This means that the production



will increase by 26 per cent. Year-wise targets during the plan period is indicated in the following table:

TABLE VIII-7  
Projection of Production of Raw Jute during the Plan Period.

[Lakh bales]

| Seasons.         | Production. |        |        |
|------------------|-------------|--------|--------|
|                  | Jute.       | Mcsta. | Total. |
| 1972-73 (Actual) | ...         | ...    | 65.1   |
| 1973-74          | ...         | ...    | 73.0   |
| 1974-75          | ...         | ...    | 78.0   |
| 1975-76          | ...         | ...    | 82.0   |
| 1976-77          | ...         | ...    | 87.0   |
| 1977-78          | ...         | ...    | 91.0   |

The production targets take into consideration requirements of domestic mills, village consumption and exports. While the village consumption level is assumed to increase from 2.5 lakh to 3.7 lakh bales, consumption of mills will depend on productive efficiency of the existing mills, installation of additional capacities and exports demand for jute goods. The mill consumption is estimated to grow at an annual compound rate of 5.6 per cent rising from the current 28 lakh bales to about 40 lakh bales by 1977-78. Export figures are based on the assumption that with a more reasonable export price, vigorous marketing and stable supply, the demand will increase at an annual rate of about one per cent. This does not take into consideration any special off-take beyond the present level of 2 lakh bales by India. Indian purchases of Bangladesh raw jute may increase as a result of special trade agreements between the two countries. Deducting the quantity for internal consumption by mills and farmers, the supply of raw jute for export from Bangladesh by 1977-78 will be about 50 lakh bales.

Bangladesh has about 45 lakh acres of potential jute growing area of which nearly half is suitable for production of high quality jute. Besides, in actual practice growers have wide choice of growing either jute or rice in the same area. The acreage during the last decade varied from 15 lakh to 24 lakh. Jute occupies about 9 per cent of the total cultivated area as against 78 per cent by rice in the same growing season.

In order to attain the phased target laid down in the Plan, the development programme of jute has been designed to increase per acre yield and reduce cost of production. By using high yielding varieties as evolved by the Jute Research Institute, together with improved cultural practices, it is possible to increase per acre yield from existing 2.9 bales to about 5 bales per acre. The factors which contribute towards increased yield are: (i) improved seed, (ii) chemical fertilizer, (iii) improved cultural practices, and (iv) plant protection. The strategy would, therefore, be to bring progressively 17 lakh acres under improved method of cultivation over



a period of 5 years, leaving 5 lakh acres under traditional method of cultivation as these would be too scattered and situated mostly in the low-lying areas for a suitable package programme approach. The areas which will receive all inputs except improved seed would be considered as 'non package deal' areas. Such areas will also be brought under the package deal within the first plan period. Production from the project areas during the plan period is indicated in the following table :

TABLE VIII-8  
Jute Production Programme for Plan Period.

| Sources.                           |     | 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. |
|------------------------------------|-----|----------|----------|----------|----------|----------|
| <b>1. Area (Lakh acres).</b>       |     |          |          |          |          |          |
| Package-deal area                  | ... | 4.0      | 5.0      | 8.0      | 12.0     | 17.0     |
| Non-package deal area              | ... | 6.0      | 6.0      | 6.0      | 4.0      | Nil.     |
| Traditional area                   | ... | 11.0     | 11.0     | 8.0      | 6.0      | 5.0      |
| Total                              | ... | 21.0     | 22.0     | 22.0     | 22.0     | 22.0     |
| <b>2. Production (Lakh Bales).</b> |     |          |          |          |          |          |
| Package-deal area                  | ... | 18.0     | 22.5     | 16.0     | 54.0     | 76.5     |
| Non-package deal area              | ... | 24.0     | 24.0     | 24.0     | 16.0     | Nil.     |
| Traditional area                   | ... | 31.9     | 31.9     | 23.2     | 27.4     | 14.5     |
| Total                              | ... | 73.9     | 78.4     | 83.2     | 87.4     | 91.0     |

Though it is visualised at this stage that the jute acreage will be maintained at 22 lakh acres, this is not a rigid policy. If production targets are not met by increasing yield, attempts will be made to divert more areas to jute from other crops through appropriate price policies.

Varieties evolved at the Jute Research Institute have demonstrated potentiality of higher yield up to 10 to 20 per cent over local varieties. These varieties promise higher returns at low investment. The high yielding varieties which would be used for the development programme are D-154 and C-6 in Capsularis and O-4 in Olitorius. The requirement of seeds has been based on the following assumptions :

- The total area under jute has been estimated at 22 lakh acres of which 17 lakh will be put under the package programme by 1977-78.
- Seed rate has been assumed to be 4 seers per acre.
- Replacement of seed would be at the end of five years. It is assumed that 25 per cent of the growers in the package deal areas will not keep their own seed and will require fresh supply from Government.



On the basis of these assumptions, the total annual requirement of improved seed is estimated at 43,500 maunds by 1977-78. Nucleus seeds and foundation seeds will be multiplied in the seed farms of Bangladesh Central Jute Committee (BCJC) and through registered growers who will produce certified seeds which would be distributed amongst the jute farmers of the package deal areas. The quality of seed will be checked by an independent seed certification agency to be set up under the Ministry of Agriculture.

The general recommended dose of fertilizer per acre is 45 seers urea, 22.5 seers TSP and 22.5 seers Murate of potash. The requirements will vary somewhat depending on the soil types. It would be necessary to formulate recommendations based on soil fertility tests for each broad soil tracts separately. Available indications are that the response to TSP is only marginal and the actual recommended dose could be reduced to maintain reasonable phosphatic nutrient level in the soil. The requirement of potash for jute is, however, well demonstrated, and more active extension efforts will be necessary to push the application of potash fertilizers in jute as it improves the quality of jute and increase resistance against diseases.

Jute is subject to attack by pests and diseases. Plant protection measures will have to cover the entire jute crop. Unless pests of jute crops in all the areas are simultaneously controlled, infestation may spread from one area to another. The requirement of pesticides has been calculated on the assumption that if at least 60 per cent of the area is covered on the basis of three sprays per acre, protection to 100 per cent area can be expected. Requirements of pesticides and sprayers for the project areas have been calculated on the basis of 3 pounds of pesticides for three sprays per acre.

Both yield and quality of jute depend greatly on the agronomical practices that are followed, i.e., timely sowing, optimum plant protection, time of harvest, weeding operation, etc. One of the important measures to reduce cost as evolved by the Jute Research Institute is to sow jute in line and use mechanical implements (Wheel-hoe) for weeding which constitute a substantial item in the cultivation cost. Line sowing of jute during the optimum period as recommended by the Jute Research Institute assures maximum yield with all the inputs. In certain areas in North Bengal provision of irrigation water will enable farmers to sow in time and thereby maximize yield, as in these areas drought causes delay in sowing and drastically reduces yield.

The success of the jute programme will depend to a large extent on the scale and intensity of training of jute growers in the adoption of improved practices. Not only supply of inputs will have to be adequate and timely but also the farmers must know how to use the inputs effectively. The existing agricultural extension organisation will be strengthened by appointment of additional jute staff. Some staff appointed under the pilot scheme are already in position. The extension staff will check and support village level staff who will be trained from among the progressive farmers. A number of these progressive farmers have already been trained for this purpose during the last three years. The extension staff at the thana level and district level will be trained at the Jute Research Institute and they, in turn, will train the farmers. The operation of the jute workers will be constantly supervised by the special jute extension staff at the thana and district level. The programme will be evaluated annually to assure effective implementation. The major jute districts will be taken under the jute development programme. The selection of area under each thana for development programmes will be based on the intensity of jute cultivation.

For successful implementation of the jute production programme an amount of Tk. 10.0 crores has been earmarked for supply of credit to jute growers through Jatio Samabaya Bank, Thana Central Co-operative Associations and Scheduled Banks. The credit will be linked with guaranteed purchase operations by state trading agencies as this will ensure better realization of loans.



Government should fix a statutory minimum price every year taking into consideration the cost of cultivation, price of rice, internal and external demand for jute and other relevant factors. Since state trading agencies operate at the secondary markets, the minimum price is rarely available to jute growers as most of them (70 per cent) sell their jute in their homesteads or the primary markets. Besides, growers sell unassorted jute and thus are deprived of the higher price for quality jute. The requirements for the growers to get minimum price will involve; (i) formation of jute growers' co-operative linked with warehousing Corporation-cum-Kutchia presses, (ii) opening of many purchasing centres at primary markets by state agencies which will have adequate financial support, (iii) making purchases on the basis of assorted grades and setting up of regulated markets for controlling moisture and weights, etc.

It would be necessary to evolve higher yielding and higher fertilizer responsive varieties which will also have higher fibre percentage. Similarly, varieties that are photoneutral and of short duration are required in multiple cropping areas. To carry out research more intensively and effectively it would be necessary to strengthen the Jute Research Institute with competent staff, laboratory equipment and field facilities, etc. The Institute will also co-ordinate the research activities of the technological and agricultural wings, and plan and implement a comprehensive research programme. If necessary, as a short term measure, expatriates may be appointed in areas and fields where expertise is lacking.

Many government agencies are involved in the processes of production, marketing and research of jute. A central authority should be set up which will co-ordinate the activities of these agencies and also formulate policies and programme in the field of jute.

### 3. Tobacco

Tobacco is an important crop of Bangladesh especially in Rangpur district. The acreage and production of tobacco remained almost static at about 1.10 lakh acres and 8.60 crore pounds respectively during the late sixties. *Matihari* tobacco, which is grown all over Bangladesh, accounts for about 66 per cent of total production and is mainly used for *hukka*, *bidi* and chewing purposes. *Jati* tobacco, which accounts for about 30 per cent of total production is generally grown in Rangpur and used for *bidi*, chewing, *zorda*, *kimam*, *hukka* and also for the manufacture of low grade cigarette. Manila and Sumatra varieties are grown only in Rangpur and Cox's Bazar and used for making cigars. Cultivation of flue-cured and air-cured Virginia, generally used for making cigarettes, has recently been started in Kushtia, Jessore, Rangpur and Dinajpur.

Per capita annual consumption of tobacco and tobacco products during the period from 1966-67 to 1970-71 was 1.80 lbs. With the gradual urbanization and change in consumption habits the demand for *hukka* and *bidi* tobacco is being substituted by cheap cigarettes. Allowing for an annual growth of demand for cigarettes at an estimated rate of 5 per cent, the projected requirement of cigarette and other types of tobacco products by the end of the Plan period comes to 6.38 crore lbs. and 8.60 crore lbs. respectively.

It is expected that with the introduction of improved technology and application of fertilizer in moderate quantity, it may be possible to meet the requirement of tobacco from a total acreage of 1.48 lakh acres (0.70 under cigarette tobacco and 0.78 under other types) as against the present acreage of 1.10 lakh acres. The additional acreage can be obtained by bringing under cultivation the current fallow lands available in Jaldaka, Nilphamari and Domar of Rangpur, Kushtia, Jessore and Dinajpur.



Total production of cigarette tobacco and other types have been fixed at 14.80 crore lbs. of which cigarette tobacco accounts for 6.20 crore lbs. and the rest accounts for 8.60 crore lbs. The projected consumption and production of tobacco are shown in Table VIII-9.

**TABLE VIII-9**  
**Projected Production and Consumption Demand for Tobacco during the Plan Period.**

(In crore lbs.)

| Year.   | Consumption Demand. |              |        | Projected Production. |              |        |
|---------|---------------------|--------------|--------|-----------------------|--------------|--------|
|         | Cigarette types.    | Other types. | Total. | Cigarettes types.     | Other types. | Total. |
| 1973-74 | 5.250               | 8.600        | 13.850 | 1.550                 | 8.600        | 10.150 |
| 1974-75 | 5.515               | 8.600        | 14.115 | 2.640                 | 8.600        | 11.240 |
| 1975-76 | 5.788               | 8.600        | 14.388 | 3.830                 | 8.600        | 12.430 |
| 1976-77 | 6.078               | 8.600        | 14.678 | 5.000                 | 8.600        | 13.600 |
| 1977-78 | 6.381               | 8.600        | 14.981 | 6.150                 | 8.600        | 14.750 |

The production of cigarette tobacco will be progressively increased and by the end of the Plan period the import of tobacco will almost be eliminated.

To attain self-sufficiency in cigarette tobacco, the main strategy would be to increase production on the following lines:

- (i) to bring about 70,000 acres under cigarette tobacco (28,000 FCV+42,000 ACV) by organising the growers;
- (ii) to train tobacco growers in the production, curing and grading of tobacco, particularly flue-curing of locally grown virginia tobacco;
- (iii) to construct and manage about 15,000 barns of different sizes for flue-curing of locally grown virginia tobacco;
- (iv) to ensure proper marketing facilities;
- (v) to conduct research to evolve high yielding varieties of tobacco, improved cultural practices and technology at lower cost;
- (vi) to produce virus free seeds, specially of virginia tobacco in the farms of Research Institute;
- (vii) to arrange supply of credit, fertilizer, pesticides and other essential facilities to tobacco growers in adequate quantity and in time;
- (viii) to set up storage facilities to enable small growers of *Matihari* and *Jati* tobacco to avoid post-harvest sale at a very low price.



A total quantity of about 29 thousand tons of fertilizers, 800 tons of insecticides and fungicides and 9 tons of tobacco seeds will be required during the Plan period for the programme.

#### 4. Sugarcane

Sugarcane is grown in almost all the districts of Bangladesh but more than two-third of the total acreage are in Dinajpur and Rajshahi districts. During the period 1962-63 to 1969-70, the total acreage under sugarcane increased from about 3 lakh acres to 4 lakh acres while the yield per acre which remained more or less constant at 15 tons. The increases in acreage have been mostly outside the mill zone which has gone up from 1.42 lakh acres to 1.80 lakh acres. The percentage of recovery of sugar in the past has shown a downward trend from 8 per cent to 6 per cent resulting in less production of sugar. Both inadequate supply of cane and low recovery rates have led to higher cost of production of sugar. Delivery of cane to the mills was about 50 per cent of their crushing capacity. In 1962-63 the per capita availability of sugar and gur per annum was 3 lbs. and 4 lbs. respectively. In 1969-70 the per capita availability increased to 4 lbs. of sugar and 7 lbs. of gur.

Inadequate supply of cane to mills and low recovery were due to (i) lack of price incentive to the cane growers, (ii) supply of inferior quality of cane to the mills by the farmers due to fixed price of cane, (iii) poor yield due to lack of HYVs, judicious application of fertilizer, better cultural practices, insect and pest control measures and irrigation and drainage facilities, (iv) inappropriate location of sugar areas, difficulties of transportation and inefficient extraction process in the mills.

Considering the past consumption trend, milling capacity, possible growth rate of cane production, the projections of demand and supply of sugarcane have been made as follows:

- (i) The total requirement of sugar and gur by the end of 1977-78 will be 1.90 lakh tons and 3.0 lakh tons, respectively (at the rate of 5 lbs. of sugar and 8 lbs. of gur per capita).
- (ii) For this amount of sugar and gur 28.20 lakh tons and 46.00 lakh tons of cane, respectively will be required.
- (iii) The yield per acre is expected to rise to 20 tons in mill-zones and 17.8 tons in gur areas.

The following steps will be taken to achieve the targets of production:

- (a) Introduction of HYVs, fertilizers, pesticides, irrigation and drainage facilities in both mill and gur zones to increase per acre yield.
- (b) Payment of incentive price to cane growers on the basis of quality of cane supply.
- (c) Adequate extension and credit facilities.

For the mill zone the following measures would be necessary:

- (a) Concentration of cane production and procurement within five miles of the mills.
- (b) Improvement of roads and transport facilities within five miles of the mills.
- (c) Improvement of procurement and payment by the mills to minimise waiting at the cane delivery centres.



- (d) Entrusting the Sugar Mills Corporation with the responsibility of supply and services of all inputs including credit requirement of the growers in the mill zone area.
- (e) Sugar industry sector will create facilities for industrial utilisation of molasses for the production of spirit, alcohol, dextrin, yeast, etc. Molasses can also be used for feed-supplement of livestock. Simultaneously, the industrial utilisation of bagasse in hard-board and paper industry may be another source of income to the Sugar Mills Corporation.

Total requirements of fertilizer and pesticides have been estimated at about 2.50 lakh tons and 1,800 tons respectively during the Plan period. Total requirement of seed-cane for covering an acreage of 4 lakh at the ratio of two-third under new crop and one-third under ratoon is estimated to be 26.50 lakh tons during the Plan period (calculated at the rate of 2 tons per acre).

### 5. Cotton

Extra short staple Comilla Cotton is grown in a system of shifting agriculture on some 33,000 acres in Chittagong Hill Tracts area producing about 13,000 bales. Comilla Cotton fibre is extremely short and rough which are ideal qualities for mixing with wool and, therefore, it gets premium in the market over other cotton in the sub-continent. Efforts will be made to increase the production of this cotton by moderate application of fertilizer and insecticides. According to the statistics of the Directorate of Soil Survey, an approximate acreage of 4 to 5 lakh may be suitable for medium staple cotton in Rangpur, Bogra, Dinajpur, Khulna, Jessore and Dacca, under irrigation. Moreover, in some parts of Tista silt and alluvial tracts of Rangpur and Dinajpur districts, medium staple cotton can also be grown practically without irrigation and fertilizer application with an average yield of 10 to 12 maunds of seed cotton per acre. Assuming that the present usage of 2.4 lbs. cotton fibre *per capita* per annum remains constant, the fibre requirement for the projected population by the end of the plan period comes to 5.10 lakh bales. At present Bangladesh has 45 spinning-mills with 8,30,700 spindles, besides about 200,000 spindles are under installation. It is estimated that about 5.0 lakh bales of cotton will be required annually to run these textile mills.

Since production of medium staple cotton will be a new venture in Bangladesh agriculture, a very cautious approach will be needed. By the terminal year of the Plan, it is proposed to produce 63,000 bales of raw cotton from an area of 50,000 acres against the total requirement of 5.0 lakh bales by the end of the plan period. As a by-product 3,300 tons of cotton oil and 17,000 tons of oil cake will also be available.

In the initial years a modest beginning will be made on the following lines:

- (i) to distribute the C-1 and C-5 varieties of cotton to the prospective growers;
- (ii) to train the pest control staff in Chittagong Hill Tracts cotton area;
- (iii) to start the multiplication programme of these two varieties and to install—small ginneries in some of the selected cotton growing area;

During the first two years cotton would mainly be grown for field experimentation, staff training, seed multiplications and demonstration purposes on government farms and in some textile mill areas covering minimum acreage of 450-500 acres. In addition, field research would be concentrated on various agronomic aspects of the crop.

In the later years, the programme will include:

- (i) Wide spectrum variety screening and seed bulking, along with improved technological and cultural practices under local conditions.



- (ii) Large scale demonstration using improved varieties and cultural practices, along with a sound training programme for the growers.
- (iii) Textile Mills Corporation will be entrusted with the responsibilities of village ginning before purchasing the fibre from the growers.

## 6. Potato

Potato is a popular vegetable item and is grown in all the districts of Bangladesh. However, the main concentration of areas under potato are in the districts of Dacca, Comilla, Bogra, Rajshahi, Dinajpur and Rangpur. Acreage under potato steadily increased from 1.40 lakh acres to 2.00 lakh acres during the late sixties. Production has similarly gone up consistently from about 4.0 lakh to about 8.0 lakh tons during the same period. Imported high-yielding varieties contributed greatly to this increased production.

In order to meet the increased demand for potato, which is expected to rise due to increased population and urbanization, the production target has been fixed at 11.00 lakh tons by 1977-78 compared to the bench-mark production of about 8.0 lakh tons.

This implies an increase of production by about 38 per cent in five years. The main strategies that will be adopted to increase the output of potato will be as follows:

- (i) The acreage under potato will be maintained at the existing level. The increased output will be obtained by augmenting per acre yield substantially. The yield rate is expected to increase by a maximum of 50 per cent over the present level (150 maunds per acre as against 100 maunds) over a period of five years.
- (ii) High yielding varieties will be imported and further multiplied in the country for distribution to farmers on an extensive scale.
- (iii) Additional capacities will be created for preservation of potatoes for both seed and consumption purposes. These storage facilities will not only help avoid wastage but will also even out the seasonal fluctuation in prices and thus provide incentive to farmers.

At present only 40 per cent of the recommended dose of fertilizers is used by farmers. Even with this application they get a fair yield. As application of fertilizers along with improved varieties provide a high return, it will be realistic to expect farmers to use the recommended dose of fertilizer, which is estimated to rise from 2.1 maunds per acre to 4.6 maunds per acre by 1977-78. On this basis, the total requirement of fertilizers for potato during the plan period will be 1.25 lakh tons.

It has been proposed to cover 100 per cent of the potato area at least by one spray. This is necessary to protect the crop which is susceptible to pest attack. Requirement of insecticide is estimated at 20 lakh lbs. and fungicides at 10 lakh lbs.

Requirement of seeds to cover 2 lakh acres comes to about 94,000 tons per year. At least 5 per cent of the requirement will be imported in the initial years for multiplication but in the subsequent years the import of seeds can be gradually reduced.



Cold-storage facilities will be provided in accordance with the production in major potato growing districts so that potato can be preserved both for seed and table purpose. Programmes for cold-storage will be included in the industrial programme of the country in the plan period.

Emphasis has to be given on evolving suitable high yielding varieties through a sound breeding programme. Research work on these lines will be undertaken.

## 7. Oilseeds

A large number of oilseed crops are grown in this country, out of which mustard and sesame have the largest coverage and also consumers' preference. Groundnut is a crop with high yield potential and therefore needs to be singled out for special attention. In 1969-70 the area under mustard, sesame and groundnut was 5.40 lakh acres, 1.20 lakh acres and 0.80 lakh acres respectively. The total production of edible oil was only 0.60 lakh tons against a total requirement of 1.80 lakh tons. The yield rates of almost all the oil seed crops are very poor due to poor cultivation practices, lack of use of fertilizers, particularly nitrogen and phosphorous, and lack of control of insect pests.

It is estimated that at the rate of 2.62 seers of oil consumption per capita the total requirement of edible oil will be about 2.0 lakh tons in 1977-78 or in terms of seed approximately 6 lakh tons. Considering the requirement and production possibilities the target of oil seeds production has been fixed at 4.0 lakh tons in 1977-78 against a base year (1969-70) production of 2.0 lakh tons. The total production of edible oil will be about 1.30 lakh tons which is about 70 per cent of the total requirement.

The programmes for oil production will aim at increasing yield of mustard and increasing acreage and yield of groundnut. A total acreage of 2.50 lakh will be brought under an intensive mustard cultivation programme. The extension of area under groundnut will be possible in the districts of Dacca, Bogra, Comilla, Noakhali, Sylhet and Kushtia without affecting the rice or jute acreage. The existing area under sesame will be left under normal production programme.

The Agricultural Research Institute will undertake applied research programme for improvement of production technology and development of HYV oil seeds. Incentive prices will be fixed in consultation with the oil mills and will be announced every year before sowing season. A total quantity of 1,68,000 tons of chemical fertilizer and 46,300 tons of seeds will be required during the Plan period. Plant protection measures will be adopted in the intensive production areas to prevent losses due to pests and diseases.

## 8. Pulses

Pulses like-kheshari, mug, masur, gram and peas are important sources of protein especially for low income group people. The present consumption of pulses is only 8 grams per capita per day. The desirable consumption considering nutritional requirement would be about 29 grams per day. Therefore, it is imperative that production of pulses be increased to meet the objective of higher nutritional standard especially of the poorer section of the community.

<sup>a</sup> With the increasing irrigation facilities, a decline in the acreage of pulses is more likely during the initial years due to higher profitability of rice, potato and tobacco, etc. The programme for production of pulses is expected to correct this situation.



The target of production of pulses is fixed at 3.50 lakh tons in 1977-78 from a base production of 2.90 lakh tons, an increase of about 21 per cent. This target has been fixed keeping in view the production possibilities by the use of modern inputs. The acreage under pulses will be maintained at the present level of 9.20 lakh acres but the yield per acre will be increased from 8 maunds to 10 maunds per acre. The increase in yield rate will be achieved by:

- (i) introducing high yielding varieties of seed;
- (ii) introducing phosphatic fertilizer, sowing in line and effective plant protection measures;
- (iii) increasing the area under masur by reducing area under kheshari.

The estimated total requirement of fertilizer is 0.26 lakh tons of TSP. Improved varieties of seed will be imported. The Agricultural Research Institute will test the suitability of improved seeds under local conditions.

### 9. Tea

Tea plantation occupies 1,10,000 acres, employing about 1,40,000 workers, and provides about 4 per cent of Bangladesh export earnings. Formerly it enjoyed a subsidized and protected market in Pakistan. Now it must compete and at a lower price than before. Over the next 5-7 years Bangladesh tea will meet severe competition from high-yielding, low cost clonal varieties developed elsewhere. The local growers have not only failed to replant with such varieties but have also neglected to fill dead tea bushes in mature plantations. They also neglected pruning and factory development. The present unsatisfactory state of affairs may be ascribed to three factors: (i) lack of a clear policy on ownership of tea lands, (ii) unremunerative prices at least since 1971, and (iii) failure to encourage replanting and associated research. The present production of tea in Bangladesh is shown in Table VIII-10.

TABLE VIII-10.

#### Present Production of Tea in Bangladesh.

| Class.         | No. of gardens. | Total area covered by the tea estates. (Acres) | Area under Production (Acres) | Production m. lbs. | Average production per acre (lbs.) |
|----------------|-----------------|--|-------------------------------|--------------------|------------------------------------|
| All 'A'        | 59              | 1,76,993                                       | 78,257                        | 58.44              | 746                                |
| (Sterling 'A') | (33)            | (1,17,433)                                     | (52,165)                      | (38.40)            | (736)                              |
| 'B'            | 14              | 27,091   | 10,230                        | 4.38               | 428                                |
| 'C'            | 34              | 43,923   | 10,974                        | 5.37               | 358                                |
| 'U'            | 40              | 31,180   | 6,539                         | 0.81               | 120                                |
| Total          | 147             | 2,79,187                                       | 106,000                       | 69.00              | 627                                |

SOURCE: Tea Enquiry Committee Report.

Note—Figures in bracket are included under "All A" class.



Tea land is leased only for five years at a time. In accordance with the Government's recent industrial policy statement, growers need to be assured that leases will be renewed for at least fifteen years and will not be taken over without fair compensation. The amount of compensation may be decided, if necessary, by agreed arbitration. Meanwhile experiments with commercially managed estates, co-operative plantations and with small holdings will continue.

Many estates are now failing to cover costs, and to adopt improved practices because of low prices. Tea gardens suffered heavy damages during the war of liberation and the production in 1971-72 was reduced to 40 per cent of that in a normal year.

Certain actions for improvement in yield and quality are indicated below:

**(a) Intensive cultivation**

Tea cultivation in Bangladesh has not been much intensive; not more than 50 per cent of the potentiality of tea land has been exploited. The extent of estimated loss due to different factors is:

|   |    |    |    |    |    |             |
|---|----|----|----|----|----|-------------|
| Vacancy   | .. | .. | .. | .. | .. | 25 per cent |
| Weeds, poor drainage, inadequate shade, insufficient fertilizer, faulty pruning, etc. | .. | .. | .. | .. | .. | 15 per cent |
| Pests and diseases  | .. | .. | .. | .. | .. | 15 per cent |
| Lack of adequate irrigation   | .. | .. | .. | .. | .. | 10 per cent |

There is thus plenty of scope for increasing the crop from the land already under plantation by taking recourse to intensive cultivation which, *inter alia*, will involve weeding, drainage, proper shade plantation, application of fertilizer, proper pruning, pest and disease control, infilling of vacancies, irrigation facilities and replanting old tea sections.

**(b) Production of other economic crops**

As income from tea is declining, the tea estates can conveniently cultivate other crops side by side with tea in order to reduce the cost of production of tea. Cultivation of *Java citronella* had been taken up widely by the tea estates in Assam. Other crops that can be grown successfully in the tea soils of Sylhet and Chittagong are black pepper, cotton on the hills, rubber, pineapple and lemon. Cultivation of these crops will not only bring additional income for the tea estates but also will provide new avenues of employment for the surplus labourers.

**(c) Repair of factories**

The repair and renovation of the damaged factories and modernization of old worn-out ones, although a long term programme, should be taken up immediately with a view to improving the quality of manufactured tea. The economy of a garden is largely dependent upon the modernization of its factory. Co-operative factories may be set up for small groups of gardens. The possibility of arranging the machinery for these co-operative factories on a hire purchase system could also be looked into.



The most important medium-term issue concerns replanting policy. Mature VP (vegetatively propagated) tea greatly increases yield, improves quality and cuts labour-cost. But there is a temporary sacrifice to the grower and to Bangladesh of the foreign exchange loss while the land (formerly yielding seed tea) is rehabilitated and replanted. Since labour costs are similar for replanting and for cultivation, reimbursement of output value foregone by loan (about Taka 300 per acre) would compensate the grower, provided he was confident of continued ownership (or fair compensation) and of a fair output price.

It is not at all obvious which land should be replanted whether to seed tea, or VP, and whether with irrigation. Also some land should be diversified out of tea. An Agro-economic team will be constituted by the Government to evaluate the desirable rates, location, and composition and changes in the use of tea lands; assess the foreign exchange costs, and identify potential sources of aids both for replanting and associated tea factory rehabilitation. The exact acreage and speed of replanting would be determined after the report by the team.

Considerable staff and other support are needed for the Tea Research Institute, in order to enable it to develop much greater amount and variety of clonal material. It will also require economic expertise to evaluate technical recommendations before extension, to suggest priority research areas, to evaluate land-use and pricing programmes by cost of production and price response studies on tea and possible alternative crops and to investigate possible measures to improve the condition of tea estate labourers, especially through improved farming of their homestead land.

It will be desirable to have the Tea Board near the tea estates. The responsibility for the management of the nationalised plantations is being transferred to the Tea Industries Management Committee (TIMC) which, with a manager and an elected committee of the workers, should perform day to day business within a given policy framework.

#### (d) Programme outlay

The cost of the programme has been estimated to be Taka 26.10 crore for the plan period. Itemwise and yearwise distribution of cost is shown in the table below:

TABLE VIII-11

#### Cost of Tea Programme

(Taka in crore)

|                               | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 | Total. |
|-------------------------------|---------|---------|---------|---------|---------|--------|
| Replanting of Tea lands ..    | 1.5     | 3.0     | 4.5     | 6.0     | 7.5     | 22.50  |
| Co-operative Tea factories .. | 0.2     | 0.2     | 0.1     | ..      | ..      | 0.5    |
| Factory Rehabilitation ..     | 0.4     | 0.4     | 0.4     | 0.3     | ..      | 1.5    |
| VP Sub-stations (TRS) ..      | 0.4     | 0.3     | 0.3     | ..      | ..      | 1.0    |
| TRS Research/Extension ..     | 0.2     | 0.1     | 0.1     | 0.1     | 0.1     | 0.6    |
| Total ..                      | 2.7     | 4.0     | 5.4     | 6.4     | 7.6     | 26.10  |



The replanting and factory rehabilitation loans will be fully recoverable with interest from the growers. The cost of VP Sub-stations will be partly recovered from the sale of clonal material.

**(e) Recommendations**

The problems faced by the tea industry today need more careful and sympathetic appreciation from the financing institutions to enable them to overcome the crisis. Certain steps are suggested below:

- (i) The ADBB and the Commercial Banks should continue to grant hypothecation loans to the tea industry on usual terms and conditions on a monthly requirement basis.
- (ii) The rate of interest on hypothecation loan advanced to tea estates by the Agricultural Development Bank should be the same as that charged to other sectors in agriculture.
- (iii) The consortium of banks created for meeting the financial requirements of industries sector should come forward to advance adequate loans to the tea industry. With the risks being shared by all the banks in the consortium it should not be difficult for them to meet the requirement of the tea industry.
- (iv) It was felt that the cash credit basis to these gardens could be 80 per cent of the anticipated price of the crop as against the current estimates of 75 per cent particularly when the Agricultural Development Bank of Bangladesh has obtained a Government guarantee.
- (v) Customs duties on fertilizers, pesticides and irrigation equipment, etc., should be reduced to the level of the rates for the agriculture sector.
- (vi) Special credit facilities to gardens should be arranged for intensive cultivation infilling vacancies in young gardens, growing a second crop along with tea and other improvements of gardens.
- (vii) For sales promotion the following actions are suggested:
  - Sales promotion teams should be sent to countries importing large quantities of tea including those in the Middle East and Africa as soon as such contracts are feasible.
  - A 'Bangladesh Tea Centre' should be organised in London as done by Ceylon and India, since London is still the biggest tea centre of the world.
  - Tea may be included as an item of exchange in commodity agreements entered into by the Government particularly with those countries which are major importers of tea.
  - Sales promotion means should be assisted by such measures as production of tea bags which seem to attract consumers' preference.

**10. Fruits and Vegetables**

Acreeage and production of fruits and vegetables in Bangladesh have not shown much increase during the last twenty years. At present about 10 lakh acres of land are under



fruits and vegetables with a total production of 16.10 lakh tons and 26.90 lakh tons respectively. The yield per acre is very low. The current level of consumption of fruits is only 1.33 ounces per head per day which is declining. The factors listed below are directly and/or indirectly responsible for the inadequate supply and availability of fruits and vegetables:

- (a) non-availability of requisite number of good variety of seeds and seedlings;
- (b) lack of organised fruit and vegetable marketing system;
- (c) inefficient transportation system;
- (d) lack of sufficient information on modern techniques of fruit and vegetable cultivation;
- (e) inadequate facilities for storage, canning and preservation;
- (f) lack of sufficient number of technically qualified personnel and well-co-ordinated approach between public and private agencies.

The soil and climatic conditions of the country are suitable for successful cultivation of various kinds of horticultural crops and there is, therefore, considerable scope for increased production, both through expansion of acreage and increased yields per acre. Experiments conducted so far in different orchards clearly indicate the potentialities of raising per acre output by application of highly productive inputs under proper management.

To lay a proper base for the development of horticulture during the First Plan period, it is proposed to bring all aspects of development, i.e., extension, supply of seeds and seedling, pesticides, implements, credit, marketing, processing, etc., under the operational control of the Horticultural Development Board already established for such purposes. To start with, the Horticultural Development Board will have under its control and supervision the existing 44 orchards/nurseries belonging to the Directorate of Agriculture (E&M) and BADC and also abandoned farms. Chittagong Hill Tracts Development Project and the Agricultural Development Estates under BADC will also be transferred to the Board. The functions of the Board will be as follows:

- (a) to survey the demand and preference for various fruits and vegetables in urban and rural areas together with "Nutrition" drive for effective use of suitable fruits and vegetable;
- (b) to supply disease free seed and nursery stock by private and Government agencies under strict supervision. As soon as possible, local farms and agencies will be established to multiply seed and seedling stock of locally established varieties. Development of improved nursery stock of litchi, mango, cocoanut, guava, banana and papaya would be given special attention;
- (c) to evaluate the existing nursery and horticultural projects critically, with a view to recommending their continuation, rehabilitation or discontinuation;
- (d) to conduct field research in screening the existing varieties and development of improved varieties of horticultural crops;
- (e) to encourage development of gardens in the private sector on a 'Project Area' concept by supplying of fertilizer, seed, pesticide, under direct guidance and supervision of the extension staff; and
- (f) to introduce co-operative marketing management.



With the execution of the programmes to be drawn up by the Horticultural Development Board, it is expected that by the end of the plan period, there will be an increase in the production of fruits and vegetables to 18 lakh tons of fruits and 29 lakh tons of vegetables. The production will increase by about 10 per cent in case of banana, papaya and pineapple and 5 per cent in case of tree fruits. Research under the supervision of Agricultural Research Institute would be concentrated mainly on the most important types of quick-growing fruits as a short term measure and the tree fruits in long term perspective.

#### **8.1.4 Fisheries**

##### **A. Introduction**

Few countries of the world of comparable size, physiography and climate enjoy such vast fisheries potential within their boundaries and territorial waters as Bangladesh. Although there is no reliable information, it is estimated that more than 30 lakh acres of different types of water bodies constitute the inland fisheries resources, whereas the territorial waters cover an area of over 25 lakh acres. In addition to these, sixty to seventy lakh acres of paddy field which remains under water for three to six months, may be used as seasonal fish rearing grounds.

Fisheries sector plays a significant role in its contribution to Gross Domestic Product, foreign exchange earning, employment and nutrition of the people of Bangladesh. It is estimated that approximately 8 per cent of the population of Bangladesh derive their livelihood directly or indirectly from the fisheries sector. Prior to 1965, fish exports accounted for about Taka 5 to 8 crore a year. The role of fisheries in supplying animal protein is even more vital as evident from a past Nutrition Survey which shows that more than 80 per cent of the animal protein comes from fish alone.

Whereas an average person requires about 25 grams of animal protein a day for maintaining normal health, an average Bengali gets less than one-third of this per day. Development of fisheries resources provides a promising means for reducing the protein gap in the diets of the people.

##### **B. Present Position**

The important activities undertaken during the period between 1960-70 for inland fisheries development included reclamation and development of derelict waters for fish culture, establishment of fish seed multiplication farms, nurseries and fish sanctuaries. A research station for biological and technological research work, and training institutes for training of fisheries personnel and fishermen, were set up. The fisheries activities of the public sector was, by and large, limited to inland waters until 1964 when the Fisheries Development Corporation was created for exploiting marine resources. In order to survey and explore the fisheries potential of the Bay of Bengal and to conduct a comprehensive study of the overall marine fisheries resource potential, a pre-investment survey was undertaken in collaboration with UNSF/FAO. The survey was, however, discontinued due to the War of Liberation. The preliminary findings of the survey appear to be encouraging in terms of availability of fishery resources in the Bay.



Other major activities of the Corporation included mechanization of fishing boats, construction of wholesale fish markets and fish landing terminals, and establishment of a fish harbour.

Due to lack of reliable statistics, it is very difficult to assess the overall impact of various development activities of the Fisheries Sector on the production of fish in the country. Without going into controversies, it is safe to state that the increase in fish production, if at all has not been satisfactory during the past decade.

Some of the problems and constraints inhibiting and retarding development of fisheries resources are (i) profit oriented catching and revenue oriented management system without due regard for future conservation, (ii) destruction of many important natural fish habitats due to the withdrawal of water by low lift pumps for crop production, (iii) indiscriminate use of pesticides and fungicides which prove to be toxic to fish population and (iv) construction of coastal embankment and estuary enclosures interrupting natural breeding, and causing discontinuity in the life-cycle of fish. Unsatisfactory achievements in production, and development of fisheries can also be attributed to (a) poor socio-economic condition of the fishermen, (b) multiple ownership of the private ponds, (c) lack of facilities for preservation, quick transportation and efficient marketing of existing catch of fish. In addition, development activities could not be accomplished to the desired level due to delay in the release of required funds in time, and shortage of trained technical manpower.

### C. Objectives and Targets

During the first Five Year Plan, the objectives in Fisheries Sector will be:

- (i) to increase fish production by about 26 per cent at the terminal year, i.e., from a benchmark production of 8.09 lakh tons in 1969-70 to 10.21 lakh tons in 1977-78;
- (ii) to maximize the utilization of fishery resources, both inland and marine;
- (iii) to improve the socio-economic conditions of the fishermen;
- (iv) to create greater employment opportunities in fishing and ancillary industries; and
- (v) to increase fish export, i.e., about 20,000 tons by 1977-78.

To supply in the terminal year approximately 8.50 crore people each with 25 grams (minimum requirement on the international standard) of animal protein a day Bangladesh will require at least 7.78 lakh tons of animal protein. If only 50 per cent of this is to be met from fish, 19.45 lakh tons of fish production will be required (1 gram of animal protein is equivalent to approximately 5 grams of fish). This means that about 140 per cent increase of fish over benchmark production will be necessary. This will, however, be an unattainable target. The fish production target of 10.21 lakh tons (Table: VIII-12) as set in the plan will allow only restoration of the consumption of 6.4 grams (1962-64 level) of animal protein from fish *per capita* per day and an export of 20,000 tons of fish in the terminal year.



TABLE VIII-12  
Estimate of Fish Production.

| Source.    | Agency.                      | Benchmark<br>Production<br>1969-70. | Target Production<br>Source and agency-<br>wise in<br>1977-78. | Percentage increase<br>in production over<br>the benchmark. |
|------------|------------------------------|-------------------------------------|--|---|
| 1          | 2                            | 3                                   | 4  | 5   |
| (In tons). |                              |                                     |  |   |
| Marine     | B. F. D. C. ..               | ..                                  | 92,200   |   |
|            | Fishermen's Co-operatives .. | ..                                  | 70,000   |   |
|            | Private Fishermen ..         | ..                                  | 16,300   |   |
|            | Sub-Total ..                 | 90,000                              | 178,500  | 98  |
| Inland     | B. F. D. C. ..               | ..                                  | 5,000  |   |
|            | Fisheries Department ..      | ..                                  | 16,300   |   |
|            | Fishermen's Co-operatives .. | ..                                  | 730,000  |   |
|            | Private Fishermen ..         | ..                                  | 91,500   |   |
|            | Sub-Total ..                 | 719,000                             | 842,800  | 17  |
|            | Grand Total ..               | 809,000                             | 1,021,300  | 26  |

#### D. The Strategy

The highlights of the strategies to be adopted and the programmes to be executed during the First Plan period for achieving the objectives are as follows:

- (1) To expand fishing in the Bay of Bengal by increased number of mechanized crafts and gears. In addition to 10 trawlers donated by the USSR and other three already existing, 20 more trawlers of 60-100 ft. length will be either locally built or imported. For catching fish in the shallow regions of the sea, 2,000 mechanized country boats are proposed to be introduced.
- (2) To augment production in the inland fisheries by intensifying fish culture. As many derelict water areas as possible will be reclaimed, developed and brought under scientific fish culture and management. Optimum fish production in all water bodies including Kaptai Lake which are already under fish culture, will be ensured. The owners of the private ponds will be given all necessary assistance in the form of technical know-how, fingerlings and fertilizers at subsidized rates so that they get sufficient incentive to bring their ponds under scientific fish culture. In addition 1,400 boats powered with engines will be in operation in the estuarine and other inland waters.



- (3) To launch an extensive training programme for marine fishing in order to train sufficient number of crew including skippers and engineers. Availability of trained crew personnel will be quite crucial for future expansion of the existing trawler fleet.
- (4) To establish a well organized and scientific system for collection, preservation and marketing of fish in order to eliminate loss of fish through spoilage. The proposed system will not only ensure distribution of fish to the consumers at reasonable price in the areas remote from the landing centres but will also ensure reasonable remuneration to the poor fishermen.
- (5) To conduct a systematic survey on various aspects of inland fisheries to obtain reliable information for future planning and development. The programme will include comprehensive studies on resource and stock assessment and management; survey of fishermen, types and efficiency of fishing gears in use, fish consumption rate, handling, transportation and spoilage; survey of fish markets and study of the economics of the inland fisheries industry.
- (6) To ensure proper extension of scientific fish culture methods to the fish farmers by placing at least one trained Fisheries Extension Officer in each Thana.
- (7) To conduct problem-oriented research in various aspects of fisheries by establishing two Central Research Institutes -one for inland fisheries and one for marine fisheries and oceanography each having a wing for technological research.
- (8) To expand export potential of fish, including shrimp, frog, shark and other fisheries organisms which have relatively lower local demand.
- (9) To establish new or expand existing multipurpose industries for processing and utilization of fish, fish wastes, oil and non-edible items.
- (10) To protect the small fishermen from exploitation. The present system of fish exploitation from public waters, and marketing of the fish, will be changed so as to render the fishermen free from the grip of the lessees and other middlemen in the fishing. Co-operative organization of fishermen will be encouraged for providing them material inputs including credit more easily and for fostering the spirit of self-help among themselves.
- (11) To bring about institutional changes and re-organisation in the Fisheries Service, so as to remove the administrative constraints that hinder successful development. For successful implementation of the programmes to be launched during the plan period, it is estimated that about 300 technical graduates, 263 diploma/certificate holders, and 1,000 skilled personnel will be required.

#### *E. Organizational and Policy Issues*

At present the following organizations are involved in the Fisheries Sector :

- Department of Fisheries.
- Bangladesh Fisheries Development Corporation.
- Co-operative Directorate.
- Revenue Ministry.



1. It is proposed that in order to avoid overlapping or duplication of efforts the jurisdiction of operation of each organization be clearly determined. It is recommended that the ownership of public water fisheries be immediately transferred from the Revenue Ministry to the Department of Fisheries for scientific fish culture and management under biological principles. The Fisheries Department will also be responsible for research, extension and legislation. It will be concerned with training of personnel of only the inland fisheries Sub-sector. The responsibilities for overall development and management of inland fisheries will lie with the Fisheries Department. The fishermen co-operatives, formed by the Co-operative Directorate, will abide by rules and regulations laid down by the Fisheries Department. The BFDC will be primarily responsible for commercial aspects of fisheries including commercial exploitation, marketing, and setting up of infrastructural facilities, like fish landing terminals, cold-storages, wholesale fish markets, etc., whether inland or marine. The Corporation may have its own research and quality control units to cater to its special needs. In addition, BFDC will arrange training for the crew and other essential staff required for operating the trawlers for marine fishing. For efficient functioning the corporation should be given reasonable autonomy. Similarly the Research Institutes should also enjoy maximum autonomy.

2. To avoid overlapping of marine and inland catch statistics and to remove all possible administrative confusion, the inland waters will be defined as all waters including estuarine waters lying within the coast line while the areas beyond the coast line will be identified as marine waters. The zone beginning from the coast line up to the limit of 12 miles into the sea, will continue to be known as territorial or coastal waters.

3. All waters, not privately owned, be declared as natural resources. As long as the conservation laws to be laid down by the Government are properly respected, utilization of fisheries resources of the public waters will be open for exploitation by the licensed fishermen. All water bodies, not privately owned, would immediately be handed over to the Department of Fisheries for development, and management under biological principles. The existing revenue oriented management system will be abolished forthwith.

4. In the case of failure on the part of the owners of Private ponds, to bring their fish ponds under scientific fish culture despite the facilities to be provided to them, the responsibility for management of such ponds for optimum fish production will be vested with the Department of Fisheries through appropriate legislation. There will be an 'unutilized water area requisition and utilization act' which would vest with the Government the authority of reclaiming all unutilized water areas for fish culture. Such measures may ensure optimum utilization of all water areas for fishery development.

5. Bangladesh will preserve the exclusive right for exploitation of her inland and territorial fisheries. No foreign agencies will be allowed to exploit the above waters. Outside the territorial limit, joint ventures between the Bangladesh Government and foreign countries/firms may be allowed.

6. The trawlers, belonging either to public or private sector, will limit their operations only in the marine waters, i.e., outside the coast line.



7. Inland fish, with the exception of shrimp and frog which are either very high priced or not accepted as food locally, will be used mainly for the purpose of reducing protein deficiency in the country. The development of marine fisheries, on the other hand, will be export oriented. The marine catch after meeting the export requirement will supplement the inland fish resources to meet the internal demand. The idea of such differential policy on the use of fish of different sources is that in case of inland fisheries the production centres are mostly in the vicinity of consuming centres thus obviating the necessity of expensive refrigeration, transportation and marketing operations which are so much needed to dispose of marine catches.

8. Shore installation facilities at Khulna and Chittagong will be established and owned by the Public Sector but will be made available for use to the private sector as well. The export facilities could, however, be jointly exploited by Bangladesh Government and foreign firms.

9. Any water resource use will be given due consideration for fisheries and all possible measures will be taken to eliminate or minimize harmful effects on fisheries.

10. Rules already promulgated in the past or to be promulgated in future to prevent the destruction of undersized and brood fishes both marine and inland will be enforced by the Government with all vigour and earnestness.

#### F. Plan Allocations

The first plan envisages a gross investment of Taka 45.184 crores and net investment of Taka 30.984 crores in the fisheries sector (Table : VIII-13). A separate fund set aside for fisheries research is included in the Section dealing with Agricultural research.

TABLE VIII-13  
Financial Outlay for Fisheries Sector during the Plan Period.

|                             |    |    |    | [Taka in crore] |        |           |
|-----------------------------|----|----|----|-----------------|--------|-----------|
| Agency.                     |    |    |    | Gross Cost.     | F.E.C. | Net Cost. |
| B. F. D. C.                 | .. | .. | .. | 18.476          | 8.148  | 8.476     |
| Fisheries Department        | .. | .. | .. | 16.708          | 5.781  | 12.508    |
| Fishermen Co-operatives     | .. | .. | .. | 10.000          | 5.000  | 10.000    |
| Total demand (all agencies) |    |    |    | 45.184          | 18.929 | 30.984    |

#### 8.1.5 Forestry

The existing forest area of the country is inadequate to meet the growing requirements of timber and firewood. Pressure of population precludes any possibility of expansion of forest areas except in Chittagong Hill Tracts and emerging char formations in coastal areas. With reservation of available areas in these two regions, the total forest land under regular management of the forest service will be approximately 12.5 per cent of total area of the country.



By intensive resource management practices, making full use of production potentials of these forest lands, the minimum requirements of the country can be met by internal production of timber and firewood for sometime more.

The *per capita* consumption of timber and firewood based on actual availability, has been 0.40 cft. and 0.55 cft. respectively in 1969-70. This estimate has been based on the assumption that the production of timber and firewood from village sources had remained more or less the same at an estimated 1.2 crores cft. and 1.50 crores cft. respectively. This *per capita* consumption will rapidly fall if we cannot obtain a proportionate increase in production from Government forest sources in keeping with the increase in population.

#### A. Present Position

Large scale destruction of rural and urban houses has taken place during the War of Liberation. This has resulted in heavy felling of trees in rural areas. The situation has been further aggravated by banning timber and firewood extraction from Government forests since early 1972. This will seriously reduce future supply of timber and firewood from rural sources. Partly due to import restriction and due to the ban on timber extraction from Government forests, there is an acute scarcity of timber and firewood in the market with three-fold increase in price since 1970. The restriction might have also provided scope for large scale theft and smuggling of timber and firewood from the forests defeating the very objective of such restrictions. This calls for urgent review of Government policy so that planned extraction of timber and firewood, available on sustained-yield management basis, could be resumed according to prescriptions of approved working plans.

During the last decade much headway could not be made in bringing all the available forest lands under regular management of the Forest Department for various reasons. Systematic development of road communication facilities inside the forest also did not receive due attention. The programme of timber exploitation in Chittagong Hill Tracts has not steadily developed. The total production of timber and firewood from Government forests have actually declined from 2.490 crores cft. and 3.643 crores cft. respectively in 1964-65 to 2.047 crores cft. and 2.350 crores cft. respectively in 1969-70. Production was almost at the same level as in 1969-70. The entire requirements of timber and firewood of Bangladesh have been met so far from local production. The Government has been earning an annual revenue over Tk. 30.00 million up to 1969-70.

Mangrove forests of Sundarbans have continued to be managed under a Silvicultural system whereby replacement of annual cut of mature trees has been ensured by a natural regeneration process. But regeneration of the reserved forests in the hills under exploitation and those of the central and northern plain districts has been done through reforestation, while afforestation has been carried out in some of the waste lands and extensively depleted Government forests. During the period 1960-61 to 1969-70, a total of 90,911 acres have been regenerated by reforestation and 76,889 acres by afforestation. Compared with an average of 10 ton (500 cft.) per acre of timber available in existing hill forest under exploitation, the plantations raised by regeneration is expected to yield, at maturity, minimum 50 tons (2500 cft.) per acre of high quality timber with at least three times more stumpage value per cft.



About one-third of the total production of timber and firewood in the country comes from rural homestead lands. The aim of forest extension service is to replenish this stock and make fuller use of the available areas in homestead land for timber production by voluntary efforts of each rural and urban family in the country. The limited extension efforts has attained considerable success in seedling distribution (1.00 crore seedlings by 1972).

The F. I. D. C. has been entrusted with the responsibilities to develop timber extraction facilities in Chittagong Hill Tracts. In the pre-liberation period an annual extraction of 45,000 tons of timber by 1969-70 was envisaged. But largely due to lack of timely allocation of foreign exchange for essential equipment the progress has not been satisfactory. Maximum annual production of 28,000 tons was reached in 1968-69 and then it again gradually declined. The new Russian equipment brought in 1970 have proved unsuitable for timber extraction under local conditions. However, the Saw Mill and timber processing complex at Kaptai is almost completed with adequate processing capacity.

The rubber plantation programme has not progressed according to the scheme target. Against a target of 10,500 acres to be planted during 1965-66 to 1969-70 only 4,057 acres have been planted by 1971-73 though most of the allocation has been utilized. This is largely due to selection of unsuitable sites and repeated failures. Out of 3,000 acres raised during the period 1961-65 more than 700 acres have been abandoned. Against previous target of rubber production of 194 tons annually only 19 tons have been obtained in 1969-70. An expert evaluation team should go into the whole project of rubber plantation and recommend future course of actions.

### **B. Objectives**

Future development of forests management should aim at:

- (1) bringing all available forest lands and potential forest lands under regular management of the forests service by reservation and use them for multiple benefits;
- (2) exploiting the low quality overmature growing stock of existing hill forests and regenerating them with high quality productive plantations of economic importance as quickly as possible;
- (3) obtaining higher timber production per unit area by execution of a plantation policy of raising fast growing local and exotic species like tropical pines and storm resistant varieties of Poplar and Eucalyptus species in afforestation programme;
- (4) judicious management of the mangrove forests of Sunderbans and extension of a forest belt along the coast for protection of inland agricultural land and habitations;
- (5) making full use of homestead waste land in rural and urban areas for planting trees through intensive extension service;
- (6) developing programme of wild life management and recreational facilities;
- (7) developing adequate facilities for forest research and training of professional and technical personnel necessary for intensive management of forest resources.



### C. *Highlights of the Programme*

The highlights of the programme during the Five-year Plan would be as follows:

- (1) Immediate action should be taken to use the aerial photographs taken in 1969 of the forest areas of Dacca, Tangail and Mymensingh for inventory of forests for reservation after land use classification.
- (2) Demarcation and reservation of those areas of unclassed state forests in Chittagong Hill Tracts which are earmarked for forestry according to the recommendation of the Committee set up for implementation of findings of the land-use survey.
- (3) Reservation of Khas land on coastal areas of Noakhali, Barisal and Patuakhali districts will also be completed during the plan period.
- (4) Roads to facilitate exploitation of forests in Chittagong Hill Tracts and Sylhet will be developed. A re-assessed annual cut in Sunderban forest is not likely to be more than 1.00 crore cft. of timber. This will mean a decrease of 11.20 lakh cft. in Sunderbans from the cut of 1969-70.

This will have to be made up by an increase in timber extraction in Chittagong Hill Tracts areas. For this purpose, construction of a total 50 miles of access road to Matamuhari and Upper Kassalong reserves is required. With road constructions and timely procurement of logging equipments it may be possible to reach a minimum annual production target of 60,000 tons in Karnafully valley and 20,000 tons in Matamuhari reserve by 1977-78. It will be necessary to review the principle of stumpage payment by the F.I.D.C. so that they are required to pay the stumpage on estimated standing volume of timber and firewood available in the annual cutting areas as against present arrangement of payment on actual extraction. This will ensure fuller exploitation and utilization of the available stock.

- (5) In other hill forests outside Chittagong Hill Tracts, 100 miles of forest roads will be built with pucca bridges and extraction of an additional 10,000 tons in these areas.
- (6) 100 miles of additional roads will be developed in bamboo forests of Chittagong Hill Tracts during the plan period. This will increase annual outturn by about 25,000 tons.
- (7) Regeneration of exploited areas will be made mandatory with more vigorous species of economic importance and technological use. Teak is a deciduous species which should not be raised on too short a rotation. Not more than 50 per cent area should be planted with teak which will be separated by sizeable strips of Mehogony, Champ, Toon, Pinkado, Chapalish and Kanjal. Such mixture will maintain a minimum balance in the future crop for multiple-use benefits. Enrichment planting will be done in the existing Natural Regenerations Plots (NRP).
- (8) Annual afforestation programmes in Chittagong Hill Tracts and Chittagong districts will be suitably expanded. Teak seed collection and distribution to plantation centres should be centralised under Silviculture Division of F.R.I. to ensure quality seed collection under expert supervision. Development of seed orchards with pro-



geny from elite trees will be taken up. In afforestation programmes consideration should be given to meet future needs of two pulp mills in this region. Jack-fruit trees, Cashewnut, and oil palms will be planted in suitable sites in afforestation programmes but under cultivated type management.

- (9) Isolated small patches of forests in Dacca, Tangail, Mymensingh and northern districts will be managed as Community forests and larger compact blocks of forest should be managed for timber and firewood production. Such a policy is expected to obtain co-operation of the local people for forest conservation. Complete inventory of encroachments will be made and 7,000 acres of such areas will be reafforested with quick growing Eucalyptus and other economic species during the plan period. A pilot scheme of raising horticultural crops like pineapple, banana and citrus fruits as an under storey to forest trees will be taken up in these plain land forests in collaboration with Horticulture Board.
  - (10) It is necessary to carry out a fresh aerial survey of Sunderbans forests to locate and obtain an inventory of damages done by the war of liberation. The survey will assist in fresh assessment of annual growth and in adoption of a conservative prescription of annual cut to compensate the considerable overfelling done in the past.
  - (11) A pilot project of excavating some 50 miles of drainage canals to improve conditions of Sundori natural regeneration in swampy areas is proposed. Dredging of relevant portions of Bhadra river is also envisaged after a feasibility study.
  - (12) A pilot scheme of enrichment planting of Golpata in deficient bank spaces of 500 miles (1,000 acres) of water courses in Sundarban forests will be undertaken and 1,000 acres of drier areas of it will be planted with storm resistant Eucalyptus, Babul and other species to improve productive capacity of these low quality forests. With past experiences of initial programme of afforestation in coastal areas an additional 20,000 acres will be planted and another 30,000 acres of char lands will be given protection.
  - (13) Rubber plantations in Bangladesh constitutes an industrial plantation programme of intensive investment. Further expansion of rubber plantations will be done after evaluation of the causes of failures of the existing plantations and advance procurement of suitable land. Problematic areas regarding future protection of these plantation will be avoided. Efforts will be made through extension service to increase total acreage of rubber plantation by encouraging plantation in small private holdings.
- A total 10,000 acres of rubber plantation including balance 6,443 acres of past target may be taken up by the Forest Industries Development Corporation during the plan period if the proposed expert evaluation committee recommends it and after advance commitment of specific land from the forest department. An annual production target of 350 tons of rubber by 1977-78 is proposed.



- (14) With concurrence of Railway authorities, a programme of afforesting barren areas of railway embankments should be initiated. Planting of avenue trees on either side of main highways should remain the responsibilities of the Roads and Highways Department. In all plantation programmes, emphasis will be on quality rather than quantity (coverage) to be achieved.
- (15) In order to replenish the rural timber tree resources, additional nursery facilities, at least one centre in every new district, will be developed to distribute a total 2.40 crores seedlings in polythene bags and some in stump forms. During the plan period the annual target of distribution will be 60.00 lakh seedlings by 1977-78 with 75 per cent success and 300 plants to an acre, distribution of 2.40 crores seedlings would amount to equivalent establishment of 60,000 acres of forest plantations during the plan period.

#### *D. Forest Research and Training*

All forest management and product research is now centralised under Forest Research Institute, Chittagong. Development of research facilities under the existing development scheme should be completed with recruitment of necessary personnel. Attempts will be made to consolidate work of forest research under the Institute by recruitment of competent personnel and provision of equipment. It would be desirable to include under forest management research programmes of a survey of forest soils and investigation of fluting in teak. Programme of research with introduction of tropical pines and other fast growing species of industrial use will continue with emphasis on finding out alternative uses of low quality miscellaneous timber. The Research Institute must enjoy functional autonomy.

Because of inadequate areas of forest land in the country, it is necessary to develop intensive multiple-use forest management practices, for which adequately trained professional and technical personnel of diversified talents are needed. The long term objectives should be to provide at least one professional person (Forestry Graduate) to every 10,000 acres of hill forests and 20,000 acres of mangrove forests of Sundarbans. For this purpose adequate training facilities should be developed. A 4-year degree course is the minimum standard of professional training which is needed to man the higher cadres of the profession. These professional cadres will be of professional training which is needed to man the higher cadres of profession. These professional cadres will be assisted by subordinate technical personnel maintaining a suitable ratio between professional and sub-professional cadres. A professional degree course (B. Sc. Forestry) in forestry will be introduced by establishment of new faculty in the Agricultural University/Chittagong University. The 4-year course may also involve Forestry Research Institute at Chittagong which may provide facilities in training in timber technology and forest management, etc. and in this context senior research officers of the Institute may become associate member of the faculty.

Research cadres will be filled up from those with M. Sc. (Forestry) degrees. Refresher courses both for professional and technical personnel will be established. Forest Guards and Forest workers will be given 6 and 4 months' training respectively.



The following table shows the estimated requirements of professional and technical personnel for forestry in Bangladesh over the next 15—20 years.

TABLE VIII-14  
Requirement of Technical Personnel for Forestry.

|                                       | Requirement over 15—20 years.     |                  |                 |                         | Requirement during First Five Year Plan. |                                   |
|---------------------------------------|-----------------------------------|------------------|-----------------|-------------------------|--|-----------------------------------|
|                                       | Forest protection and management. | Plantation work. | Extension work. | Research and education. | Total requirement in 15—20 years.        | 1972-73 Existing. 1977-78 Target. |
| Forestry Graduates and Technologists. | 280                               | 110              | 70              | 60                      | 520                                      | 84 119                            |
| Sub-Professional Technical personnel. | 1,680                             | 660              | 420             | 240                     | 3,000                                    | 807 1,007                         |
| Forest Guards ..                      | 3,360                             | 1,320            | 840             | 20                      | 5,540                                    | 1,283 1,583                       |
| Forest Workers (Group Leaders).       | ..                                | 2,640            | 420             | 20                      | 7,080                                    | .. 500                            |

Officers drawn from forest management cadre are very often mentally unsuited for extension service. It will be desirable to form a separate extension cadre under the Forest Service to render specialised professional service in this essential field. To meet the pressure of forest protection problem the duties of forest plantations and management staff in the subordinate executive cadre should be separated from those assigned to protection duties. For adequate speed in movement and communication vehicular transport, speed boats and launches and telecommunication facilities in Sundarbans and Chittagong Hill Tracts will be provided for the field staff.

#### E. Organisational Aspects

Forest Industries Development Corporation will give more stress on the development of timber extraction facilities during the plan period so that adequate supplies of raw materials are available for efficient use of their own timber processing plants and other timber using industries in the country. By suitable expansion of its timber extraction branch, it may gradually take over entire timber extraction in Sundarbans and other hill forests of Chittagong and Sylhet districts and replace the activities of individual private contractors inside the forests, if required, for due protection of the forests. Care should be exercised not to introduce unnecessary mechanised transportation in timber extraction in Sundarbans which creates unemployment. The Forest Department, responsible for management and protection of the forest resources, should not be involved in timber extraction activities so that it can exercise necessary check on the quantity of timber and firewood actually taken out from the Government forest. The F.I.D.C. has been depending considerably on borrowed talents from the Forests service to man its timber extraction and rubber plantation organisations. In future, the F.I.D.C. should develop its own cadre of officers so that expertise developed will continue to be available for longer period to execute its development programmes.



All expenses of planting, weeding, cleaning and filling up vacancies till a plantation is established are usually costs of formation of a plantation. In the past only the first year expenses of planting an area have been met from the development budget leaving cost of subsequent weedings and cleanings to be met from the revenue budget. This position had often created difficulties in finding adequate funds for these essential maintenance operations. The question should now be carefully reviewed to decide whether the entire expenses of establishment of a plantation should be met from development budget to ensure successful plantations. The stumpage rates of forest produce should be reviewed and refixed in conformity with prevailing market prices so that sufficient forest revenue is available for maintenance and management expenses.

#### F. Wild Life

The report of the Wild life Enquiry Committee provides the basis for systematic development of wildlife management programmes. Necessary legislation in this respect is the first step to be taken so that an appropriate wildlife management organisation under the Forest Service can be developed with proper training of essential personnel and procurement of equipment during the plan period. Further development of game sanctuaries, game reserves and national parks is envisaged.

#### G. Plan Allocation

An amount of Taka 42.090 crores with a foreign exchange component of Taka 8.29 crores has been earmarked for the development of forestry in Bangladesh. The detail break down of the investment programme can be seen at Table VIII-15.

TABLE VIII-15  
Cost Estimate for Forestry Sector during the Plan Period.

| Agencies.                                      | (Taka in crore.) |           |       |
|--|------------------|-----------|-------|
|  | Gross cost.      | Net cost. | FEC.  |
| Forest Directorate .. .. .                     | 26.791*          | 25.751    | 3.295 |
| BFIDC .. .. .                                  | 12.300           | 0.225     | 4.100 |
| Bangladesh Paper and Board Corporation .. .. . | 3.000            | 0.750     | 0.900 |
| Total .. .. .                                  | 42.091           | 26.726    | 8.295 |

\*Includes 1.178 crore Taka for on-going schemes.

#### 8.1.6 Livestock

##### A. Present Position

Livestock sector contributes only about 5 to 6 per cent. of the GDP of Bangladesh. It has, however, great importance in terms of its contribution to the draft power, animal protein and foreign exchange earning. In 1970-71, Bangladesh had about 1.8 crores of cattle heads (3.0 lakh bulls, 73 lakh bullocks, 45 lakh cows and 59 lakh young calves). There were also 38 lakh buffaloes, 80 lakh goats and sheep and 1.595 crores fowls and 34.50



lakh ducks. During the last 3 years the livestock population declined due to the cyclone and the War of Liberation. This has partly been replenished by natural growth. Most estimates show that livestock output in Bangladesh has progressively declined since 1964-65. Not only that the draft power in the country has failed to keep up with demand but the *per capita* availability of meat, milk products and eggs has also gone down.

At present, there is no specialised commercial livestock industry in Bangladesh. Practically all livestock are reared and maintained on small farms by way of mixed farming. The local breeds are small in size and poor in milk and meat production. Since there is a heavy pressure of population on land, there is competition between man and animal on a given area of land for food and feed. The area for production of green fodder and roughage has gone down considerably. Livestock feed on commercial basis has not developed in the country. As a consequence, both the quantity and quality of livestock have gradually gone down. The poultry birds are mostly scavengers, and small in size. They are susceptible to epidemics against which there is hardly any effective control. Cattle population are also like-wise prone to epidemics. There is hardly any effective research work on upgrading the local breeds of both poultry and cattle. The Government breeding programme is inadequate and to a great extent, ineffective. The main constraints of a commercial poultry production are absence of locally adaptable improved breeds and lack of measures to control epidemics.

### **B. Objectives**

Development of livestock during the First Five Year Plan in Bangladesh will centre round two major objectives.

These are:—

Improvement in the quality and increase in the quantity of draft power;

Increase in the supply of animal protein by greater production of milk, milk product, meat and eggs.

#### **1. Draft power**

Land preparation is traditionally done by bullocks pulling indigenous wooden plough. The method is admittedly inefficient and time-consuming. Only between one-third and one-fourth of an acre can be ploughed by a pair of bullocks by working 6 hours a day. Adequate cultivation requires 4-6 ploughings followed by 2 or more ladderings. With 2.25 crores acres under cultivation at a projected cropping intensity of about 150 per cent at the terminal year of the first Plan, each of the currently estimated 50 lakh pairs of working animals, will have about 6-7 acres to cultivate.

Where only one rice crop followed by a vegetable crop is grown, pressure of land cultivation is not so serious. But where multiple cropping especially in the irrigated areas is undertaken, the time of planting is very critical. HYV of rice need to be planted in time for optimum yield and this puts pressure on the draft power. IR-20 is a case in point. Increased irrigated area under HYV during the First Five Year Plan may necessitate more draft power unless large scale mechanization is contemplated. Inadequate draft power may be a constraint for aust-jute planting. It may also lead to poor land preparation in rabi season and may cause poor yield. Deep ploughing especially under heavier clay soil would require much stronger bullocks than the ones that are currently available in the country. Widespread use of improved



ploughs which are more efficient than the traditional ones; is dependant on the availability of stronger bullocks. Consumption of more meat is also dependant on the availability of more beef cattle. Since mechanized cultivation, on a large scale basis, is not visualised during the plan period, the solution for quick and proper land preparation lies in the development of improved implements to be pulled by a larger number of stronger cattle. Thus during the First Plan Period, both the quality and quantity of bullock power will require to be increased.

The quality can be improved by prohibiting slaughter of young calves and mature bulls and bullocks and by undertaking a continuous breeding programme through artificial insemination. Improved local breed can also be propagated. The quality can also be improved by regular vaccination and deworming programmes. Steps will be taken to improve animal nutrition. Farmers will be encouraged to produce feed crops such as napier grass, groundnut, cow-peas, in their spare lands, canal and pond banks and embankments. Groundnut and pulses hay will be increasingly used as cattle roughage feed. Concentrate feed mill will also be established during the Plan period.

## 2. Animal protein

The protein intake in Bangladesh is very low. Pulses and fish are the major sources of protein. The average intake of pulses and fish protein is 28 grams *per capita* per day as against the standard requirement of 63.5 gms. The *per capita* milk and meat consumption per day is 17 gms and 4 gms respectively. The annual consumption of eggs is only 4 *per capita*. Most of these livestock products are usually consumed by higher income groups. The prospect of rapidly increasing meat supply from beef cattle is rather limited during the First Five Year Plan.

**Beef and Goat:** Beef is now usually obtained from disabled, ailing and very old cattle and goats provide the main supply of better quality meat. There is no specialised beef cattle industry in the country. Meat from poultry and goat constitute only about 25 per cent. of total meat production. Therefore, substantial increase in the total meat supply cannot be expected from these sources. Beef production can be increased by increasing the number of cattle and improving their body weight by better feeding. The size can be increased by crossing local cows with foreign breeds or with local improved breeds. The scope of increasing the goat and poultry population during the first Plan appears to be large. Goat production can be increased by encouraging flock rearing on commercial scale in the coastal and hilly areas, and also mixed farming in the homesteads. This can be done by proper selection and supply of better and higher yielding breeds for crossing with local breeds and by adopting disease control measures.

**Poultry:** In the poultry sector, duck rearing on commercial scale will be emphasized during the Plan. The topography and water courses in Bangladesh provide favourable conditions for a much larger duck population. As in China, ducks can be reared in flocks in the haor areas; big canals and derelict ponds. The increase in price of ducks and duck eggs, and the fact that ducks are relatively more resistant to disease, may make duck rearing more profitable in Bangladesh.

However, for supply of duck eggs and duck meat, in larger quantities, greater reliance will be on small private farmers.



The prospect for rearing chicken are also brighter during the First Five Year Plan. Back-yard poultry will be relatively more promising than the commercial poultry farms. Supply of chickens can be increased by introduction of exotic breed in the rural areas and adopting disease control measures. During the Plan, chicks will be distributed to the farmers from the different poultry farms, for rearing and marketing either directly or through an organised Co-operative marketing society. Distribution of chicks of exotic breed will help increase both egg and meat production from the present level of 40-50 eggs and 1-3 lbs of meat per bird to 200-250 eggs and 3-4 pounds of meat per bird. This will require systematic upgrading of village birds with exotic birds. For this purpose, poultry farms will be set up at thana headquarters for providing poultry producers with foundation stock.

A pilot unit combining upgrading work, disease control and supply of improved feed will be undertaken during the Plan period. The project will initially cover 50 thanas where approximately 30 lakh birds might be available for upgrading. About 15 per cent. of these birds (*i.e.* 4-50 lakh birds) will be covered under this programme. Fourteen to fifteen thousand cross-breed layers will be housed under semi-intensive deep litter condition. The project will involve construction of poultry house and procurement of equipment for producing young high quality cockrels for distribution to the village producers. It will also involve supply and distribution of vaccines in the project area, and improved feeding for young chicks with balanced feed supplement.

### 3. Disease control and feed

The major diseases which affect cattle and buffaloes are Rinderpest, Anthrax, Foot and Mouth disease and Tuberculosis, etc. In order to provide effective disease control, veterinary services at village level will be organised for preventive purposes. Village squads will be trained for vaccination and inoculation. Thana veterinary hospitals will be modernised. Production of viral and bacterial vaccines will be stepped up and a disease-investigation laboratory will be established. The vaccine production unit which will be expanded will include construction of suitable production facilities, purchase and installation of manufacturing equipment and field distribution facilities.

Poultry birds specially chickens are seriously affected by infectious diseases such as Newcastle, Fowl-pox and Cholera. The major constraint in the development of village poultry is the high rate of mortality especially in the villages. The present preventive service is very inadequate. Village squads will be trained at the union level to vaccinate the poultry birds in each village. In addition to training, the squad members would need vaccination kit and supply of vaccines. Biological production centres will be suitably strengthened for increased production, storage and distribution of vaccines. Shortage of cattle and poultry feed is hindering the development of livestock in Bangladesh. To provide well balanced concentrate feed, it is proposed to establish 2 (two) pilot feed mills, one in the northern part and the other in the eastern part of Bangladesh. For immediate production of animal feed, in larger quantities, the feed mill at Postogala will be transferred from the Food to the Livestock Department. The mill will undertake large scale manufacture of animal and poultry feed with mixture of maize, wheat bran, pulses, oilseeds, mineral supplements and Vitamins, etc. Production of urea enriched molasses will be tried on a pilot basis as cattle feed.



#### 4. Co-operative dairy complex

Special programme will be drawn up to increase the supply of milk in the country. A co-operative dairy complex is planned with four plants in rural areas of Pabna, Fariópolis, Tangail and Manikganj and a pasteurisation and packaging unit in Dacca City. This will offer a year-round remunerative milk market outlet to small, poor mixed-farm units. It will be integrated with veterinary services and artificial insemination units, which will aim at producing dual-purpose animals rather than pure draught-animals. If these plans prove successful commercially as well as in contributing to the welfare of poor farmers and the nutrition of undernourished people, similar dairy complexes will be set up during the Second Plan around Chittagong and Khulna cities.

#### C. Targets and Plan Allocation

In Livestock sector, the following production target is envisaged during the plan period:

TABLE VIII-16  
Physical Target in Livestock over the Plan Period

|                        |    | Production in base<br>year 1969-70. | Production in<br>1977-78.    | Per cent increase in<br>production. |
|------------------------|----|-------------------------------------|------------------------------|-------------------------------------|
| Milk and Milk Products | .. | 627,000 tons<br>(20.4 lbs)          | 1005,000 tons<br>(26.4 lbs.) | 60                                  |
| Meat                   | .. | 127,000 tons<br>(4.1 lbs.)          | 210,000 tons<br>(4.5 lbs.)   | 65                                  |
| Eggs                   | .. | 35.3 crores<br>(5.1)                | 52.0 crores<br>(6.1)         | 48                                  |

Note—Figures in parenthesis is *per capita* availability per annum.

A thorough reorganisation and streamlining of the Livestock Department will be made to ensure effective implementation of the livestock development programmes envisaged in the First Five Year Plan. The proposed reorganisation will emphasise preventive aspect rather than the curative one that is now emphasized. Animal Husbandry will be given relatively greater emphasis in the educational and training programme. The financial outlay for the livestock sector is shown in Table VIII-17.

TABLE VIII-17  
Financial Outlay for the Livestock Sector during the Plan Period

(Taka in crore.)

| Scheme.  | Total  | F.E.C. |
|--|--------|--------|
| On-going schemes .. .. .                                 | 3.480  | 0.136  |
| New Schemes or expanded current Schemes .. .. .          | 16.510 | 6.045  |
| Other new projects (mostly of commercial nature) .. .. . | 11.968 | 0.925  |
| Co-operative Dairy Complex .. .. .                       | 6.321  | 2.389  |
| Total .. .. .  | 38.279 | 9.495  |



### 8.1.7. Input Programmes]

The First Five Year Plan of Bangladesh places major emphasis on the increased use of high yielding varieties of rice and wheat. The hard core programme which has been identified includes the judicious use of agricultural inputs—fertilizers, pesticides, and seeds along with irrigation for growing more food to attain self-sufficiency within the shortest possible time. On the basis of these targets an estimated need of major agricultural inputs and the approximate cost involved therein have been worked out. The total value of seeds, fertilizers and insecticides needed for the agricultural plan is estimated to be Taka 641-683 crores. The total requirement of foreign exchange for procurement of these inputs will be Taka 335-580 crores. However, the total net cost to the government as payment of subsidy for the inputs will be about Taka 124-900 crores.

#### A. Fertilizer

Fertilizer is one of the key inputs in the seed based technology for increasing agricultural production. Enhanced use of fertilizers in Bangladesh is of immense significance, specially in connection with high yielding varieties grown under irrigation. It is envisaged that the off-take of this critical input at the end of the terminal year of the First Plan is expected to be more than three times the off-take of 1972-73 which is about 375,000 tons. Achievement of such a target will depend to a great extent on the development of an effective system of fertilizer pricing and distribution.

#### 1. Past consumption

Consumption of chemical fertilizers went up from 66,000 tons in 1960-61 to 300,000 tons by 1969-70. The major jump of consumption was mainly in nitrogenous fertilizer. During the period 1960-65, the consumption was moderate (average 84,000 tons a year) as the traditional varieties of seed do not generally respond to a high dose of fertilizer and consequently the farmers were not keen to apply fertilizer to these varieties. However, with the introduction of high yielding varieties of rice which are highly responsive to fertilizer, there has been a very sharp rise in consumption, which rose from 129,000 tons in 1965-66 to 300,000 tons by 1969-70. Use of optimum doses of fertilizer in the high yielding varieties is crucial in the seed based technology. Proper use of fertilizer by rice growers will depend on the efficiency of the extension agents who will have to demonstrate the use of optimum doses and proper method of application. At present there are very few demonstration plots, and farmers are not aware of use of NPK in their proper proportion. The consumption of phosphatic and potassic fertilizers have consequently been lagging behind that of nitrogenous fertilizers. In order to encourage and promote balanced use of NPK discriminatory price in favour of potassic and phosphatic fertilizer may be necessary.

Fertilizer consumption in the past has always fallen considerably short of the target even when adequate fertilizer was available. The reasons were as follows:

- (i) large risk factor due to lack of controlled water for irrigation;
- (ii) lack of cash and absence of credit facility to majority of farmers;
- (iii) difficulties in proper storage, distribution (time and quantity) and transport.

At present many of the farmers using fertilizers are not deriving the potential benefit because of the following factors:

- (i) unbalanced application of fertilizers (NPK);
- (ii) deficiencies of elements other than NPK (Magnesium, Calcium, Sulphur, possible trace elements);



- (iii) wrong timing and improper and inadequate application of fertilizer;
- (iv) application of fertilizer to soils that are not deficient in fertilizer element;
- (v) ignorance of potential benefits that can be obtained by using fertilizers;
- (vi) poor agronomical practices (poor seed, too old seedlings, etc).

However, the situation has been changing radically.

## 2. Future requirements

The present demand for Urea is considerably above the level of supply. At present, prices of fertilizers in free markets are reportedly 2-3 times higher than the official subsidised prices. Most farmers of Bangladesh have become aware of the benefits which can be derived from fertilizers. Moreover, the prices of agricultural commodities have gone up to a great extent, thus enabling the farmers to bear the full cost of fertilizers. In these circumstances reduction of subsidy is unlikely to have any adverse effect on the off-take of fertilizer. It is, therefore, proposed to eliminate subsidy on fertilizer by the final year of the plan. Projected requirement of fertilizers, during the First Five Year Plan (1973-78) is shown below in Table VIII-18. The industrial sector programme will show the extent of their domestic production. Our huge deposit of natural gas may be utilized for the production of Urea far beyond the level of self-sufficiency.

TABLE VIII-18

Estimated Year-wise Requirement of Fertilizers (Urea, TSP, M.P.) during the Plan period (1973-78).

| Year.   | Requirement<br>(In thousand tons). |        |      |        |
|---------|------------------------------------|--------|------|--------|
|         | Urea.                              | T.S.P. | M.P. | Total. |
| 1973-74 | 301                                | 158    | 61   | 520    |
| 1974-75 | 342                                | 173    | 74   | 589    |
| 1975-76 | 423                                | 207    | 104  | 734    |
| 1976-77 | 518                                | 254    | 134  | 906    |
| 1977-78 | 616                                | 332    | 187  | 1,135  |
| Total   | 2,200                              | 1,124  | 560  | 3,884  |

It is envisaged that fertilizer consumption will grow from the current level to cover 11-35 lakh tons by 1977-78, if the programme of irrigation facilities and improved varieties of seeds are implemented according to schedule. The present use of phosphate and potash is very low. With more effective extension work the off-take of phosphate and potash is likely to go up. Use of phosphate and potash will be popularised among the cultivators during



the Plan period. The projected requirement of 11.35 lakh tons of fertilizers at the terminal year represents an increase of about 203 per cent over the present level. The objective is to deliver these fertilizers to farmers in right quantity, at the right time, and at a reasonable price.

### 3. Balanced fertilizer application

Highly concentrated fertilizer, presently used, contains only N.P.K. It is certain that with increasing use of N,P and K increasing area will become deficient in elements like Magnesium, Calcium, Sulphur, Zinc and possible Borax. Though perhaps of minor concern at this moment, there is need to monitor responses to above elements. The deficiency of trace elements in soils leads to considerable reduction in yield. Due attention will be given to this problem. Bangladesh soils appear to lack in organic matter which are very essential for crops. Use of organic matter will be encouraged to enrich the fertility of soil.

### 4. Distribution of fertilizer

At present, BADC controls the procurement and internal distribution of fertilizers. Fertilizers purchased by BADC at the factories, Fenchuganj and Ghorashal, are directly despatched to the Feeder godowns and Thana godowns at the Rly. heads by rail wagons. Imported fertilizers received at the ports (Chittagong/Chalna) are cleared by C&F agents, appointed by BADC, and then are despatched to the Feeder godowns. It is the responsibility of BADC to move the fertilizers from factories and ports through a system of district and thana storage facilities to retail dealers at the thana and village level (currently numbering about 22,800) who move the fertilizers from thana centres to villages and sell them on commission basis to farmers. A growing number of co-operative societies have been participating in the distribution of fertilizers at the thana and village levels in recent years. In areas not covered by TCCAS, distribution of fertilizer will be conducted by the Union Krishi Unnayan Committee (UKUC) which will determine the requirement of fertilizer and also select retail agents.

In areas not covered by IRDP fertilizers for commercial crops grown in concentrated areas and having particular requirement will be supplied directly by the respective agencies (Tea Estates, Sugar Corporation, Tobacco Board). From the thana level downwards, Co-operative Societies and private dealers will be allowed to operate side by side in order to assure alternative choices and sources to farmers, until such time as the majority of the farmers become members of the co-operative societies.

The following measures will be implemented during the Plan period:

- Efficiency and flexibility of the fertilizer distribution system will be improved by allowing free movement of fertilizers within districts and allowing other agencies including co-operatives, sugar mills, etc., to participate in fertilizer distribution.
- Ten per cent of fertilizers will be kept as reserve for buffer stock in order to achieve a better flexibility in the distribution for areas where demand exceeds set targets



—Storage space for fertilizer will be provided in accordance with expected growth of fertilizer consumption. This applies to storage space above as well as below the Thana levels. Agencies concerned with handling of fertilizer will have to see that available storage capacity is consistent with fertilizer utilization.

—Field tests will be undertaken by Soil Fertility Section to determine optimum requirement of N.P.K. in different soil tracts with priority to areas of concentration. This step will be of special importance because of gradual elimination of subsidy.

Lack of purchasing power is one of the constraints to the use of adequate doses of fertilizers by the farmers. The Government seeks to alleviate the situation by provision of credit facilities and through fertilizer pricing policy. The existing institutional credit system for the purchase of fertilizers are lengthy, tedious and inadequate. It should be considerably streamlined so that cultivators can get the benefit of credit to overcome their financial limitation for timely purchase of fertilizers in adequate quantity.

## **B. Plant Protection**

High humidity, plentiful rains and hot temperature encourage the growth and multiplication of insects, fungi and bacteria in Bangladesh. It has been estimated that pests and diseases cause 10 to 15 per cent reduction in potential crop production. Further loss occurs due to pests, disease, rodent etc. and during storage. The introduction of high yielding varieties of rice and other crops which have vigorous and succulent growth invites pests and disease. Plant protection measures, therefore, have special significance and will become increasingly important in the future with a further expansion of new crop varieties.

### **1. Present Position**

The Government had supplied 62159 hand sprayers, and 11,700 power sprayers during 1971-72. Up to 1971-72 the Government had purchased 154,633 hand sprayers and 84,687 power sprayers, out of which 77,555 hand sprayers and 35,630 power sprayers are now available for use for Plant Protection Services. The procurement of pesticides for plant protection measures went up from 419 tons in 1955 to 3861 tons in 1967. The total pesticide import requirement in 1972-73 has been estimated at 12,000 tons. In the ADP 1972-73, provision has been made for 20.860 crores Taka for procurement and distribution of pesticide and plant protection equipment.

During 1969-70 about 85 lakh acres were sprayed by ground operation. Aerial operation during 1969-70 accounted for 13 lakh acres using ten aircrafts. At present five Beaver aircrafts are operational for aerial spray. Four additional planes are to be obtained from the Government of New Zealand, one of which has already been delivered.

The Agriculture Extension Service presently has about 415 Thana Agricultural Assistants who are responsible for maintaining contacts with farmers to help them solve plant protection problems as well as other problems in agriculture. In addition, there are about 1,000 spray operators (Mokaddams) stationed throughout the country. The number of Mokaddams has further been increased after adoption of the accelerated rice production programme. These men are supplied with sprayers, and it is one of their main jobs to apply pesticides that are supplied to the farmers free.



Reports from various agencies have indicated that free distribution of pesticides is not ensuring proper use of pesticides. Misuse of plant protection material must be stopped. A study of how this can be accomplished in a most practical manner will be undertaken during the Plan period.

## 2. Policy Guidelines

The following criteria will be observed while evolving measures for protecting crops from pests and diseases :

- (i) Consolidation of all existing plant protection agencies and wings under a single central authority.
- (ii) Implementation of a field survey and reporting system designed to provide field data on pests and disease occurrence.
- (iii) Gradual reduction of subsidy from pesticide and plant protection equipment.
- (iv) Evaluation of the present chemical control practices with a view to stopping ineffective measures and indiscriminate use of toxic materials.
- (v) Strengthening of existing field training programme for extension worker in plant protection along with farmer's education.
- (vi) Enactment of Pesticide Act to regulate manufacture, formulation labelling and use of pesticides.

## 3. Organization, Training and Manpower

Too many departments/agencies are involved in Plant Protection Services which make co-ordination difficult. Consolidation of plant protection activities under a single authority is designed to simplify the current complex structural arrangement. It is possible that an organisational frame-work based on separate but co-operating sections can be formulated. The handling of pesticide and purchase of spray equipment will be assigned to one section. It should also be responsible for procurement, distribution and proper storage of chemicals. Application of pesticides, both by aerial and ground operations needs to be regulated on actual requirement basis. Determination of such requirements would be based on correct information supplied by field reporting groups.

Subsidy on pesticides and plant protection equipment will be reduced in a phased manner during the Plan period. Pesticides will be marketed by government retailers now located at village levels throughout the country.

Use of pesticides which are toxic to fish fauna will be strictly regulated. Pesticides which are banned in other countries will not be allowed to be used in Bangladesh except in special circumstances. The Plant Protection Department will carefully evaluate all technical information before allowing any pesticide material to be used in the country. Pesticides are now used without sufficient justification from field data. Judicious control of pests and diseases demands that timing and dosage of pesticides application must be in keeping with the pest population in the area of application. These conditions can be ascertained from information collected periodically by plant protection workers strategically placed throughout the country. Year-round monitoring of pests and diseases will provide a basis for effective use of the pesticides by allowing plant protection workers to be aware of the problems as they are occurring. This reporting system will be a full time exercise requiring separate workers properly trained for the job.



A group of plant protection specialists will be assigned to the task of evaluation of current pesticides use. The purpose of such evaluation is mainly to determine areas where pesticides are not yielding any benefits either in the form of increased production or prevention of losses. This group should also be deputed to work on standardization and selection of pesticides.

An extensive training programme in plant protection will be mounted. Plant protection specialist will be trained in the Agricultural Research Institute. The Institute will offer two courses annually of three months duration in all aspects of plant protection for existing plant protection personnel. The four year graduate course already in operation in the Agricultural University will help in turning out plant protection personnel who will enter the plant protection service on priority basis.

District level training will be conducted by subject matter specialists. Training at this level will be conducted in the field and will cover the basic problems existing in each individual area. Such training will be of short duration, not exceeding one week and will be held at the beginning of each season or three times, annually.

There is an immediate need for training plant protection workers. It may be possible, however, to find a practical solution to this problem by sending available experts to individual Districts or areas to conduct simple field course, of short duration, which would cover all aspects of plant protection measures. Trainees could be drawn either from among the existing Union Assistants or from the 1,000 Spray Operators (Mukaddams). These men will perform the immediate activities connected with the evaluation of pesticides application and reporting of pest and disease occurrence.

A longer range plan for training of plant protection workers should include the setting up of a training institute which would provide a trainee with the basic knowledge of plant protection as applicable to conditions in the country.

Diseases due to attack of Virus, Bacteria and Nematode of different crops are also becoming gradually serious. Attention will be given to control these diseases. For better germination and growth, seeds carrying diseases and pests should be treated with effective chemicals.

Plant protection personnel should acquire knowledge of resistant varieties which are becoming increasingly available. Field workers should stress the importance of these varieties to the farmers. Various research organizations working on resistant varieties and Biological Control should maintain close contact with the field workers so that they may obtain all necessary information from the field on new materials tried in the country.

The aircrafts available with the Plant Protection Department are considered adequate to cope with the problems of pests and diseases of crops occurring in epidemic form. Aerial application should be carried out under two main conditions :—

- (i) To treat crops that are not accessible by ground equipments.
- (ii) To treat extended areas where there is a large scale attack in epidemic form.

Efforts may be undertaken to manufacture some varieties of pesticide and spraying equipments in the country.

Introduction of new high yielding crop varieties has added a new dimension to plant protection. Because of their high yield, farmers are also becoming increasingly conscious of the potential



benefits derivable from prophylactic measures. Year-wise projection of requirements of pesticides and spray equipment and their approximate costs have been prepared. The subsidy for the Plant Protection Programme is estimated to cost the country Taka 79.453 crores. The approximate foreign exchange cost will be about Taka 157.232 crores for the purchase of Plant Protection equipment and 88,000 tons of pesticides during the Plan period. For aerial spraying operation, a portion of the cost will be realised from the cultivators whose crop will be sprayed. But for combating epidemic of pests and diseases, no charges are proposed to be made.

### C. Seeds

Improved seed has a significant role to play in increasing output in agriculture. No other input can affect the production as markedly as the variety planted. Development of high yielding new varieties is the most important element of the new agricultural strategy.

#### 1. Present Position

Agricultural Development Corporation was responsible for production, multiplication, processing and distribution of improved seeds of major crops in Bangladesh between 1962 and 1971. Bangladesh Central Jute Committee has now been entrusted with the responsibility of producing jute seeds. Breeder's seed of rice is produced by the Bangladesh Rice Research Institute and those of wheat and jute by the Agricultural Research Institute and the Jute Research Institute respectively. At present the supply of quality seeds to farmers by Government agencies cover only few crops. These agencies either multiply seeds in their own farms or procure them from registered growers and external sources. There are 22 seed multiplication farms of various sizes under the management of BADC, 17 of these are of 100 acres each, 4 of 500 acres each, and the largest one, Dattanagar Farm, has an area of 3,000 acres. The main objective of these farms is to produce "foundation seeds" of selected varieties of major crops. Foundation seeds produced in these farms are further multiplied by the registered growers for ultimate distribution among the cultivators. High yielding as well as traditional varieties of rice and wheat seeds are grown in these farms.

#### 2. Targets

The seed programme during the first Plan will aim at production and distribution of large quantity of quality seeds of high yielding varieties. Government supply of seeds cannot cover the entire requirement of improved seeds in the country. This is also not necessary because after introduction of a new variety, distribution from farmer to farmer serves as one of the major means of spreading the variety among largest groups. In the Plan, estimation of seed requirement has been based on the following assumptions :

- One hundred per cent of the additional area under HYV of rice and wheat in any year will get supply from public agencies.
- For the existing areas under the HYV rice and wheat, the supply of seeds from public agencies will be at the rate of 20 per cent of Aus area, 5 per cent of Boro, T. Aman and Wheat areas. The seed rate per acre is 10 seers for rice and 30 seers for wheat.

The crop-wise programme of improved seeds during the Plan period is shown in the Table VIII-19. The programme will be reviewed from time to time and revised, if necessary.



In the new strategy for agricultural development, the use of HYVs has been given top priority. BADC farms at different places including contract growers are expected to produce 12,000 tons (Rice 10,000 and wheat 2,000) of seeds. The whole system of production, processing and distribution will form a seed industry project. This project will be expanded gradually to take over programme of other crops. Besides this, a project for production of seeds through "Registered Growers" has already been in operation to supply a large quantity of paddy, wheat and jute seeds. The on-going projects for seeds will be expanded during the Plan period. The existing distribution mechanism will be enlarged and strengthened to handle the entire seed distribution programme proposed in the plan. Besides rice, jute and wheat, stress will also be given for improvement in the production and distribution of tobacco, cotton, oilseeds and vegetable seeds for rapid expansion of their cultivation during the Plan period.

Often farmers are dissatisfied with the quality of seeds supplied by public agencies. This can be remedied by setting up a seed certification agency under the Ministry of Agriculture. Although farmer to farmer distribution of HYVs seed will be an important factor in the spread of these varieties regular replenishment of certified seeds of genetic purity will be essential to maintain high potential yield. Growth of licensed seed merchants will be encouraged from amongst the progressive registered growers who will be given technical support on seed technology.

TABLE VIII-19

Estimated Crop-wise Seed Requirement during the First Five Year Plan (1973-78).

(In thousand maunds).

| Crops.               | 1973-74  | 1974-75  | 1975-76  | 1976-77  | 1977-78 |
|----------------------|----------|----------|----------|----------|---------|
| Rice .. ..           | 631.900  | 605.000  | 305.000  | 295.200  | 434.900 |
| Wheat .. ..          | 225.000  | 86.200   | 52.500   | 41.300   | 72.400  |
| Jute .. ..           | 31.034   | 31.034   | 41.385   | 51.737   | 43.447  |
| Sugarcane (Sett) ..  | 1985.600 | 3427.200 | 3644.800 | 3644.800 | ..      |
| Potato .. ..         | 204.544  | 156.760  | 178.976  | 166.192  | 178.976 |
| Oil Seeds            |          |          |          |          |         |
| (a) Groundnut ..     | 32.640   | 27.200   | 35.360   | 43.520   | 54.400  |
| (b) Mustard ..       | 1.088    | 2.176    | 3.264    | 4.352    | 5.440   |
| Cotton .. ..         | 0.044    | 0.044    | 1.088    | 2.502    | 2.502   |
| Tobacco .. ..        | 0.002    | 0.003    | 0.003    | 0.002    | 0.003   |
| Winter Vegetables .. | 0.607    | 0.668    | 0.728    | 0.607    | 0.546   |

Note—(i) Quantity of seeds shown is to be supplied by the Govt.

(ii) Seed requirement for HYVs rice and wheat is shown.

### 3. The Programme for Seed Farms

The programme for development of the seed farms of BADC and other seed projects will include the following :

- (i) For foundation seeds, Kashimpur (100 acres), and Sadhuhazi (100 acres), and for certified seeds, Dattanagar (3,000 acres), Madhurur (500 acres), Tebni (500 acres), Thakurgaon (100 acres), Itakhola (100 acres) farms will be developed. In addition to the above mentioned farms, improvement of the seven other farms of BADC for production of second generation seeds will be made.



- (ii) A small contract grower's scheme will also be set up at Tebna and Madhupur to undertake seed processing for BADC.
- (iii) Seed processing laboratory and godowns for storage facilities at the above six seed production sites will be constructed.
- (iv) Laboratory for testing seed and seed certification services will be strengthened.
- (v) The BADC seed farms which are not scheduled for production of foundation or certified seeds will be used for multiplication of new trial varieties in addition to their normal programme of producing seeds, other than wheat and rice.

During 1965-66 to 1970-71, seeds were sold to cultivators at the rate varying from Taka 22 to Taka 45 per maund (subsidy varying from Taka 3.31 to Taka 5.00 per maund).

To encourage rapid increase in the production of jute in the country, it has been proposed to subsidise the cost of jute seeds at the rate of 50 per cent in the first year with a gradual reduction of subsidy to 20 per cent in the terminal year of the Plan. To boost up cotton production in the country only medium staple variety of cotton seeds will be sold to cultivators at 100 per cent subsidy throughout the Plan period.

During 1971-72 the sale rate for paddy seeds imported from abroad was Taka 30 with a 50 per cent subsidy. This was done to encourage the farmers to buy improved seeds at a lower cost and derive the benefit from increased production. Since prices of all agricultural commodities have gone up and the cultivators are eager to buy improved seeds even at higher price, it is felt that there is no need to continue subsidy on paddy and wheat seeds during the Plan period. However, in order to encourage the cultivators, it is proposed that incidental cost on rice and wheat seeds will be subsidised in the Plan period. Even in case of other important crops, the incidental and overhead costs may have to be subsidised depending on the merit of individual cases.

The seed Programme will cost Taka 6.877 Crores as subsidy with a foreign exchange component of Taka 8.673 Crores for import of quality seeds as shown in the Table VIII-20.

TABLE VIII-20  
Estimated Cost of the Seed Programme.

|         |    | (Taka in crore) |               |                             |
|---------|----|-----------------|---------------|-----------------------------|
| Years.  |    | Value of Seeds. | Subsidy Cost. | Foreign Exchange Component. |
| 1973-74 | .. | 10.298          | 2.046         | 3.589                       |
| 1974-75 | .. | 10.241          | 1.649         | 2.758                       |
| 1975-76 | .. | 8.402           | 0.990         | 0.885                       |
| 1976-77 | .. | 8.441           | 0.971         | 0.697                       |
| 1977-78 | .. | 7.281           | 1.221         | 0.744                       |
| Total   | .. | 44.663          | 6.877         | 8.673                       |



### D. Water

Water is the leading input for increasing agricultural production. Surface and ground-water will be developed simultaneously; large-scale multipurpose projects of irrigation, drainage and flood control and low-lift pumps will be developed for utilisation of surface water and tubewells for exploiting ground-water. Efficient water control and management will contribute to improve agriculture by stabilising production by increasing cropping intensity and also by making the change over from the traditional to high yielding varieties possible. Though a comprehensive ground-water survey is to be conducted to identify good aquifers, the available ground-water data indicate that about 19,000 (2-cusec equivalent) "deep" tubewells and 15,000 ( $\frac{1}{2}$ -cusec) "shallow" tubewells can be safely installed. Total area which will be brought under tubewell irrigation by 1977-78 is estimated to be about 14 lakh acres. At the terminal year of the plan period a total of 19,000 "deep" tubewells (2-cusec equivalent) will be fielded to bring an area of about 11 lakh acres under irrigation. The number of tubewell installed up to June 1973 is estimated to be 2,900. The number of "shallow" tubewells to be installed by BADC will be 15,000 of which 2,000 is expected to be installed by June, 1973. An area of about 2.20 lakh acres will be brought under irrigation by shallow tubewells. Predicted coverage will be 40, 45, 50, 55 and 60 acres for each 2-cusec "deep" tubewell in the 1st, 2nd, 3rd, 4th, 5th and subsequent years and that of shallow tubewells will be 8, 10, 12 and 15 acres in the 1st, 2nd, 3rd, 4th, and subsequent years, respectively. About 50,000 acres are already under irrigation by "deep" tubewells and fractional pumps under the private sector.

From the available hydrological data it is estimated that in Bangladesh it is possible to install about 45,000 two-cusec capacity single-stage low-lift pump (LLP). The estimate is based on 12 hours pumping per day, taking peak requirement of water as 12 inches (including losses) during March and April. Up to June 1973, the number of pumps fielded is estimated to be 30,000. Total LLP coverage under irrigation in the terminal year will be 22.50 lakh acres on the basis of 35, 40, 45 and 50 acres per 2-cusec pump in the 1st, 2nd, 3rd, 4th and subsequent years respectively. Of the total number of LLP (45,000) about 7,000 pumps will be allocated to the projects under the Water Development Board (BWDB) and the rest for the projects under the Bangladesh Agricultural Development Corporation (BADC) Programme.

BWDB will launch a programme of multipurpose irrigation, flood control and drainage projects with major emphasis on irrigation. A number of completed projects will be further developed to increase irrigation coverage. Several on-going projects will be completed and some new projects will be undertaken. During the plan period an area of 21 lakh acres will be protected from floods by construction of embankments, channel improvement, etc., and 3.4 lakh acres will be brought under irrigation. An area of about 30 lakh acres will be protected fully and 9 lakh acres protected partly from flood as of June 1973. At the terminal year of the Plan fully flood protected area will be 51 lakh acres and partly protected area will be about 9 lakh acres. In addition, small irrigation and drainage schemes presently undertaken by the Irrigation Directorate will provide drainage facilities to an area of about 8 lakh acres.

The physical targets for Water Development Programme has been summarized in Table VIII-25 under Water Resources Development.



### E. Storage and Marketing

The problems of storage and marketing are of very great importance for procurement and distribution of agricultural inputs and products. Modern inputs, whether procured locally or from abroad, required to be stocked and distributed to the farmers throughout the country. Farm output will also require storage facilities at wholesale and retail distribution centres.

#### 1. Fertilizer Storage

A much larger quantity of fertilizer, pesticides, and seeds is going to be distributed during the Plan period. In keeping with the fertilizer distribution target, 4.90 lakh tons of storage capacity needs to be built. The existing capacity is 1.96 lakh tons and an additional 56 thousand tons capacity is under construction. The balance capacity of 2.98 lakh tons is required to be built. The total number of godowns of varying sizes will be 289.

Yearly phasing of construction of fertilizer storage during the Plan period is shown in Table VIII-21.

TABLE VIII-21  
Phasing of Construction of Fertilizer Storage.

| Per unit capacity<br>(in tons). | 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. | Total No. of<br>godowns. |
|---------------------------------|----------|----------|----------|----------|----------|--------------------------|
| 5,000                           | 2        | 2        | 3        | 2        | 1        | 10                       |
| 2,000                           | 15       | 10       | 20       | 20       | 10       | 75                       |
| 1,000                           | 10       | 10       | 15       | 10       | 5        | 50                       |
| 400                             | 15       | 20       | 20       | 18       | 17       | 90                       |
| 200                             | 10       | 12       | 12       | 15       | 15       | 64                       |
|                                 | 52       | 54       | 70       | 65       | 48       | 289                      |

#### 2. Seed Storage

For seeds, required storage capacity is 19 lakh maunds of which about 2.50 lakh maunds already exist in the country—all of this at the district level. There is thus need for an additional capacity of 16.50 lakh maunds.

During the Plan period a storage capacity of 9.50 lakh maunds will be built at the thana level and the rest 7 lakh maunds at the district level.

The seed storage will also be used for wheat, groundnut and other seeds besides rice. According to the seed programme, the maximum seed requirement will be in the first year for almost all crops. Thus most of the allocation for seed storage has to be made during the first year.



### 3. Pesticide Storage

Adequate storage capacities at the district, thana and local levels are also necessary for pesticides and spraying equipment. At present there are 437 godowns as detailed below:

| No. of stores. |     |     |     |     | Capacity of<br>each godowns. |
|----------------|-----|-----|-----|-----|------------------------------|
| Division       | 4   | ... | ... | ... | 40 tons.                     |
| District       | 20  | ... | ... | ... | 20 tons.                     |
| Thana          | 413 | ... | ... | ... | 5 tons.                      |

Total capacity is thus 2,625 tons during the Plan period; pesticides programme will be expanded and this will necessitate creating additional storage capacities especially at the local-level within easy reach of the farmers. Some of the existing seed stores are beyond repair and some can be used after minor additions and alterations. A programme for additions and alterations for 4,053 seed stores was undertaken in the pre-liberation period. The same programme will be continued during the First Five Year Plan.

### 4. Foodgrain Storage

The Plan envisages substitution of imports of grain by domestic production. The existing storage capacity for foodgrains is given below:

| Type of storage.           |    |    |    |    | Capacity.<br>(Lakh tons). |
|----------------------------|----|----|----|----|---------------------------|
| Silo                       | .. | .. | .. | .. | 2.25                      |
| Central Supply Depot (CSD) | .. | .. | .. | .. | 3.60                      |
| Local Supply Depot (LSD)   | .. | .. | .. | .. | 4.73                      |
| Total                      |    |    |    |    | 10.58                     |

There are now 314 Local Supply Depots covering 264 thanas. The remaining 144 thanas do not have any Local Supply Depots. For better procurement and storage of foodgrains and other edibles, these 144 thanas must also be covered by Local Supply Depots. It is estimated that 153 more godowns of 500 tons capacity each will have to be built. This will enable us to have more than one godown in bigger thanas. The unfinished task of reconstruction of the LSDs damaged during the Liberation War, will also be completed during the plan period.

### 5. Jute Storage

The existing storage capacity for jute is 6.0 lakh tons owned and hired by the Jute Marketing Corporation (JMC), Jute Bailing Corporation (JBC) and Jute Trading Corporation (JTC), including Private Traders.

In order to ensure a better price to the growers storage facilities at different marketing centres will have to be built. Moreover, in view of the plan projection of increased jute output, storage capacity will also have to be expanded. It is estimated that a net additional capacity of 1.0 lakh tons will need to be built as shown below:

| Existing capacity (both<br>public and private). | Required capacity*<br>(in lakh tons.) | Net capacity to<br>be built. |
|---|---------------------------------------|------------------------------|
| 6.00  | 7.00                                  | 1.00                         |

\*The required capacity has been estimated on the basis of an assumption that 30 per cent of the annual raw jute output need final storing. In order to allow for handling at different stages, another 10 per cent is added i.e. 40 per cent of the annual raw jute output would require storage space from secondary market to final disposal points.



### 6. Warehousing Corporation

Assuming that the private traders will not expand their storage space, the entire additional storage capacity will have to be built under public sector. The Warehousing Corporation will build the entire storage capacity for the Corporations concerned, i.e., JMC, JBC JPSC, and JTC. The estimated cost for jute storage is Tk. 13.5 crores with a foreign exchange component of Tk. 2.7 crores. It is assumed that 1 square foot of storage space can hold 1 maund of Jute. It is also assumed that the current cost of construction including the cost of land and other ancillary facilities is Tk. 45 per square foot of which 20 per cent is in terms of foreign exchange.

In addition to this, the Warehousing Corporation will also build additional storage for commodities other than jute at distribution and export points. The estimated cost for the same is Tk. 7.5 crores of which Tk. 1.5 crores is in foreign exchange.

The estimated cost of storage and marketing during the plan period will be Tk 46.491 crores of which foreign exchange component is Tk. 9.414 crores. The details are shown in Table VIII-22.

TABLE VIII-22.  
Estimated Cost for Storage and Marketing

(Taka in crore).

|  |    |    |    |    | Local<br>Currency. | Foreign<br>Exchange. | Total. |
|--|----|----|----|----|--------------------|----------------------|--------|
| Fertilizer storage   | .. | .. | .. | .. | 10.306             | 2.831                | 13.137 |
| Seed Storage   | .. | .. | .. | .. | 2.175              | 0.384                | 2.559  |
| Pesticides Storage   | .. | .. | .. | .. | 5.760              | 1.440                | 7.200  |
| Grain Storage  | .. | .. | .. | .. | 1.836              | 0.459                | 2.295  |
| Marketing (studies, research and improvement of marketing intelligence). |    |    |    |    | 0.200              | 0.100                | 0.300  |
| Warehousing Corporation*:  |    |    |    |    |                    |                      |        |
| (i) Jute Storage   | .. | .. | .. | .. | 10.800             | 2.700                | 13.500 |
| (ii) Commodities other than Jute   |    | .. | .. | .. | 6.000              | 1.500                | 7.500  |
| Grand Total  |    |    |    |    | 37.077             | 9.414                | 46.491 |

\*To be financed through loan from financial institutions.



## 8.2 WATER RESOURCES DEVELOPMENT

### 8.2.1 Introduction and Background

Bangladesh having a flat deltaic area of about 35 million acres has been formed at the confluence of three mighty river system: the Brahmaputra-Jamuna, the Ganges-Padma and the Meghna. These rivers drain an area of 38.4 crore acres of which only about 2.9 crore acres (7.5 per cent) lie within the country. Of the annual average rainfall of 70 inches, more than 80 per cent occurs during the months of May to October, causing widespread flooding whereas drought condition exists for the remaining six months of the year. About 33 per cent of the total cultivable land is flooded to depths exceeding 3 feet in an average year and the rest (67 per cent) may be considered as intermediate and high lands suitable for irrigation development. Development of water resources must accompany the development of agriculture in Bangladesh. It is realised that to attain self-sufficiency in food, side by side with improved agricultural inputs, irrigation water is to be supplied, proper drainage facility is to be provided and land is to be protected from flood.

The first major study of the problem of water resources development in Bangladesh was initiated in 1957 by a UN Technical Mission (Krug Mission). In its report, the Mission primarily dealt with the unique problems of flood in this country and suggested embankment and channel improvement for flood protection and control. Subsequently flood and water resources problems were studied by General Hardin (1963) and Prof. Thijsse (1964) whose findings paralleled those of the Krug Mission. Former EPWAPDA was created in 1959 for taking up implementation of the flood control, irrigation and drainage development programme. Immediately after its creation WAPDA hired the services of the International Engineering Co. of USA (IECO) as General Consultant for preparing a comprehensive plan for the conservation and development of water resources. Having worked for five years, IECO produced a Master Plan which was a 20 year programme involving 51 major projects. The Master Plan made very little provision for small and medium scale irrigation development which is so vital for agricultural production.

Following a request made by the former Government of Pakistan for World Bank assistance in the development of the water resources of the country, the Bank reviewed the IECO Master plan and sent a special Mission in 1967 to assess the requirements. In July 1970, a proposal for an Action Programme for Agriculture and Water Development was presented by the Bank. In the Action Programme the Bank identified 18 flood control and irrigation projects for implementation. Implementation of the Action Programme could not make a headway due to the War of Liberation. After liberation, the Bank reviewed the entire water programme in the context of their Land and Water Sector Study for Bangladesh. In the revised Programme, the Bank has laid primary emphasis on irrigation and drainage development which will result in increased agricultural production during the plan period. Simultaneously, it has also been suggested that during the plan period studies and investigation of the major rivers and hydrological regions should be intensified and completed with a view to identifying long-term development programmes.



So far, over 30.00 lakh acres have been protected from upland flooding and inundation by sea water through flood control programmes. These works included 2,270 miles of embankment, of which 2,077 miles are in the coastal belt and are provided with sluices and regulators. The area protected from saline water inundation and monsoon flooding has ensured at least one sure crop. Physical works also include a total of over 1,000 miles of main, secondary and tertiary irrigation canals, some 4,600 sluices and regulators, and 3 major and 85 minor pumping stations. Irrigation coverage, so far, has been about 1 million acres which is estimated to have increased up to about 13.60 lakh acres by June, 1973. The estimate is based on 122,000 acres under large-scale projects (LSP), over 1 million acres under 30,000 Low-lift Pumps (LLP), 175,000 acres under 2,900 "deep" tubewells (DTW) and 16,000 acres under 2,000 "shallow" tubewells (STW).

### 8.2.2 Problems and Prospects

A very rapid progress in agricultural production, particularly in grain production is a pressing need for Bangladesh. Attention and effort are focussed at present for increasing food production through quick-yielding, low cost, and labour intensive irrigation schemes and use of new high-yielding rice varieties. The new varieties of rice require a controlled water supply for irrigation. To feed the rapidly expanding population, a rapid expansion in irrigation areas in the country is essential. It is, therefore, imperative that a balanced development strategy is formulated which should include both short and long-term irrigation, flood control/protection and drainage projects. As the construction and gestation period of major multipurpose water projects are long, emphasis will be on short-term irrigation, drainage and flood protection schemes. However, action on some selected long-term projects will be initiated now so that these may begin to render benefits during the subsequent Plans when the benefits from short-term projects will begin to taper off.

#### A. Low-lift Pump Irrigation

In Bangladesh irrigation potential is constrained by the availability of surface water as well as occurrence of saline ground water in the South. Although the rivers carry a total of over 50 lakh cusecs during the wet season, the flows in all major and minor rivers add up to only about 225,000 cusecs during the dry season. The present Plan is to utilize the maximum surface water potential irrigation by low-lift pumping by fielding a total of 45,000 single-stage low-lift pumps. It is believed that any further withdrawal would cause problems of navigation, fisheries, and salinity intrusion.

#### B. Tubewell Irrigation

Although an extensive ground water survey is yet to be completed, experience from several hundred wells that have been drilled, together with other technical evidences, indicate that there is a fairly good prospect for tubewell development in Bangladesh. Studies undertaken so far suggest that the most favourable areas for tube-well development are:

- (i) North-west region (Dinajpur, Rangpur, Bogra, Pabna and Rajshahi) extending over an area of 4,000 sq. miles.
- (ii) North-west part of the south-west region (Kushtia and parts of Jessore and Faridpur) covering about 2,600 sq. miles.
- (iii) North-west corner of the North-east region (north Mymensingh) covering an area of about 500 sq. miles.



Ground water studies carried out by various agencies indicate that, except for the saline area (area south of Jessore-Comilla line) and red tracts of Modhupur and Barind areas of Rajshahi and Dinajpur districts, suitable shallow aquifers exist for development of "shallow" tubewells. These tubewells usually having less than 100 feet depth, involve low cost and shorter time and will employ local skill and materials. However, since shallow tubewells for irrigation purpose were never tried previously in Bangladesh, the programme should be implemented with caution at least during the initial stage.

Although a comprehensive Groundwater Survey Programme was started in 1970-71, no appreciable progress could be made due to the War of Liberation. After liberation, work has been resumed; so far data on several hundred test wells and a number of deep tubewells have been compiled and a map of seasonal fluctuation of water table has been prepared by the Groundwater Directorate of the BWDB. Excluding low lying areas as well as areas with unfavourable aquifer conditions, the total area so far identified for prospective tubewell development in Bangladesh is about 9.5 million acres. It appears that from recharge consideration alone, about 47,000 (2-cusec) tubewells can be accommodated in the area. However, there are other limiting factors on which withdrawal of groundwater will depend, such as: (i) spacing of wells (interference), (ii) safe yield, (iii) quality of ground water, (iv) economics of pumping and (v) availability of suitable land for irrigation from the standpoint of contour, productivity and water-holding capacity. Considering these factors and allowing a spacing between wells of  $\frac{3}{4}$ th to 1 mile, the total number of tubewells (2-cusec) has been tentatively fixed at 19,000. In a similar way, the number and distribution pattern of "shallow" tubewells have been tentatively fixed at 15,000 ( $\frac{1}{2}$ -cusec). The programme may have to be revised later on, as the results of comprehensive groundwater survey become available. In addition, private sector participation in shallow tubewells may be encouraged subject to technical and other constraints. Any additional irrigation coverage due to such programme will contribute towards meeting the Plan target.

### *C. Low Cost Irrigation Methods*

A research project on low-cost irrigation methods, including different types of dug-well and tank irrigation has been designed and is being implemented by the Government under the overall guidance of the Planning Commission. The alternatives which are being considered are different types of dug-wells and tank irrigation.

#### **Dug-wells**

There are more than 1,000 dug-wells in Rangpur district which can be used to some extent for irrigation but these are unlined and the water is extracted by hand which is not an effective method of withdrawal of water. Improved design and type of dug-wells should therefore be considered in future. These are:

(i) *Lined Dug-wells*—These wells could be constructed by manual excavation of a hole about 6 feet in diameter, about 25 to 35 feet deep (in northern districts) depending upon the position of ground water table. A concrete ring of about 5 feet internal diameter could be lowered into the hole followed by perforated brick lining as the concrete ring descended into the excavation under its own weight. Pumping from such wells at the rate of about 0.5 cusecs should be possible in most cases with simple surface mounted centrifugal pump.

(ii) *Dug-well with bamboo strainers*—Such tubewells have been used in areas with artesian aquifers. Its use in Bangladesh will, therefore, be limited.



Construction of the well will be simple; a 6 feet diameter hole, 25 to 35 feet deep should be excavated manually. At the bottom of the well two or three hollow bamboos with longitudinal slots will have to be inserted. These bamboos will act as strainers, water will enter the bamboo strainers and will rise into the well automatically, under artesian pressure.

(iii) *Jetted wells*—Where the available groundwater table is too deep, jetted wells should be drilled by means of simple, locally manufactured tripod rigs capable of being moved from place to place manually or by bullock carts. Research and development work is required to define the most appropriate design for this type of well but it seems likely that about 60 feet of 4 inches screen followed by up to 40 ft. of 6 inches plain casing would yield 0.5 cusecs. A simple propeller pump would have to be used for withdrawing water from such a well. The equipment required for jetting may consist of a simple tripod arrangement for suspending the casing while it is being lowered into position and a pump to force water down through the casing to create the jetting action. To drill a 6 inches hole into a depth of 80-100 ft. and to lower the casing may take a couple of days. Preliminary cost estimates indicate that the capital cost of these wells will range between Taka 2,000 and Taka 2,500, the cost of simple dug well being the lowest and the jetted well being the highest.

### Tank Irrigation

Bangladesh is a country where there are numerous tanks fulfilling the multipurpose water requirement in rural areas. It is estimated that the total surface area of all tanks would be 633,000 acres, but almost 75 per cent are derelicts. One idea was to excavate the tanks and utilize the tank for irrigation during the dry season. Quantitative analysis has, however, shown that the proposition of deepening tanks merely for the purpose of using the tank water for irrigation is not feasible. As an example, one may consider Feni subdivision which has a large number of tanks as compared to other subdivisions. The total area of the tank in Feni subdivision has been estimated to be 13,400 acres. Also it is assumed that these tanks were excavated to ensure a minimum depth of 8 feet of water during the dry season. Assuming conservatively that loss due to evaporation and seepage during the irrigation period will be about 25 per cent and that a minimum of 3-4 ft. of water must be retained in the tank to support aquatic life, it is found that if all the tanks in the Feni subdivision were re-excavated and utilised for irrigating agricultural land it would hardly be possible to cover more than 5 per cent of the total irrigable land in the area during the Boro season.

Although intensive irrigation using tank water is not feasible re-excavation, cleaning and fertilization of tanks for the purpose of raising fish seems to have great promise in Bangladesh. A properly excavated, cleaned and fertilized one acre tank should yield about 1,500 pounds of fish annually. Assuming conservatively, an average yield of 1,200 pounds of fish per year, expenses of Tk. 500 per year and price to farmer of Tk. 2 per pound, farmers' annual profit is calculated to be Tk. 1,900. The annual profit that a farmer makes in the Comilla district, for example, is said to be about Tk. 500 per acre when traditional technology is used and Tk. 1,600 per acre when proper irrigation and flood protection facilities are provided and all other inputs including HYVs are made adequately available. This indicates that not only re-excavation of existing tanks but also excavation of new tanks has a promising future



in Bangladesh. The primary benefit will be fish production; secondary benefits will be water supply for domestic use, recreation and to a limited extent, irrigation.

#### *D. Flood Control and Indo-Bangladesh Co-operation*

The problems and prospects of short-term development as outlined above will form the initial stage of an overall water development plan. The problem of formulating such an overall plan is complicated due to the fact that a complex system of major rivers, all originating outside the country, pass through this flat delta interlaced with a large number of small streams and channels which carry over 50 lakh cusecs of flow and enormous sediment load during the monsoon. Over a period of years some semi-major and many minor rivers have deteriorated to such an extent that dredging in some rivers is needed to improve their carrying capacity for efficient flood flow during the monsoon and better navigation and irrigation during the low flow season. Embankment has been considered as a good means of flood protection. Double embankment over a long period of time may cause raising of river beds due to siltation; this may solve the problem of flood protection but over a period of time may cause the adjacent lands to fall below the river beds in some cases creating waterlogging and other consequent social problems. To counteract this effect dredging is again a solution in the double embanked stretches of some of the rivers.

The major rivers except the Meghna derive only a negligible proportion of their flow from run-off within Bangladesh. Major problems, therefore, arise with the development of these international rivers, which have to be resolved through co-operation between the countries involved. For such co-operation and joint action, India and Bangladesh have set up a Joint Rivers Commission. The Commission is presently working on a number of specific studies. The question of formulation of a long-term plan to develop river systems for mutual benefits is also under consideration by the Commission. The small streams and channels lying within the country will have to be enlarged and controlled by suitable structures for improving irrigation, drainage, flood control and quality of the environment. The plan will also include interlinking of watersheds into an integrated regional water development system. The limited fresh water supplies during the low-flow period should be supplemented by diversion of water from major rivers at strategic points and by selected estuary closures. This plan for water control in Bangladesh will have to be carried out by stages, each of which will be a self-contained step with identifiable benefits justifying its implementation and each contributing towards reaching the ultimate goal.

#### **8.2.3 Objectives**

One of the major objectives of the plan is to achieve self-sufficiency in foodgrain production by 1977-78. To achieve this objective, the programme in the water sector has laid considerable emphasis on fast pay-off and short-term water development projects, while concurrently stressing the necessity of undertaking studies and initiating actions on large-scale projects. The specific objective of the Plan will be as follows:

1. To maximise benefits by increasing efficiency of operation and management of completed water development projects.



2. To re-organize and strengthen the existing executing agencies of flood control, irrigation and drainage works to enable them to undertake massive development programmes in an efficient manner.
3. To install low-lift pumps and tubewells, and to design and construct irrigation channels for proper delivery of water.
4. To develop and control surface water resources in order to provide dependable and timely irrigation for winter crops, by medium to large-scale canal irrigation.
5. To protect coastal areas from saline water inundation by coastal embankments and to control or regulate flood in vital areas.
6. To negotiate with India on the development of the Ganges, the Brahmaputra and the Meghna river basins and utilization of their waters under a long-term strategy.
7. To organize and expand the hydrological data collection activities and to intensify studies of the major rivers and the hydrologic regions which will be essential for drawing up a comprehensive water development programme for the country.

#### 8.2.4 Strategy of Development

In Bangladesh, social and human factors weighed so heavily on planning and selection of the "right" project that over the past years there has been a continuing effort to identify the most appropriate overall strategy for water resources development, particularly for the irrigation development. One of the most pertinent areas of discussion and analysis has been the relative merits of "major" versus "minor" projects. With regard to "major" projects it has been observed that because of design problems (partly attributable to the advice of foreign consultants not adequately familiar with local problems), the facilities built have in many cases proved to be less efficient and dependable. Moreover, problems have arisen in connection with obtaining rights of way for large-scale projects and with farmers' natural reluctance to invest for the cultivation of HYVs when the control of vital inputs was in someone else's hands. By contrast, small irrigation projects have developed on the concept of providing facilities in response to requests from small co-operative farmer groups. While the engineering of such projects is below the optimum level, these projects have led so far to the irrigation of over one million acres while the "major" projects have reached less than one-fifth of this area at a very high cost.

The overall strategy of irrigation development during the Plan period will therefore be one that permits and requires the earliest and direct involvement of the farmers. The strategy recognizes the tremendous potential latent in rural Bangladesh that can be realised with small and intermediate scale irrigation and drainage development projects, low-lift pumps and tubewell development. Simultaneously a number of selected large-scale projects will be taken up, which are on-going, labour-intensive and will provide substantial flood control, drainage and irrigation benefits towards the end of the plan period. Attempt will be made to introduce water management within the Coastal Embankment Project, Phase—I so that agricultural benefits can be derived within the project area in the shortest possible time.



Although the strategy during the plan period is to lay emphasis on "minor" projects (which along with some selected large-scale multi-purpose projects are expected to provide irrigation coverage to only about 20 per cent of the net cultivable area by the end of the plan period) it is realized that the ultimate solution of the problem lies in long-term basinwide development. Attempts will, therefore, be made to intensify the regional studies and study of the major rivers and to identify and formulate long-term projects for implementation during subsequent plan periods.

Last but not the least, there is a great need for continuous project evaluation and an urgent need to recover part of the cost of projects. During the plan period, a project evaluation team from the Planning Commission will be continuously engaged in making an assessment of progress against targets. Water charges will be realized from the beneficiaries to recover a part of the total cost of development, because without a judicious pricing of water, efficient utilization of this costly input can never be ensured.

### 8.2.5 Programmes

#### A. *Improvement of existing irrigation projects*

As indicated earlier, highest priority is to be attached to increasing the efficiency of operation and management of all existing irrigation projects. Some important steps to achieve this goal would be:

- (i) To introduce some flexibility in the allocation of the number of tubewells and pumps to each district on the basis of existing hydrological conditions and past performances in maximizing the command areas so that a system of incentives aimed at maximum efficiency is complemented although existing schemes define the number of tubewells and pumps for each district.
- (ii) To consider each irrigation facility such as tubewell and low-lift pump, as independent project requiring survey, design and construction of irrigation channels.
- (iii) To increase the number of hours of operation of tubewells and pumps to at least 12 hours per day on an average, during the months of peak irrigation requirement.
- (iv) To entrust the responsibility of operation of tubewells and pumps to the farmer groups. The agencies shall, however, continue to provide maintenance and repair services.
- (v) To recover a part of the cost of irrigation from the beneficiaries.
- (vi) To reorganize the agencies presently involved in conservation, development and utilization of water resources in the country.

#### B. *New Irrigation Projects*

Next to this in the line of action, will be to take up short-term, quick-yielding projects such as low-lift pumps, "deep" and "shallow" tubewells and canal irrigation. From available hydrological data it is estimated that it is possible to field about 45,000, 2-cusec single stage



low-lift pumps, 19,000, 2-cusec "deep" tubewells and 15,000,  $\frac{1}{2}$ -cusec "shallow" tubewells within the plan period. Out of a total 45,000 low-lift pumps, about 7,000 pumps will be used for pumping water within the surface water irrigation programme of BWDB. As regards tubewell development, two separate schemes will be taken up, one for 19,000 "deep" and another for 15,000 "shallow" tubewells. A tentative regional allocation and year-wise phasing has been suggested in the Plan which may be modified on the basis of hydrological survey.

Total areas expected to be brought under irrigation programme at beginning and end of the plan period have been estimated to be about 13.60 and 41.30 lakh acres respectively. By the end of the plan period the areas covered by various types of irrigation projects, that is low-lift pumps, tubewells and large-scale canal irrigation are expected to be about 22.50, 14.20 and 4.60 lakh acres, respectively (Appendix N-2). The estimates are based on an ultimate command areas of 60, 50 and 15 acres for each "deep" tubewell, low-lift pump and "shallow" tubewell, respectively. Besides, an area of about 8 lakh acres will be provided with improved drainage facilities by small drainage schemes.

### **C. Flood Control**

Flood Control Programme during the plan period will include:

- (i) Flood protection embankment to protect low lying areas from floods and coastal embankments to protect land from saline inundation and also to develop polders for irrigation and drainage.
- (ii) Urban protection works to protect the important urban/commercial centres.
- (iii) Channel improvement, river training and land reclamation.
- (iv) Studies and initiation of action on long-term multipurpose projects. The programme proposed to be included in the Plan will protect an area of over 21 lakh acres from floods. By June 1973 an area of 30 lakh acres fully and 9 lakh acres partly will be protected from floods. At the terminal year of the Plan the fully flood protected area will be over 51 lakh acres and 9 lakh acres will be partly protected. Besides protecting the land from damages to crops, flood protected areas will provide improved social security, communication, commerce and trade, land value and environmental condition to the people inhabiting the area.

### **D. Surveys and Data Collection**

There will be emphasis on the programme of comprehensive hydrological, groundwater and hydrographic surveys and data collection. Hydrological surveys will include collection of discharge, water level, sediment load, rainfall, evaporation, sunshine records and salinity data. On hydrographical surveys cross sections of rivers should be collected in all the major and medium size rivers all through the country. On groundwater surveys there will be extensive coverage of data collection on quantity and quality of groundwater. Stress should be given on processing, analysis, interpretation, research and publication. Water balance studies should also be undertaken. As basic data form the basis of formulation of any water project



emphasis will be on accuracy of surveys and consequent processing thereof. Research will be undertaken on hydraulic and hydrological problems of rivers, river training, sediment transport, bank erosion, etc.

#### *E. Recovery of Cost of Irrigation*

An economic analysis of costs and benefits from various types of irrigation projects have been made under a set of conservative and realistic assumptions. This is presented in Table VIII-23 :

TABLE VIII-23  
Summary of Benefit-Cost Analysis of Irrigation Projects.

| Type of Irrigation.                | Annual cost/acre (Taka) | Annual net Benefit/acre (Taka) | B/C. | Present Repayment as percentage of annual cost. |
|------------------------------------|-------------------------|--------------------------------|------|---|
| 1. Low-lift Pumps .. ..            | 158                     | 1,285                          | 8.1  | 23  |
| 2. Shallow Tubewells .. ..         | 156                     | 1,023                          | 6.6  | 34  |
| 3. Deep Tubewells .. ..            | 216                     | 1,118                          | 5.1  | 14  |
| 4. Large Scale Canal Irrigation .. | 280                     | 1,200                          | 4.3  | Nil.  |

The calculations are based on certain variable assumptions. Nevertheless, benefit-cost ratios (B/C) as shown in the table are indicative of the relative efficiency of different types of irrigation projects. It will appear from the table that though investment on irrigation is highly profitable, realisation of irrigation costs from farmers has been very poor; it ranged from nothing for large scale projects to 34 per cent for shallow tubewells. Without a simultaneous increase in revenue generation by recovery of cost, further expansion of water resources development will be seriously constrained. Recovery of cost of irrigation is also necessary for better utilization of the created facilities in water development.

Financial analysis of the return to farmers from use of irrigation water indicates that the farmers derive a considerable surplus. But considering the facts that our farmers are generally indebted and that they will need to consume more with increased income, it will not be possible to realize full cost of water from them during the Plan period. There are considerable variations in costs and benefits under different types of irrigation and in different areas under the same type of irrigation. Imposition of taxes strictly on the basis of costs and benefits will, therefore, involve enormous complexities. It is, therefore, suggested that a minimum uniform and gradually increasing rate be imposed for all types of irrigation throughout the country. Considering the present rate of payment by the farmers and other factors, it is proposed that the following water rate should be realized from beneficiaries during the Plan period ;



(Water rate in Taka per acre.)

| 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. |
|----------|----------|----------|----------|----------|
| 50       | 70       | 90       | 120      | 150      |

This will imply the rates of subsidy on different types of irrigation projects as shown in Table VIII-24.

TABLE VIII-24.

Government Subsidy on Annual Costs, in Percentage Terms

| Types of irrigation.            | 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. |
|---------------------------------|----------|----------|----------|----------|----------|
| 1. Low-lift Pumps ..            | 68       | 56       | 43       | 24       | 5        |
| 2. Shallow Tubewells ..         | 68       | 55       | 42       | 23       | 4        |
| 3. Deep Tubewells ..            | 77       | 68       | 58       | 44       | 30       |
| 4. Large Scale Canal Irrigation | 82       | 75       | 68       | 57       | 46       |

Low-lift pump and tubewell irrigation differs in some respect from large scale canal irrigation projects. In case of low-lift pumps and tubewells, an alternative system of payment is also suggested. Instead of paying water charges at the above rate the beneficiaries may have the option to own the facilities by payment of capital cost. This capital cost may either be paid at a time or on instalment basis. In such cases Government will still be providing repair and maintenance facilities on payment, if the farmers so desire.

#### 8.2.6. Organization, Employment and Training

Development and utilization of water resources is a pre-requisite to the development of agriculture and also to the overall economic development of the nation. Unfortunately in the past, achievement against target has been rather unsatisfactory. Experience indicates that efficiency of projects has been reduced considerably primarily due to lack of co-operation and overlapping responsibilities between various agencies. Examples are Thakurgaon Tubewells, G.K. Project and Low-lift Pumps and Tubewells under BADC where the actual command area has been less than 50 per cent of the expected command area.



The achievement of physical target of water sector during the Five Year Plan and consequently the attainment of self-sufficiency in foodgrain is subject to several conditions, an important one being reorganization of water resources conservation, development and utilization agencies.

The reorganized set-up is recommended to be one in which conservation of all national water resources and development of large-scale multipurpose projects will be the primary responsibility of the Ministry of Flood Control and Water Resources. Ministry of Agriculture will be primarily responsible for development and utilization of tubewells, low-lift pumps and small irrigation and drainage schemes since such projects are directly related to agricultural development. The Ministry of Flood Control and Water Resources should concentrate on conservation of water resources, survey, planning, designing, programming and execution of large-scale surface water development projects. The Ministry of Agriculture through a reorganized set-up will be responsible for installation of tubewells and low-lift pumps. It will also be responsible for implementation of small schemes for irrigation and drainage and operation and maintenance of completed projects of Water Development Board excluding the large-scale multipurpose projects. However, in planning and programming for the small irrigation schemes, tubewells and low-lift pump projects the agencies under Ministry of Agriculture should get prior clearance from the Water Development Board and the Flood Control and Water Resources Division of the Planning Commission.

The reorganized agency under the Ministry of Agriculture should be decentralized, to the District level having planning and implementation cells. To perform the responsibilities entrusted to it the Water Development Board should be decentralized into several regional offices. The planning, designing and programming of large-scale projects will, however, have to be done at national level. For planning and programming at the national level there should be a Planning Cell in each of the two Ministries. The existing office of the Central Executive Staff under Water Development Board may be reorganized to form a Planning Cell under the Ministry of Flood Control and Water Resources. The Flood Control and Water Resources Division will co-ordinate the activities and formulate the overall national plan in consultation with the Planning Cells of the two Ministries.

In the light of rapidly increasing labour force, creation of employment opportunities has been given priority in the overall Plan. The implementation of projects in the water sector will generate substantial employment not only in direct project execution activities but also in indirect activities and crop sector. Training institutes will be established and existing ones expanded and improved to offer training to engineers and technicians, in order to enable them to shoulder the responsibility of building, operating and maintaining all projects included in the Plan. The Engineering Academy at Kaptai will be expanded to impart in-service training to the officers and staff of water resources development agencies. New institutions should be established to train a large number of technicians and mechanics for operating and maintaining tubewells and low-lift pumps.



### 8.2.7 Physical Targets and Plan Allocations

The physical and financial targets of the Plan have been summarized in Table VIII-25. Details showing district-wise and year-wise irrigation, flood control and drainage coverage of all projects and financial allocation of individual projects have also been worked out.

TABLE VIII-25

#### Summary of Physical and Financial Targets

| Type of Project/Agency.                              | Physical Targets (Area to be irrigated/protected from flood, drainage in lakh acres). |                   |                   |                    | Financial Targets for the Plan, cost in crore Tk. |          |
|--|---|-------------------|-------------------|--------------------|---|----------|
|  | Benchmark coverage (June 1973)  |                   | Final coverage.   |                    | Total cost  | F. E. C. |
|  | Irrigation.   | Flood Protection. | Irrigation.       | Flood Protection.  |   |          |
| (i) LLP/BADC ..                                      | 10.50<br>(30,000)   | ..                | 22.50<br>(45,000) | ..                 | 74.00   | 21.50    |
| (ii) DTW/BADC ..                                     | 1.25<br>(2,900)   | ..                | 11.44<br>(19,000) | ..                 | 174.00  | 61.00    |
| (iii) STW/BADC ..                                    | 0.16<br>(2,000)   | ..                | 2.25<br>(15,000)  | ..                 | 9.07  | ..       |
| (iv) Tubewells and Fractional Pump/Private.          | 0.50  | ..                | 0.50              | ..                 | ..  | ..       |
| (v) LSP/BWDB ..                                      | 1.22  | (a) 30.00         | 4.63              | (a) 51.40          | 309.50  | 71.00    |
|  |   | (b) 9.00          | ..                | (b) 9.00           | ..  | ..       |
| (vi) Small drainage schemes/ Irrigation Directorate. | ..  | ..                | (c) 7.90          | ..                 | 11.70   | ..       |
| *Total ..  | 13.63   | 30.00<br>9.00     | 41.32             | 51.21 full<br>9.00 | 578.27  | 153.50   |

Figures within parenthesis indicate number of pump/tubewell.

\*Excludes drainage improvement to 0.79 million acres.

(a) Full flood protection.

(b) Partial flood protection.

(c) Drainage improvement only, no irrigation water will be supplied.

Abbreviations :

LLP = Low-lift Pump, DTW = Deep Tubewell, STW = Shallow Tubewell.

LSP = Large-scale projects.



### 8.3 RURAL INSTITUTIONS

#### 8.3.1 Present Status of Rural Institutions

Bangladesh has a long history of institution building and institutional reform related to rural and agricultural development. A Provincial Department of Agriculture was instituted as early as 1885, but the present pattern of extension organisation was initiated in the forties when District level agricultural officers, demonstration farms and Union level agricultural workers were first introduced. The co-operative movement in Bengal began as a government sponsored programme at the beginning of this century when the provincial co-operative bank, central bank, and village co-operative societies in the country-side were set up. The present programme of union multipurpose co-operative societies was introduced in 1949. A system of Local Self-Government in rural Bengal was introduced in 1885, which continued to remain the basic foundation of local government institutions until the emergence of Bangladesh as an independent nation. As regards land administration and land reform the first significant step was taken in 1951, when the East Bengal State Acquisition and Tenancy Act abolished the Permanent Settlement of 1793. A national community development programme known as the Village Agricultural and Industrial Development programme (VAID) was launched in 1952 but failed to make any significant contribution to agricultural development. The programme was abandoned in 1960. The Bangladesh Academy for Rural Development was established in 1959, and began a series of pilot experiments leading to such rural development programmes as the Rural Works Programme, the Thana Training and Development Centre, the Thana Irrigation Programme and the Integrated Rural Development Programme.

The present status of rural institutional programmes may be summarised briefly as follows:

- (i) The Ministry of Agriculture has agricultural extension officers at the Union, Thana and District levels. In general, most of these officers at the Thana and Union levels are poorly trained in agricultural science and extension methods. At the village level the Union Agricultural Assistant operates in a large area. His performance has been very poor. The present extension service cannot meet the demands of agricultural development programmes envisaged in the First Five-Year Plan.
- (ii) There is a national co-operative credit bank with 62 central banks spread all over the country. At the village level there are 4,107 union multipurpose co-operative societies and about 25,000 agricultural co-operative societies. This set up is primarily concerned with distribution of short-term farm credit. Its effectiveness has been very limited; only a small fraction of the total credit needs of the farmers is met by the co-operatives.
- (iii) The former local government bodies were disbanded after Independence. A new local government system is in the process of formulation which will start functioning within a short period. The Rural Works Programme is now primarily concerned with the massive task of relief and rehabilitation of the war ravaged rural area. The concept of the Thana Training and Development Centre as a key institution for integration of rural development activities of different departments and training of local leaders has faded away, although the work of building the physical structure of T.T.D.C. has progressed satisfactorily.



- (iv) The Integrated Rural Development Programme (the new two-tier co-operative programme developed by BARD, Comilla) has made modest progress in its expansion in new areas and consolidation in the existing areas. In 1972 only 33 Thana Central Co-operative Federations and 6,607 village co-operative societies were in operation. The village co-operatives have not been able to attract the small farmers, share-croppers and landless cultivators. In many places the co-operatives are dominated and controlled by relatively well-to-do and influential land owners, money-lenders and traders. The Thana Central Co-operatives (TCCAs) have yet to show signs of self-reliance and self-management.
- (v) The procurement and distribution of modern agricultural inputs (irrigation pumps, HYV seeds, fertilizer) is the responsibility of Agricultural Development Corporation (BADC). The inputs are distributed through a system of warehouses and Thana godowns operated by BADC, and co-operative societies, irrigation groups and private dealers at the village level. This system will have to be considerably improved to ensure rapid and smooth flow of inputs where and when they are needed.
- (vi) Marketing of agricultural produce is now handled by private traders through the existing market centres in the rural areas. The conditions of the rural markets and transportation are very poor due to long neglect and devastation during the war of liberation.

### 8.3.2 New Institutional Policy and Programmes

The achievements of the targets postulated in the preceding chapters will call for a sound institutional base. This is particularly important as the aim is not only increased production but greater equality in distribution by the active involvement of small farmers and landless labourers in the process of growth. The institutions which serve these small farmers and landless labourers are, therefore, of paramount importance. In our analysis the major mistakes of institutional policy pursued in the past were as follows:

- (i) The rural institutions were imposed from the top and treated as an extension of government bureaucracy rather than people's organisation.
- (ii) Locally elected bodies were never truly representative because the richer and influential class managed to win the election. The election system failed to recognise the authoritarian nature of traditional power-structure, and no provision was made to protect the interest of the politically weak, depressed and exploited class of people.
- (iii) The local institutions failed to provide a forum for collective decision making and action. People's participation and control at the local level were missing. This happened because the supremacy of 'workers' (cultivators, fishermen, weavers, etc.) rather than 'owners' was not recognised.
- (iv) The main purpose of the rural institutions was seen as distributing and utilizing resources injected from outside, rather than mobilising internal resources. The principles of self-management and self-reliance were forgotten.

These mistakes must be corrected. In our plan for building a new institutional frame-work specific measures are suggested for this purpose. We propose to build the local government and co-operative institutions on a broader base; as representative of different categories of



people; capable of being self-managed and self-financed within a specified period of time; free from bureaucratic control; and fully oriented towards increasing production and facilitating equitable distribution of income.

The new local government institution will be responsible for building and maintaining the infra-structure of roads, drainage and irrigation system; providing public health, sanitation, educational and social welfare services; assisting the central government in maintaining law and order, and collecting taxes, rents, rates, dues, etc., and requisition of the means of production and services for public interest. The local government institution will promote and assist such organisations as co-operatives, associations, clubs, etc., of local communities.

The local government institution will ensure effective planning, co-ordination and mass participation in development programmes at the lowest possible levels. For this purpose informal people's council at the village level, consisting of all voters in the village, will meet once every month. It will receive reports from its elected representatives to the local government, discuss problems, make plans of action, and take collective decision on all matters related to the village within the broad frame-work of development plans and policies. The people's council will ensure mass participation, public accountability, and social responsibility of the members and leaders of village communities. It will provide a forum for the members of the community to express their ideas and opinions, and to share the responsibility of making decisions. The council will perform the traditional functions of the 'Samaj' in a new context, and in a more democratic and egalitarian manner.

The main seat of development administration of the local government will be at the Thana. The physical facilities of the Thana Training and Development Centre (TTDC) will be expanded, if needed. The TTDC will be fully utilised by bringing together all the Thana level officers of various nation-building departments into a single development team under the control of local government. Long-term and short-term Thana plans will be prepared. Inventories of locally available material and human resources will be prepared and schemes for mobilisation and utilisation of such resources will be made with the help of union panchayet and people's council at the village level.

A social transformation of the agricultural and rural economy of Bangladesh requires that the means and processes of production and distribution be socially controlled and regulated. A strong, representative local government will no doubt facilitate social control, but specialised institutions like co-operatives will be needed to formulate policy and implement programmes. It is well known that serious class differences exist in the rural society of Bangladesh. The rural power structure is authoritarian, dominated by the vested interest groups. If these groups continue to dominate and make decisions regarding choice of new technology and institutions, the interests of the lower stratum and the majority of rural society will not be safeguarded, class differences may be magnified, and bitter class struggle will become inevitable. This problem can only be tackled by helping the depressed class to organise themselves, adopt innovations collectively, and become a dominant productive force. Co-operatives are a suitable organisation for such purposes. A co-operative institutional frame-work is specially relevant because of the very high population density which creates severe pressure on land and other natural resources, and the existence of a large body of unemployed and underemployed persons whose interests cannot be safeguarded otherwise. The co-operative programme will have to be directed towards community planning, saving of scarce resources by collective operations, and generation of savings for productive investment. A system of integrated multipurpose workers' co-operative will be most suitable for this purpose. The innovations introduced by Comilla Pilot Project on co-operatives and the experience gained on this during the past years can be fully utilised in developing an integrated co-operative development programme.



### 8.3.3 Integrated Rural Development Programme (IRDP)

The present Integrated Rural Development Programme (IRDP), having village level cooperative societies and their federation at the Thana level, and associations at the District and the National level, will be modified, strengthened and expanded to cover 250 Thanas by the end of the Plan period. The village level cooperative will have a broader base by bringing together three categories of people pursuing identical objectives into a single organisation. The three categories are as follows:

- (I) *Category A*: those who practically have no means of production, who depend entirely on their own labour and work as hired hands;
- (II) *Category B*: those who have small means of production; who depend on their own labour, occasionally employ hired workers or work as hired workers when the need arises; and
- (III) *Category C*: those who have appreciable means of production, who work themselves but also employ hired labourers, but do not work as hired labourers themselves. They tend to work more as managers of their enterprises rather than as manual workers.

The location and physical boundary of a primary cooperative should be decided locally by the people, in a manner so that the cooperative becomes a socio-economically viable unit, and does not remain confined to a particular village faction, kinship group or social or economic category of people. The membership of the primary cooperative will be open to all who are working or looking for work in the field. Money-lenders, rentiers or contractors of hired workers will not be eligible for membership in the cooperative.

The members of the managing committee of primary cooperative society will be elected in such a way that the three categories (A, B and C) of people described above are proportionally represented in the managing committee. The general body of the cooperative society meeting at least once every fortnight will make important decisions. The managing committee will carry out these decisions and report back to the general body. For training/operation purpose the total body of the membership may be divided into a number of sub-groups of 20—40 members on "para" or sub-locality basis. These groups will meet once every week. The village cooperative assisted by TCCA will organise training/discussion programmes.

The primary cooperatives will be given dealership for distribution of inputs (fertilizers, nylon twine for fishing net, yarn, etc.) supplied by the government and nationalised industries. Equipment and machinery (pumps, tractors, looms, nets) supplied by the government as grant or loan will be given to the cooperatives for joint and collective use by the members. Credit will be supplied through the cooperatives. The landless labourers will be encouraged and helped to jointly own and operate implements and machineries (sprayers, threshers, pumps, tillers, boats, transport vehicles, etc.). They will also be trained in various technical skills. The primary cooperative society will organise these programmes. In addition to their normal production oriented functions the cooperatives will help the local government institutions to plan and implement specific projects and schemes. Particularly, the cooperative will organize its members to work in the labour intensive projects (roads, irrigation canals, etc.) undertaken by the local government. In this way the cooperative will provide employment opportunities to its members and facilitate productive utilisation of unused labour force. It will become an important institution for everybody who work or are seeking work.



The Thana Central Cooperative Association (TCCA) will operate as a supporting organisation: to assist in planning and supply of inputs and services, organise processing storage and marketing of outputs, arrange regular training and extension services, provide technical/organisational consultation and advisory services. Its functions will be to promote the growth of primary cooperatives as self-managed and self-reliant bodies and integrate them into one cooperative system. The TCCA will ensure that the primary cooperatives do not become merely their agents and, therefore, dependents. The TCCA will gradually withdraw itself from directly operating the credit business. It will promote thrift deposits by cooperative members, assist the cooperatives in assessing their credit requirements and planning credit utilisation. The actual business of distributing credit, keeping accounts, etc., will be taken care of by the branch of National Cooperative Bank (or Nationalised Banks) at the Thana. These banks will have to be specially organised for handling rural credit programmes. It will have to be ensured that loans are promptly supplied to the village cooperatives on the recommendation of TCCA. The Managing Committee of TCCA will be elected on the same principle of proportional representation as in the case of the primary cooperative. The Managing Committee will appoint a Manager or Executive Director of the TCCA, who must be a qualified and trained person recommended by the Cooperative Development Board (CDB).

The development of cooperative system will have to proceed systematically within a broad frame-work of national development plan. The government will have to invest resources and assist in the initial promotional and organisational responsibility. On the other hand, it is important to ensure that the cooperative movement does not become just another development function of the government bureaucracy and dependent only on government grants. In order to initiate, promote and organise the cooperative movement as a national development programme the following steps will be taken:

- (i) A Cooperative Development Board (CDB) will be formed by the Government immediately, and the IRDP will be placed under that Board. The CDB will have 15 Members and a Chairman. Ten of the members will be elected by the TCCAs; three senior officials and two non-official scholars/professionals/practitioners in rural development will be selected by the Government. The Minister-in-charge of Cooperatives will act as the Chairman of the Board for the first three years, after which the Board will elect its Chairman. Alternatively, the Chairman may be elected by the members of the Board from the first year. During the first three years the members of CDB will be elected/selected every year. Subsequently the election/selection will be held once in every three years. The CDB will begin operation immediately with the Board formed by the selected members and representatives from the existing TCCAs.
- (ii) The present IRDP office at Dacca will be the Secretariat of CDB. Its main function will be promotional, training and research rather than executive functions related to operation of TCCAs. The CDB will build up a cadre of cooperative organisers who will be placed at different thanas for initial promotional and organisational work and to become the manager/executive director of TCCA. This cadre will be carefully selected, preferably from local field workers, and trained in ideological as well as operational matters. The CDB will also arrange training for managerial and administrative personnel appointed by the TCCAs. Initially the cost of training will be borne by CDB.



- (iii) The CDB will offer each TCCA an initial grant of Taka one lakh per year for five years only, provided the TCCA satisfies certain minimum organisational requirements and performance standard. In addition, long-term seed capital will be provided at the rate of Taka four lakhs per year to TCCAs on request for 5 years. The TCCAs will be able to borrow short-term loans from the cooperative bank and other financial institutions for which arrangements will be made by CDB. Under no circumstances the government grant to a TCCA will be continued after the fifth year.
- (iv) The organisation of educational and training programme will be one of the main responsibilities of CDB. It will prepare standard programmes for different categories of people in consultation with different training institutions (BARD, Cooperative College, Extension Institutions, etc.). It will offer financial and technical assistance to the training institution if such help is needed. In addition, seminars, workshops, conferences, etc. will be financed and organised by CDB. Finally the CDB in cooperation with the District level Cooperative Associations will finance and organise mass member-education programmes aimed at functional literacy, ideological and organisational education, etc.
- (v) Financing and conducting pilot action programmes, research, surveys and evaluation will be the other main functions of the CDB. The research operation will be conducted on the basis of practical need, on a continuous basis, so that the progress of the movement can be carefully evaluated and monitored.

The effectiveness and success of the cooperative development programme will basically depend on a number of supportive government policies and action. First, the government and the party in power shall have to mobilize the whole political machinery and the mass media of communication in favour of the movement. Second, the distribution of all modern inputs should be made through the cooperatives. The cooperatives and their members should be treated preferentially in this regard. Similarly in procurement and marketing the cooperatives should be given preference. Third, the cooperative laws/acts should be modified and the regulatory functions (audit, registration, etc.) should be strengthened and made more effective in a positive sense so that acts and regulations help in the healthy growth of cooperatives. Fourth, land reform programmes should be closely related to development of cooperative organisation. The programme of distribution of land to landless cultivators should be implemented by organising the beneficiaries into cooperatives. In this way advanced form of cooperative should be promoted. On the other hand, the cooperative organisations should be encouraged and given responsibilities of implementing land reform and related programmes. Thus, such programmes as reclamation and productive use of derelict tanks, improvements of hats and bazars, etc., can be implemented through the cooperatives. Finally, to provide technical support the Planning Commission may institute a Technological Advisory Committee to ensure that the technical content of the package of improved agricultural practices is sound and appropriate for local conditions. This committee may include representatives from IRDP, the Ministry of Rural Development, the Ministry of Agriculture, the Ministry of Forestry, Fisheries and Livestock, the Water Development Board, the Agricultural University, the Rice Research Institute and other major research institutions. This committee may formulate the package of practices for each season, boro, aus and aman, for rice and kharif and rabi for other crops after obtaining reactions from the field through consultation with representatives of local government bodies, TCCAs, DAOs, TEOs and VEAs and village cooperatives. These practices will then be implemented with the help of IRDP, local government bodies and agricultural extension service.



In the course of the First Five-Year Plan IRDP will be expanded to 250 Thanas (present 89+161 new) giving prior attention to (i) the area of foodgrain concentration in so far as these are also the areas where pump-sets and tube-wells are expanding fastest, (ii) the cyclone-affected areas, (iii) part of the jute area of concentration (in that order of priority). After the second year an evaluation will be made and on satisfactory performance the programme will be expanded to cover the whole country. The estimated total cost of the programme will be Taka 31.00 crores, which will be provided as government grant. In addition the programme will require Taka 39.50 crores as long-term loans and Taka 72.20 crores as short-term loans to TCCAs. The details of cost estimates are shown in Table VIII-28. The expansion of IRDP will take place in a phased manner as shown in Table VIII-26. Some of the targets of IRDP to be reached by 1977-78 are shown in Table VIII-27.

### 8.3.4 Other Cooperative Programmes

The IRDP will be concerned with peasants' cooperatives. Other cooperative programmes will be implemented by the Department of Cooperative during the plan period. Those will be concerned with Milk Producers, Fishermen, Weavers, Auto-Rickshaw Drivers, and Sugarcane growers, etc. The Milk Producers Cooperative will organise 500 primary societies and a Central Association. It will have pasteurisation and chilling plants in Pabna, Dacca, Faridpur, Tangail and Manikganj. The existing Lahirimohanpur Dairy and Asto Dairy plants will be brought under a single cooperative organisation. The objective of this programme is to supply 60,000 litres of fresh milk per day to consumers of Dacca city by the end of the Plan period.

The Fishermen's Cooperative Programme will organise 200 primary societies and 20 Central Associations. About 2000 mechanised fishing boats and 50 carrier vessels will be constructed. The Weaver's Cooperative Programme will strengthen and develop 600 primary cooperatives and 30 Central Associations. It will establish a Design Centre, Weaving Factories, Sales Emporia and Dyeing Factories.

The estimated total expenditure of these programmes of the Cooperative Department will be Taka 24.15 crores with a foreign exchange component of Taka 8.60 crores. The expenditure on different projects/schemes is shown in Table VIII-28A.

TABLE VIII-26.

#### Phasing of IRDP

| Year.           |    |    |    | No. of<br>Thanas to be<br>covered. | Cumulative<br>Total. |
|-----------------|----|----|----|------------------------------------|----------------------|
| Already covered | .. | .. | .. | 89                                 | 89                   |
| 1973-74         | .. | .. | .. | 61                                 | 150                  |
| 1974-75         | .. | .. | .. | 50                                 | 200                  |
| 1975-76 *       | .. | .. | .. | 50                                 | 250                  |

\* In 1975-76 an evaluation study will be conducted and on satisfactory performance IRDP may be expanded to cover the whole country. Therefore, the phasing schedule from 1975-76 onward will be formulated in the light of the evaluation.



TABLE VIII-27

Targets of IRDP to be Reached by the end of the Plan Period

(All figures are cumulative)

|  |    |    |    |    |                   |
|--|----|----|----|----|-------------------|
| Total No. of village Societies   | .. | .. | .. | .. | 39,000            |
| Total No. of Co-operative members  | .. | .. | .. | .. | 25.70 lakh        |
| Share capital of the members   | .. | .. | .. | .. | Tk. 4,00.00 lakh  |
| Deposits of the members  | .. | .. | .. | .. | Tk. 3,09.00 lakh  |
| Distribution of long-term loans (repayable after 5 years)  | .. | .. | .. | .. | Tk. 39,50.00 lakh |
| Distribution of short-term and medium-term loans<br>(Short-term repayable within 18 months, and medium-term repayable within 3 years). |    |    |    |    | Tk. 72,20.00 lakh |
| Realisation of short and medium-term loans   | .. | .. | .. | .. | Tk. 43,80.00 lakh |
| Training of people:  |    |    |    |    |                   |
| (a) Key personnel of IRDP  | .. | .. | .. | .. | 750               |
| (b) Managers and model farmers of co-operatives  | .. | .. | .. | .. | 78,000 Nos.       |
| Managing Committee members of TCCA's District and National Federations.  |    |    |    |    | 14,000 Nos.       |
| Supervisory staff of TCCA's  | .. | .. | .. | .. | 6,300 Nos.        |

TABLE VIII-28

Financial Requirements of IRDP

|                               |    |    | Lakh Taka. | P. E. C. |
|-------------------------------|----|----|------------|----------|
| Recurring grants              | .. | .. | 15,43.00   | 2.50     |
| Non-recurring grants          | .. | .. | 8,45.00    | 3,40.00  |
| Grants for pilot projects     | .. | .. | 7,12.00    | 2,57.00  |
| Total                         | .. | .. | 31,00.00   | 5,92.50  |
| Long-term loan                | .. | .. | 39,50.00   |          |
| Short and Medium-term loans   | .. | .. | 72,20.00   |          |
| Total                         | .. | .. | 111,70.00  |          |
| Less—recovery of S. & M. loan | .. | .. | 43,80.00   |          |
| Total                         | .. | .. | 67,90.00   |          |



TABLE VIII-28. A

Schemes of the Co-operative Department to be Included in the Plan.

|             |   |       | Total<br>estimated cost. | (Taka in lakh.)<br>F. E. C. |
|-------------|---|-------|--------------------------|-----------------------------|
| 1.          | Development of Fisheries Co-operatives                              | .. .. | 10,00.00                 | 4,50.00                     |
| 2.          | Co-operative Dairy Development .. ..                                | .. .. | 6,32.10                  | 3,00.00                     |
| 3.          | Linking of Marketing Agricultural Produce with Co-operative Credit. |       | 3,00.00                  | 1,00.00                     |
| 4.          | Development of Transport Co-operatives .. ..                        | .. .. | 1,32.80                  | ..                          |
| 5.          | Development of Sugarcane Growers Co-operatives                      | .. .. | 50.00                    | ..                          |
| 6.          | Development of Weavers Co-operatives .. ..                          | .. .. | 3,00.00                  | 10.00                       |
| Total .. .. |   |       | 24,14.90                 | 8,60.00                     |

**8.3.5. Rural Works Programme**

The Rural Works Programme, started in 1963-64, has been compelled by the disruptions during and after the Liberation War to become largely a programme of relief. This is incompatible with its role in the Five-Year Plan. The programme needs a complete overhaul. Its main tasks will be to contribute to the attainment of foodgrain self-sufficiency by constructing and maintaining irrigation and drainage structures in the area of foodgrain concentration and to provide for landless labourers productive employment, outside and inside the area of concentration.

**A. Highlights of the Programme**

The Rural Works Programme during the plan period will consist of five components: (1) a Thana based integrated works programme, (2) a programme for the reclamation of derelict tanks, (3) Thana irrigation programme (TIP), (4) Thana Training and Development Centre building programme (TTDC), and finally (5) a programme for the development of important rural hats and bazars.

The integrated Rural Works Programme has the primary aim of improved drainage, flood control and higher irrigation coverage. The following order of priority of the programme activities is proposed:—

- (i) Construction and maintenance of irrigation and drainage channels, especially those directly related to pump and tubewell irrigation units;
- (ii) Desilting and water-hyacinth clearing of irrigation sources and other earth-works needed to maintain and improve water retention capacity of the sources of irrigation;
- (iii) Construction and maintenance of dykes, embankments, culverts and sluice-gates for controlled irrigation and drainage;
- (iv) Construction of storage facilities for agricultural produce, especially where TCCA and village co-operative societies exist;
- (v) Construction, repair and maintenance of Kutcha roads;
- (vi) Construction of Pukka roads and bridges.



The total cost of this programme for the plan period is Tk. 96.00 lakh. Approximately two-thirds of the amount will be spent on construction and maintenance of irrigation and drainage channels, dykes, embankments, culverts and sluice-gates. The rest will be spent on construction of storage facilities, especially for TCCAs and village cooperative societies and roads and bridges.

The programme on reclamation of derelict tanks aims at the excavation of such tanks for the purpose of scientific fish culture and irrigation. It will be jointly prepared by the concerned Ministries namely, Agriculture, Local Government, Rural Development and Cooperatives, Land Administration and Land Reforms and Forest, Fisheries and Livestock on a comprehensive basis. The reclamation of the tanks will be done preferably under the Works Programme. The development of these tanks for fish culture will be the responsibility of the Ministry of Fisheries. However, the local management of these tanks will be entrusted to the Local Government Institutions, unless the government decides otherwise.

The scope of RWP is further expanded into what is known as Thana Irrigation Programme in order to finance the training cost of model farmers, irrigation group managers, members of the managing committees, operators, mechanics and the cost of TIP workshop and godowns (priority in areas of concentration).

A grant of Tk. 5.80 lakh is made for effective operation of the Thana Training and Development Centres. The on-going construction programme for building the training hall, offices, workshops, storage and residential facilities at TTDCs will be continued.

The Plan of necessity has aimed at a concentrated effort for accelerating the growth of agricultural production to attain self-sufficiency in foodgrains, particularly rice. Better marketing facilities and institutions will be required for movement of surplus foodgrains and other produce to the urban and deficit rural areas as the traditional marketing institutions appear inadequate to handle this complex task. As a part of the overall marketing development programme, the existing rural hats and bazars in the areas of concentration, especially those which would be required to handle large volume of trade, will be developed under the programme of the Development of Rural Hats and Bazars during the Plan period.

The project will consist mainly of such activities as (i) necessary physical expansion of the markets, (ii) raising of land surface above normal flood level where necessary, (iii) providing amenities for open shops under covered sheds for perishable commodities like fish, vegetable, meat, etc., (iv) providing partitioned shops under covered sheds for non-perishable food commodities, (v) construction of walled and lockable shops for permanent occupation by traders, (vi) providing workshop accommodation for artisans like tailors, carpenters, blacksmiths and for small industries, (vii) construction of storage godowns for agricultural products and inputs, (viii) construction of paved lanes, drains, latrines, urinals and approach roads, bridges, ghats, etc., (ix) providing facilities for parking/berthing of road/water transport.

In the execution of the project's works, the principle of labour intensive method of construction will be followed to generate local employment. About 40 per cent of the total allocation under the programme will be spent for the said purpose.

The Ministry of Land Administration and Land Reforms will be the sponsoring authority. The execution of works of Rural Hats and Bazars programme will be on the principle of Works Programme, as far as possible, under the supervision of the Ministry of Land Administration and Land Reforms.

The achievements of rural works programme including TIP will be evaluated from time to time. An amount of Tk. 10 lakh is provided in the Plan for evaluation. An adequate grant of Tk. 3.50 lakh is made for staff and contingencies for effective operation of RWP including TIP.



### *B. Organization and Accountability for Funds*

RWP schemes will be initiated at the lowest level by Ward level committees set up by the Union Panchayet. The Ward Committee will be composed of three elected representatives (members of Union Panchayet) from the Ward and an equal number of representatives of the farmers and landless labourers in the Ward. In the IRDP areas two members of the Ward Committee will be from the village co-operatives. One of the elected representatives will be the Chairman of the Ward Committee. The schemes thus prepared will be consolidated by the Union Panchayet and submitted to the Thana Board for scrutiny and approval.

The Ward Committee will be responsible for the implementation of approved schemes. The funds will be allocated to the Ward Committee through the Union Panchayet.

At the Thana level the Thana Board will constitute a Technical Committee consisting of the officers of concerned nation building departments and TCCA project officer. This committee will scrutinise the individual schemes, consolidate them into a Thana Plan and submit the Thana Plan to the Thana Board for final approval. The Technical Committee may also initiate schemes covering more than one Union and incorporate them into the Thana Plan. Similarly a Technical Committee at the district level will consolidate the Thana Plans, initiate new district level schemes and consolidate them into a District Plan. The District Plans will strictly conform to policy and principles formulated by the Planning Commission. The Ministry of Local Government, Rural Development and Cooperatives will generally guide, supervise, monitor and evaluate the Rural Works Programme and allocate finances and technical assistance.

It is vital to secure proper checks on the use of funds. Two measures will be taken at once. First, Union Panchayets will be made responsible for RWP and advanced the whole sum needed for approved RWP projects on integrated programme, reclamation of derelict tanks and development of hats and bazars on a loan basis (Tk. 141 crore). On completion of the approved physical works and due checking, half the sum will be waived. To the extent the physical works are not completed, the corresponding loan advanced to the Union Panchayet will be directly repayable by the Union Panchayet, unless exceptional circumstances are established. Second, the half of RWP funds that remains on a loan basis after completion of the works must be recovered from the beneficiaries in ten annual instalments, each of 12 per cent of the value of the loan (*i.e.*, 6 per cent of the value of the works). This still represents a big subsidy to RWP, reflecting its importance as a source of employment and as a mobiliser for productive purposes of otherwise idle labour. The Ward Committees will prepare lists of beneficiaries and determine the share of each beneficiary for repayment of RWP loan. The loan repayment will be collected in cash or kind after harvesting of crops. If a beneficiary fails to repay his share of the loan he will not be permitted to utilise irrigation facilities such as lift pumps and tubewells, etc. In the IRDP areas the TCCA and village cooperatives will be responsible for realisation of loans from the beneficiary cooperative members. Thus, as IRDP expands the responsibility of RWP loan realisation will be gradually taken over by the co-operatives. Where cooperatives do not exist, the Union Panchayet will undertake the responsibility of recovery of RWP loans. In case of fishery tanks and hats and bazars the management bodies will repay the loan from the income earned from the projects. The Union Panchayets will realise these loans.

To ensure adequate public accounting of the funds spent in RWP, auditing will be carried out systematically by special auditing teams set up by the Directorate of Local Audits. For this purpose the Directorate needs to be expanded and strengthened. A certain percentage (to be fixed in consultation with the Directorate) of the RWP funds will be handed over to the Directorate of Local Audit. This cost will be included in the budget of each RWP scheme.



Training programmes for implementation officers, elected representatives of local bodies, members of project committees, etc., will be carefully drawn up and carried out by various training institutions (BARD, Comilla: proposed Regional R. D. Institutions; Local Government Training Institute; TTDCs). The Ministry of Local Government, Rural Development and Co-operatives will prepare a co-ordinated training programme.

The total financial requirement by major items for the Rural Works Programme is shown in the table below:

TABLE VIII-29

## Financial Requirement during the Plan Period.

|  |     |     |     |     |     | (Taka in Lakh.) |
|--|-----|-----|-----|-----|-----|-----------------|
| Integrated programme                   | ... | ... | ... | ... | ... | 96,00.0         |
| Reclamation of derelict tanks          | ... | ... | ... | ... | ... | 25,00.0         |
| Thana irrigation programme:            |     |     |     |     |     |                 |
| (a) Training                           | ... | ... | ... | ... | ... | 7,20.0          |
| (b) Workshops and godowns              | ... | ... | ... | ... | ... | 1,50.0          |
| Thana Training and Development Centres | ... | ... | ... | ... | ... | 5,80.0          |
| Development of rural hats and bazars   | ... | ... | ... | ... | ... | 20,00.0         |
| Evaluation                             | ... | ... | ... | ... | ... | 10.0            |
| Staff and contingency                  | ... | ... | ... | ... | ... | 3,50.0          |
| Total                                  |     |     |     |     |     | 159,10.0        |

## 8.3.6 Urban Works Programme

In the past, within the pattern of financing the works programme, there was scope for urban works carried out by the local government institutions like municipalities and town committees. Expenditure was incurred mainly for the development of urban physical infrastructure. In the past, physical development in almost all the urban centres was characterised by unplanned and haphazard growth. Naturally, the physical infra-structure that was developed and maintained by utilizing works programme allocation was no better than the general pattern of unplanned development. During the plan period an all out effort will be made to ensure the utilisation of urban works programme funds in planned development of urban physical infrastructure. The Ministry of Local Government, Rural Development and Co-operatives will have a separate urban works programme but the responsibility of directing the programme will lie with the Ministry of Works and Urban Development.

The size of the urban works programme during the plan period is Tk. 20 crore. Of this, Tk. 40 lakh is earmarked for necessary training of local government personnel associated with the programme and research on various related urban development problems which will be sponsored and conducted by the Local Government Institute.



### 8.3.7 Training, Research and Evaluation of Institutional Programmes

The Bangladesh Academy for Rural Development (BARD) since its inception (1959) has been working in the fields of training, research, experimentation and evaluation of institutional programmes. The Academy has made significant contributions in the past. It will have to bear increasingly more responsibilities during the plan period. The training, research and evaluation requirements of IRDP and RWP will have to be met mainly by BARD. The Co-operative College at Comilla and eight Co-operative Zonal Institutes will have to take large training loads. It is, therefore, proposed to expand the capacity of BARD, establish two Regional Institutes of Rural Development at suitable places (one in the northern part of the country) and strengthen the co-operative college and zonal institutes.

The Regional Institutes of Rural Development (RIRD) may be affiliated to BARD. These will be assisted by BARD in the matter of (i) planning, (ii) recruitment and training of their faculty members, (iii) selection and conducting of research programmes and pilot projects, (iv) preparation of training course materials. The functions of RIRDs will be similar to those of BARD. Each institute will adopt the surrounding area (Thana) as its laboratory area. The BARD will be expanded to undertake larger number of training courses and to conduct more intensive action research and evaluation. The laboratory area of BARD will be enlarged from Comilla Kotwali Thana to full district (proposed new district, now subdivision). The co-operative college and zonal institutes will be reorganised and strengthened.

The total financial requirement for these schemes will be as follows:

|  |     |     |     |     | <i>(Taka in Lakh)</i> |                 |
|--|-----|-----|-----|-----|-----------------------|-----------------|
|  |     |     |     |     | Total                 | F.F. Component. |
| (i) Expansion of BARD  | ... | ... | ... | ... | 2,60.0                | 55.0            |
| (ii) Expansion of BARD's Laboratory area                             | ... | ... | ... | ... | 1,70.0                | 40.0            |
| (iii) Establishment of two Regional Institutes for Rural Development | ... | ... | ... | ... | 4,00.0                | 80.0            |
| (iv) Strengthening of Co-operative College and Zonal Institutes...   | ... | ... | ... | ... | 1,20.0                | 25.0            |
|  |     |     |     |     | <hr/> 9,50.0          | <hr/> 2,00.0    |

### 8.3.8 Agricultural Extension

Agriculture extension now reaches the farmer through 4,000 Union Agricultural Assistants (UAAs), supplemented by "Model Farmers" trained by TTDCs, progressive jute farmers and special officers for pest control, fisheries, etc. The overall message is confusing and the training of the extension workers is inadequate, their linkage to research tenuous, and even their contacts with the farmers highly infrequent. In the next five years it will not be possible to remedy this, because the training capacity is inadequate and in need of rehabilitation. But this certainly does not mean that extension can be neglected. Farmers want fertilizers, but do not often know how exactly to apply them for best results. Improved extension services will be an integral part of the programme to achieve rice self-sufficiency. After rice self-sufficiency is achieved, as farming becomes diversified and complicated, the need for skilful extension will increase manifold. Therefore, the ground work for the extension service of the 1980's has to be laid now.



The eventual extension structure will involve one Village Extension Agent (VEA) per 2,000 net cropped acres (about 1,500 gross acres) throughout Bangladesh. A complementary network of model farmers, regular training for both VEAs and model farmers at the Thana Training and Development Centres (TTDCs) and at intervals at the Agricultural Extension Training Institutes (AETIs), are eventually envisaged. A cadre of subject-matter specialists will be responsible for keeping AETI and TTDC teachers, TEOs and senior level extension personnel up-to-date with the latest research and its application through systematic training and a programme of local adaptability field trials. This information in turn will be passed on to the farmers through VEAs and model farmers.

During the Plan, the limited extension personnel must be retrained and also directed to the immediate goals, especially foodgrain self-sufficiency. Accordingly, in the 15m net acres (10m gross acres) likely to be under intensive cultivation by 1977-78 there will be 7,500 VEAs or one per 2,000 net acres. The VEAs will deal with crops, livestock, fisheries and irrigation management, and the present extension staff (e.g., progressive jute farmers, UAAs) will be retrained as VEAs, or phased out. The progressive jute farmers may be incorporated as model farmers within TTDC structures. The VEAs will be deployed by the TEOs in support of the Thana Agricultural Development Plan prepared by the Thana Development Board for implementation through the TTDC-TCCA structure. Outside the area of concentration, UAAs, after being retrained at AETIs, will perform the same functions as VEAs but will cover a wider area.

At the Thana level an agricultural graduate will be posted as Thana Extension Officer (TEO). The present Thana Agricultural Officers (TAOs) will be either retrained and posted as TEO or phased out. The TEO will be kept up-to-date with the latest recommended farming practices and market information through extension manuals, pamphlets, radio and systematic in-service training. In turn, one of his important functions will be to collect information on technical problems faced by the farmer, including the problems of the small and marginal farmer who tended to be neglected in the past, and to process and forward them for solution to appropriate research officers (subject-matter extension specialists where they have been created). A new and also an important function will be to train and constructively supervise the VEA trainees during their nine months of practical field training and experience. At the District and Divisional levels no additional officers will be needed. But the present post of District Agriculture Officer will be upgraded to the rank of Assistant Director, and Deputy Director at the Divisional level to the rank of Additional Director.

The Government will set up an Agricultural Training and Manpower Committee to determine training policy and manpower requirement in the agricultural sector. This Committee will include representatives from the Planning Commission, the Ministry of Agriculture, the Ministry of Forestry, Fisheries and Livestock, the Ministry of Rural Development, BARD, the Agricultural University, BRRI and the Jute Research Institute. Sub-committees composed of experienced and practicing teachers and experienced extension workers will be formed to develop training syllabi and to determine the necessary supporting teaching/training material and audio-visual aids. The committee will approve the teaching/training materials and commission experts to prepare books, manuals, pamphlets, audio-visual aids and other training materials. Adequate remuneration will be provided for quality and timely work by the experts. Extension workers at all levels will receive pre-service and in-service training at appropriate training institutions. The VEAs will be trained in subject-matter and extension methods at the AETIs. All AETI instructors will be expected to complete one of the short courses organized by BRRI in practical rice farming and give similar course at a simpler level to all extension trainees, who will then become familiar by actual practice with the latest methods of rice cultivation. At present there are seven AETIs. These institutions will be rehabilitated and strengthened, and three more



Institutes will be established. The location of these institutes will be determined by the Training and Manpower Committee. Prior to commencement of formal training each trainee will be required to work for three months with a small farmer and prepare a simple case-study on the total farming situation of an average small farmer under the general supervision of a TEO. As VEA's must in time be prepared to deal in an integrated manner with all aspects of farming (crops, livestock, fisheries, etc.) increasing emphasis will be given during training to the basic steps in good management of a small farm. To assist in orienting all AETI training to the total needs of the small farmer, each AETI shall undertake extension work with a selected number of small farmers. The capacity of each AETI will be 150 trainees in a batch and three batches in a year. Each batch will take a three months' course, go to the field to work as VEA for nine months, and then return for another three months' course. In this manner each trainee will complete a one year academic course in four years on the principle of "learn as you work".

During the period of nine months' field work the VEAs will continue to receive training through a system of Radio-Forum. Transistor radios will be provided to TTDCs for this purpose. The Directorate of Extension will arrange a series of radio teaching programmes with Radio Bangladesh. One programme will be on the air every fortnight on a fixed day and time. The Thana Extension Officer will arrange listening and discussion sessions at the TTDC. The participants' questions, if any, shall be passed to the Directorate of Extension for answering during subsequent broadcasts. This will help VEAs to personally experience the value that radio discussion can have as a teaching tool and encourage them in its use with farmers. TEOs shall be actively consulted in the development of the syllabus for each period of the VEAs formal and practical field training to ensure that such training meets the needs of the real situation. TEOs shall also receive specific training in how to supervise and support the VEA trainees during their field training.

The training of extension officers and instructors of AETIs will be organised with the assistance of the Agricultural University, BARD and Regional Institutes of Rural Development. These institutions will also conduct research on agricultural extension. All training will adopt the problem solving approach to the extent possible. All instructors at AETIs, in addition to their BRRI course in improved rice farming, shall be required to undergo a short course in principles and methods of agricultural education prior to commencing teaching. Final selection of instructors will be based on their aptitude for teaching practical courses, and all possible administrative efforts shall be taken to ensure that good instructors are encouraged to continue teaching for a minimum period of five years.

Performance of extension workers at all levels needs drastic improvement. An agricultural extension worker of the Ministry of Agriculture shall automatically be transferred and disciplined by that Ministry if such a request is received from at least one-third of the farmers he is supposed to work with. The text of the request along with the comments of the superior officer, if any, shall be entered in his record. Regular and professional supervision and support to subordinate extension staff at all levels are urgent needs. These call for greater mobility on the part of the supervisors plus more frequent local in-service training courses at TTDC level. In addition, 'yield competitions' and 'command area contests' will be arranged, with a large number of prizes at Union, Thana, District and National levels for VEAs (and TEOs) as well as for the successful farmers. Increments of salary may stimulate the extension staff to work hard and may also improve the quality of services rendered by them.

The total financial requirement for the programme is shown in the table below. The total amount required is Tk. 12,79 lakh with a foreign exchange component of Tk. 1,80 lakh.



TABLE VIII-30

## The Financial Requirement for the Extension and Training Programme

|  |  |  |  |  |                 |
|--|--|--|--|--|-----------------|
| Extension Staff :  |  |  |  |  | (Taka in lakh.) |
| Village Extension Agents' Salary and Allowance at average Taka 150.00 p.m. plus Taka 50 p.m. as T.A. (1st year 3,000, 2nd year 4,000, 3rd year 4,000, 4th year 5,000 and 5th year 7,500 VEAs). |  |  |  |  | 6,20.0          |
| Bicycle and stationery, etc., per VEAs .. .. .   |  |  |  |  | 54.0            |
| Better salary, office staff, equipment, etc., to the present Thana, District and Regional officers who will work as extension officers, and prizes and incentive.                              |  |  |  |  | 1,20.0          |
| Total ..   |  |  |  |  | 7,94.0          |
| (F.E.C.)   |  |  |  |  | 10.0            |
| Training:  |  |  |  |  |                 |
| Rehabilitation and improvement of existing 7 AETIs and establishment of 8 new AETIs:   |  |  |  |  |                 |
| (a) Capital expenditure .. .. .  |  |  |  |  | 2,41.0          |
| (b) Recurring expenditure .. .. .  |  |  |  |  | 1,99.0          |
| Radio-training, audio-visual and training material .. .. .   |  |  |  |  | 45.0            |
| Total  |  |  |  |  | 4,85.0          |
| (F.E.C.)   |  |  |  |  | 1,70.0          |
| Grand Total ..   |  |  |  |  | 12,79.0         |
| (F.E.C.)   |  |  |  |  | 1,80.0          |

## 8.3.9. Agricultural Credit

Provision has been made for the use of a large quantity of agricultural inputs in the Plan. The low income farmers would need credit to purchase these agricultural inputs. The farmers would also need credit for meeting the cost of labour and other activities involved in farming operations. At present there are four major public and semi-public institutions which provide credit to the farmers. These are (a) Agricultural Development Bank, (b) Jatiyo Samabaya Bank, (c) Comilla Co-operative and Integrated Rural Development Programme and (d) Government Taccavi credit. Bulk of the short-term credit need is now met by Jatiyo Samabaya Bank, Comilla Co-operative and Integrated Rural Development Programme and Government Taccavi, while the long-term credit is, by and large, met by the Agricultural Development Bank. These institutional sources, however, meet only about 10 to 15 per cent of the credit need of the farmers.

## A. Credit Requirements

The need for production credit in agriculture in Bangladesh is expected to be about Tk. 365 crore by 1977-78 of which 70 per cent will be short-term (Table VIII-30.1). About 45 per cent of it, i.e., Tk. 162.7 crore will be met by institutional agencies by 1977-78



as against 10-15 per cent today. The credit needs of the areas under foodgrain concentration will be much larger than in the non-concentration areas. Of the total credit, more than two-thirds will be for short-term purposes.

TABLE VIII-30-1

## Estimated Credit Needs at the End of the Plan

| Crops.   |    |    |    |    |    |    |                  |
|--|----|----|----|----|----|----|------------------|
| <i>Short-term Credit needs*:</i>   |    |    |    |    |    |    |                  |
|  |    |    |    |    |    |    | (Taka in crore). |
| Rice   | .. | .. | .. | .. | .. | .. | 208.00           |
| Jute   | .. | .. | .. | .. | .. | .. | 27.00            |
| Sugarcane  | .. | .. | .. | .. | .. | .. | 6.40             |
| Wheat  | .. | .. | .. | .. | .. | .. | 3.00             |
| Potato   | .. | .. | .. | .. | .. | .. | 5.40             |
| Tobacco  | .. | .. | .. | .. | .. | .. | 1.20             |
| Oil seeds  | .. | .. | .. | .. | .. | .. | 3.20             |
| Tea  | .. | .. | .. | .. | .. | .. | 2.00             |
| Other (cotton, sweet potato, pulses, vegetables, etc.)   | .. | .. | .. | .. | .. | .. | 1.00             |
| Total short-term credit (also includes some elements of currently used medium-term credit).  |    |    |    |    |    |    | 257.20           |
| Long-term and medium-term credit for cattle purchase, land improvement, storage, IRDP's long-term capital, ware-housing, agricultural implements, horticulture, fisheries, livestock, and irrigational construction work, mechanization, tea, etc. |    |    |    |    |    |    | 107.80           |
| Total Credit   |    |    |    |    |    |    | 365.00           |

\*Implies credit need based on a certain proportion of the cost of production (30 to 40%). This proportion depends upon the relative cost of the purchased inputs which are higher in case of high yielding varieties, especially rice.

Year-wise allocation by agencies and type of credit are shown in Tables VIII-31 and VIII-32. Taccavi will cease to exist as a source of short-term credit. It may, however, continue as distress grant for which provision will be made in the revenue budget. The vacuum created by withdrawal of taccavi loan will be filled by a greater volume of IRDP and Jatiyo Samabaya Bank's credit and induction of the commercial banks in the field of agricultural credit. The commercial banks, in addition to providing short-term credit, will also provide long and medium-term credit. IRDP-via TCCAs will take over the bulk of credit, responsibilities in the areas of foodgrain concentration and cater to the special needs of the small farmers. The Jatiyo Samabaya Bank will advance short-term credit outside this area and to the farmers outside the co-operatives in this area, and the ADB will concentrate on long-term credit, chiefly but not merely in the area of foodgrain concentration. There are several policy issues which need to be carefully considered. These are outlined in the following paragraphs.



### B. Liberal Loan Policy and Repayment Discipline

At present the credit agencies seldom lend to tenants, farmers owning small land holdings, and landless labourers. All TCCAs will, in future, admit heads of households regardless of land ownership status and family size to membership, and they should all be eligible for credit facilities from the TCCAs. Village level storage facilities will be made available to the TCCAs and JSB branches; some of these storage facilities will be constructed through Rural Works Programme. By 1977-78 each village society must, if requested by members, be prepared to accept repayment of up to one-third of its total loan in the form of crops.

TABLE VIII-31

## Annual Distribution of Credit by the Credit Agencies\*

(Taka in crore).

| Year-wise credit.                    |    |    | Total volume of credit to be distributed. | Agencies responsible for distribution of credit. |       |       |                  |
|--------------------------------------|----|----|---|--|-------|-------|------------------|
|                                      |    |    |   | Samabaya Bank.                                   | IRDP  | ADB   | Commercial Bank. |
| <b>Short-term Credit:</b>            |    |    |   |  |       |       |                  |
| 1973-74                              | .. | .. | 30.5                                      | 17.0   | 7.5   | 4.0   | 2.0              |
| 1974-75                              | .. | .. | 41.0                                      | 22.5   | 10.0  | 4.5   | 4.0              |
| 1975-76                              | .. | .. | 55.0                                      | 3.10   | 12.5  | 5.0   | 6.5              |
| 1976-77                              | .. | .. | 83.0                                      | 45.0   | 17.5  | 9.5   | 11.0             |
| 1977-78                              | .. | .. | 117.7                                     | 60.0   | 24.7  | 15.0  | 18.0             |
| Sub-Total                            |    |    | 327.2                                     | 175.5  | 72.2  | 38.0  | 41.5             |
| <b>Long and Medium-term Credit :</b> |    |    |   |  |       |       |                  |
| 1973-74                              | .. | .. | 15.0                                      | 2.0  | 3.0   | 9.0   | 1.0              |
| 1974-75                              | .. | .. | 21.0                                      | 2.5  | 5.0   | 12.0  | 1.5              |
| 1975-76                              | .. | .. | 2.85                                      | 3.0  | 8.0   | 15.0  | 2.5              |
| 1976-77                              | .. | .. | 32.5                                      | 4.0  | 9.5   | 16.0  | 3.0              |
| 1977-78                              | .. | .. | 45.0                                      | 7.0  | 14.0  | 20.0  | 4.0              |
| Sub-Total                            |    |    | 142.0                                     | 18.5   | 39.5  | 72.0  | 12.0             |
| Grand Total                          |    |    | 469.2                                     | 194.0  | 111.7 | 110.0 | 53.5             |

\*Annual phasing is tentative. It will be revised when phasing of the programmes of the agencies is finalised.



TABLE VIII.32

Annual Distribution, Recovery and Government Requirement of credit

(Taka in crore)

| Years   | Short-term. | Long and Medium term. | Total | Assumed recovery rate (in percentage) | Recovery of credit |                            |                  |  | Total recovery. | Government Supply of credit. |       |
|---------|-------------|-----------------------|-------|---------------------------------------|--------------------|----------------------------|------------------|--|-----------------|------------------------------|-------|
|         |             |                       |       |                                       | Capital            |                            | Interest.        |  |                 |                              |       |
|         |             |                       |       |                                       | Short-term (T-1)   | Long and Medium term (T-3) | Short-term (T-1) | Long and Medium term (T-1) (T-2) (T-3) |                 |                              |       |
| 1       | 2           | 3                     | 4     | 5                                     | 6                  | 7                          | 8                | 9                                      | 10              | 11                           |       |
| 1973-74 | ..          | 30.5                  | 15.0  | 45.5                                  | 50                 | 5.0                        | ..               | 0.2                                    | ..              | 5.2                          | 40.3  |
| 1974-75 | ..          | 41.0                  | 21.0  | 62.0                                  | 80                 | 24.4                       | ..               | 3.7                                    | 1.8             | 29.9                         | 32.1  |
| 1975-76 | ..          | 55.0                  | 28.5  | 83.5                                  | 85                 | 34.9                       | ..               | 5.2                                    | 4.6             | 44.7                         | 38.8  |
| 1976-77 | ..          | 83.0                  | 32.5  | 115.5                                 | 90                 | 49.5                       | 13.5             | 7.5                                    | 8.5             | 79.0                         | 36.5  |
| 1977-78 | ..          | 117.7                 | 45.0  | 162.7                                 | 90                 | 74.7                       | 18.9             | 11.2                                   | 11.0            | 115.8                        | 46.9  |
| Total   | ..          | 327.2                 | 142.0 | 469.2                                 | ..                 | 188.5                      | 32.4             | 27.8                                   | 25.9            | 274.6                        | 194.6 |

TCCAs will also be instructed to accept loan repayment from the borrowing members, particularly small farmers and landless labourers, by way of deductions from their wage bills when they are provided with work under the RWP. Such works will be secured for groups of labourers by the co-operatives in the IRDP areas, and payment of wages will be made through the co-operatives to make such deductions possible.

Under the circumstances prevailing in Bangladesh it is impossible to insist that cash loan be associated with specific production purchases. Also, provided loans are repaid, there is no real case against some consumption loans. Nevertheless, to direct as many loans as possible to productive purpose, they will increasingly be given in kind.

Thus liberal credit is proposed during the Plan in three senses; a large amount, minimum formalities regarding use and maximum possible of services to the poor. However, tough credit will be insisted upon in two other senses: interest rate must realistically reflect both risk of default and the cost of capital, and must not give undue advantages to some agencies; a uniform rate for ADB, JSB, TCCAs and Commercial Banks to final borrowers will be adopted, say at a rate of 12 to 15 per cent for short-term credit and 14 to 15 per cent for long and medium terms credit. Interest rates will be fixed within this range depending on the overall government monetary policy.

Insistence upon recovery must also be tough. Expansion of agency credit, as Table VIII-31 shows, depends increasingly on recovery of previous capital and interest. Total credit supply by all the institutional agencies during Plan is envisaged to be Taka 469.2 crore. Deducting the recovery on a reasonably high rate, net amount of credit to be supplied by the Government during Plan roughly works out at about Taka 38.9 crore per annum.



For quick disbursement and prompt recovery of increased volume of credit, the agencies require strengthening. Recruitment, training and field placement are required immediately.

Jatiyo Samabaya Bank will require major overhauling. Its loan operation should be greatly improved by transforming it into a pure banking type institution, strengthening its technical staff, freeing it from bureaucratic controls and enforcing strict sanctioning and disbursement procedures and repayment discipline. Central Banks also require similar restructuring and re-organization. The JSB would need some initial grant of say, Taka 50 lakh for organisational improvement.

Bangladesh Bank must provide leadership in matters of agricultural credit policies and allocations, operational jurisdiction of the various credit agencies and their financing pattern, and should co-ordinate the operation of the agencies. Clear policy directives and operational principles consistent with Government plans and programmes may be laid down by the Bangladesh Bank with prior approval of the Government.

Repayment discipline by the credit agencies need to be imposed to a reasonably acceptable rate. The following steps need to be taken to reduce defaults:

- (i) Agencies must invest credit in priority fields/items. An investment schedule should to be prepared by each agency.
- (ii) Production plans of the farmers must be thoroughly evaluated and farmers' repayment capacity and incremental benefits carefully appraised before credit disbursed.
- (iii) Maximum co-operation and participation of local government officials and public representatives must be ensured not only at the time of disbursement of credit but also at the time of its recovery.
- (iv) Strict supervision of credit must be exercised by the officials of the credit agencies.
- (v) Overdue loans must be thoroughly investigated by each of the agencies before appropriate actions are initiated.
- (vi) The machinery for collection of credit requires to be suitably strengthened.
- (vii) A 'credit stabilization fund' must be created with contribution from Government and Bangladesh Bank so as to cope with the financial loss caused by the agencies for really bad debts.

Each of the credit agencies would specifically earmark some funds for small farmers and landless labourers. The allocation of the agencies in the next year will be dependent on the current year's disbursement and recovery.

### 8.3.10. Agricultural Education and Research

#### A. Education

Shortage of trained manpower in Bangladesh has created deficiencies that pervade the entire spectrum of development activities in the agricultural sector. The gap is more evident in research where shortage of high level competent scientists make most research efforts



unproductive. Development activities around new seed based technology in rice, jute, cotton, tobacco and other crops have raised the demand for trained agricultural personnel in different fields. The output of agricultural graduates and post-graduates from the Agricultural University and Agricultural College is only about 300 per annum. The Agricultural University at Mymensingh is not operating at its optimum level due to lack of physical facilities. The Agricultural College at Tejgaon suffers from lack of competent teaching staff, equipment and field facilities. The facilities at the Agricultural University, therefore, will have to be expanded so that it can admit a larger number of students in different faculties. Increased enrolment is also necessary in Agricultural College at Tejgaon so that existing demand for agricultural graduates can be met. As it takes at least four years before students graduate from the University the impact of additional admission will not be felt during the Plan period.

Apart from the quantitative aspects of technical manpower there is the question of quality which is required to be improved so that agricultural graduates can meet the development needs of the country more effectively. The courses, in different faculties of the Agricultural University, are somewhat too theoretical. The contents of text book are mostly out of context of the real situation in the country-side and the students are not given the necessary skill or allowed to develop the appropriate attitude to work with or solve the special problems of small and marginal farmers who constitute the vast majority of the farming community. The result have been that the graduates are not equipped with practical field-requirements, and do not have the necessary confidence to become effective extension agents. More emphasis on practical training would be necessary both inside the University and outside. It is also felt that no agricultural graduates should be given an independent assignment unless he has worked under an experienced extension official or in a farm for at least a year, preferably during the early part of his student career at the University or College.

#### *B. Research*

Research in the post-graduate level will have to be intensified and improved and made more problem oriented so that the post-graduate students get familiar with the problems of the country-side. Apart from its own research activities, the University should also take part in the co-ordinated research programmes drawn up by the Agricultural Research Council. The University should be allowed to take over one or two thanas as their project area and become responsible for all extension activities therein. This will give the University teachers an opportunity to acquire first-hand knowledge of the problems in the field. The University would also take the responsibility of undertaking in-service training for the district level officers and above in the agricultural sectors.

As farmers switch over to new technologies new problems will arise which can only be solved by research. Unless research keeps abreast of production problems, the progress of agricultural development is likely to slow down. Research in Bangladesh is at low ebb. Except in case of rice and to some extent jute and tea, very little research is currently being undertaken in the country. Gaps in knowledge of costs and returns of production, genetic make-up of different crop varieties, relation between fertilizer, soils and crops, irrigation requirement of different crops, etc., are wide and similar gaps exist in fishery, forestry and livestock. There is no co-ordination between research in different sub-stations and between different research sectors and the Agricultural University, with the result that there is considerable wasteful duplication of efforts and absence of proper priorities. Although it is going to take some time



to remove the deficiencies fully, a concerted effort must be made immediately so that the benefits from research may begin to be felt within the Plan period. It is, therefore, suggested that a comprehensive research programme be carefully formulated focussing clearly on the needs of the agriculture and water sector strategy outlined in the Plan. Such an emphasis in the formulation of an overall research programme can be illustrated by the programme for rice research which has a number of important problems to be solved such as :

- (a) Breeding pest and disease resistance into new varieties which would be a most economical and practicable method of pest control.
- (b) Breeding into new varieties better cold, salinity and drought resistance.
- (c) Shortening the life cycle which would have many essential benefits. This would allow later Aus planting to escape early season droughts without depressing Aman yields by delaying transplanting. Shorter crop cycles would allow more time for land preparation, thus easing the draft power constraint. The shortening of the growth cycle of transplant Aman crops at the end of the season in October-November and in the drier, westernmost part of Bangladesh will increase cropping intensity.
- (d) Development of high yielding varieties of deep water rice which would reduce precision needed in drainage and flood control. A promising start has been made with variety JR-442 which grows with the rise of water up to five feet. Photosensitivity needs to be bred into this variety to allow more flexible sowing dates. In particular, much of the drainage and flood relief problems can be solved if planting is done before the occurrence of seasonal floods. Improved deep water varieties would replace broadcast Aus/Aman mix. Preliminary results indicate that an additional 10 maunds per acre can be obtained over the current yield of the mix.
- (e) Improvement of quality which will allow high yielding rice strains to compete with the best quality local varieties.
- (f) The knowledge of impact of partial or full submergence of rice is needed for designing flood control structures.

In a similar manner the research needs of the other aspects of the agriculture and water sector programme will be checked against the adopted sector strategy and, in accordance with it, the research priorities will be established in detail. This will help to maximize the efficiency of staff and facilities by safeguarding against diversions into issues of minor importance.

The Bangladesh Rice Research Institute will immediately be strengthened by appointment of all the necessary research staff, BRRI will train AETI staff in practical rice farming. ERRI staff will also monitor the performance of IYVs released during the Plan period and their resistance to pest attack.

In jute photoneutral early varieties will permit harvesting of Tossa jute well ahead of Aman transplantation. Research will also be directed to problems of irrigation practices, and to biological control of pests and diseases of major crops that cause serious loss to crops.

Research will be intensified in the field of livestock and fisheries, particularly in the field of poultry development and inland fisheries. Steps would be taken to modernize the Agricultural Research Institute at Dacca and provide it with proper experimental farms and other



field facilities. The Livestock Research Institute at Mohakhali, and Fisheries Research Institute at Chandpur, also require to be strengthened. Research facilities in different research sub-stations will have to be improved with competent research personnel, laboratory and field equipment. Establishment of special research stations which will be concerned with one or more crops (tobacco, cotton, pulses, oilseeds, etc.) or with special problems in fisheries and livestock will be other steps by which research capability will be expanded. The objective would be to plan applied research on a problem oriented basis so that sustained development in the agricultural sector becomes possible.

Research in crop forecasting, cost of cultivation, economics of alternative rotations, price response, yield estimation etc., requires to be intensified. Steps will be taken to strengthen the statistical and arithmetical base of research in all fields to improve the programming and interpretation of data.

Research on new crops, oil-palm (*Elaeis Guineensis*), rami, safflower-flax, etc., will be undertaken to broaden the agricultural base for crop diversification and export.

#### *A. Centralized Agricultural Research Organization*

The lack of a centralized organisation in Bangladesh responsible for research in agriculture and broadly conceived to cover crops, soils, water, horticulture, crop protection, livestock, agricultural engineering, forestry, fisheries and economics and social studies is a definite handicap in effective development planning. This affects both the collecting of specific and dependable information regarding the feasibility of setting certain development goals and also the development of new technology in achieving such goals. It is appreciated increasingly that the problem is not merely a matter of "Co-ordination". Concerns about co-ordination are usually directed at the elimination of apparent duplication. The real need is to strengthen research capabilities since the coordination of obviously deficient resources does nothing to eliminate such inadequacies. Bangladesh has recognized the need to free agricultural research from restraints of usual Government procedures in establishing the Rice Research Institute and the Jute Research Institute as autonomous bodies. However, it would not be desirable or feasible to establish separate autonomous bodies or institutes for each aspect of component of agriculture. As such, it has been decided to establish a consolidated "Bangladesh Agricultural Research Council" responsible for research in agriculture in the broad sense with the following objectives;

- (i) to identify the problems limiting productivity and development in all segments of the agricultural sector and draw up short-term and long-term programmes of agricultural research necessary for the solution of these problems;
- (ii) to conduct research in production, processing, utilisation, marketing and in economic and social aspects of agriculture and rural development;
- (iii) to establish and develop agricultural research field stations, laboratories and other facilities to provide for research attention to the specific problems in the various agricultural regions of Bangladesh;
- (iv) to plan and carry out a staff-development programme for research scientists and for supporting personnel.



TABLE VIII-33

## Estimated Cost of Agricultural Research and Education.

(Taka in crore.)

| Name of Project/Sub-Sector.   | Total Plan Allocation. |                             |
|---|------------------------|-----------------------------|
|   | Estimated cost.        | Foreign Exchange component. |
| <b>Research:</b>  |                        |                             |
| Fisheries   | 3.40                   | .820                        |
| Livestock   | 3.50                   | .910                        |
| Forestry  | 3.00                   | .735                        |
| Directorate of Agricultural Research  | 3.00                   | .720                        |
| Jute Research Institute   | 3.00                   | .600                        |
| Rice Research Institute   | 4.05                   | 1.050                       |
| Soil Fertility and Soil Testing Institute   | 1.50                   | .380                        |
| Soil Survey Interpretation Unit   | .80                    | .160                        |
| Bangladesh Institute of Biological Control  | .10                    | .020                        |
| Zonal Centre for New Sugarcane Varieties  | .15                    | .030                        |
| <b>Agriculture Research Council:</b>  |                        |                             |
| (a) Council Organization (new)  | .50                    | .010                        |
| (b) Research on special projects on crops/agricultural economics/statistics/soils/forestry/fisheries/livestock and poultry. | 4.5                    | 1.010                       |
| Sugarcane Research Institute  | 1.5                    | .380                        |
| Poultry Research Institute (new)  | .60                    | .120                        |
| Sub-Total   | 29.60                  | 6.945                       |
| <b>Education:</b>   |                        |                             |
| Agricultural College (including shifting)   | 2.00                   | .275                        |
| Bangladesh Forest College   | .60                    | .080                        |
| Fellowship  | .80                    | .530                        |
| Sub-Total   | 3.40                   | .885                        |
| Grand Total   | 33.00                  | 7.83                        |



### 8.3.11 Agricultural Implements and Mechanisation

Farmers in Bangladesh have been using much the same implements for hundreds of years. This suggests that these implements are well suited to the traditional environment. But the environment is also undergoing basic changes with the introduction of HYV and the development of irrigation facilities which have changed the production techniques and the cropping pattern.

Any mechanisation programme including introduction of new agricultural implements must keep in view of the changing technology in production, the farmers' financial ability to adopt the implements and the likely effect of those equipment on employment in the rural areas. The new seed based technology and the associated irrigation facilities call for quick preparation of land and more timely farming operations. These are hardly possible to accomplish with only manual labour and outmoded techniques. On the other hand, surplus labour in the rural areas require creation of more productive work in the villages. Small size of farms and traditional poverty of the farmers in Bangladesh preclude individual ownership and operation of costly implements on large scale basis. When these conflicts are taken into account, the dilemma becomes apparent.

### 8.3.12 Tractors and Power Tillers

As far as the draft power is concerned, it must be admitted that the situation has already been unsatisfactory. The animals, the main source of farm power in Bangladesh, are generally small and weak. With little success in breeding and with uninterrupted slaughter of bullocks, the animal draft power has been gradually decreasing, whereas the need for increasing draft power is much greater on account of higher cropping intensity. On the use of mechanical equipment in tilling, the experience in this country has not been very happy. Although mechanised cultivation was started in the late 1950's by the Department of Agriculture and later taken over by BADC, the programme was not a success. The operation of these tractors and power tillers remained confined mostly to *haor* areas, agricultural development estates and government seed farms. Tractors in many areas were used more for hauling than for tilling.

The performance of tractor cultivation by BADC was poor both in terms of area covered and the recovery of hire charges. Comilla-based co-operative operation proved more successful mainly because of proper organization, maintenance and workshop facilities; their operation outside Comilla areas proved unsuccessful. The major problems were lack of operators skilled in maintenance, servicing, operation, spares and accessories, etc.

Records of tractor fleet (162 tractors and 562 tillers) operating in cyclone affected areas show that about half of the machine were beyond repair after only 200—300 hours of work.

After liberation, there was general shortage of draft power in many of the border districts where a large number of bullocks and draft animals were either devoured or killed by Pakistan Army during the War of Liberation. For immediate rehabilitation of farming operations in these districts, 180 tractors and 648 power tillers have been distributed to the different districts and subdivisions. District-wise distribution figures are shown in Table VIII-34.



TABLE VIII-34

District-wise Distribution of Tractors and Power Tillers.

|                        |    |    |    |    | Tractor. | Power Tillers. |
|------------------------|----|----|----|----|----------|----------------|
| Dacca                  | .. | .. | .. | .. | ..       | 5              |
| Mymensingh             |    | .. | .. | .. | 4        | —              |
| Faridpur               | .. | .. | .. | .. | ..       | 4              |
| Tangail                | .. | .. | .. | .. | ..       | 4              |
|                        |    |    |    |    | 4        | 13             |
| Barisal                | .. | .. | .. | .. | 100      | 197            |
| Patuakhali             | .. | .. | .. | .. | ..       | 357            |
| Kushtia                | .. | .. | .. | .. | ..       | 4              |
| Jessore                | .. | .. | .. | .. | ..       | 5              |
| Khulna                 | .. | .. | .. | .. | 12       | 38             |
|                        |    |    |    |    | 112      | 601            |
| Chittagong             | .. | .. | .. | .. | ..       | 4              |
| Chittagong Hill Tracts | .. | .. | .. | .. | ..       | 3              |
| Comilla                | .. | .. | .. | .. | ..       | 4              |
| Sylhet                 | .. | .. | .. | .. | ..       | 5              |
| Noakhali               | .. | .. | .. | .. | 56       | 4              |
|                        |    |    |    |    | 56       | 20             |
| Rajshahi               | .. | .. | .. | .. | 4        | —              |
| Rangpur                | .. | .. | .. | .. | ..       | 4              |
| Dinajpur               | .. | .. | .. | .. | 4        | —              |
| Bogra                  | .. | .. | .. | .. | ..       | 5              |
| Pabna                  | .. | .. | .. | .. | ..       | 5              |
|                        |    |    |    |    | 8        | 14             |
| Grand Total            | .. |    |    | .. | 180      | 648            |



The experience gained up till now shows that scattered operation of tractors and tillers is likely to prove unsuccessful. Since the past records of tractor and tiller cultivation did not give conclusive results in favour of introducing large scale mechanisation programme in Bangladesh and innumerable operational problems were identified, it is considered advisable to gather more meaningful data on technical and economic aspects of mechanised cultivation before launching a bigger programme. To determine the realistic size of operation in the different areas, effective improvements needed for proper repair and maintenance facilities, to evolve procedures regarding realisation of hire charges of tractors/tillers in different areas and undertake cost and return studies, there is need for a pilot project, with 20 tractors and 35 tillers each in three pilot areas as discussed below:

- (a) in the irrigated areas where multiple cropping is now likely to be practised.
- (b) in the haor areas where bullocks cannot be used for reclamation of land.
- (c) in the integrated rural development areas where cooperative societies are already developed or even in those areas where cooperative farming by pooling of land is contemplated.

On the results of experiments made in these three pilot areas future policy of mechanisation would be drawn up. If tractors and tillers are found to be useful and economical more of these equipment will be imported. Adequate provision for the same has been made in the Plan. During the first two years the results obtained from the experiments will be analysed and decisions will be taken accordingly.

As far as the existing tractors and tillers are concerned their operation will also be carefully watched and evaluated before further expansion is considered. Import of sufficient spares and accessories and training of drivers and mechanics will continue in order to keep the existing tractors and tillers in operation.

Hire charges for existing and potential tractors and tillers will cover the full cost to Bangladesh of foreign exchange needed to import the tractors and tillers, i.e. depreciation plus 10 per cent return on capital, operating charges on fuel and spare parts, labour cost of delivery, maintenance and drivers' wages etc. This will approximately amount to Taka 75 per acre for two ploughings. In selecting and training the drivers and mechanics preference will be given to the landless cultivators' sons and relations. In selecting machinery suppliers the Government will give preference to firms that can provide necessary assistance to mechanics and operators or (better still) set up demonstration workshop themselves.

## 2. Other Farm Implements

On other farm implements, the prospect of manufacture of lighter plough to be drawn preferably by one bullock may be explored. Rotary weeder, peddle thresher and hand sprayers have already proved attractive to the farmers. These may be manufactured in large numbers and sold to the farmers at reasonable price. Large-scale manufacture will reduce cost per unit. Chinese transplanter, comb-toothed or spike-toothed harrow and small paddy driers may be experimented to test their acceptance by the farmers. Since the new implements will have little initial demand some subsidies are proposed during the initial years of the Plan. Other improved implements over the ones generally used by the farmers in harvesting, weeding, and levelling and raking may also be introduced by the Agricultural Engineering Section of



Agricultural Department and the Agricultural Engineering Faculty of Agricultural University, Mymensingh. Locally used agricultural implements namely sickle, scythes, spade, harrow, khonta, plough and jute cutting implements, etc. will require to be manufactured in large numbers by the manufacturing firms and cottage industries in the villages. Improved design and specifications of these implements as evolved by the above organisations would be provided to the manufacturers. Adequate loans/grants will be provided to them for manufacturing these implements on large scale basis. About Taka 1.0 crore has been provided in the Plan for the purpose. The distribution of improved farm implements will be linked with the proposed organisations of landless agricultural labourers as teams of workers under village cooperatives as described in the section on institutional policy and IRDP.

The estimated cost for mechanisation and agricultural implements is Taka 3.0 crore and the foreign exchange is Taka 2.225 crore. Annual phasing of the cost is shown in Table No. VIII-35.

TABLE VIII-35  
Annual Phasing of Cost for Mechanisation and Agricultural Implements.

*(Taka in lakh.)*

|   | 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. | Total. |
|---|----------|----------|----------|----------|----------|--------|
| Tractors .. ..  | 20.0     | ..       | 5.0      | 5.0      | ..       | 30.0   |
| Power tillers .. ..   | 15.0     | ..       | 20.0     | 10.0     | ..       | 45.0   |
| Spare parts .. ..   | 5.0      | ..       | 8.0      | 7.0      | ..       | 20.0   |
| Loans/grants to small factories for hand and animal implements. | 50.0     | 60.0     | 50.0     | 30.0     | 10.0     | 100.0  |
| Subsidies to adopters of new implements.                        | 10.0     | 15.0     | 12.0     | 10.0     | 3.0      | 50.0   |
| Research into new implements                                    | 20.0     | 15.0     | 10.0     | 5.0      | 5.0      | 55.0   |
| Total .. ..   | 120.0    | 90.0     | 105.0    | 67.0     | 18.0     | 300.0  |

For tractor, power tiller and spare parts, the entire amount has been estimated to be in foreign exchange. For loans and grants to small factories for implements and for research implements 50 per cent has been assumed to be in foreign exchange. Total foreign exchange thus works out at Taka 2.225 crore out of total cost of Taka 3.0 crores.

#### 8.4 POLICY ISSUES

##### 8.4.1 Agricultural Pricing Policy

The general level and pattern of agricultural prices play a critical role in determining the allocation of resources in the agricultural sector to various crops and providing incentive to farmers to use improved inputs. Major reliance will, therefore, be placed upon prices to promote: (a) the efficient utilization of improved inputs and (b) the desired production targets for specific commodities.



With regard to input pricing, the current subsidies on fertilizers, seeds, pesticides and water will either be reduced or eliminated during the plan period as discussed in the specific sections dealing with these inputs. Farmers have been exposed to these inputs for a number of years and have become increasingly familiar with the appreciable benefits which can be derived from their use. The expansion in the use of these inputs is placing an increasingly severe burden upon government financial resources. The high level of subsidy which is even 100 per cent in the case of pesticides, encourages wasteful and inefficient utilization of these inputs. At the same time as subsidies on inputs are reduced or eliminated the provision of credit, particularly to small farmers, will have to undergo a considerable expansion to provide farmers with the means of purchasing improved inputs.

As is made clear in the discussion on jute policy, measures will be taken to ensure that it pays the domestic farmer to produce enough jute to meet plan targets, while the external price will be kept competitive. In the world market for jute and allied fibres, measures such as marketing agreements and buffer stock arrangements will be explored as means of ensuring a regular supply of jute at competitive and remunerative prices. Bangladesh enjoys comparative advantage in the production of jute and will seek to capture an increasing share of the expanding world market. In domestic agricultural production, the most important alternative crop to jute is broadcast aus and aman paddy. These crops can be grown on the same type of land as jute with the exception of certain low-lying areas. The farmer's choice to grow jute or rice in a particular season is influenced by the relationship between jute and rice prices.

The attractiveness of rice relative to jute has increased since 1970 as a result of the sharp rise in rice prices and the spread of improved varieties which give higher returns for rice than for jute. The effect of prices and returns to improve practices for the two crops is particularly great in the case of irrigated areas where jute is unlikely to compete with rice even with a major change in the output-price relationships. The situation is not as unfavourable for jute in the non-irrigated areas where feasible adjustments in jute/paddy price relationships would be sufficient to ensure the competitive position of jute.

The Government will make adjustments in the minimum price of jute during the Plan period in order to ensure its competitive position vis-a-vis rice. In addition, the promotion of the use of improved practices for jute, which will reduce costs per unit of output, will be intensified and the subsidies on inputs which favour rice will be reduced or eliminated as described in the sections dealing with jute and inputs.

The primary objective of the Plan is the achievement of self-sufficiency in grain production. The maintenance of remunerative prices for rice will provide the most powerful stimulus for the expansion of grain production. Bangladesh will remain dependent on import of grain to meet domestic requirements particularly during the early years of the plan period. The release of supplies of imported grain which is the responsibility of the Food Department will be timed so as to act as a stabilizer of domestic grain prices between cropping seasons and years.

As the country reaches self-sufficiency in grain, the importation of grain will be terminated which will deprive the Government of an important mechanism for stabilizing domestic grain prices. Favourable weather conditions may produce an actual surplus of grains which would



be accompanied by sharp decline in prices in the absence of any corrective measures. In such an event, the Government will undertake to have supplies withdrawn from the market to maintain prices above an acceptable minimum level. The Food Department will utilise its resources and storage facilities to operate a guaranteed minimum price scheme particularly in major grain surplus areas. A revolving stabilization fund amounting to Tk. 20.0 crores has been provided for this purpose.

Realisation of the objective of grain self-sufficiency also has very significant implications for the pattern of distribution of grain within the country. Certain areas will become exporters of grains while other areas will become importers. This regional imbalance in production and consumption demand will call for complementary investments in marketing and storage facilities.

The private sectors will continue to play a major role in the marketing, storage and processing of grains. In addition, cooperative marketing and storage will play an increasingly important role. Public sector investment will be made in developing transport facilities, particularly to serve the prospective grain surplus areas and to improve the efficiency of existing marketing channels in general. The Food Department will continue to serve as the distributor of grain imports in the near future and will programme its transactions in grain to achieve greater stability in grain prices. Credit will be made available to local government agencies in support of feeder road development under the Rural Works Programme and construction of cooperatively owned storage and processing facilities.

Efforts will be made to develop and promote the use of improved practices for minor crops as means of maintaining or improving their positions *vis-a-vis* rice. As discussed in the individual commodity section no major shifts in acreage under various crops is envisaged with the exception of increase in acreage under wheat and rice. Special promotional efforts which will include arrangements for the purchase of output at guaranteed prices will be continued or instituted for cotton, tobacco and sugarcane.

In view of the importance of agricultural prices for production and their inter-relationship with production policies, an Agricultural Price Commission will be set up to advise the Government on crop pricing policies. The Department of Marketing Intelligence will continue to improve its system of data collection for crops and price movements which will serve as the major source of information for the Agricultural Price Commission.

#### 8.4.2 Nutrition

The diet of an average Bangalee is inadequate and poorly balanced. According to the 1962-64 Survey, malnutrition affects the health and well-being of at least half the population of Bangladesh. This causes most harm to pre-school children, whose physical and mental development can be permanently retarded, and to pregnant and lactating women. An UNROD assessment reveals that the south-eastern area comprised of Chittagong, Comilla, Noakhali and Sylhet have the highest percentage of malnourished children. The 1962-64 Survey Report also shows that the lowest income group (0-99 Taka per household per month) are most affected by malnutrition. The calorie and protein intakes in rural areas of Khulna, Noakhali, Faridpur and Mymensingh and in urban areas of Khulna and Kishoreganj are extremely inadequate. Since 1962-64, the situation has worsened as food availability has not kept



pace with population growth. Annual growth of food production has been slightly above 2 per cent while the population growth has been more than 3 per cent. Moreover, the per capita income in real terms is lower now than it was in 1962-64 and may be less equally distributed.

The best sources of complete protein are animal products. But, due to shortage of land, it is very difficult to increase animal production to any considerable extent. The main purpose of keeping animals in Bangladesh is to use them as draught animals. The feeding of animals on a large scale in Bangladesh is uneconomic because of the relatively low conversion rate of animals. Pulses and groundnuts are popular and relatively inexpensive sources of protein of high biological values. Production of pulses in Bangladesh has remained more or less the same over the past few years. Probably there is a less incentive now for the farmer to grow pulses because he can get better prices for rice. The prospect of groundnuts is better than that of pulses because of its favourable per acre return and per acre calorie content. When peanuts form the basis of an oil industry, there is no reduction of protein in the resulting defatted groundnut. Research should be carried out to utilise this defatted groundnut for human consumption. The production of groundnut is expected to rise from the bench-mark production of 14.4 lakh maunds to 52.0 lakh maunds in the terminal year. This will increase per capita availability of groundnut from 1.8 gm/day in the initial year to 5.7 gm/day in the terminal year. Considering that the protein content of groundnut is about 23 per cent protein improvement in the population will be about 1 gm/day.

It is desirable to increase production and consumption of cheap fish. But here again it is very difficult to increase substantially the intake of fish protein within a short time. About 26 per cent increase in fish production is envisaged in the first plan, which will only restore the per capita consumption of fish at 1963-64 level. Fish protein concentrate (FPC) which has proved to be a cheap and effective source of protein may help to meet the situation partly. The protein content of F.P.C. is about 80 per cent. It is cheap because the cost per gram of F.P.C. is only 0.5 paisa as against an average 6 paisa of protein from such products as milk, meat, eggs, and fresh fish.

Acceptability of F.P.C. to general population, particularly in rural areas, has not been tested on a large scale, and until that is done large scale distribution of F.P.C. may not be advisable. But a selective distribution programme aimed at the vulnerable groups, namely, school-going children, invalids, sick, pregnant and lactating women, will be tried on a pilot scale. The estimated net cost of the programme will be Taka 4.50 crore during the plan period. If the pilot programme shows promising results during the initial years, the size and allocation for the programme will be further expanded.

UNICEF is now operating a school feeding programme in Bangladesh. Through 9000 elementary schools, 25 lakh students are fed with specially blended protein-rich food. This food is primarily prepared from wheat and corn, and 20 per cent of it is protein. Every 100 gms. of it provides 370 calories. UNICEF also distributed high protein food to 5 lakh pre-school children through Bangladesh Red Cross. Arrangements should be made with the UNICEF so that this programme is continued, and if possible expanded by using the available funds to feed cheaper proteins and calories to more children, particularly in the rural areas.



The plan aims at foodgrain self-sufficiency by replacement of wheat import by domestic rice output. But wheat contains 10 per cent protein while most local and HYV rice contains 7 per cent protein. Cereals supplies over three-quarters of the protein intake of a poor man in Bangladesh and since the initial protein deficiency is about 19 per cent for the poor, the problem will be serious consequent upon the replacement of wheat by rice, especially in the wheat eating urban areas. A protein replacement policy is, therefore, needed as wheat gives way to rice. Bangladesh Rice Research Institute (BRRI) is testing a cross between IR-20 and a local variety, the per acre yield of which will be the same as that of IR-20 but will contain 10.3 per cent protein. It is expected that in about 2 to 3 years' time, this new variety may be ready for fielding. This would lessen the protein gap to a great extent. The BRRI will be asked to give special emphasis on the rapid development and distribution of satisfactory protein-enriched high yielding varieties. Nitrogen fertilizer can raise protein content by a further 1-2 per cent and therefore it has a special importance.

While protein malnutrition needs urgent attention, protein supplementation alone will be of less value unless matched by increased availability of cheap calories. Bangladesh now produces sweet potatoes, a good source of cheap calories, but many of them go to waste for reasons of storage, transport or acceptability, and many more are processed for industrial use. Expert advice on low-cost measures to overcome these defects, and on possible improvement in sweet-potato farming, and to draw up projects for inclusion in the subsequent plans will be necessary.

Since cereals and starchy roots are important calorie and protein sources for those at nutritional risk, it should be our policy to provide help to this group. It is necessary to prepare a least cost diet for such people. A research team on nutrition besides evaluating the effectiveness of certain nutrition programmes may advise the government regarding formulation of programmes. Such a national applied-nutrition programme would become an integral part of an established national food and nutrition policy combining in a national way the interests of the food producers and the food consumers. To achieve and maintain maximum gainful employment is an important aspect of a national food and nutrition policy. Such a policy calls for joint efforts from agriculture, fisheries, industry, etc., as well as research, especially applied research, organisations supported by the Government. To achieve all this, food production for domestic consumption as well as food and agricultural trade (export and import) has to be seen not only in relation to quantities and prices but also in relation to the nutritional needs of the nation and in terms of cost/benefit ratios within the nation's total planning economic development.

#### 8.4.3 Employment

One of the basic objectives of the plan is to increase employment in agriculture at levels of productivity which permit rising incomes. Since the population of the country is overwhelmingly dependent on agriculture, and it is not possible to bring about a major structural change in the economy within a short period, agriculture will have to continue to provide the bulk of employment. In the present state of the economy such employment generation in agriculture appears quite feasible. Faced with a large food shortage Bangladesh needs to increase food production rapidly. With an abundant labour supply, agricultural development should be oriented to labour intensive techniques. Through development of



irrigation, increased application of fertilizers and raising multiple crops, particularly high yielding rice varieties, there is a great potential for labour using modernisation of agriculture in Bangladesh.

The present approximate level of agricultural employment in Bangladesh is shown in Table VIII-36.

The figures for per acre labour use by farmers have been derived from the available farm studies and are particularly valid for major crops like rice, jute, potato, sugarcane etc. For minor crops, the per acre labour demand was estimated in consultation with farm managers of government farms and extension officials of the Department of Agriculture. In case of livestock and fisheries, studies conducted by some researchers indicate that the employment in these sectors is about one-third of the crop-sector. Employment in processing, marketing and other agricultural services is assumed to be 10 per cent of that in the crop sector. Estimates of employment in works programme and agricultural projects are based on past expenditures and their employment investment coefficients.

TABLE VIII-36.

## Employment of Agricultural Labour in Bangladesh, 1972-73.

| Sector.                     |    |    |    |    | Normal<br>Gross<br>cropped<br>area,<br>(Lakh<br>acres). | Man-days<br>per acre. | Normal<br>total man-<br>years,<br>(Lakh). |
|-----------------------------|----|----|----|----|---|-----------------------|---|
| Crop Sector—                |    |    |    |    |   |                       |   |
| Rice (HYV)                  | .. | .. | .. | .. | 26.0  | 98                    | 10.6                                      |
| Rice (Local)                | .. | .. | .. | .. | 221.40  | 52                    | 48.0                                      |
| Fibres                      | .. | .. | .. | .. | 22.00   | 100                   | 9.2                                       |
| Sugarcane                   | .. | .. | .. | .. | 4.00  | 110                   | 1.8                                       |
| Tea Plantations             | .. | .. | .. | .. | 1.10  | 300                   | 1.4                                       |
| Other crops                 | .. | .. | .. | .. | 47.90   | 42                    | 8.3                                       |
| Total crop sector           | .. | .. | .. | .. | 322.4   | ..                    | 79.3                                      |
| Livestock and Fisheries     | .. | .. | .. | .. | ..  | ..                    | 26.4                                      |
| Forestry                    | .. | .. | .. | .. | ..  | ..                    | 3.5                                       |
| Processing, Marketing, etc. | .. | .. | .. | .. | ..  | ..                    | 8.0                                       |
| Works Programme             | .. | .. | .. | .. | ..  | ..                    | 2.0                                       |
| Agricultural Projects       | .. | .. | .. | .. | ..  | ..                    | 6.0                                       |
| Total Agriculture           | .. | .. | .. | .. | ..  | ..                    | 125.2                                     |

Note—240 man-days are assumed equal to one man year.



The present population of Bangladesh is estimated at 7.4 crore. According to the population and labour force survey in mid and late sixties, the labour force in the country constitutes 35.1 per cent of the total population, and 76.3 per cent of the labour force is agricultural. On this basis the present agricultural labour force is 1.982 crore. The present requirement of agricultural labour is 1.252 crore man years. Thus the estimated present underemployment and unemployment work out at 36.8 per cent (Table VIII-37). In this context underemployment does not, however, mean that these people can be transferred out of agriculture without making any organisational change in agriculture. The underemployed people do not represent visible unemployment. A substantial portion of this 36.8 per cent of the agricultural labour force do not have work for 240 days in a year, which have been assumed to be equivalent to a man-year. As long as the farms operate within the present institutional frame work most of this underemployed and unemployed workers can not be shifted out of agriculture without affecting production. In the present system of land holding, neither the small farms offer full-time employment to the available workers on such farms, nor do the large farms generally follow a pattern of land utilisation so as to permit intensive labour use. Thus wasteful labour use is an inherent feature of our land system. Lack of any gainful employment and underemployment are more visible in slack seasons and among the underprivileged groups. Not all the unemployed, etc., however, represents people wanting work, much of it consists of farm families who find that with the traditional technology the extra income from weeding, excavation of channels, composting, etc., is not worth the effort. The higher yields made possible by new technology will make such employment more attractive by raising the reward.

The employment objective of the plan is to bring down the present rate of unemployment and underemployment in agriculture from about 37 per cent to about 32 per cent by the end of the plan period. The agricultural employment situation at the beginning and end of the plan is shown in table VIII-37.

TABLE VIII-37.  
Agricultural Employment Situation, 1972-73 and 1977-78

| Items.  | 1972-73. | 1977-78. |
|---|----------|----------|
| Population (Crore)                                      | 7.400    | 8.540    |
| Total Labour force (Crore)                              | 2.597    | 2.993    |
| Agriculture Labour force (Crore)                        | 1.982    | 2.284    |
| Agricultural Employment (Crore)                         | 1.252    | 1.562    |
| Unemployment and underemployment in agriculture (Crore) | .737     | .722     |
| Rate of unemployment and underemployment (%)            | 36.8     | 31.6     |



In the calculation of the agricultural labour force in 1977-78 the rate of participation has been assumed at 35.1 per cent and the proportion of agricultural labour in the total labour force has been assumed to be 76.3 per cent. In our estimation of the employment situation in the country during the first plan period, it is assumed that the effect of the increasing participation rate will be balanced by the effect of declining ratio of the agricultural labour force to the total labour force. From Table VIII-37 it will be seen that for bringing down the rate of agricultural unemployment and underemployment to about 32 per cent in 1977-78, it is necessary to generate a total of 156.2 lakh man-years of work in agriculture. This involves providing about 31 lakh extra man-years of work over the level of employment in 1972-73.

The new varieties of rice and wheat have been found to increase yields and labour requirements. For growing these varieties controlled irrigation and retained soil moisture is essential. Therefore, the key to rapid output and employment growth lies in rapidly enlarging the acreage under irrigation and multiple cropping. A rapid advance in this regard can generate more jobs in the plan period than the new addition to the labour force. In the first plan a very high priority has been attached to development of irrigation facilities in the country. Controlled irrigation facilities will be expanded from a little over one million acres in 1972-73 to about 40 lakh acres in 1977-78. In addition, the new high yielding rice varieties will be introduced in the areas where indigenous methods of irrigation are prevalent and in selected areas with sufficient retained soil moisture under rainfed conditions. The new rice varieties will be grown in an area of 94.4 lakh acres in 1977-78 compared to 26.0 lakh acres in 1972-73. Foodgrain production will contribute 14.90 lakh man-years out of an additional 18.60 lakh man-years (Table VIII-38) of employment estimated to be generated in crop sector.

However, the extent of employment generation in crop sector will depend on the labour intensity of the technique used and the kinds of crops expanded. The labour intensity of the technique used in cultivation being so important for employment it requires special attention. In order to realise the full potential of the labour using modernisation of agriculture labour saving mechanisation has to be strictly avoided. Mechanisation can only be adopted where specific bottlenecks can be removed by such means. Even in such specific cases the recourse to mechanisation should precede exploration of alternative means which are less labour saving. In general, mechanised techniques and weedcides reduce labour intensity and, should not therefore, be made available except at hire charges reflecting the full cost of their import to Bangladesh; perhaps, some additional charges should be levied on the use of these machines and chemicals to prevent their negative impact on employment. Extension workers should instruct farmers in such productive and labour intensive techniques as composting, switch over from broadcasting to transplanting, improvement of irrigation channels, etc. HYV and fertilizers raise the amount of net product added by such techniques, and render their spread easier.

The creation of additional man-years of employment in various field of Agriculture Sector is shown in Table VIII-38. From the table it will appear that next to crop sector, Livestock and Fisheries, execution activities of Agricultural projects, and works programme are important sources of employment generation. Increased production of foodgrains will call for improved draft power for cultivation. In the plan, stress has been laid on increasing the number of



TABLE VIII-38

Estimated Employment of Agriculture Labour in 1977-78.

| Sector.                                 | Cropped Area in lakh acres. | Man-day per acre. | Total man-year (lakh). | Additional over benchmark (lakh). |
|---|-----------------------------|-------------------|------------------------|-----------------------------------|
| <b>Crop Sector</b>                      |                             |                   |                        |                                   |
| Rice (HYV) .. .. .                      | 94.4                        | 96                | 37.8                   | 27.2                              |
| Rice (Local) .. .. .                    | 164.9                       | 52                | 35.7                   | -12.3                             |
| Fibres .. .. .                          | 22.0                        | 110               | 10.1                   | 0.9                               |
| Sugarcane .. .. .                       | 4.0                         | 115               | 1.9                    | 0.1                               |
| Tea plantations .. .. .                 | 1.1                         | 300               | 1.4                    | 0.0                               |
| Other crops .. .. .                     | 58.0                        | 45                | 11.0                   | 2.7                               |
| <b>Total crop sector .. .. .</b>        | <b>344.4</b>                | <b>..</b>         | <b>97.9</b>            | <b>18.6</b>                       |
| Livestock and Fisheries .. .. .         | ..                          | ..                | 32.0                   | 5.6                               |
| Forestry .. .. .                        | ..                          | ..                | 3.7                    | 0.2                               |
| Processing Marketing, etc. .. .. .      | ..                          | ..                | 9.6                    | 1.6                               |
| Works programme .. .. .                 | ..                          | ..                | 4.0                    | 2.0                               |
| Agricultural Projects .. .. .           | ..                          | ..                | 9.0                    | 3.0                               |
| <b>Total Agriculture Sector .. .. .</b> | <b>..</b>                   | <b>..</b>         | <b>156.2</b>           | <b>31.0</b>                       |

draft animals and improving the quality of stock. Back-yard poultry and duck raising have also been stressed. All these activities will substantially raise employment, particularly in under employed farm households. In the fisheries sector, the additional employment generation will be more in marine fishing for which initial infrastructure has been provided. Exploitation of Kaptai lake and reclamation and stocking of big inland fisheries are also expected to generate some additional employment. Employment generation from direct project execution activities is estimated to be substantial. It is estimated that an additional 3.0 lakh man-years of employment will be generated in these areas. Examination of past irrigation projects indicate that about 60 per cent of the jobs can only be filled by skilled workers (skilled being defined as those with any formal or informal training or education). Efforts would be made to prepare projects which will economize skilled manpower so that skilled unskilled ratio falls further.



Another important source of employment generation is the works programme. Available studies indicate that a total expenditure of about a thousand million taka during the period 1962-68, generated about 0.7 million man-years of employment in rural Bangladesh. However, employment generation through works programme is seasonal. During the first plan of Bangladesh the allocation for works programme (excluding component of expenditure which are for pump and tube-well subsidy) will be more than double the corresponding allocations in 1965-70. Considering the effect of general price rise, the expanded allocation in works programme during the Plan period will create an additional 0.20 million jobs for agricultural labour force by the end of the Plan. Unlike the past activities items of works under the programme will be oriented towards capital construction. The details of such works have been elaborated in the relevant section of this document.

In summary we can say that a high employment policy in agriculture will raise the income level and hence demand for food and non-food agricultural commodities which will be produced in large quantities. This in turn will provide further scope for employment generation. During the First Plan period the rate of agricultural unemployment and underemployment will be reduced from 37 per cent to about 32 per cent. This improvement, though substantial, still leaves a high rate of underemployment and unemployment. A continuous and conscious policy of labour intensive modernisation of agriculture will, therefore, remain to be an important guiding strategy for future agricultural development.

However, even if the overall unemployment and underemployment situation in agriculture improves, there might be regional and seasonal imbalances.

Provision of irrigation will bring about a shift in the cropping pattern with creation of additional peaks in labour demand in the winter season and intensifying further the existing peaks. This will tend to reduce labour absorption potential over the year. Spread of labour requirement seasonally through choice of crop combination is desirable in such areas. Such choice of crop-combination will have to be induced through an appropriate price policy.

The distribution of potential irrigated acres among different areas and corresponding population distribution (hence labour force) indicate that labour scarcity might be a serious problem in the haor areas of Sylhet, Comilla and Kishoreganj and in the districts of North Bengal. To meet the shortage, the market can be relied on to push up wages in shortage areas; the state, therefore, must intervene to ease out the situation. For facilitating transfer of labour from the relatively labour surplus areas to shortage area, wage information, arrangement of contacts, transport, and temporary shelters would be essential. The Ministry of Labour will set up a small seasonal Migration Assistance unit with an approximate annual budget of about 5.0 lakh taka for these purposes.

Landless agricultural workers could best be utilised in gainful employment through land reform by redistribution of land. Moreover, works programme in slack seasons and agriculturally depressed regions will be of much help.

#### 8.4.4 Land Policy

Bangladesh has adopted socialism as one of the four fundamental state principles. The transition towards a socialist form of economy will require a series of institutional reforms in which land reform will be a focal point. Already some steps have been taken in this direction.



The ceiling on land holdings per family has been fixed at 100 bighas. Steps are being taken to acquire excess land and distribute it to landless cultivators. Planning Commission's report on land reforms contains detailed analysis on the land system of the country.

Experience in Bangladesh and similar countries shows that under the traditional system of technology, small farmers are more efficient than farmers with larger holdings. Small farmers make intensive use of the country's most abundant labour resource in achieving higher yield per acre. The smaller farms depend much less on hired labour or on rental income. Higher utility of income forces them to adopt intensive use of both land and family labour. However, efficient use of resources by small farms under the existing condition does not guarantee that they will continue to be so under a new set of technology. Here again we have to see the nature of new technology. The seed-fertilizer technological revolution has so far been a scale neutral one. With conscious institutional programmes there is no reason to believe that the small farms will be less efficient under the new technological production conditions in agriculture. In fact, there is some evidence in Bangladesh that small farmers are quick to adopt improved practices and use modern inputs when institutional reforms promote access to credit and collective adoption of indivisible inputs such as pumps and tube-wells. The small farms employ more labour per unit of land than the large farms when labour replacing mechanisation is avoided. These evidences suggest that suitable changes in the distribution of land will not only contribute towards higher agricultural productivity but will also generate a substantial amount of additional employment in agriculture. Therefore, land reform measures should be directed towards a lower ceiling on land holdings, small but viable units, and at first on a pilot scale co-operative management of small farms. The present ceiling on land holdings, TIP groups, and the service and credit co-operatives are initial steps in this direction. But more is required.

In order to formulate an effective land policy and develop appropriate organisational mechanism for its implementation a number of steps are required.

(a) Census, surveys, and studies should be undertaken to determine the precise nature of distribution of land ownership, land utilisation, differential fertility, constraints on land productivity due to flood, drought, etc., effects of irrigation on productivity, fragmentation of holdings, tenure relationship, etc., so that regional variations in land productivity and distribution of income from land can be identified. This information is vitally needed to formulate a rational and equitable policy on reforms of land tenure.

(b) An appropriate organisational framework is to be developed so that effective and speedy implementation of land reform programme already under way or may be proposed in the future is ensured. This will require that local organisations of the people benefitted by land reform measures actively participate in, and assume responsibilities for implementing the land reform programme. The speed and nature of reforms has to be consistent with the objective socio-political realities, administrative and institutional pre-requisite and short run objective of avoiding dislocation.

In the mean while, system of share cropping now prevailing in Bangladesh needs substantial reforms. Measures need be taken to secure the right of the share cropper to cultivate rented land as long as he wants it, if rent is paid, to ensure compulsory registration of tenancies, and to significantly improve the share of tenants in the produce of the land. This is essential from the point of view of not only equity but also of efficiency considerations, since it is inherent in the strategy of the Plan that one who cultivates the land must have a positive and adequate stake in improving its productivity.



#### 8.4.5 Implementation

Most developing countries have experienced serious shortfalls in agriculture, because implementing institutions have lacked both real authority and contact with the field. It has often been difficult to co-ordinate and control the overlapping agencies in agriculture, water, land reform, rural co-operative, etc., and these agencies have been remote from the farmer. Failing prompt action on those twin points Bangladesh's plans too may remain merely paper plans. Many of the existing signs are rather ominous. Irrigation policy is scattered around Ministries and agencies, in BADC, TIP, BWDB and RWP. Extension is similarly split.

To implement its target, one of the world's biggest ever sustained national boosts in rice production, Bangladesh requires a clear, short and effective chain of command. The Planning Commission will vet, before implementation, institutional and major financial proposals from Ministries and Agencies and from Local Government bodies. The Planning Commission will maintain necessary check both on expenditure level and on physical progress towards output and input targets. The Planning Commission should not duplicate or take over the executive functions of Ministries, but the importance of agricultural co-ordination, monitoring and implementation requires an Inter-Ministerial Committee.

Appropriate institutional and organizational arrangements will be made to ensure inter-ministerial and inter-agency co-ordination at the national, district, and thana levels. The functions of the co-ordinating bodies will be to ensure the implementation of plan targets. The Co-ordinating body at the national level will have powers to send directives in consultation with the Planning Commission to Ministries/Agencies and to some extent to local bodies for corrective actions if targets are not being met. This will be done on the basis of evaluation and progress reports received from ministries, agencies, local bodies as well as Planning Commission. The co-ordination body will need, therefore, the authority to ask for reports from all independent reporting bodies, e.g., executing ministries, agencies and local development institutions.

The Planning Commission will use its allocative authority over the development funds in effecting a desirable performance standard on the Executive Agencies. Depending on how an agency performs during the year, the Planning Commission will increase or reduce resource allocation for the next year for the agency and/or area, and increase or decrease its projects programmes accordingly. This applies particularly to irrigation; command areas must be improved before the money for new schemes is released.

The local institutions will be responsible for implementation, and increasingly for project preparation. For years to come, in discharging the latter responsibility the local bodies would need expert assistance, particularly from engineers, agronomists and economists. Four teams of these experts will, therefore, have to be set up at the present Divisional Headquarters and their services made available to local-level project-formulating bodies in the respective areas. Each team will consist of at least two engineers, two agronomists and two economists with supporting staff.

The local level programmes before they are incorporated into annual plans require to be clearly identified and translated into specified projects. Existing projects that have direct or indirect contribution to the Plan targets may need revision, which will be undertaken immediately after this plan is finally approved. The new projects with similar contribution should be prepared as early as possible. Once the portfolio of local projects is ready they will need ranking in



terms of their contribution to the output target and their implementation sequence. While preparing the annual plan, local level as well as other priority projects must receive financial allocation fully commensurate with physical targets. Release of fund for them needs to be made exactly in accordance with their resource need and absorption capacity.

TABLE VIII—39.

## Ministrywise Break-up of First Plan Agricultural Development Outlay

(In crore Tk.)

| Plan Allocations.                          | Total. | Ministry<br>of Agri-<br>culture. | Ministry<br>of Live-<br>stock,<br>Fisheries &<br>Forestry. | Ministry<br>of Flood<br>Control<br>& Water<br>Resources. | Ministry<br>of Rural<br>Develop-<br>ment. | Other<br>Ministries. |
|--|--------|----------------------------------|--|--|---|----------------------|
| A. Water :                                 |        |                                  |  |  |   |                      |
| 1. Large Scale ..                          | 309.50 | ..                               | ..   | 309.50   | ..  | ..                   |
| 2. Tube-wells ..                           | 183.07 | 183.07                           | ..   | ..   | ..  | ..                   |
| 3. Low-lift ..                             | 74.00  | 74.00                            | ..   | ..   | ..  | ..                   |
| 4. Small scale ..                          | 11.70  | ..                               | ..   | 11.70  | ..  | ..                   |
| B. Fertiliser ..                           | 36.08  | 36.08<br>(415.25)                | ..   | ..   | ..  | ..                   |
| C. Pesticides ..                           | 80.92  | 80.92<br>(180.77)                | ..   | ..   | ..  | ..                   |
| D. Seeds ..                                | 6.88   | 6.88<br>(44.66)                  | ..   | ..   | ..  | ..                   |
| E. Special Crops ..                        | 25.00  | 25.00                            | ..   | ..   | ..  | ..                   |
| F. Forestry ..                             | 26.73  | ..                               | 26.73  | ..   | ..  | ..                   |
| G. Livestock ..                            | 38.28  | ..                               | 38.28  | ..   | ..  | ..                   |
| H. Fisheries ..                            | 30.98  | ..                               | 30.98  | ..   | ..  | ..                   |
| I. Institutions:                           |        |                                  |  |  |   |                      |
| 1. IRDP ..                                 | 31.00  | ..                               | ..   | ..   | 31.00                                     | ..                   |
| 2. Works Programme ..                      | 109.47 | ..                               | ..   | ..   | 109.47                                    | ..                   |
| 3. Training, etc. ..                       | 9.50   | ..                               | ..   | ..   | 9.50                                      | ..                   |
| 4. Agriculture Extension ..                | 12.79  | 12.79                            | ..   | ..   | ..  | ..                   |
| J. Agricultural Research and<br>Education, | 33.00  | 18.92                            | 14.08  | ..   | ..  | ..                   |



TABLE VIII—39—*Concl.*

(In crore Tk.)

| Plan Allocation.            | Total.  | Ministry<br>of Agri-<br>culture. | Ministry<br>of Live-<br>stock,<br>Fisheries<br>&<br>Forestry. | Ministry<br>of Flood<br>Control<br>& Water<br>Resources. | Ministry<br>of Rural<br>Develop-<br>ment. | Other<br>Ministries. |
|-----------------------------|---------|----------------------------------|---|--|---|----------------------|
| K. Credit .. ..             | ..      | ..                               | ..  | ..   | ..  | ..                   |
| L. Policy:                  |         |                                  |   |  |   |                      |
| 1. Employment ..            | 0.25    | ..                               | ..  | ..   | ..  | 0.25                 |
| 2. Price stabilization ..   | 0.50    | ..                               | ..  | ..   | ..  | 0.50                 |
| 3. Nutrition ..             | ..      | ..                               | ..  | ..   | ..  | ..                   |
| 4. Land reforms ..          | ..      | ..                               | ..  | ..   | ..  | ..                   |
| M. Agricultural Implements  | 3.00    | 3.00                             | ..  | ..   | ..  | ..                   |
| N. Storage and Marketing .. | 18.44   | 18.44                            | ..  | ..   | ..  | ..                   |
| Total ..                    | 1041.09 | 459.10<br>(975.90)               | 110.07  | 321.20   | 149.97                                    | 0.75                 |

Note—1. Figures in bracket indicate gross cost.

2. Storage and marketing cost includes only for storage of Fertilizers, Seeds, Pesticides and Marketing scheme.

3. Cost of Land Reform is envisaged to be financed from Revenue budget.  
Nutrition cost is excluded and to be financed from social welfare sector.



## CHAPTER IX

## INDUSTRY

## 9.1 REVIEW OF THE INDUSTRIAL SITUATION IN BANGLADESH

## 9.1.1 Industry in Pre-Liberation Days

Manufacturing industries of Bangladesh today contribute about 10 per cent to the nation's GDP. The contribution of the large-scale manufacturing sector amounts to about 6 per cent of GDP while the remainder is made up of small scale and cottage industries. The number of registered factories in 1968-69 were 3,130 of which 791 were in textiles, 576 in chemicals, 406 in food manufacturing, 257 in metal products, 207 in footwear, wearing apparel and made up textiles, and 149 in leather and leather products. There are also many unregistered units. In 1969-70, 587 thousand tons of jute goods, 106 million lbs. of cotton yarn, 59 million yards of cotton cloth, 94 thousand tons of sugar, 40 thousand tons of cement, 96 thousand tons of fertilizer, 57 thousand tons of paper and 58 million lbs. of tea were produced. Much of these were produced either in the public sector enterprises or in private enterprises enjoying concessions from the government.

## 9.1.2 Damage in Liberation War

During the Liberation War there had been widespread dislocation in the manufacturing sector with damage to buildings, loss of tools and equipments, vehicles, raw materials, stores, spares and finished goods. A provisional estimate by the Planning Commission puts the replacement cost of such assets and properties at Tk. 29.15 crores of which Tk. 22.35 crores was in the public sector and Tk. 6.8 crores in the private sector.

## 9.1.3 New Perspective

The emergence of Bangladesh radically changed the whole pattern of industrial ownership and policy. The Government took over all units abandoned by the Pakistanis and absentee owners, nationalised jute and cotton textiles and sugar mills and proceeded to establish sector corporations, one each for Jute Mills, Textile Mills, Sugar Mills, Steel Mills, Engineering and Shipbuilding, Paper and Board, Food and Allied Products, Gas, Oil and Minerals, and Fertilizer, Chemicals and Pharmaceuticals. Forest Industries Development Corporation, Small Industries Corporation, Fisheries Development Corporation and Film Development Corporation were set up before liberation. Tanneries Corporation was subsequently set up and a Cottage Industries Corporation is being set up. Besides, Sena Kalyan Sangstha and Mukti Jodhya Welfare Foundation were given a number of industrial units to be operated under their management. The public sector, so constituted, owns an estimated Tk. 517.00 crores of fixed assets in terms of their original book-value in 313 industrial enterprises, as on 30th June, 1973.

## 9.1.4 The Current Industrial Performance

Data on the performance of the key industries are presented in Table IX-1. Most of the industries included here relate to the public sector. Figures are not always reliable and 1972-73 figures sometimes are not adjusted for changes in capacity. A look at data in Table IX-1 points, however, to some significant trends which merit observation:

- (i) Except in sugar, pharmaceuticals, newsprint, cement, beverages and processed wood all the main sectors recorded an expansion in output between the first and second half of 1972.



TABLE IX-1  
Production in Selected Public Sector Industries

| Group of Industries                                | No. of Units | Capacity in 1972-73 | Monthly average 1972, Jan-June | Monthly average 1972, July-Dec. | Monthly average 1973, Jan-March | Monthly average 1973, April-June | Monthly average 1969-70 | Production in 1969-70 (Total for the year) | Production in 1972-73 (Total for the year) | Capacity utilization in 1972-73 (in per-centage) | Capacity utilization in 1969-70 (in per-centage) | Production in 1972-73 as per-centage of Production in 1969-70 |
|--|--------------|---------------------|--------------------------------|---------------------------------|---------------------------------|----------------------------------|-------------------------|--|--|--|--|---|
| 1  | 2            | 3                   | 4                              | 5                               | 6                               | 7                                | 8                       | 9  | 10   | 11   | 12   | 13  |
| 1. Jute (tons)                                     | 74           | 7,92,000            | 28,140                         | 40,697                          | 31,173                          | 36,545                           | 48,957.25               | 5,87,487                                   | 4,46,348                                   | 56.35  | 74.18  | 76  |
| 2. Textile:  |              |                     |                                |                                 |                                 |                                  |                         |  |  |  |  |   |
| (a) Yarn (lac lbs)                                 | 44           | 1,344               | 43.89                          | 71.52                           | 60.79                           | 63.66                            | 88.00                   | 10.56                                      | 808.53                                     | 60.16  | 78.57  | 76  |
| (b) Cloth (lac yds)                                | ..           | 1,212               | 22.18                          | 47.61                           | 47.04                           | 54.23                            | 49.00                   | 588  | 589.52                                     | 48.64  | 48.95  | 100   |
| 3. Sugar (tons)                                    | 15           | 1,69,000            | *5,903                         | *5,551                          | 2,735                           | Nil                              | 7,810.83                | 93,760                                     | 19,335                                     | 11.44  | 55.47  | 21  |
| 4. Fertilizer (tons)                               | 2            | 4,46,000            | 3,547.33                       | 15,828                          | 22,294                          | 38,163                           | 7,992.25                | 95,917                                     | 2,76,788                                   | 62.06  | 90.50  | 288   |
| 5. Steel (Steel Mills (tons)                       | 1            | 2,50,000            | 3,199                          | 6,050                           | 4,509                           | 6,029                            | 4,511.50                | 54,138                                     | 67,917                                     | 27.17  | 21.65  | 125   |
| 6. Engineering Industries:                         |              |                     |                                |                                 |                                 |                                  |                         |  |  |  |  |   |
| (a) Diesel Engines                                 | 1            | 3,000               | 111                            | 159                             | 2                               | 130                              | 107                     | 1,284                                      | 1,353                                      | 45.10  | 42.80  | 105   |
| (b) Ship building (worth Tk. in lac current price) | 2            | N.A.                | N.A.                           | 10.74                           | 19.51                           | 12.10                            | 9.00                    | 108.0                                      | 159.40                                     | ..   | ..   | 147   |
| 7. Newsprint and paper:                            |              |                     |                                |                                 |                                 |                                  |                         |  |  |  |  |   |
| (a) Paper (tons)                                   | 1            | 30,000              | 2,091.66                       | 1,543                           | 1,779                           | 2,050                            | 2,573                   | 30,753                                     | 20,768                                     | 69.20  | 102.20   | 67  |
| (b) Newsprint (including mechanical print) (tons)  | 1            | 52,000              | 3,091                          | 2,307                           | 2,527                           | 2,307                            | 3,677                   | 44,266                                     | 28,351                                     | 54.52  | 88.52  | 64  |
| 8. Cement (Lac tons)                               | 1            | 1.50                | *0.30                          | *0.15                           | *0.40                           | *0.30                            | *0.30                   | *40  | *32  | 21.33  | 26.67  | 80  |
| 9. Food and Allied Products:                       |              |                     |                                |                                 |                                 |                                  |                         |  |  |  |  |   |
| *** (a) Tobacco (lac sticks)                       | 6            | 63,900              | .524                           | 505.21                          | 270                             | 2,525                            | 1,034.25                | 12,411                                     | 11,438                                     | 17.89  | 48.10  | 92  |
| *** (b) Oil products (tons)                        | 8            | 34,818              | 431.15                         | 748                             | 249.87                          | 1,374.48                         | 892.08                  | 10,705                                     | 9,562.07                                   | 27.46  | 30.75  | 89  |
| (c) Food products (tons)                           | 2            | 59,400              | 464.22                         | 1,088.40                        | 554.21                          | ..                               | ..                      | ..   | 26,875                                     | 45.24  | ..   | ..  |
| (d) Fish processing (lac lbs.)                     | 2            | 69.00               | 0.11                           | 1.18                            | ..                              | ..                               | 2.08                    | 25.02                                      | 11.15                                      | 16.16  | 36.46  | 44  |



TABLE IX-1—Conc'd.  
Production in Selected Public Sector Industries

| Group of Industries.        | No. of Units, in 1972-73. | Capacity in 1972-73. | Monthly average Jan-June, 1972. | Monthly average July-Dec., 1972. | Monthly average Jan-March, 1973. | Monthly Average April-June, 1973. | Monthly average during 1969-70. | Production in 1969-70 (Total for the year). | Production in 1972-73 (Total for the year). | Capacity utilization in 1972-73 (in per-centage). | Capacity utilization in 1969-70 (in per-centage). | Production in 1972-73 as per-centage of Production in 1969-70. |
|-----------------------------|---------------------------|----------------------|---------------------------------|----------------------------------|----------------------------------|-----------------------------------|---------------------------------|---|---|---|---|--|
| I                           | 2                         | 3                    | 4                               | 5                                | 6                                | 7                                 | 8                               | 9   | 10  | 11  | 12  | 13   |
| (e) Cold storage (lac lbs.) | 2                         | 59                   | 0.44                            | 1.24                             | 0.37                             | 1.92                              | 1.06                            | 12.67                                       | 11.81                                       | 20.00   | 21.55   | 93   |
| (f) Beverage (lac bottles)  | 1                         | 43                   | 2.15                            | 0.89                             | N.A.                             | N.A.                              | N.A.                            | N.A.  | 39.60                                       | 92.00   | 62.83   | ..   |
| 10. Chemicals (tons)        | 3                         | 26,108               | 651.50                          | 83.90                            | 805.41                           | ..                                | ..                              | ..  | 3046  | 11.66   | ..  | ..   |
| 11. Glass (lac sft.)        | 1                         | 75                   | ..                              | 6.30                             | 5.67                             | ..                                | ..                              | ..  | 72.45                                       | 97.33   | 62.83   | ..   |
| 12. Pharmaceuticals :       |                           |                      |                                 |                                  |                                  |                                   |                                 |   |   |   |   |  |
| (a) Tablet (lac No.)        | 3                         | 7,700                | 1,04.74                         | 65.30                            | 70.47                            | 325.96                            | 2.72                            | 32.64                                       | 980.90                                      | 12.72   | 10.36   | 300  |
| (b) Injectables (lac amp.)  | 3                         | 56                   | 1.05                            | 0.74                             | 0.61                             | .48                               | 3.82                            | 45.85                                       | 8.36  | 14.92   | 114.60  | 18   |
| (c) OLP (lac bottles)       | 3                         | 65                   | 2.12                            | 1.41                             | 1.90                             | 4.91                              | ..                              | ..  | 28.95                                       | 44.53   | ..  | ..   |
| (d) Capsule (Lac No.)       | 3                         | 192                  | 10.07                           | 5.02                             | 4.81                             | 8.29                              | ..                              | ..  | 77.98                                       | 40.61   | ..  | ..   |

\*Monthly average over 4 months, i.e., Jan.-April, 1972.

\*\*Monthly average over 2 months, i.e., November-December, 1972.

\*\*\*Number of reporting units have increased for the last quarter of 1972-73 and for annual total production.



- (ii) In contrast, a positive downturn was recorded in average output between the second half of 1972 and the first quarter of 1973 especially in jute, cotton textiles, steel, food and allied products, diesel engines and oil refining.
- (iii) Sectors which have maintained an upward trend during early 1973 were sugar, shipbuilding, fertilizer, pharmaceuticals, chemicals, paper, newsprint, cement and gas.
- (iv) Sectors which have exceeded or come close to pre-liberation output may be identified as weaving of cloth in large mills, steel, shipbuilding, fertilizer, glass, soap, fish processing, beverage, newsprint, cement and gas.

The above indicates a mixed performance of the sectors over time. Each industry's problems merit special analysis and no generalisation about the overall trend of performance of the nationalised sector is possible.

It is, however, apparent that some key sectors have performed well and even lagging sectors such as jute and textiles have demonstrated a potential for performing far better than what they have done. This, however, is not to say that a major effort will not be required to realise this potential. Below is presented a brief review of performance in particular sectors.

#### A. Jute

The industry was nationalised in March, 1972. The monthly average production increased from 28,140 tons in the first half of 1972 to 40,697 tons in the second half. The latter figure is around 83 per cent of the 1969-70 monthly average. This promising beginning was frustrated by decline in output from January onwards so that the average for the first quarter of 1973 fell to 31,173 tons. However, monthly average production increased to 36,545 tons in the second quarter of 1973.

In spite of production difficulties and rising costs the industry has managed to improve its export performance and keep its order books full. Exports increased from 124,643 tons in the first half of 1972 to 202,715 tons in the second half of 1972. Although production declined during the first quarter of 1973 exports amounted to 115,930 tons.

If the 1972 trend had been maintained one could have expected by now full recovery to at least the 1969-70 position. The special factors which caused the sharp decline in output in early 1973 may be isolated as follows :

- (i) The industry lost heavily due to power failures. Mills in Khulna were closed for over a month due to a closure of the Goalpara Power Station. Computed losses due to power failure for this period account for 13,248 tons or an average of 4,416 tons per month.
- (ii) Labour relations took a particularly bad turn within the industry during this period.

Even apart from these short term factors the industry does, however, face some serious problems which may be summarised as follows :

- (a) Loss of markets during the period of the liberation war.
- (b) Much more intense competition from synthetics.



- (c) A rise in production costs from Taka 2,170 to Taka 3,463 per ton for hessian and from Taka 1,304 to Taka 2,529 per ton for sacking.
- (d) A sharp increase of idle looms.
- (e) Shortage of shipping space compounded by slow loading at the ports.
- (f) A managerial vacuum arising from the departure of non-Bangalees who played a key role in the entrepreneurial side of the industry.
- (g) As a result of the lower amounts of Taka per dollar of export and a much higher taka cost of raw Jute per dollar of export, Jute Textiles to-day have much lower effective protection than in pre-liberation days. Much of the loss sustained by the industry during the past year can be accounted for by this factor alone.

### B. Cotton Textiles

Table IX-1 indicates that cloth production which had risen sharply from 22 lakh yards in the first half of 1972 has been averaging 47 lakh yards a month since July 1972 compared to a 1969-70 average of 49 lakh yards. Indeed for the months of July, August and December 1972 production figures exceeded the monthly average for 1969-70. The production of cloth increased to 54 lakh yards in the second quarter of 1973.

Recovery in yarn has, however, been disappointing. After a spectacular recovery from a monthly average of 44 lakh lbs. to 71.5 lakh lbs. between the first and second half of 1972 production slumped to 61 lakh lbs. in the first quarter of 1973. It increased to an average of 66 lakh lbs. in the second quarter of 1973. Here again, in August 1972, a peak figure of 83 lakh lbs. was realised.

Whilst mill-made cloth traditionally met only a small proportion of Bangladesh's requirements, yarn output accounted for a much larger share of the consumption of our handloom weavers. This slowdown in recovery is thus bound to have an impact on the supply of handloom cloth unless it can be supplemented by substantial yarn imports. So far only 27,000 bales have been imported. This along with slowdown in recovery of output explains the current cloth crisis.

The basic problems facing the industry are several. First traditionally poor efficiency has deteriorated further. While installed capacity increased somewhat over the pre-liberation level, there has also been an increase of idle loomage and spindles. Similarly, shortage of spares and slow arrival of programmed imports have been a problem. Disruption in the supply of cotton from traditional source also hampered production and caused programming difficulties since equipment and workers had been geared to utilise a particular type of cotton.

### C. Sugar Industry

The industry has 15 units with an annual capacity of 169,000 tons. In the post-liberation period the production performance has been poor with capacity utilisation averaging 11 per cent compared to a pre-liberation average of 55 per cent.

The basic reason for this very poor performance is due to the fact that the crop for 1972 was sown at the peak of the Liberation War and the poor sowing of 1971 meant that the harvest of 1972 was very poor and this in turn affected output. Deliveries of cane for crushing to mills were even lower due to relatively high price of *gur* which diverted



cane to *gur* producers and away from the mills. Raising the purchase price of cane from Taka 3 to 4 per maund improved procurement but was not enough to secure a more decisive transfer. This has recently been raised to Taka 6 per maund which is expected to improve procurement.

Yield from the sugarcane has been well below the yield in other countries. This has made sugar costly to produce.

The fact that the factory price were kept artificially low by the monopoly purchaser, the Food Department, has passed the burden of subsidising the consumer on to the sugar industry which in turn became commercially unviable.

#### D. *Steel*

The steel industry revolves round the Chittagong Steel Mill; the Steel Mills Corporation has also acquired a number of abandoned re-rolling units, while some re-rolling mills remain in the private sector.

The steel mill has had an inherited legacy of under-capacity operation and losses. In 1969-70 capacity utilisation was only 22 per cent. In 1972-73 capacity utilisation rose on an average to 27 per cent. Due to a sharp acceleration in production, the plate mills, which had been lying idle for several years, were brought into production and in 1972-73 produced 10,751 tons of plate. Unfortunately, however, there has been a downturn in production during 1973.

The recovery in production during 1972 was due to inherited stocks of raw materials, a big demand for steel and full support to the sector. Whilst inventories lasted, the steel mill not only raised output but, for the first time in its history, could generate a cash surplus. This was helped, in contrast to other sectors, by the steel mill charging a more realistic price for its products. A successful wage settlement with the workers played a critical role in achieving record production levels. In 1973 much of this trend was reversed due to the fact that the union reneged on the wage agreement and resorted to periodic go-slows. There has also been shortage in raw materials such as limestone and scrap due to delays in delivery.

#### E. *Shipbuilding and Engineering*

##### 1. SHIPBUILDING

The shipyards in the public sector traditionally operated below capacity. Since liberation a major effort was made to activate them by commissioning the yards under BESC at Khulna and Narayanganj to take up a major part of the requirements of BIWTC's fleet. In addition the yards have accepted considerable repair work. As a result it has done business averaging Taka 19.5 lakhs per month in the first quarter and Taka 12.10 lakhs in the second quarter of 1973 compared to Taka 10.74 lakhs in the second half of 1972. Its current performance exceeds the pre-liberation average. As and when deliveries to BIWTC begin revenues are expected to increase substantially. Some additional business has been forthcoming through use of facilities at the yards to manufacture power pumps for BADC.



The industry, however, faces problems due to shortage of some raw materials and components required from abroad for fitting IWT vessels as well as some uncertainty in the delivery of plate from the steel mill due to 'go-slow'. There is also the need to ensure that the steel mill can provide steel of required quality and specification.

## 2. DIESEL PLANT

During 1972 the Diesel Plant's production performance rose from a monthly average of 111 engines in the first half to 159 in the second. Both figures exceeded the pre-liberation average of 107 engines. However, there had been a slump in the first quarter of 1973 when only 2 pumps were turned out. This was due to virtual suspension of work in January and February. Production of late has been picking up; 202 engines were produced in April. Also 750 CKD engines which were under shipment began to arrive during the period which will further aid recovery in output. The average turnout during the second quarter was 130 engines exceeding the pre-liberation average.

## 3. MACHINE TOOLS FACTORY

By now the war damage has been substantially made good and steps are underway to make more effective use of capacity by initiating a programme to manufacture deep tube-wells. The plant is still under-utilised due to the fact that it is incomplete and needs to be balanced.

## 4. OTHER SECTORS

Other units under the sector producing motor cycles, fans, metal cans, fluorescent tubes, electrodes and electric cables have been highly sensitive to the availability of imported raw materials. Where they have been available the units have performed satisfactorily. However, in all cases capacity remains substantially under-utilised because of shortfall in supply of raw materials. If raw material inventories could be restored to pre-liberation levels production could be expected to exceed pre-liberation targets. This position is expected to be realised in most units by the beginning of the new financial year.

## F. Fertilizer, Chemical and Pharmaceuticals

Based upon returns from the enterprises, efficiency in this sector has been as follows during the past year:

| Efficiency of operation. |     |     |    | Number of enterprises. Percentage of enterprises. |    |
|--------------------------|-----|-----|----|---|----|
| Less than 25%            | ..  | ..  | .. | 6   | 25 |
| 25% to 49%               | ... | ... | .. | 8   | 33 |
| 50% to 74%               | ..  | ..  | .. | 6   | 25 |
| 75% or more              | ... | ..  | —  | 4   | 17 |



Efficiency has been calculated against a standard output defined as maximum output attainable under conditions prevailing in Bangladesh.

The sector has been highly sensitive to availability of imported raw materials. Wherever this has been at hand production figures have tended to exceed 1969-70 figures. Unfortunately, shortages have still not been made good due to inadequate provision of foreign exchange compounded by delay in programming and shipment. This explains the variation in efficiency reported above.

Fertilizer has been a vital sector in the Corporation. Consequently, the attention of the Corporation has been directed towards raising and maintaining production of fertilizers. The Urea plant at Ghorasal went into trial production in August, 1972, after completion of repairs. It did not begin full production till November, 1972. Its output exceeded 170,000 tons by the end of the 1972-73 financial year. In contrast the older plant at Fenchuganj has operated at much below capacity due to extended maintenance. The sharp increase in production at Ghorasal has taken fertilizer production well above pre-liberation figures.

Chemicals and pharmaceuticals have a substantial private component with subsidiaries of international companies having a dominant position. There are a number of Bengali-owned units but only a few are currently capable of producing products of an acceptable standard. The international subsidiaries have performed very well and some have attained record production levels. If adequate raw materials were available the performance could have been even better.

It may be noted that the vacuum created by disruption of supplies from Pakistan created a sellers' market which these companies have attempted to exploit within the limits of raw materials availability. Raw material supplies have, however, still fallen far short of domestic demand for pharmaceuticals although the industry has been licensed at 100 per cent entitlement for the July-December, 1972 shipping period and 150 per cent for January-June, 1973.

#### *G. Forest Industries*

This Industry has traditionally operated below capacity. Units in FIDC processing wood products in 1969-70 operated at 15 per cent of capacity and those fabricating wood products at 28 per cent. of the capacity. However, the post-liberation situation has led to a singularly poor performance for wood processing which fell to 1.6 per cent of capacity in 1972-73. This owed essentially to a serious disruption of supplies of timber due to a ban on extraction from the Sundarbans and the Chittagong Hill Tracts forest areas. The move was designed to conserve forest resources which were being depleted at a rapid rate by indiscriminate extraction by private sources. The recent lifting of the ban is expected to improve the situation.

On the other hand, wood products have performed better due to the large demand for furniture and household fixtures. As a result the monthly average for the second half of



1972 rose to 4,104 sq. ft. compared to 2,866 in the first half of 1972 and the half-yearly average of 2,800 sq. ft. during 1969-70.

## *H. Paper and Board*

### **1. NEWSPRINT**

Khulna Newsprint Mills achieved a monthly average production of 3,091 tons in the first half of 1972 and 2,307 tons in the second half of 1972. Output rose further up to 2,527 tons in the first quarter of 1973 but slumped again to 2,307 from the second quarter of 1973. This may be compared with the 1969-70 monthly average of 3,677 tons. The industry is, however, still operating below its peak capacity of 4,000 tons a month.

The critical problem facing the industry stems from the loss of the Pakistan market. The search for new markets has yielded some dividends but the situation is highly competitive. The domestic pricing of newsprint remains unremunerative and has made no allowance for cost changes dating back even before liberation. Uncertainties in timber supplies from the Sundarbans have also affected productivity.

### **2. PAPER**

The Karnaphuli Paper Mills' production has recorded a steady increase from a monthly average of 1,543 tons in the second half of 1972 to 1,779 tons in the first quarter of 1973, and 2,050 tons in the second quarter. This is still below the 1969-70 average of 2,573 tons.

Here again the main problem have been the loss of the Pakistan market and a serious shortage of bamboo, due to supply and transport difficulties, as well as shortage of imported raw materials.

The North Bengal Paper Mills has suffered from a shortage of power supply which has prevented the commissioning of the plant. Lack of critical spares and equipment has also raised problems while the poor sugarcane crop has reduced supplies of bagasse, the raw material of the Mills. The basic difficulty, however, remains a contraction in the market.

## *I. Food and Allied Products*

### **1. EDIBLE OILS**

Production is highly sensitive to supply of imported oil seeds or crude soyabean oil. Fluctuations in the performance of this sector recorded in Table IX-1 reflected the arrival of imports and the stock position of the industry. The industry has, however, operated at well below capacity and even in 1969-70 only 30-75 per cent of capacity was utilised. A larger availability of raw materials would not only raise the performance of the sector but go a long way in meeting the needs of the market today.



Inappropriate and uneconomic pricing of the corporation products has prevented the sector from taking any advantage of the sellers' market. The large scarcity margins have been eaten up by the new permit holders who have not only made high profits but also adulterated the products of the corporation.

## 2. TOBACCO

This sector is dominated by the private sector. Units under the BFAPC contributed only about 7 per cent of output in 1969-70. Performance of this sector as a whole cannot be measured for the full period due to shortage of data. However for the first 4 months of 1973 production averaged 8,557 lakh cigarettes per month which is about 58 per cent of the average monthly output in 1969-70. The data in the table refers only to the public sector part of the industry.

Inadequate and irregular supply of raw materials including tobacco, foil and packing material still continue to plague the sector. While unremunerative pricing has kept the BFAPC's profits down it had, at the same time, added to the permit holders' premium in today's sellers' market.

## 3. FISH AND COLD STORAGE

Capacity utilisation in this sector was traditionally low averaging 37 per cent in 1969-70. In 1972-73 it fell to 16 per cent. The critical problem remains the general shortage of fish and the smaller share coming to the units. The competing demand from private exporters and the trawling under Fisheries Development Corporation have aggravated the BFAPC's difficulties.

## J. Minerals

The main units under this corporation, the cement plant at Chattak, had for sometime been operating at well below capacity due to shortage of limestone. In 1969-70 capacity utilization was 26.67 per cent.

In the post-liberation period limestone supplies were still inadequate in spite of the opening up of access to traditional sources in Meghalaya in India. The problem of transport which affected supplies from Takerghat also affected the Meghalaya supplies. This problem will persist till the aerial ropeway connecting the plant at Chattak with Kommorah limestone quarries across the border is fully commissioned. Once this is done the plant may begin to operate at close to its full capacity of 150,000 tons. The monthly average output of nearly 4,000 tons for early 1973 exceeded the 1969-70 average while production in second quarter of 1973 approximated 3,334 tons. But this is a long way from capacity and merely reflected the availability of limestone at the crusher.



## 9.2 PROBLEMS AFFECTING RECOVERY OF INDUSTRIAL OUTPUT

The recovery of industrial output has been slow. More important, in certain major industries, e.g., jute and cotton textiles, there has been a down-turn from recent peaks. Difficulties impeding the return to full production can be enumerated as follows:

### 9.2.1 Institutional Factors

The sudden expansion in the public sector due to the inheritance of abandoned enterprises and nationalisation programmes of 26th March, 1972 had its impact on industrial revival. The development of such institutions as the sector corporations and the delineations of responsibility between the corporations and the mills and between the corporations and the Ministries have taken time.

### 9.2.2 Management

Production in key sectors such as jute and cotton has been affected by the exodus of skilled persons and top factory managers. The managerial problem deserves special attention because of the expanded role of the nationalised sector where socially committed and dedicated people are required to harness the resources of the country. Industries are short of general managers and organisers, economic analysts, higher level accountants and marketing specialists.

### 9.2.3 Labour Problem

The labour unrest and the inability to motivate workers is a significant factor affecting the recovery of industrial production. The problem is examined separately in a latter section where a possible labour policy is spelt out.

### 9.2.4 Disruption in Linkages

Some of the material inputs, intermediate goods, and consumer goods were previously imported from Pakistan. The sources of supply of these have not been fully stabilized resulting in shortage of raw materials, increase in cost and uncertainty of arrival. Most of raw cotton, yarn and thread, tobacco, rape and mustard seeds, cement, some of pharmaceuticals and other chemicals fall in this category.

Similarly import of raw materials from abroad has still not been properly sorted out. The problem is accentuated because of the worldwide shortage of shipping space and lack of proper inventory management. The shortage of diesel or furnace oil, for example, can alone have a crippling affect on the economy. The port facilities are not yet adequate to handle imports and exports; internal transportation has also been inadequate.

### 9.2.5 Shortage of Power

Losses from power failure bulk large as a factor in industrial performance. Poor power supply has been a traditional problem but the damage to the power system during the liberation war has made supply even more irregular. There has been a general power scarcity in the western grid. The problem has been magnified due to shortage of diesel and furnace oil. In the eastern grid the situation is no better. The frequent power failures, load shedding and fluctuation of voltage have resulted in waste of raw material and sometimes closing down of the enterprises. The power sector has faced its own problems of



labour motivation which has led to poor maintenance and operation of power plants. Loss of managerial skills at various levels due to departure of non-locals has had its impact on revival. This is discussed more fully in the power sector of the plan.

#### 9.2.6 Shortage of Spares and Consumables

Shortage of spares and consumables due to inadequate and untimely import authorisations has caused a large reduction in output of mills and enterprises. Due to lack of engineering and servicing facilities within the country, spares and replacement supply could not be reuglated from domestic sources either. The problem has been accentuated by the neglect and poor maintenance of machinery during the liberation war which made demand for spares larger than in normal times.

#### 9.2.7 Finance

For various reasons the financial position of most of the enterprises is still precarious. The working capital requirement of many enterprises especially those based on imported raw materials has not been met while in some of the on-going projects action has been postponed and construction could not be resumed as no credit was available. Generally, this is due to the fact that the financial institutions until recently were not clear as to their specific role and field of action which impeded their operations. Again the credit-worthiness of many of the enterprises is dubious because of their past debt liabilities, present management structure and lack of a definite government policy in this regard. Some of the enterprises have not been able to utilise their foreign exchange entitlement because of delay in import authorization.

#### 9.2.8 Loss of Market

Disruption in the vital material linkages of the enterprises and a sudden breakdown of former inter-industrial markets have created a general uncertainty and depressed the demand. In certain sectors such as paper and newsprint, rayon, matches, wires, tea, tanned leather, timber and pharmaceuticals, the loss of traditional markets has caused a sudden surplus in capacity. The disruption of links with the traditional export market even for such exports as jute has been a major cause of worry. However, some progress has been made by tapping the export possibilities. Similarly, rayon has been successfully blended with cotton in the handloom sector so that its marketing problems could be regarded as transient. The problem has inherent difficulties and the solution cannot be found in the short-term. If an outlet in the foreign market is not found or adequate domestic demand is not created some of these units may need to be reorganised or closed down.

#### 9.2.9 Lack of Transportation

Even with the restoration and repair of a large number of bridges the transportation problem has not yet been solved. The damages and loss in the railways, inland water transport and in buses and trucks have been significant. In the railway and road sectors the shortage of fuel has affected the movement of goods. The special problem raised by



massive food imports has put a heavy strain on the disrupted transport. As a result the commercial and industrial enterprises have not been in a position to move their inputs to the factories and their output to the market expeditiously. Stores are bulging with finished goods or they are piled up at the port for want of shipping space. International shippers are still not calling at Bangladesh ports with their traditional regularity. This has delayed both imports and some decline in working efficiency has led to an increase in turn round time and poor capacity utilisation. This has aggravated problems of scarce capacity and the need for quick movement of goods.

#### 9.2.10 Inadequate Flow of Maintenance Imports

The reasons for the disappointing performance in the industrial sector need also be traced to the inadequate flow of maintenance imports. The following facts speak for themselves:

- (a) To ensure utilisation of industrial capacity at single shift capacity, annual import of roughly Tk. 318.00 crores is required. For the three shipping periods for January 1972 to June 1973 this comes to Tk. 477.00 crores.
- (b) Against this the Government allocated in its import policy for three shipping periods a sum of Tk. 283.00 crores, while the issue of license and L.Cs. opened up to April 15, 1973 have amounted to Tk. 194.00 crores and Tk. 126.00 crores respectively. Imports during this period have been much lower than the L.Cs. opened due to time lags in shipment.
- (c) It is thus quite apparent that the industrial sector has faced something of an import famine in relation to its estimated annual requirement for effective capacity utilization of industry. A poor production performance is thus more easily understandable.

The reasons for this poor import performance are as enumerated below:

- (i) Foreign exchange scarcities led to postponement in declaration of January-June, 1972 import policy till May, 1972, while slow-down in issue of licenses for July-December, 1972 period led to the bulk of the licenses being issued in the last part of the shipping period. Again suspension in April 1973 of issue of import licenses and revalidation of unutilised licenses for all except a few essential industries will also take their toll during the next few months.
- (ii) Foreign exchange scarcities were compounded by delays in issue of licenses due to the cumbersome licensing procedures and some administrative delays.
- (iii) Inexperience of industrial importers in handling licensing procedures.
- (iv) Departure of non-local business houses who handled imports of many industries.
- (v) Time lost in illegal trading of licenses by many industries.
- (vi) Disruption of import links with Pakistan was not immediately compensated by increase in import entitlements. Time was further lost in substituting these links. This led to both shortfall and delays in imports.



(vii) Capital flight through under invoicing led to lower import arrivals than licensed for.

(viii) The entry of TCB into the import of industrial raw materials led to delays due to :

—Inexperience of TCB in this field.

—Excessive burden on TCB.

—The cumbersome decision making procedures led to loss of business due to inability to make snap decisions.

### 9.3 OBJECTIVES OF PLANNED INVESTMENT

The government has set for itself the task of realising a level of development where people will be assured of adequate food, clothing, shelter, health care, education, transport and such other basic needs. The industrial plan can only be viewed as a part of this endeavour. In achieving this goal, it is also expected that the broadened industrial base of the economy will generate substantial surplus, create additional employment and income and usher in a self-reliant economy through utilization of the nation's own resources.

The essential ingredients of the above objectives are :

- (i) to increase supply of key agricultural inputs such as fertilizer, power pumps, tubewells, pesticides, sprayers and tillers ;
- (ii) to utilise domestic resources such as jute, sugarcane, tobacco, fish, leather, timber, gas, clay, limestone, fruits, vegetables, fish and livestock products ;
- (iii) to gradually develop a capital goods industry starting from simple operations and developing through linkage effects to feed inputs to other sectors (e.g., transport) or other industries (viz., machinery and parts).
- (iv) to encourage growth of indigenous and semi-indigenous technology through research and adaptation ;
- (v) to encourage small, cottage and village industries for spatial dispersal and for promotion of private sector efficiency ;
- (vi) to aim for economic self-reliance by building up export-oriented and import substituting industries; and
- (vii) to aim at a balanced geographical distribution of industries for wide dispersion of income and employment effects.

#### 9.3.1 Inputs for Agriculture and Agro-based Industry

Breakthrough in agriculture and self-sufficiency in foodgrains are major objectives of the Plan. To provide a minimum quantum of food for 8.54 crore people without large import dependence require, *inter alia*, large quantities of chemical inputs in the form of fertilizer, insecticides and demands utilisation of improved implements for increasing per-acre yield of foodgrains and other crops. Development of industries for the production of fertilizer, pesticides, pumps, tubewells, sprayers, and tillers, etc. are given due emphasis in the industrial sector plan.



### 9.3.2 Utilisation of Domestic Resources

Utilization of available domestic resources, both natural and man-made, is a prime objective of industrialisation. The resource base is however limited to jute, sugar, fruits and vegetables, tobacco, tea, fish, leather, timber, gas, clay, and limestone. Jute, sugar, tobacco, tea and leather have found extensive use in the early industrialisation of the country. But efforts in respect of other resources have been limited. In particular natural gas offers vast opportunities for industrial development, especially for that of a petrochemical industry.

### 9.3.3 Development of Capital Goods Sector

The high externalities, provided by capital goods industry, provide a good case for their development. Investment in the engineering sector will permit a modest beginning in the capital goods sector which may be expected to grow through the linkage effect. Facilities or production of tools, tackles, equipment and machinery of various sorts are being created during the plan period.

### 9.3.4 Small Industries

Small industries are to play an important role in the Plan. In many spheres capital/output or labour/output ratios are more favourable in this sector. The location of units can be more easily and widely dispersed. This sector will thus help to realise the plan objective of employment generation and development of less developed areas.

### 9.3.5 Rural and Cottage Industries

Cottage and village industries, handloom and handicraft can go a long way in offering opportunities of employment and cater to the needs of the rural areas. These units, properly integrated with the community and with proper industrial assistance, can contribute much towards the economic resurgence of rural Bangladesh.

### 9.3.6 Export Oriented Industries

Export-oriented industries as well as efficiently selected import-substitution industries which contribute to diminishing strains on the balance of payments deserve special consideration. However, indiscriminate import-substitution leading to sub-optimum allocation of resources should be avoided. Initially, the possibility of diversifying export seems limited. Hence more emphasis has been placed on import-substitution. However, attempts have been made to promote newer products (e.g., urea) for export wherever possible.

## 9.4 STRATEGY FOR INCREASING INDUSTRIAL OUTPUT

### 9.4.1 Nationalised Sector

The nationalised sector is now the dominant factor in the industrial sector. Failure to manage these enterprises efficiently will jeopardise our industrial plan, and prejudice our commitment to a socialist economic system. Hence complete re-appraisal of the problems and organisation of the nationalised sector has been attempted in the plan.

### 9.4.2 Private Sector

The government's Investment Policy delimits the role of the private sector in Bangladesh to small and medium-sized units with assets not exceeding Tk. 25 lakhs. The Plan provides for a policy of direct assistance and inducement to enable the private sector to realise the



ambitious investment targets set for it in the Plan. This policy also seeks to prevent the emergence of a new class of big capitalists operating in the areas of large scale industry left outside the orbit of the nationalised sector.

#### 9.4.3 Foreign Investment

The policy towards foreign investment seeks to reconcile public ownership of all large scale industry with the need for scarce capital, foreign technology and scientific know-how. Foreign investment is thus welcome as minority partners of the government though any association of foreign capital with the private sector is excluded.

#### 9.4.4 Geographical Dispersal

In the interest of widely dispersing income and employment generating effects of investment, geographical dispersal of industrial units is an objective of industrial development. This will be realised through a policy of incentives and administrative direction to locate units in less developed areas.

#### 9.4.5 Choice of Technology

The limited resource base and the need to support a growing population as well as reduction in their pressure on land has led to emphasis on adoption of labour intensive technology in the industrial plan. In certain spheres adoption of modern technology is, however, imperative and these will be capital intensive (e.g., Petro-chemical).

#### 9.4.6 Increased Capacity Utilisation

Capacity has remained chronically underutilised in the industrial sector. The plan places considerable emphasis on fuller utilisation of capacity through ensuring a steady supply of spares and materials and more efficient utilisation of domestic capacity. The plan emphasises the need to improve efficiency and quality of production through enforcement of standards, institution of quality control, increase in labour efficiency, reduction in idle machine hour and encouragement of research in product design, technology and management. Balancing, modernisation and replacement of equipment will play an important part in the industrial strategy since they permit fuller and more efficient utilization of capacity.

#### 9.4.7 Growth Through Linkages

Plan strategy for new investment aims at growth through linkages. Linkage here connotes not merely what is ordinarily meant by external economies and complementarities but is also extended to include a systematic effort to trace out a sequential path for action which will maximise these advantages. Thus if emphasis on agricultural development creates demand for fertilizer, we move to produce fertilizer subject to efficiency considerations. If a number of fertilizer units come up one could justify setting up a unit to provide spares for the factory. If several such units in various sectors are to be set up and consequent demand for a machinery complex justifies creation of a machinery complex appropriate investments need to be made.



#### 9.4.8 Development of Management and Skill]

There had been practically no investment in developing skills. This gap has to be filled by improving existing training institutions and developing new ones.

### 9.5 THE INVESTMENT PROGRAMME<sup>1</sup>

The industrial plan envisages an investment outlay of Tk. 8,946.910 million to achieve the objectives outlined in the sectoral plan. Out of the total investment in the industrial sector, Tk. 456.55 crores or about 51.03 per cent will be required in foreign exchange. A total allocation of Tk. 152.14 crores is made for projects which are on-going but not yet completed. The allocation comes to 17.00 per cent of the total investment and will mostly concentrate in the first half of the plan period. The emphasis on new industrial projects is by far the largest and the allocation of Tk. 623.17 crores comes to 69.65 per cent of the monetary outlay in the industries sector. Balancing, modernisation and replacement along with reconstruction and rehabilitation of the industrial assets will require an investment of Tk. 104.80 crores or 11.71 per cent of the industrial investment. Research and development including feasibility studies and provision for certain technical institutions in the industrial sector will require an expenditure of Tk. 14.58 crores which comes to 1.63 per cent of the total investment in the industrial sector.

#### 9.5.1 Nationalised Sector

Table IX-2 gives a summary of the total development allocation and foreign exchange component for each of the seventeen sub-sectors along with their percentage in the total and foreign exchange allocation. Petrochemicals with an outlay of Tk. 162.00 crores including Taka 90.00 crores in foreign exchange out of total estimated investment of Taka 263.35 crores including Taka 143.72 crores in foreign exchange, envisages new capacity creation for urea, synthetic fibre, PVC and other by-products and will claim 18.11 per cent of the total industrial investment and 19.61 per cent. of the total foreign exchange requirement. In terms of investment, the next highest claim is made by cotton textiles which will require Tk. 107.35 crores or 12.00 per cent of the total and 11.97 per cent of the foreign exchange allocation, followed by iron and steel and engineering industries with a planned investment of Tk. 100.00 crores and Tk. 93.81 crores or 11.17 and 10.54 per cent of the total and 10.67 and 9.29 per cent of the foreign exchange respectively. No significant expansion envisaged in jute, shipbuilding, and sugar, their respective share being 3.26, 3.98 and 1.59 per cent of the total investment. Some moderate expansion is expected to be achieved in chemicals and mineral based industries with 6.42 and 7.03 per cent of the total investment allocation respectively.

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<sup>1</sup> The investment programme includes all development outlay in addition to fixed investment.



TABLE IX-2  
Development Outlay Among Sectors

| Sl. No.                | Sub-Sector.  | Total Development outlay (in crore Taka.) | F.E. Component (in crore Taka.) | Sectoral Investment expressed as a % of total development outlay. | Sectoral F.E. Component as a % of total F.E. outlay. |
|------------------------|--|---|---------------------------------|---|--|
| 1                      | 2  | 3   | 4                               | 5   | 6  |
| 1                      | Jute .. ..   | 29.124                                    | 16.295                          | 3.26  | 3.55   |
| 2                      | Textile .. ..  | 107.352                                   | 54.930                          | 12.00   | 11.96  |
| 3                      | Engineering .. ..  | 93.813                                    | 42.626                          | 10.54   | 9.29   |
| 4                      | Shipbuilding .. ..   | 35.611                                    | 17.924                          | 3.98  | 3.91   |
| 5                      | Iron and Steel .. ..   | 100.000                                   | 48.962                          | 11.17   | 10.67  |
| 6                      | Chemicals .. ..  | 57.437                                    | 30.132                          | 6.42  | 6.56   |
| 7                      | Petrochemicals (Fertilizer, Fibre, PVC and other by-products). | 162.000                                   | 90.000                          | 18.11   | 19.61  |
| 8                      | Paper and Board .. ..  | 36.694                                    | 25.691                          | 4.10  | 5.60   |
| 9                      | Forest .. ..   | 9.676                                     | 5.690                           | 1.08  | 1.24   |
| 10                     | Mining and Mineral based industries.                           | 62.865                                    | 33.915                          | 7.03  | 7.39   |
| 11                     | Sugar .. ..  | 14.279                                    | 6.877                           | 1.59  | 1.50   |
| 12                     | Food and Allied Products .. ..                                 | 8.010                                     | 4.100                           | 0.89  | 0.89   |
| 13                     | Leather .. ..  | 7.130                                     | 2.741                           | 0.80  | 0.60   |
| 14                     | Film .. ..   | 4.001                                     | 0.645                           | 0.45  | 0.14   |
| 15                     | BSIC and CIC .. ..   | 24.500                                    | 1.768                           | 2.74  | 0.38   |
| 16                     | Others .. ..   | 2.700                                     | 1.370                           | 0.30  | 0.30   |
| Total—Public Sector .. |  | 755.192                                   | 383.666                         | ..  | —  |
| 17                     | Private Sector .. ..   | 139.500                                   | 72.880                          | 15.59   | 15.96  |
| GRAND TOTAL ..         |  | 894.692                                   | 456.546                         | ..  | ..   |



### 9.5.2 Private Sector

A total investment of Tk. 1,39.50 crore with a foreign exchange component of Tk. 72.88 crores has been programmed for the private sector. This comes to around 15.59 and 15.96 per cent of the total and foreign exchange resources in the industrial sector respectively. Tk. 121.60 crores will be invested in small industry and Tk. 17.90 crores in cottage industry. Together with the Small Industries and Cottage Industries Corporation's direct expenditures, the small and cottage industries' share in the total development outlay comes to 17.56 per cent.

The private sector in most cases will supplement rather than compete with the public sector. Areas of operation where the private sector will invest in small industries are engineering industries (23.54 per cent), food and allied products (14.92 per cent), service industry (7.11 per cent), textile goods (7.99 per cent), printing and publishing (5.38 per cent), chemicals (7.57 per cent) and leather and rubber products (4.60 per cent). Traditionally, these are sectors where profitability is high, demand is assured, employment creation is significant due to higher labour intensity of operation and technology involved is simple.

### 9.5.3 Sectoral Programme: General Comments

Sectoral priorities are fairly well represented by the allocation of resources attached to them except for certain sectors which, because of their capital intensity, require a higher allocation. Table IX-3 gives a breakdown of the sectoral allocation along with their classification in terms of on-going, new projects, balancing, modernisation and replacement and research and study.

Consolidation of existing units to attain a better utilisation of capacity will be the prime objective in jute, paper and sugar industries and no significant capacity expansion is envisaged in these sectors. Certain on-going schemes in the engineering sector will claim a sizable portion of the investment in this sector, e.g., the Machine Tools Factory and General Electric Manufacturing plant. In the shipbuilding sector the completion of Chittagong Dry Dock and Narayanganj Dry Dock is given priority and no new scheme is contemplated here. Other sectors with a considerable amount of investment for on-going schemes are pharmaceuticals in the chemical sector, cotton mills in the textile sector and a paper mill in Sylhet in the paper and board sector.

Investment in new projects would be made in textiles to provide yarn for handlooms, and in engineering industries to provide engineering goods such as industrial fasteners, pipe fittings, type writers, etc., and transport equipment such as three-wheelers, bicycles and auto accessories. In the chemical sector, new capacities will be created for fertilizer, pesticides, man-made fibre and other chemicals. The petrochemical complex envisages production of urea, synthetic fibre, PVC and other by-products. The food and allied industry and leather would also register new capacity.

Major investment commitment for balancing, modernisation and replacement will be in the textile, iron and steel, paper and board and sugar industries.

A total investment of Tk. 12.782 crores (or 1.70 per cent of sectoral investment) for various research institutions, feasibility studies and other research has been proposed.



TABLE IX-3

## Sectoral Investments as Percentage of Total Investments

(Taka in crore)

| Sl. No.             | Sub-Sector.                          | On-going. |       | New.    |       | Balancing, Modernisation & Replacement. |       | Research and Study, etc. |       |
|---------------------|--------------------------------------|-----------|-------|---------|-------|---|-------|--------------------------|-------|
|                     |                                      | Actual.   | %     | Actual. | %     | Actual.                                 | %     | Actual.                  | %     |
| 1                   | 2                                    | 3         | 4     | 5       | 6     | 7                                       | 8     | 9                        | 10    |
| 1                   | Jute ..                              | 4.924     | 3.24  | 8.440   | 1.35  | 15.000                                  | 14.31 | 0.760                    | 5.21  |
| 2                   | Textile ..                           | 16.000    | 10.52 | 80.500  | 12.92 | 9.852                                   | 9.40  | 1.000                    | 6.86  |
| 3                   | Engineering ..                       | 57.126    | 37.55 | 25.244  | 4.05  | 9.687                                   | 9.24  | 1.756                    | 12.04 |
| 4                   | Shipbuilding ..                      | 33.250    | 21.83 | ..      | ..    | 2.346                                   | 2.24  | 0.015                    | 0.10  |
| 5                   | Iron and Steel ..                    | ..        | ..    | 86.426  | 13.87 | 12.550                                  | 11.97 | 1.024                    | 7.02  |
| 6                   | Chemicals ..                         | 9.059     | 5.95  | 46.144  | 7.40  | 1.547                                   | 1.48  | 0.687                    | 4.71  |
| 7                   | Petrochemicals ..                    | ..        | ..    | 161.000 | 25.83 | ..                                      | ..    | 1.000                    | 6.86  |
| 8                   | Paper and Board..                    | 9.833     | 6.46  | 12.420  | 1.99  | 14.441                                  | 13.78 | ..                       | ..    |
| 9                   | Forest ..                            | 1.526     | 1.03  | 7.300   | 1.17  | 0.850                                   | 0.81  | ..                       | ..    |
| 10                  | Mining and Mineral based industries. | 0.800     | 0.53  | 60.121  | 9.65  | 0.864                                   | 0.82  | 1.080                    | 7.41  |
| 11                  | Sugar ..                             | 5.140     | 3.38  | 1.800   | 0.29  | 6.739                                   | 6.43  | 0.600                    | 4.11  |
| 12                  | Food and Allied Products.            | ..        | ..    | 7.450   | 1.19  | 0.400                                   | 0.38  | 0.160                    | 1.10  |
| 13                  | Leather ..                           | ..        | ..    | 5.830   | 0.94  | 1.000                                   | 0.95  | 0.300                    | 2.06  |
| 14                  | Film ..                              | 0.486     | 0.32  | 2.515   | 0.40  | ..                                      | ..    | 1.000                    | 6.86  |
| 15                  | BSIC and CIC ..                      | 14.000    | 9.20  | 6.000   | 0.96  | 2.000                                   | 1.91  | 2.500                    | 17.14 |
| 16                  | Others ..                            | ..        | ..    | ..      | ..    | ..                                      | ..    | 2.700                    | 18.52 |
| Total—Public Sector |                                      | 152.144   | 100   | 511.190 | 82.03 | 77.276                                  | 73.74 | 14.562                   | 100   |
| 17                  | Private Sector ..                    | ..        | ..    | 11.980  | 17.97 | 27.520                                  | 26.26 | ..                       | ..    |
| GRAND TOTAL ..      |                                      | 152.144   | 100   | 623.170 | 100   | 104.796                                 | 100   | 14.582                   | 100   |

## 9.6 TIME PROFILE OF INVESTMENT

Phasing of expenditure must take into account product, technical and resource complementarities as well as financial availability. Lumpiness of investment at either end of the plan may lead to complexities which can be avoided through a programmed approach. An ideal situation obtain when investment is phased out to achieve a material balance consistent with the gestation period so as to achieve a progressive rate of growth.



Products that are on-going will require investment at the beginning of the plan period. Most of the new projects will have longer gestation periods and some of them will spill over into the next plan. Balancing, modernisation and replacement will, however, concentrate in the beginning of the plan period. The summary of the investment time-profile of the sectoral programme during the Five-Year period is given in Table IX-4 and is expressed below as a percentage of total outlay split into foreign exchange outlay and local currency expenditure:

|                     | 1973-74. | 1974-75. | 1975-76. | 1976-77. | 1977-78. |
|---------------------|----------|----------|----------|----------|----------|
| Total .. ..         | 11.07    | 18.40    | 22.55    | 23.47    | 24.51    |
| Foreign Exchange .. | 8.74     | 19.31    | 23.16    | 24.34    | 24.45    |
| Local Currency ..   | 13.51    | 17.45    | 21.91    | 22.56    | 24.56    |

In the jute sector, investment would taper off from Taka 10.625 crores in 1973-74 to Taka 5.139 crores in 1974-75, Taka 5.000 crores in 1975-76 and 1976-77 and Taka 3.360 crores in 1977-78. This is primarily because new investments is not significant here and more effort will be devoted to consolidation of the present capacity and to market oriented research.

In the cotton textile sector, investment increases with time and higher investment is concentrated during the latter years of the Plan. Thus investment increases constantly from Taka 12.911 crores in 1973-74 to Taka 20.000 crores, Taka 22.000 crores, Taka 25.000 crores and Taka 27.441 crores in 1974-75, 1975-76, 1976-77 and 1977-78.

In the engineering industries where two on-going schemes, Machine Tools factory and Electrical Manufacturing plant will take the bulk of investment, the total investment phasing shows an increase and then a decline. In 1973-74 the total investment in this sector comes to Taka 17.472 crores which increases to Taka 18.355 crores, Taka 23.470 crores and Taka 24.371 crores in 1974-75, 1975-76 and 1976-77 respectively, and then goes down to Taka 10.145 crores in the terminal year. Similar is the case in shipbuilding where investment increases from Taka 4.360 crores in the first year to Taka 7.900 crores in 1974-75, Taka 8.755 crores in 1975-76, Taka 8.575 crores in 1976-77 and then falls to Taka 6.021 crores in the terminal year.

In iron and steel investment shows a constant increase from Taka 2.097 crores in the beginning to Taka 25.173 crores in 1976-77 and then declines to Taka 19.500 crores in the final year.

In the chemicals sector including petrochemicals, where new investment is the dominant factor, investment will grow with time such that it will increase from Taka 8.077 crores in 1973-74 to Taka 36.598 crores, Taka 52.595 crores, Taka 52.250 crores and Taka 69.917 crores in the five-year period respectively.

In paper and board, investment will fluctuate concentrating on first and last years. In leather, investment is concentrated on the first three years and then it falls gradually in the last years of the Plan.

The effect of the various forces of on-going, new, modernisation, balancing and replacement and research projects is reflected in the total investment which shows a compound growth rate of 22 per cent per annum.



TABLE IX-4

## Sectoral Phasing of Investment

(Taka in Crore).

| Sector.                       | 1973-74. |        | 1974-75. |        | 1975-76. |         | 1976-77. |         | 1977-78. |         |
|-------------------------------|----------|--------|----------|--------|----------|---------|----------|---------|----------|---------|
|                               | Total.   | F.E.   | Total.   | F.E.   | Total.   | F.E.    | Total.   | F.E.    | Total.   | F.E.    |
| 1. Jute ..                    | 10.625   | 3.137  | 5.139    | 3.910  | 5.000    | 4.170   | 5.000    | 3.561   | 3.360    | 1.517   |
| 2. Textile ..                 | 12.911   | 8.619  | 20.000   | 10.292 | 22.000   | 11.292  | 25.000   | 11.475  | 27.441   | 13.252  |
| 3. Engineering ..             | 17.472   | 7.706  | 18.355   | 7.976  | 23.470   | 10.345  | 24.371   | 10.740  | 10.145   | 5.959   |
| 4. Shipbuilding ..            | 4.360    | 1.990  | 7.900    | 4.320  | 8.755    | 4.224   | 8.575    | 4.370   | 6.021    | 3.020   |
| 5. Iron and Steel ..          | 2.097    | 0.945  | 24.776   | 12.517 | 28.454   | 16.500  | 25.173   | 16.000  | 19.500   | 3.000   |
| 6. Chemicals ..               | 7.177    | 1.637  | 14.498   | 8.550  | 19.595   | 10.536  | 8.250    | 4.859   | 7.917    | 4.550   |
| 7. Petro-chemicals ..         | 0.900    | 0.100  | 22.100   | 12.600 | 33.000   | 18.000  | 44.000   | 23.200  | 62.000   | 36.100  |
| 8. Paper and Board            | 10.103   | 5.449  | 5.180    | 4.092  | 5.131    | 4.000   | 7.400    | 5.920   | 8.880    | 6.230   |
| 9. Forest Industries          | 2.310    | 1.015  | 1.340    | 0.750  | 1.760    | 1.142   | 2.100    | 1.260   | 2.166    | 1.523   |
| 10. Mining and Mineral based. | 2.713    | 1.008  | 13.155   | 7.549  | 14.700   | 8.013   | 15.300   | 7.822   | 16.997   | 9.523   |
| 11. Food and Allied Products, | 0.769    | 0.424  | 0.645    | 0.272  | .868     | 0.410   | 2.602    | 1.390   | 3.126    | 1.604   |
| 12. Leather ..                | 1.086    | 0.220  | 2.000    | 0.801  | 1.655    | 0.536   | 1.651    | 0.884   | .738     | 0.300   |
| 13. Sugar ..                  | 2.723    | 1.190  | 2.200    | 0.820  | 2.757    | 0.700   | 3.005    | 1.624   | 3.594    | 2.543   |
| 14. Film Development          | 0.315    | 0.150  | 1.411    | 0.295  | 0.710    | .060    | 0.700    | 0.040   | 0.865    | 0.100   |
| 15. BSIC and CIC ..           | 3.051    | 0.112  | 4.500    | 0.400  | 5.449    | 0.556   | 5.500    | 0.400   | 6.000    | 0.300   |
| 16. Others ..                 | 0.472    | 0.190  | 0.405    | 0.206  | 0.540    | 0.274   | 0.573    | 0.300   | 0.710    | 0.400   |
| Total Public Sector ..        | 79.084   | 33.889 | 143.604  | 75.350 | 173.844  | 90.658  | 179.200  | 93.845  | 179.460  | 89.911  |
| 17. Private Sector ..         | 20.000   | 6.000  | 21.000   | 12.800 | 29.900   | 15.072  | 30.800   | 17.300  | 39.800   | 21.708  |
| GRAND TOTAL ..                | 99.084   | 39.889 | 164.604  | 88.150 | 201.744  | 105.730 | 210.000  | 111.145 | 219.260  | 111.629 |



## 9.7 ECONOMIC BENEFITS OF THE INDUSTRIAL PROGRAMME

### 9.7.1 Incremental Production and Production Target

Target production at the end of the Plan period and incremental production during the Plan for the public and private sectors are presented in Tables IX-5 and IX-6. Production in the public sector industries is mostly on a one-shift basis except for jute, cotton textiles and chemicals where two or three shifts are operating. In the private sector two-shift operation is assumed as a matter of policy. Increase in production during the Plan would be both by expansion of capacity and efficient utilization of the existing units. In some cases, such as jute in the public sector and handloom in the private sector, output will increase largely through increasing shift operations. In making inter-sectoral comparison of incremental output from investments it is necessary to take cognisance of various ways identified above in which output within the sector will increase.

Since production data was not available for the private sector, normal capacity utilization figures were assumed for the existing units as a benchmark. This was then adjusted to reflect 70 to 90 per cent utilization in the future. Similarly for the new capacities created during the Plan in the private sector, capacity utilization was assumed to be 70 to 90 per cent for different industries.

In jute and sugar industries sectors the increment at the terminal year over the benchmark production will be about 30.5 per cent and 30 per cent respectively. In the textile industries sector there will be an increment of about 170 per cent in cloth production over the benchmark production and about 82 per cent in yarn production.

The increment in target production at the end of the Plan over the benchmark production (estimated) varies from 20 per cent in the mining and mineral sector to about 462.50 per cent in the iron and steel sector. In the engineering sector the increment of target production over the benchmark production will be about 279 per cent in case of units for which targets were shown in tons. For others the increment will be about 656 per cent.

In the chemicals sector the increment at the terminal year will be about 176 per cent over the benchmark production. In the pulp and paper sector there will be a moderate increment of about 84 per cent over the existing production. The increment in the food and allied sector will be quite considerable, the increment over the benchmark production being 214 per cent. In the leather industries the increment at the terminal year over the benchmark production will be about 171 per cent.



TABLE IX-5

## Benchmark, Target and Incremental Capacity

| Sl. No. | Sub-Sector.                   | Units.     | Public Sector.       |                  | Private Sector.       |                      | Total (Public and Private). |                       |
|---------|-------------------------------|------------|----------------------|------------------|-----------------------|----------------------|-----------------------------|-----------------------|
|         |                               |            | Bench-mark capacity. | Target capacity. | Incremental capacity. | Bench-mark capacity. | Target capacity.            | Incremental capacity. |
| 1       | Jute ..                       | Tons       | 7,22,346             | 10,45,713        | 3,23,367              | ..                   | ..                          | 10,45,713 3,23,367    |
| 2       | Textile :                     |            |                      |                  |                       |                      |                             |                       |
| (a)     | Yarn ..                       | Crore Lbs. | 13,950               | 21,970           | 8,020                 | 0,005                | 0,010                       | 0,005 8,025           |
| (b)     | Cloth ..                      | Crore Yds. | 12,672               | 20,052           | 7,380                 | 41,296               | 73,166                      | 31,870 39,250         |
| (c)     | Ready-made Garments           | Crore Tk.  | ..                   | ..               | ..                    | 2,000                | 9,700                       | 7,700                 |
| 3       | Engineering ..                | Tons       | 17,000               | 47,700           | 30,700                | 3,55,515             | 5,59,015                    | 2,03,500 2,34,200     |
|         |                               | Crore Tk.  | 8,500                | 27,810           | 19,310                | 25,877               | 84,227                      | 58,350 77,660         |
| 4       | Shipbuilding ..               | Crore Tk.  | 2,120                | 15,455           | 13,335                | ..                   | ..                          | 15,455 13,335         |
| 5       | Iron and Steel :              |            |                      |                  |                       |                      |                             |                       |
| (a)     | Steel making ..               | Lakh tons  | 2,50                 | 5,50             | 3,00                  | 2,00                 | 2,00                        | .. 3,00               |
| (b)     | Re-rolling ..                 | Lakh tons  | 2,00                 | 4,50             | 2,50                  | ..                   | ..                          | .. 2,50               |
| 6       | Chemicals :                   |            |                      |                  |                       |                      |                             |                       |
| (a)     | ..                            | Tons       | 7,51,900             | 10,19,020        | 2,90,120              | 89,400               | 1,12,768                    | 33,368 11,31,788      |
| (b)     | ..                            | Crore Tk.  | 65,250               | 101,250          | 36,000                | 45,245               | 70,245                      | 25,000 171,495        |
| 7       | Petro-chemicals ..            | Tons       | ..                   | 5,07,000         | 5,07,000              | ..                   | ..                          | .. 5,07,000           |
| 8       | Pulp and Paper and Printing : |            |                      |                  |                       |                      |                             |                       |
| (a)     | ..                            | Tons       | 1,00,000             | 1,23,000         | 23,900                | 10,560               | 10,560                      | .. 1,34,460           |
| (b)     | ..                            | Crore Tk.  | ..                   | ..               | ..                    | 10,200               | 12,100                      | 1,960 12,100          |



TABLE IX-5—Concl'd.

| Sl. No. | Sub-Sector.                            | Units.     | Public Sector.       |                  |                      | Private Sector.      |                  |                      | Total (Public and Private). |                      |
|---------|--|------------|----------------------|------------------|----------------------|----------------------|------------------|----------------------|-----------------------------|----------------------|
|         |  |            | Bench-mark capacity. | Target capacity. | Incremenal capacity. | Bench-mark capacity. | Target capacity. | Incremenal capacity. | Target capacity.            | Incremenal capacity. |
| 9       | Forest :                               |            |                      |                  |                      |                      |                  |                      |                             |                      |
| (a)     | ..                                     | Tons       | 40,950               | 56,941           | 15,991               | 11,437               | 15,875           | 44,380               | 82,816                      | 20,429               |
| (b)     | ..                                     | Crore Tk.  | ..                   | ..               | ..                   | 4,200                | 6,394            | 2,149                | 6,394                       | 2,149                |
| 10      | Milling and Mineral based Industries : |            |                      |                  |                      |                      |                  |                      |                             |                      |
| (a)     | ..                                     | Tons       | 3,00,000             | 13,30,000        | 10,30,000            | 11,57,350            | 15,70,350        | 4,13,000             | 29,00,350                   | 14,61,000            |
| (b)     | ..                                     | Crore Tk.  | ..                   | ..               | ..                   | 2,800                | 7,150            | 4,350                | 7,150                       | 4,350                |
| 11      | Sugar Industries                       | ..         | 1,69,000             | 1,79,000         | 10,000               | ..                   | ..               | ..                   | 1,79,000                    | 10,000               |
| 12      | Food and Allied Products :             |            |                      |                  |                      |                      |                  |                      |                             |                      |
| (a)     | ..                                     | Tons       | 94,300               | 1,42,885         | 48,585               | 44,91,082            | 59,83,987        | 15,94,905            | 61,28,872                   | 16,43,490            |
| (b)     | ..                                     | Crore Tk.  | 12,772               | 12,872           | 0,100                | 68,445               | 141,965          | 73,520               | 154,837                     | 73,620               |
| 13      | Leather :                              |            |                      |                  |                      |                      |                  |                      |                             |                      |
| (a)     | ..                                     | Crore sfl. | 7,413                | 13,453           | 6,040                | 4,940                | 6,040            | 1,100                | 19,493                      | 7,140                |
| (b)     | ..                                     | Crore Tk.  | ..                   | 1,080            | 1,080                | 22,300               | 43,300           | 21,000               | 44,380                      | 22,080               |
| 14      | Miscellaneous Industries :             |            |                      |                  |                      |                      |                  |                      |                             |                      |
| (a)     | ..                                     | Tons       | ..                   | ..               | ..                   | 1,62,500             | 83,500           | 24,600               | 24,600                      | 83,500               |
| (b)     | ..                                     | Crore Taka | ..                   | ..               | ..                   | 6,470                | 15,904           | 9,434                | 15,904                      | 9,434                |
| 15      | Service Industries :                   |            |                      |                  |                      |                      |                  |                      |                             |                      |
| (a)     | Hotel and Motels                       | ..         | ..                   | ..               | ..                   | 34                   | 39               | 5                    | 39                          | 5                    |
| (b)     | Cinema House                           | ..         | ..                   | ..               | ..                   | 120                  | 220              | 100                  | 220                         | 100                  |



TABLE IX-6  
Benchmark, Target and Incremental Production

| Sl. No. | Sub-Sector.               | Unit.      | Public Sector.        |                    | Private Sector.       |                    | Total (Public and Private). |                    |          |          |
|---------|---------------------------|------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------------|--------------------|----------|----------|
|         |                           |            | Benchmark Production. | Target Production. | Benchmark Production. | Target Production. | Benchmark Production.       | Target Production. |          |          |
| 1       | Jute                      | Tons       | 5,87,000              | 7,66,000           | 1,79,000              | ..                 | 7,66,000                    | 1,79,000           |          |          |
| 2       | Textile :                 |            |                       |                    |                       |                    |                             |                    |          |          |
| (a)     | Yarn                      | Crore lbs. | 8.630                 | 19.740             | 7.110                 | 0.0025             | 0.0075                      | 0.005              | 19.7475  | 7.115    |
| (b)     | Cloth                     | Crore Yds. | 7.272                 | 19.100             | 11.828                | 20.648             | 56.200                      | **35.552           | 75.300   | 47.380   |
| (c)     | Ready-made Garments       | Crore Tk.  | ..                    | ..                 | ..                    | 0.600              | 7.760                       | **7.160            | 7.760    | 7.160    |
| 3       | Engineering :             |            |                       |                    |                       |                    |                             |                    |          |          |
| (a)     |                           | Tons       | 5,555                 | 33,800             | 28,245                | 1,06,655           | 3,91,300                    | 2,84,645           | 4,25,100 | 3,12,890 |
| (b)     |                           | Crore Tk.  | 3.276                 | 24.235             | 20.959                | 7.740              | 58.940                      | 51.200             | 83.175   | 72.159   |
| 4       | Shipbuilding              | Crore Tk.  | 2.455                 | 8.100              | 5.645                 | ..                 | ..                          | ..                 | 8.100    | 5.645    |
| 5       | Iron and Steel :          |            |                       |                    |                       |                    |                             |                    |          |          |
| (a)     | Steel Making              | Lakh ton   | 0.80                  | 4.50               | 3.70                  | ..                 | ..                          | ..                 | 4.50     | 3.70     |
| (b)     | Re-rolling                | Lakh ton   | 1.50                  | 3.50               | 2.00                  | 0.50               | 1.50                        | 1.00               | 5.00     | 3.00     |
| 6       | Chemicals :               |            |                       |                    |                       |                    |                             |                    |          |          |
| (a)     |                           | Tons       | 3,00,000              | 8,37,825           | 5,37,825              | 35,760             | 98,214                      | 52,454             | 9,36,039 | 5,90,279 |
| (b)     |                           | Crore Tk.  | 66.275                | 71.000             | 4.775                 | 18.098             | 56.196                      | 38.098             | 127.196  | 42.873   |
| 7       | Petro-chemical            | Tons       | ..                    | 3,88,000           | 3,88,000              | ..                 | ..                          | ..                 | 3,88,000 | 3,88,000 |
| 8       | Pulp and Paper Printing : |            |                       |                    |                       |                    |                             |                    |          |          |
| (a)     |                           | Tons       | 54,000                | 1,00,500           | 46,500                | 5,280              | 8,448                       | 3,168              | 1,08,948 | 49,668   |
| (b)     |                           | Crore Tk.  | ..                    | ..                 | ..                    | 7.140              | 10.944                      | 3.804              | 10.944   | 3.804    |

\*Incremental production is also due to increase in shifts of operation.

\*\*Production data for private sector is not available. The Benchmark data is derived by estimating 30 to 50 per cent. of the capacity (generally on the basis of one shift operation) in the private sector.



TABLE IX-6—Concl'd.

| Sl. No. | Sub-Sector.                           | Unit,      | Public Sector.        |                    | Private Sector.       |                                | Total (Public and Private).    |                         |           |           |
|---------|---------------------------------------|------------|-----------------------|--------------------|-----------------------|--------------------------------|--------------------------------|-------------------------|-----------|-----------|
|         |                                       |            | Benchmark Production. | Target Production. | Benchmark Production. | Target Incremental Production. | Target Incremental Production. | Incremental Production. |           |           |
| 9       | Forests :                             |            |                       |                    |                       |                                |                                |                         |           |           |
| (a)     | ..                                    | Tons       | 11,500                | 79,500             | 68,000                | 9,150                          | 12,700                         | 3,650                   | 92,200    | 71,650    |
| (b)     | ..                                    | Crore Tk.  | ..                    | ..                 | ..                    | 1,260                          | 4,674                          | 3,414                   | 4,674     | 3,414     |
| 10      | Mining and Mineral based Industries : |            |                       |                    |                       |                                |                                |                         |           |           |
| (a)     | ..                                    | Tons       | 1,63,200              | 10,00,000          | 8,37,400              | 5,78,675                       | 12,56,000                      | 6,77,325                | 22,56,600 | 15,14,725 |
| (b)     | ..                                    | Crore Tk.  | ..                    | ..                 | ..                    | 1,400                          | 5,720                          | 4,320                   | 5,720     | 4,320     |
| 11      | Sugar Industries                      | ..         | Tons                  | 1,06,470           | 1,48,000              | 41,530                         | ..                             | ..                      | 1,48,000  | 41,530    |
| 12      | Food and Allied Products :            |            |                       |                    |                       |                                |                                |                         |           |           |
| (a)     | ..                                    | Tons       | 19,920                | 99,875             | 79,955                | 13,47,000                      | 41,90,000                      | 28,43,000               | 42,89,875 | 29,22,955 |
| (b)     | ..                                    | Crore Tk.  | 3,303                 | 9,018              | 5,615                 | 20,533                         | 99,375                         | 78,842                  | 108,393   | 84,457    |
| 13      | Leather :                             |            |                       |                    |                       |                                |                                |                         |           |           |
| (a)     | ..                                    | Crore Sft. | 4,485                 | 12,108             | 7,623                 | 1,776                          | 5,328                          | 3,552                   | 17,436    | 11,175    |
| (b)     | ..                                    | Crore Tk.  | ..                    | 1,580              | 1,580                 | 8,920                          | 30,310                         | 21,396                  | 31,890    | 22,976    |
| 14      | Miscellaneous Industries :            |            |                       |                    |                       |                                |                                |                         |           |           |
| (a)     | ..                                    | Tons       | ..                    | ..                 | ..                    | 48,750                         | 1,72,200                       | 1,23,450                | 1,72,200  | 1,23,450  |
| (b)     | ..                                    | Crore Tk.  | ..                    | ..                 | ..                    | 1,941                          | 11,130                         | 9,189                   | 11,130    | 9,189     |
| 15      | Service Industries :                  |            |                       |                    |                       |                                |                                |                         |           |           |
| (a)     | Hotels and Motels                     | ..         | Nos.                  | ..                 | ..                    | 34                             | 39                             | 5                       | 39        | 5         |
| (b)     | Cinema House                          | ..         | Nos.                  | ..                 | ..                    | 120                            | 220                            | 100                     | 220       | 100       |



## 9.7.2 : Value Added

Increase in value added due to new investment in capacity or better utilisation during the Plan is shown in Table IX-7 by sectors.

In the public sector net value added will increase by Tk. 128.449 crores and in the private sector by Tk. 110.800 crores, showing a total increase of Tk. 239.249 crores annually. This implies a rate of growth of about 8.5 per cent. per annum over the value added by large scale industry in 1972-73. Increase in value added will be highest in textiles (Tk. 77.607 crores) followed by engineering (Tk. 31.038 crores) and chemicals (Tk. 21.067 crores).

TABLE IX-7  
Value Added from Additional Sectoral Output due to New Investment in 1977-78\*

(Taka in crore.)

| Serial No. | Sub-Sector,  | Public Sector. | Private Sector.             | Total.  |
|------------|--|----------------|-----------------------------|---------|
| 1          | 2  | 3              | 4                           | 5       |
| 1          | Jute .. ..   | 15.738         | ..                          | 15.738  |
| 2          | Textile (including handloom) ..                              | 30.807         | 46.800                      | 77.607  |
| 3          | Engineering .. ..  | 12.238         | 18.800                      | 31.038  |
| 4          | Shipbuilding .. ..   | 4.094          | ..                          | 4.094   |
| 5          | Iron and Steel .. ..   | 14.500         | ..                          | 14.500  |
| 6          | Chemicals .. ..  | 12.562         | 8.500                       | 21.062  |
| 7          | Petrochemicals .. ..   | 11.317         | ..                          | 11.317  |
| 8          | Pulp and Paper (including printing, paper converting, etc.). | 4.127          | 6.200                       | 10.327  |
| 9          | Forest Products .. ..  | 2.050          | 0.800<br>(incl. furniture). | 2.850   |
| 10         | Mining and Minerals based Industries ..                      | 7.312          | 4.000                       | 11.312  |
| 11         | Sugar .. ..  | .575           | ..                          | .575    |
| 12         | Food and Allied Products .. ..                               | 4.934          | 7.500                       | 12.434  |
| 13         | Leather .. ..  | 5.020          | 3.000<br>(incl. rubber).    | 6.020   |
| 14         | Handicraft, Rural or Village Industries ..                   | ..             | 10.000                      | 10.000  |
| 15         | Miscellaneous .. ..  | ..             | 5.200                       | 5.200   |
|            | Total ..   | 128.449        | 110.800                     | 239.249 |

\*Certain items in the miscellaneous category consist of non-manufacturing activities. Hence the total value added in this table is not strictly comparable with that in Chapter 2.



### 9.7.3 Employment

Employment creation is one of the primary objectives of industrial investment. In the public sector industries the technological constraint will limit the attainment of the objective in contrast to the private sector industries where new end use processing units will be forthcoming and the technology involved is simple. In the public sector, most of the employment creation will be due to new investment. It is estimated that about 1,11,000 new job will be created in the public sector whilst employment in the private sector will increase by 5,01,300 bringing the total to 6,12,300 new jobs created by the industrial investment plan. (See Table IX-8).

TABLE IX-8  
Employment

| Serial No.                             | Sub-Sector. |    |    | Public Sector. | Private Sector. | Total.   |
|--|-------------|----|----|----------------|-----------------|----------|
| 1                                      | 2           |    |    | 3              | 4               | 5        |
| 1 Jute                                 | ..          | .. | .. | 43,000         | ..              | 43,000   |
| 2 Textile                              | ..          | .. | .. | 31,500         | 2,20,000        | 2,51,500 |
| 3 Engineering.                         |             |    |    |                |                 |          |
| (a) Capital Machinery                  | ..          | .. | .. | 6,000          | 84,300          | 90,300   |
| (b) Engineering Goods                  | ..          | .. | .. |                |                 |          |
| (c) Agricultural Implements            | ..          | .. | .. |                |                 |          |
| (d) Electrical Accessories             | ..          | .. | .. |                |                 |          |
| (e) Intermediate Goods                 | ..          | .. | .. |                |                 |          |
| (f) Consumer Goods                     | ..          | .. | .. |                |                 |          |
| (g) Others                             | ..          | .. | .. |                |                 |          |
| 4 Shipbuilding and Transport Equipment |             |    |    | 3,000          | 1,000           | 4,000    |
| 5 Iron and Steel                       | ..          | .. | .. | 4,000          | 500             | 4,500    |
| 6 Chemicals                            | ..          | .. | .. | 10,000         | 20,000          | 30,000   |
| 7 Petrochemicals                       | ..          | .. | .. | 5,000          | ..              | 5,000    |



TABLE IX-8—*Concl'd.*

| Serial<br>No.<br>1 | Sub-Sector.<br>2   | Public<br>Sector.<br>3 | Private<br>Sector.<br>4 | Total.<br>5 |
|--------------------|--|------------------------|-------------------------|-------------|
| 8                  | Pulp and paper (including printing, publication, etc.).    | 1,000                  | 10,000                  | 11,000      |
| 9                  | Forest Products .. ..                                      | 500                    | 5,500                   | 6,000       |
| 10                 | Mining and Mineral based Industries<br>(including Cement). | 3,000                  | 9,000                   | 12,000      |
| 11                 | Sugar .. ..  | 1,000                  | ..                      | 1,000       |
| 12                 | Food and Allied Products .. ..                             | 1,000                  | 25,000                  | 26,000      |
| 13                 | Leather .. ..  | 1,000                  | 10,000                  | 11,000      |
| 14                 | Film .. ..   | 1,000                  | 5,000                   | 6,000       |
| 15                 | Miscellaneous Industry:                                    |                        |                         |             |
|                    | (a) Service Industry .. ..                                 | ..                     | 1,11,000                | 1,11,000    |
|                    | (b) Industry not elsewhere classified .. ..                |                        |                         |             |
|                    | (c) Handicraft, Rural Industry .. ..                       |                        |                         |             |
|                    | Total .. ..  | 1,11,000               | 5,01,300                | 6,12,300    |

In the private sector handloom industries and handicraft and rural industries will generate by far the largest increase in employment. The textile sector programme envisages the activation of 2,50,000 handlooms which will be fed with enough yarn to keep them working throughout the year. Another 1,00,000 looms will be set up.

We assume that handloom cloth production will increase by over 35 per cent over 1969-70. Assuming a direct relationship between output and employment in this sector, the handloom sector will create an additional 2,00,000 jobs. We may assume that the textiles units in the small industries sector will create around 20,000 new jobs. In the handicraft, rural and village industry an additional employment of 50,000 is expected to be created. However, this would be a form of employment which may not take away the workers from their main agricultural occupation and will be in the nature of secondary employment. In other sectors of private industry around 2,31,300 jobs will be created out of which a large percentage will be due to better utilisation and more intensive use of the existing facilities.

Historically the highest proportion of employment is created in the building and construction sector. Since most of the projects in the public sector are expected to be turnkey, employment generation in construction and civil engineering works of the factories are not included. Roughly, around 30 to 35 per cent of the capital cost for setting up an industry is spent on civil engineering and payment of wages. If employment creation in this activity is also taken into account the incremental employment in the industrial sector will be considerable.



### 9.7.4 Export

In the industrial sector, there are few areas where the country enjoys a relative comparative advantage to be able to compete in the international market. Jute manufactures will continue to be the basic export earner. \*Out of a total estimated export earning from the industrial sector of Tk. 270.290 crores, jute manufactures are expected to contribute around Tk. 225.200 crores or over 83.32 per cent of the total. Leather products and shoes will earn around Tk. 20.400 crores. Urea, iron and pulp and paper would contribute Tk. 9.000 crores, Tk. 4.500 crores and Tk. 58.5 lakhs respectively in the public sector, whilst food and allied industries will export goods worth Tk. 4.0 lakhs; fish exports would be the major item. In the private sector certain specialised textile goods, silk fabrics, etc., are expected to earn around Tk. 6.000 crores. Another 1.065 crore Taka is expected to be earned by the handicraft industry. In aggregate the private sector is expected to earn 20.565 crores taka in foreign exchange. (See Table IX-9).

TABLE IX-9.  
Sectoral Export Earnings

|                 |   |    |    |                     | (Taka in Crore)      |             |
|-----------------|---|----|----|---------------------|----------------------|-------------|
| Serial No.<br>1 | Sub-Sector,<br>2                            |    |    | Public Sector.<br>3 | Private Sector.<br>4 | Total.<br>5 |
| 1               | Jute  | .. | .. | 225.200             | ..                   | 225.200     |
| 2               | Textile                                     | .. | .. | ..                  | 6.000                | 6.000       |
| 3               | Food and Allied Products                    | .. | .. | 0.040               | 2.000                | 2.040       |
| 4               | Leather and Shoe                            | .. | .. | 10.400              | 10.000               | 20.400      |
| 5               | Pulp and Paper                              | .. | .. | 0.585               | ..                   | 0.585       |
| 6               | Forest Products                             | .. | .. | ..                  | 0.200                | 0.200       |
| 7               | Iron and Steel (1 lakh tons of sponge iron) | .. | .. | 4.500               | ..                   | 4.500       |
| 8               | Chemicals                                   | .. | .. | ..                  | 1.000                | 1.000       |
| 9               | Urea  | .. | .. | 9.000               | ..                   | 9.000       |
| 10              | Miscellaneous                               | .. | .. | ..                  | 0.300                | 0.300       |
| 11              | Handicraft Industry                         | .. | .. | ..                  | 1.065                | 1.065       |
| Total           |   |    |    | 249.725             | 20.565               | 270.290     |

\* See chapter VI, Section 5.3.



## 9.7.5 Net Import substitution

Net import substitution is derived by estimating gross substitution at C & F cost of imports *minus* the import liability for current inputs including depreciation of capital stock imported. The net incremental import substitution in the public sector comes to around Tk. 175.725 crores while in the private sector it comes to Tk. 93.180 crores, the total adding up to Tk. 268.605 crores. Net import substitution will be high in engineering, iron and steel, chemical, textile, petrochemical and sugar sectors. These sectors will contribute over 80 per cent. of net import substitution in the industries sector (see Table IX-10).

TABLE IX-10

Net Incremental Import substitution of the Industries Sector

(Taka in Crore.)

| Serial No. | Sub-Sector.                         |    |    | Public Sector. | Private Sector. | Total.  |
|------------|-------------------------------------|----|----|----------------|-----------------|---------|
| 1          | 2                                   |    |    | 3              | 4               | 5       |
| 1          | Jute                                | .. | .. | ..             | ..              | ..      |
| 2          | Textile                             | .. | .. | 19.397         | 24.600          | 43.997  |
| 3          | Engineering                         | .. | .. | 17.062         | 32.700          | 49.762  |
| 4          | Shipbuilding                        | .. | .. | 3.327          | ..              | 3.327   |
| 5          | Iron and Steel                      | .. | .. | 49.000         | ..              | 49.000  |
| 6          | Chemicals                           | .. | .. | 30.558         | 19.000          | 49.558  |
| 7          | Petrochemicals                      | .. | .. | 22.460         | ..              | 22.460  |
| 8          | Paper and Board                     | .. | .. | 4.387          | 1.200           | 5.587   |
| 9          | Mining and Mineral Based Industries | .. | .. | 2.714          | 5.000           | 7.714   |
| 10         | Sugar                               | .. | .. | 20.200         | ..              | 20.200  |
| 11         | Food and Allied Products            | .. | .. | 6.320          | 1.000           | 7.320   |
| 12         | Leather Tanning and Rubber Products | .. | .. | ..             | 1.500           | 1.500   |
| 13         | Film                                | .. | .. | ..             | ..              | ..      |
| 14         | Forest Products                     | .. | .. | ..             | 0.180           | 0.180   |
| 15         | Other                               | .. | .. | ..             | 8.000           | 8.000   |
| Total ..   |                                     |    |    | 175.72         | 93.180          | 268.605 |



### 9.7.6. Import Liabilities

Import liabilities of a recurring nature for current inputs are shown in table IX-11 which is derived for incremental output. A total of Tk. 164.915 crores is involved as import liability per year. Import liability in the public sector comes to Tk. 141.765 crores per annum while in the private sector it comes to Tk. 23.150 crores per annum. Important items of import in the public sector are cotton for the textile sector accounting for around Tk. 25.078 crores annually and chemicals and other raw materials in the chemical and petrochemical sectors where the import liability is to the tune of Tk. 50.737 crores per year. The three sectors of cotton textile, chemicals and petrochemicals together account for about 50 per cent. of the total public sector import liability.

In the private sector, textiles will claim Tk. 3.200 crores for imports mostly for synthetic yarn to be woven in the handloom sector. Once the petrochemical products become available the import liability will decline substantially. In the iron and steel sector the import liability of Tk. 6.000 crores will be due to more efficient running of the private sector industry rather than for creation of new capacity.

TABLE IX-11  
Incremental Import Liability

(Taka in Crore.)

| Serial No.<br>1 | Sub-Sector,<br>2                    |    |    | Public Sector.<br>3 | Private Sector.<br>4 | Total.<br>5 |
|-----------------|-------------------------------------|----|----|---------------------|----------------------|-------------|
| 1               | Jute                                | .. | .. | 2.500               | ..                   | 2.500       |
| 2               | Textile                             | .. | .. | 25.078              | 3.200                | 28.278      |
| 3               | Engineering                         | .. | .. | 8.363               | 7.500                | 15.863      |
| 4               | Shipbuilding                        | .. | .. | 1.428               | ..                   | 1.428       |
| 5               | Iron and Steel                      | .. | .. | 45.000              | 6.000                | 51.000      |
| 6               | Chemicals                           | .. | .. | 48.068              | 4.800                | 52.868      |
| 7               | Petrochemicals                      | .. | .. | 2.669               | ..                   | 2.669       |
| 8               | Pulp and Paper                      | .. | .. | 0.592               | 0.400                | 0.992       |
| 9               | Forest Products                     | .. | .. | 0.391               | 0.125                | 0.516       |
| 10              | Mining and Mineral Based Industries | .. | .. | 3.421               | 0.225                | 3.646       |
| 11              | Sugar                               | .. | .. | 0.685               | ..                   | 0.685       |
| 12              | Food and Allied Products            | .. | .. | 3.045               | 0.400                | 3.445       |
| 13              | Leather and Tanning                 | .. | .. | 0.525               | 0.500                | 1.025       |
| 14              | Film                                | .. | .. | ..                  | ..                   | ..          |
| Total           |                                     |    |    | 141.765             | 23.150               | 164.915     |



## 9.8 INDUSTRYWISE PROGRAMME

### 9.8.1 Jute Industry

Jute is the leading industry in Bangladesh. The industry has 14,350 hessian, 8,151 sacking and 2,146 broad looms. It produced 5.9 lakh tons of jute goods in 1969-70 against a total capacity of 7.23 lakh tons, employing 0.2 million workers. The internal consumption of jute goods in Bangladesh in 1969-70 was around 25,000 tons, about 65,000 tons were exported to Pakistan and the rest was exported to other countries.

Major problems faced by the industry relate to:

- (a) Serious threat of competition from synthetic products,
- (b) High conversion cost,
- (c) Very low efficiency rate relative to the machine rated capacity,
- (d) Neglect of research and development in the field of product development, technology, management and promotion, and
- (e) Lack of standardisation of equipment and machinery and thus of domestic capacity to manufacture spares.

The following programmes in the jute sector is envisaged:

- (a) The strategy of the jute industry sector is inseparably bound up with decreasing cost in raw jute production and with increase in yield. It is estimated that, simultaneously with increased rice production programme, an intensive cultivation of jute covering 1.7 million acres by end of the plan is to be launched to realise a production target of 94 lakh bales.
- (b) For 1972-73 the estimated production level of jute goods is around 430 thousand tons. The target for production has been set at 766 thousand tons in 1977-78. This will come mainly through increased efficiency. Domestic absorption will be around 72 thousand tons thus leaving a surplus of 694 thousand tons for export. For disposal of this surplus, the cost of production is to be lowered. This is to be achieved principally through reduction in raw jute cost, improved maintenance, better management. Research in product development and sales promotion will also contribute to the growth of this sector. Idle loomage has to be cut down through preventive maintenance, improvement in power supply, if necessary through installation of standby generators, scientific management and bonus for reduction in breakage. Cost may be reduced by reducing batch cost through utilisation of chemically softened and brightened low grade jute.
- (c) With the completion of underway projects it is expected that 690 hessian looms, 255 sacking looms and 281 broad looms will be ready for operation in the first year of the Plan. In addition, 160 broad looms and 50 looms for speciality products and a jute carpet unit are also in the pipe line. Completion of underway and planned schemes will cost Tk. 13.360 crores. In addition, there is a replacement investment needed to the extent of Tk. 15.00 crores. If the prospects improve for jute exports revision of this programme will be considered.



- Financial implication of the programme, excluding contribution to international efforts in the jute sector, is presented in the Table IX-12.

TABLE IX-12

(Taka in Crore)

|  |    |    |    |       | Local. | F.E.   | Total. |
|--|----|----|----|-------|--------|--------|--------|
| On-going                                 | .. | .. | .. | ..    | 3·909  | 1·015  | 4·924  |
| New                                      | .. | .. | .. | ..    | 4·000  | 4·440  | 8·440  |
| Balancing, Modernisation and Replacement |    |    |    | ..    | 4·500  | 10·500 | 15·000 |
| Research and Development                 | .. | .. | .. | ..    | 0·420  | 0·340  | 0·760  |
|  |    |    |    |       | 12·829 | 16·295 | 29·124 |
|  |    |    |    | Total | —      | —      | —      |

### 9.8.2 Textile Industry

Of the import substituting industries in Bangladesh textile is the most significant. First set-up in 1898, the capacity in 1947 was 1,09,740 spindles and 2,717 looms. Of these, 99,000 spindles and 2,000 looms were in operational condition. The mills were composite in nature and did not serve the handloom sector. Capacity rose to 830,000 spindles and 7000 looms in 44 mills by 1972. In this expansion deliberate attempts were made to feed the handloom sector. The existing handloom capacity is estimated at 4 lakh looms of which



an average of 2.50 lakh looms are operative. There are 3,000 registered hosiery units of which 632 units are reportedly operational. Besides, there are various other units producing nets, socks, braid, etc. which make demands on yarn.

The most important problems faced by the industry are (a) lack of adequate and timely supply of raw cotton and yarn and (b) the need to cut down idle loomage.

The programme for the textile sector is as follows:

- (i) The target is to supply around 8.8 yards per capita per annum at the terminal year for a population of 8.54 crore. Of this one quarter yards per capita may be in the form of wool substitutes. At that rate, total cotton (or cotton substitute) requirement will be 21.5 crore lbs. for 18.8 crore lbs. of yarn. The target for substitution by synthetics is 8.5 crore lbs., from cellulosic and acrylonitrile, which leaves a net requirement of cotton yarn for 10.3 crores lbs. To meet this requirement, the spindle capacity is to be expanded by 4 lakh at an investment of Taka 64.00 crores of which 50 per cent will be in foreign exchange. An addition of 4,000 looms is envisaged in integrated mills. Further expansion of the existing woollen mill and establishment of a modern knit fabric unit is also advised. These will require investment of another Taka 32.50 crores.
- (ii) The new units should be widely dispersed. Currently the textile units are concentrated around Dacca and Chittagong.
- (iii) The handloom sector has to be properly activated by ensuring supply of yarn and some of these looms may be gradually converted into power looms when electricity is available. Co-operatives may be organised for taking advantage of credit and marketing facilities. Without proper service and organisational support it will be impossible to realise the target of 56.2 crore yds. production in the handloom sector.
- (iv) The existing mills operate at an efficiency much below the machine-rated one. The number of idle spindles and looms are staggering. This should be cut down through steady supply of power, cutting down on absentee labour, scientific inventory management for spares and improvement in other management practices. As in the case of Jute, it may be worth considering the setting up of a separate Institute of Management, Product Development and Research for textile industries.
- (v) The technical people available are few in number and their quality needs improvement. A joint programme by the textile institute and textile corporations may help to improve the situation.
- (vi) Plan strategy calls for standardization of machinery and the need for a know-how agreement with an internationally reputed firm for local manufacture of spares and components and assembly and progressive manufacture of machinery essential to the growth of the industry.



- (vii) The standard for products has to be set and quality control practices are to be introduced in all producing units.

The financial implication of this programme is given in table IX-13.

TABLE IX-13

## Financial Implication of Textile Industry Programme

(Taka in crore)

|  |    |    |    |    | L.C.   | F.E.   | Total.  |
|--|----|----|----|----|--------|--------|---------|
| On-going                                 | .. | .. | .. | .. | 8.000  | 8.000  | 16.000  |
| New                                      | .. | .. | .. | .. | 40.300 | 40.200 | 80.500  |
| Balancing, Modernisation and Replacement | .. |    |    |    | 3.572  | 6.280  | 9.852   |
| Research and Development                 | .. | .. | .. |    | 0.550  | 0.450  | 1.000   |
| Total                                    |    |    |    | .. | 52.422 | 54.930 | 107.352 |

## 9-8-3 Engineering and Shipbuilding

This is at present a relatively small but significant industry with large linkage effects. Even though the base is relatively small the structure of the industry is varied. The programme of the sector is as follows:

- The basic capacity to be developed is in the foundry and the forge in the partially completed Machine Tools Factory at Joydebpur.
- Units are planned to meet wholly or partly the requirements of transport equipment (bicycles, three wheelers, buses and trucks, river crafts and ocean-going vessels), machine tools, agricultural equipments (including sprayers and tillers), electrical equipments, office equipments, etc.
- Units are also planned to supply spares and components to existing or planned units, e.g., textile machinery, industrial fasteners, electrical accessories, ball bearings, etc.,
- Consumer goods units besides those covered in the general category above, are limited to razor blade, watch and type-writer manufacturing units.
- An institute of industrial technology to secure, develop and foster proper growth of this sector is to be established.
- Sub-contracting between large and small units to foster mutual growth is to be encouraged and ensured.

Financial implication of the programme for engineering and shipbuilding sector is presented in Table IX-14.



TABLE IX-14]  
Financial Implication of Engineering and Shipbuilding Sector Programme

(Taka in crore)

| Sector,  | On-going. |        |        | New.   |        |        | Balancing, Modernisation and Replacement. |       |        | Research and Development. |       |        | Total. |        |        |        |
|--|-----------|--------|--------|--------|--------|--------|---|-------|--------|---------------------------|-------|--------|--------|--------|--------|--------|
|  | Local,    | F.E.   | Total. | Local, | F.E.   | Total. | Local,                                    | F.E.  | Total. | Local,                    | F.E.  | Total. | Local, | F.E.   | Total. |        |
| 1  | 2         | 3      | 4      | 5      | 6      | 7      | 8   | 9     | 10     | 11                        | 12    | 13     | 14     | 15     | 16     |        |
| 1. Engineering   |           |        |        |        |        |        |   |       |        |                           |       |        |        |        |        |        |
| (i) Capital Machinery  | ..        | 17.724 | 10.856 | 28.580 | ..     | ..     | ..  | 0.658 | 0.450  | 1.108                     | 0.008 | 0.007  | 0.015  | 18.990 | 11.313 | 29.703 |
| (ii) Engineering goods   | ..        | ..     | ..     | 2.591  | 2.941  | 5.532  | 0.132                                     | 0.160 | 0.292  | 0.030                     | 0.030 | 0.060  | 2.753  | 3.131  | 5.884  |        |
| (iii) Agricultural Implements.                                     | ..        | ..     | ..     | 1.400  | 1.080  | 2.480  | 0.412                                     | 0.375 | 0.787  | 0.015                     | 0.015 | 0.030  | 1.827  | 1.470  | 3.297  |        |
| (iv) Transport equipments (excluding yards).                       | ..        | ..     | ..     | 1.905  | 2.470  | 4.375  | 1.352                                     | 1.712 | 3.064  | 0.030                     | 0.030 | 0.060  | 3.287  | 4.212  | 7.499  |        |
| (v) Electrical accessories and equipments (including electronics). | 16.346    | 12.200 | 28.546 | 1.615  | 2.080  | 3.695  | 1.693                                     | 2.058 | 3.751  | 0.030                     | 0.030 | 0.060  | 19.684 | 16.368 | 36.052 |        |
| (vi) Intermediate goods  | ..        | ..     | ..     | ..     | ..     | ..     | 0.365                                     | 0.320 | 0.685  | 0.015                     | 0.015 | 0.030  | 0.380  | 0.335  | 0.715  |        |
| (vii) Telecommunication, Cables and Instruments.                   | ..        | ..     | ..     | 2.000  | 2.500  | 4.500  | ..  | ..    | ..     | ..                        | ..    | ..     | 2.000  | 2.500  | 4.500  |        |
| (viii) Consumer goods  | ..        | ..     | ..     | 2.252  | 2.410  | 4.662  | ..  | ..    | ..     | 0.015                     | 0.015 | 0.030  | 2.267  | 2.425  | 4.692  |        |
| (ix) Others  | ..        | ..     | ..     | ..     | ..     | ..     | ..  | ..    | ..     | 0.599                     | 0.874 | 1.471  | 0.599  | 0.872  | 1.471  |        |
| Total (Engineering)  | ..        | 34.070 | 23.056 | 57.126 | 11.763 | 13.481 | 25.244                                    | 4.612 | 5.075  | 9.687                     | 0.742 | 1.014  | 1.756  | 51.187 | 42.626 | 93.813 |
| 2. Shipbuilding  |           |        |        |        |        |        |   |       |        |                           |       |        |        |        |        |        |
|  | ..        | 16.284 | 16.966 | 33.250 | ..     | ..     | ..  | 1.396 | 0.950  | 2.346                     | 0.007 | 0.008  | 0.015  | 17.687 | 17.924 | 35.611 |



#### 9.8.4 Iron and Steel Industry

The base output of the iron and steel industry is much below established demand despite rapid growth between 1960 and 1970. In 1960 there were 12 re-rolling mills and the number rose to 27 in 1970 with re-rolling capacity at 3,50,000 tons and steel making capacity at 2,50,000 tons. Except for permanent construction, and to a small extent shipbuilding, steel consuming industries have not developed in Bangladesh. There is potential for manufacture of heavy steel structurals, rolling stock for railways, machinery including vehicles, cycles and other transport equipment. The estimated demand for iron and steel and metal products, in 1977-78 is 7,76,000 tons which allows for around 20 lb. per capita consumption.

The programme for the iron and steel sector is as follows:

- (a) The existing steel mill's capacity is 2,50,000 tons although currently utilisable capacity is 200,000 tons; a continuous casting plant will further enhance its production.
- (b) No new re-rolling capacity is needed. Instead investment for product diversification in the public sector units is suggested. This includes shaped and twisted rod manufacturing facilities at Chittagong, drawing and galvanizing facilities at Khulna. Balancing investment by installing an overhead gantry at Chittagong Steel Mills, forging and heat-treatment facilities at Muhammadi and billet cutting facilities at G.M. Steel are also suggested.
- (c) Installation of a tinning plant is suggested as a move towards import substitution.
- (d) Creation of capacity for manufacture of alloy steel on installation of available electric furnaces is suggested.
- (e) A thorough feasibility study for the optimum method of creating additional steel making capacity is an imperative one. This should involve all alternatives including integrated steel mills starting with blast furnace or pre-reduced iron ore (sponge iron) as well as mini steel mills. This must also allow for the possibility of producing sponge iron for export to India by reducing Indian iron ore through use of our natural gas.

Total investment in these programme would be Taka 100 crores of which Taka 48.962 crores will be in foreign exchange. (See Table IX-15).

TABLE IX-15.

#### Financial Implication of Iron and Steel Industry Programme

(Taka in crore)

|  |     |     |     |     | L.C.   | F.E.   | Total.  |
|--|-----|-----|-----|-----|--------|--------|---------|
| On-going                                 | ... | ... | ... | ... | ...    | ...    | ...     |
| New                                      | ... | ... | ... | ... | 43.805 | 42.621 | 86.426  |
| Balancing, Modernisation and Replacement | ... | ... | ... | ... | 6.977  | 5.573  | 12.550  |
| Research and Development                 | ... | ... | ... | ... | 0.256  | 0.768  | 1.024   |
| Total                                    |     |     |     |     | 51.038 | 48.962 | 100.000 |



### 9.8.5 Chemical and Petrochemical Industry

The programme for the chemical industries sector is given below:

- (a) Adequate capacity will be created for fertilizer and pesticides. This includes completion of TSP complex at Chittagong, a new 450,000 tons urea plant in the petrochemical complex, a new TSP unit at Khulna and modernisation of Fenchuganj Fertilizer Factory. A feasibility study is also underway for setting up a ten lakh ton plant for export of urea. To the extent that this is found feasible and necessary to commence implementation during the Plan period, adjustments will have to be made in the Plan to incorporate the consequential investment outlays.
- (b) A phosphatic pesticides unit is to be implemented in three phases in collaboration with CIBA-GEIGY and another pesticides unit is also included in the Plan for implementation.
- (c) Synthetic fibre production will be augmented through augmenting the capacity of viscose rayon at Karnaphuly Complex, Chandraghona to at least 35 tons per day and by installing a acrylonitrile plant of 36,000 tons capacity in the petrochemical complex. Capacity will be developed through new investment and modernisation to utilise these fibres and it is recalled that acrylonitrile can also be used in handlooms. Handloom products may further be finished in mills.
- (d) Petrochemical complex will also include a 30,000 tons PVC manufacturing unit. Processing units will be developed both in private and public sectors. Co-existence and integration of large and small units in this sector will be encouraged. This will also be followed in rubber industries. A heavy tyre producing unit will be developed in the public sector.
- (e) Essential pharmaceuticals capacity will be developed in the private and public sectors. It may be noted that the major part of the investment in the private sector is through foreign subsidiaries who, under the provisions of the investment policy, have to operate as partners of the Government. In the public sector an antibiotic complex, initially to produce streptomycine, will be completed and basic manufacture of fine chemicals for pharmaceutical use will be undertaken.
- (f) A wide range of industrial chemicals such as dyestuffs, industrial salt, sulphuric acid, alum, methanol, acetylene, bleaching powder, caustic soda, soda ash will also be produced; some of these will be obtained as by-products in the petrochemical complex.
- (g) Balancing and modernisation will be carried out in a large number of existing units including the DDT factory, Chemical Industries of Bangladesh, Eastern Chemical Industries, Kohinoor Industries, etc. Utilisation of by-product gypsum will also be explored.
- (h) A centralised research institute for all chemical industries and a training scheme is envisaged.

The financial implication of this programme is given in Table IX-16.



TABLE IX-16  
Financial Implication of Chemical and Petrochemical Industry Programme  
(Taka in crore)

| Sector.  | On-going. |       |        | New.   |        |         | Balancing, Modernisation and Replacement. |       |        | Research and Development. |       |        | Total. |        |         |
|--|-----------|-------|--------|--------|--------|---------|---|-------|--------|---------------------------|-------|--------|--------|--------|---------|
|  | Local.    | F.E.  | Total. | Local. | F.E.   | Total.  | Local.                                    | F.E.  | Total. | Local.                    | F.E.  | Total. | Local. | F.E.   | Total.  |
| 1  | 2         | 3     | 4      | 5      | 6      | 7       | 8   | 9     | 10     | 11                        | 12    | 13     | 14     | 15     | 16      |
| <b>1. Chemicals:</b>   |           |       |        |        |        |         |   |       |        |                           |       |        |        |        |         |
| (a) Fertilizer (TSP)   | ..        | 3.468 | 0.868  | 4.336  | 4.177  | 3.337   | 7.514                                     | ..    | ..     | 0.100                     | 0.100 | 0.200  | 7.745  | 4.305  | 12.050  |
| (b) Pharmaceutical   | ..        | 3.013 | 1.710  | 4.723  | 0.810  | 0.350   | 1.160                                     | ..    | ..     | 0.050                     | 0.050 | 0.100  | 3.873  | 2.110  | 5.983   |
| (c) Pesticides   | ..        | ..    | ..     | ..     | 4.666  | 5.602   | 10.268                                    | ..    | ..     | 0.050                     | 0.050 | 0.100  | 4.716  | 5.652  | 10.368  |
| (d) Man-made Fibre (Rayon).  | ..        | ..    | ..     | ..     | 5.210  | 8.690   | 13.900                                    | ..    | ..     | 0.050                     | 0.100 | 0.150  | 5.260  | 8.790  | 14.050  |
| (e) Other Chemicals  | ..        | ..    | ..     | ..     | 4.964  | 8.338   | 13.302                                    | 0.710 | 0.837  | 1.547                     | 0.037 | 0.100  | 5.711  | 9.275  | 14.986  |
| Total (Chemicals)  | 6.481     | 2.578 | 9.059  | 19.827 | 26.317 | 46.144  | 0.710                                     | 0.837 | 1.547  | 0.287                     | 0.400 | 0.687  | 27.305 | 30.132 | 57.437  |
| <b>2. Petrochemicals (fertilizer, fibre, PVC and other by-products).</b> |           |       |        |        |        |         |   |       |        |                           |       |        |        |        |         |
|  | ..        | ..    | ..     | 71.600 | 89.400 | 161.000 | ..  | ..    | ..     | 0.400                     | 0.600 | 1.000  | 71.000 | 90.000 | 162.000 |



### 9.8.6 Pulp and Paper Industry

The programme for the paper sector is given below:

- (a) Consolidation of the existing units is the primary objective. As the projected demand of 56,000 tons of writing paper can be met from the existing units, no new unit is planned. The capacity will be augmented marginally through replacements in Karnaphuli and Khulna units.
- (b) Existing newsprint capacity is more than required by internal demand; international price is lower than the current cost of production. No new capacity creation is envisaged but expansion is planned in this sector through balancing and modernisation. Exports will have to be promoted by reducing costs as well as incentives to the industry.
- (c) Shortage of certain types of paper such as wrapping paper, tissue paper and of duplex board and cigarette paper will be met through installation of new capacity.
- (d) Completion of on-going units will, however, be effected in the initial years of the plan.

Total investment programme in the paper and board sector during the First Five-Year Plan can be seen at Table IX-17.

TABLE IX-17

#### Financial Implication of Paper and Board Industry Programme

|  |     |     |     |     | (Taka in crore) |        |        |
|--|-----|-----|-----|-----|-----------------|--------|--------|
|  |     |     |     |     | L. C.           | F. E.  | Total. |
| On-going                                 | ... | ... | ... | ... | 1.850           | 7.985  | 9.833  |
| New                                      | ... | ... | ... | ... | 4.300           | 8.120  | 12.420 |
| Balancing, Modernisation and Replacement |     |     |     |     | 4.853           | 9.588  | 14.441 |
| Research and Development                 | ... | ... | ... | ... | ...             | ...    | ...    |
| Total                                    |     |     |     |     | 11.003          | 25.691 | 36.694 |

### 9.8.7 Forest Industries

The programme for forest industries is as follows:

- (a) In the agricultural sector, development of physical infrastructure in Sangoo Matamuhuri and Chittagong Hill Tracts area will be undertaken for scientific and mechanised extraction of timber; extensive plantation of timber trees in forest areas as well as homestead and roadside will be undertaken to meet the shortage of timber. The estimated demand is 6.295 crores cft. of timber and 7.1 crore cft. of firewood in 1977-78.



- (b) New capacity to produce particle board and/or bagasse board is to be created.
- (c) Optimum utilisation of existing units through efficient management, balancing and modernisation is proposed. Technical assistance for improvement of production in the existing saw mills and seasoning units is to be provided.
- (d) Certain modern saw mills are to be established in the private sector consequent on the development of the Sangoo Matamuhuri area. New units to produce marine and commercial grade plywood and sports goods may be undertaken. Pencil producing capacity will be expanded and quality control will be enforced to make export possible.
- (e) On-going units for wood treating and seasoning, decorating sliced veneer and timber processing will be completed in the public sector. New wood treating capacity will be created subject to development of the Sangoo Matamuhuri area.
- (f) Vocational training facilities will be created for carpenters in the cottage industry sector.

The financial programme during the Plan period for this sector can be seen at Table IX-18.

TABLE IX-18

## Financial Implication of Forest Industry Programme

|  |     |    |    | <i>(Taka in crore)</i> |       |       |
|--|-----|----|----|------------------------|-------|-------|
|  |     |    |    | L. C.                  | F.E.  | Total |
| On-going                                 | ... | .. | .. | 0.866                  | 0.660 | 1.526 |
| New                                      | ..  | .. | .. | 2.720                  | 4.580 | 7.300 |
| Balancing, Modernisation and Replacement |     |    |    | 0.400                  | 0.450 | 0.850 |
| Total ..                                 |     |    |    | 3.986                  | 5.690 | 9.676 |

## 9-8-8 Mining and Mineral Based Industry

The programme for this sector is given below:

- (a) Survey of Mineral Resources of Bangladesh is detailed in the programme of the Natural Resources sector. However, reserves of quality glass sand (35 lakh tons) in Sylhet, Comilla and Mymensingh have been found. Sand processing units will be developed in the public sector and glass producing units will be developed in both public and private sectors.
- (b) Deposits of China clay exist in Bijoypur (2.3 lakh tons) and also at Jaipurhat. Ceramic products and refractory units will be developed both in the public and private sectors. Clay washing unit and systematic exploitation of clay will be undertaken in the public sector and capacity to produce ceramic goods, particularly insulators, will be created in the public sector.



- (c) Rock and gravel have been in short supply in Bangladesh. A scheme to quarry gravel in Dinajpur and to mine hardrock in Rangpur will be undertaken. In addition, synthetic aggregates will be produced from a number of plants in the public sector. A building materials complex is also planned.
- (d) Limestone deposits exist in Takerghat, Bhangergahat, Lalghat, Baglibazar areas in Sylhet and Jaipurhat. Exploitation of limestone is a priority project as these are needed to feed existing industries and produce lime and chalk.
- (e) Cement has been in short supply for many years. Peak supply has been 9 lakh tons. Demand is projected at 20 lakh tons by 1978. Present capacity is limited to the Chattak unit (150,000 tons); the Chittagong Clinker plant (300,000 tons) is under completion. Additional plant capacity for at least 750,000 tons will have to be built for which purpose the Jaipurhat scheme remains a serious possibility. A new unit at Chattak is also proposed.

The financial implication of the programme is given in Table IX-19.

TABLE IX-19  
Financial Implication of Mineral Industries Programme

*(Taka in crore)*

|  |    |    |    | L.C.   | F.E.   | Total. |
|--|----|----|----|--------|--------|--------|
| On-going                                 | .. | .. | .. | 0.500  | 0.300  | 0.800  |
| New                                      | -- | -- | -- | 27.152 | 32.969 | 60.121 |
| Balancing, Modernisation and Replacement |    |    |    | 0.803  | 0.061  | 0.864  |
| Research and Development                 | -- | -- | -- | 0.495  | 0.585  | 1.080  |
| Total                                    | .. |    |    | 28.950 | 33.915 | 62.865 |

#### 9.8.9 Sugar Industry

The programme for sugar industry is as below:

- (a) Though the requirement will be more, the capacity of the sugar mills be frozen at 179,000 tons for the First Plan period. This includes completion of Faridpur Sugar Mills.
- (b) Intensive cane development efforts through better agronomical practices, utilisation of fertilizer and pesticides, provision for better seeds and irrigation to cover 4.5 lakh acres in five years to increase the yield per acre and recovery rate are proposed in the agricultural sector plan. For this purpose the sugarcane research centre at Ishurdi is to be fully developed. Further, in-cropping with sugarcane may be encouraged to bring down cost of sugarcane and to improve the income of the farmers.



- (c) Quality cane development and its duplication will be given due importance. This would require training of staff to carry out the package extension programme inclusive of technical assistance, inputs and credit. Cane development staff and mill management officials should undergo intensive training for carrying out extension work in the case of the former and for improvement of management practices in the case of latter. A programme for staff training is included.
- (d) Modernisation of sugar mill farms will be undertaken on a priority basis to supply better cane to the mills and to demonstrate to the cultivators the impact of improved practices.
- (e) Target of production of sugar is fixed as follows:

|         |    |    |    | Tons.   | Recovery. |
|---------|----|----|----|---------|-----------|
| 1973-74 | .. | .. | .. | 90,000  | 7%        |
| 1974-75 | .. | .. | .. | 90,000  | 7.5%      |
| 1975-76 | .. | .. | .. | 125,000 | 8%        |
| 1976-77 | .. | .. | .. | 130,000 | 9%        |
| 1977-78 | .. | .. | .. | 140,000 | 9.25%     |

- (f) Molasses is to be used as industrial raw material to produce alcohol, methylated spirit, yeasts and fodder etc., to bring down the cost of sugar production. Even bagasse offers interesting possibility in the face of timber shortage.
- (g) Modernisation of wornout mills will be undertaken during the Plan.

The financial implication of the above programme is given in Table IX-20.

TABLE IX-20

## Financial Implication of Sugar Industry Programme

(Taka in crore)

|   |    |     |    | L. C. | F.E.  | Total. |
|---|----|-----|----|-------|-------|--------|
| On-going                                  | .. | ... | .. | 4.100 | 1.040 | 5.140  |
| New                                       | .. | ..  | .. | 0.850 | 0.950 | 1.800  |
| Balancing, Modernisation and Replacement. |    |     |    | 2.072 | 4.667 | 6.739  |
| Research and Development                  | .. |     | .. | 0.380 | 0.220 | 0.600  |
| Total                                     | .. |     | .. | 7.402 | 6.877 | 14.279 |



### 9.8.10 Food and Allied Industries

The programme of this sector is given below:

- (a) While inland fisheries suffered from neglect, marine fishery is yet to be scientifically surveyed. The projected catch in 1977-78 is 91,000 tons of marine fish and 8,52,000 tons of fresh water fish. This would require construction of harbour, ice plants, freezing units, carrying vessels and processing units. Fisheries Development Corporation will build all necessary facilities. The Co-operative sector and private sector will also operate in the area. Only limited facility is proposed to be developed for fisheries by Food and Allied Products Corporation.
- (b) Demand for edible oil is estimated at 2.85 lakh tons in 1977-78 based on *per capita* per month consumption of  $\frac{1}{4}$  seer. Sixty registered units have a capacity of 1 lakh tons, besides there are a large number of ghanis. It is necessary to ensure supply of oil seeds for full utilisation of capacity. Introduction of hydraulic expellers and multiple extracting plants are suggested. These developments are to take place in the private sector. Public sector will step in only if private sector initiative is limited. However, public sector operation in the field of BMR will be undertaken both for edible oil and vegetable ghee. Possibility of production of bran oil will be explored.
- (c) Bangladesh produces 16.6 lakh tons of fruits and 25.8 lakh tons of vegetable, a large part of which is wasted for want of storage facilities. To reduce waste, cold storage capacities will be created in the private sector, in the agricultural sector programme and marginally in the public sector industrial programme. Similarly fruit processing units are expected to come up in the private sector. In the public sector, plants in Sylhet and North Bengal are planned to process pineapple, mango, tomato, lichee and guava. Dehydration plants for banana and ginger are also intended.
- (d) Starch is needed for industrial use as well as in food and pharmaceutical sectors. For this purpose Cassava production is to be increased since other raw materials are in short supply.
- (e) Utilisation of molasses to produce Bakers' and *Torula* yeast, spirit and alcohol is also planned. Possibilities for production of butanol, acetone, glycerine and B. glycol will also be explored.
- (f) Tobacco manufacturing capacity is estimated to be sufficient to meet domestic demand. Capacity may develop through BMR and for production of quality cigarettes mainly in the private sector, curing of tobacco will also be undertaken.
- (g) No new tea blending unit is to be established. Rehabilitation of existing tea factories is envisaged.
- (h) Coconut product industry is to be rehabilitated through efforts of BSIC and through increasing supply of nuts.
- (i) Storage and processing of grains will be developed in the private sector and warehousing will be developed both in the private and public sector.



The financial implication of public sector industrial programme in food and allied products industrial units is given in Table IX-21.

TABLE IX-21

## Financial Implication of Food and Allied Products Industry Programme

(Taka in crore)

|  |     |     |     | L.C.  | F.E.  | Total. |
|--|-----|-----|-----|-------|-------|--------|
| On-going                                 | ... | ... | ... | ...   | ...   | ...    |
| New                                      | ... | ... | ... | 3.624 | 3.826 | 7.450  |
| Balancing, Modernisation and Replacement |     |     |     | 0.240 | 0.160 | 0.400  |
| Research and Development                 | ... |     | ... | 0.046 | 0.114 | 0.160  |
| Total                                    | ... |     | ... | 3.910 | 4.100 | 8.010  |

## 9.8.11 Leather Industry

The following programme has been proposed for the public sector leather industry:

- Establishment of new modern tanneries and modernisation of existing ones for manufacturing finished chrome leather with a capacity of processing 9 lakh pieces of cow-hides and 22.5 lakh pieces of goat skins of export quality.
- Creation of capacity to produce 5.4 lakh pieces of leather boots and shoes for export.
- Training of operatives and executives within the country and abroad and procurement of services of foreign technical experts.
- Establishment of a centre for research and product development.
- Utilisation of by-products of tanning industry.

The financial implication of this programme is as follows:

TABLE IX-22

## Financial Implication of Leather Industry Programme

(Taka in crore)

|  |     |     |     | L.C.  | F.E.  | Total. |
|--|-----|-----|-----|-------|-------|--------|
| On-going                                 | ... | ... | ... | ...   | ...   | ...    |
| New                                      | ... | ... | ... | 4.076 | 1.754 | 5.830  |
| Balancing, Modernisation and Replacement |     |     |     | 0.300 | 0.700 | 1.000  |
| Research and Development                 | ... |     | ... | 0.013 | 0.287 | 0.300  |
| Total                                    | ... |     | ... | 4.389 | 2.741 | 7.130  |



### 9.8.12 Film Industry

In the public sector, studio capacity will be expanded by completing the expansion of the studio currently underway and by establishing a second studio at Dacca and a subsidiary studio at Chittagong. Further, a film institute will be established to train technicians. It is expected that new cinema houses will be built in the private sector primarily in new townships. The financial implication of the public sector programme is given in Table IX-23.

TABLE IX-23  
Financial Implication of Film Industry Programme

(Taka in crore)

|  |     |     |     | L.C.  | F.E.  | Total. |
|--|-----|-----|-----|-------|-------|--------|
| On-going                                 | ... | ... | ... | 0.361 | 0.125 | 0.486  |
| New                                      | ... | ... | ... | 2.245 | 0.270 | 2.515  |
| Balancing, Modernisation and Replacement |     |     |     | --    | --    | --     |
| Research and Development                 | ..  |     | ..  | 0.750 | 0.250 | 1.000  |
| Total                                    | ... |     | ..  | 3.356 | 0.645 | 4.001  |

### 9.8.13 Cottage, Rural and Small Industry

Public sector programme is limited to the following:

- Development of Industrial Estates in 18 centres and expansion and upgrading of professional and technical services.
- Training for improvement in skills in selected trades, industrial management, industrial extension, etc.
- Survey of small, rural and cottage industries.
- Supply of designs, prototypes and appliances to promote productivity and marketability.
- Provision for supply of institutional credit.
- Establishment of sales emporia and supply of essential raw materials, particularly for handloom and handicrafts.
- Consolidation and improvement of the quality of sericulture products, salt and other existing units such as the cheroot unit.



The financial implication of the foregoing programme is summarised in Table IX-24.

TABLE IX-24

## Financial Implication of Cottage, Rural and Small Industries Programme

|  |     |     |     |     |     | <i>(Taka in crore)</i> |       |        |
|--|-----|-----|-----|-----|-----|------------------------|-------|--------|
|  |     |     |     |     |     | L.C.                   | F.E.  | Total  |
| On-going                                 | ... | ... | ... | ... | ... | 14.000                 | ..    | 14.000 |
| New                                      | ..  | ..  | ..  | ..  | ..  | 5.000                  | 1.000 | 6.000  |
| Balancing, Modernisation and Replacement | ..  |     |     |     | ..  | 2.000                  | ..    | 2.000  |
| Research and Development                 | ..  | ..  | ..  |     | ..  | 1.732                  | 0.768 | 2.500  |
| Total                                    |     |     |     |     |     | 22.732                 | 1.768 | 24.500 |

## 9.8.14 Private Sector

In the private sector a development outlay of Tk. 121.6 crores has been proposed. Of this, Tk. 75.36 crores will be in foreign exchange. Besides, it is expected that investment of cottage industries worth Tk. 17.9 crores will be undertaken in this sector (see Table IX-25).

In the food and allied sector emphasis has been placed on creation of capacities in cold storage, cigarette manufacture, wheat and grain milling, fish catching and processing, rice mills, edible oils. Further, dairy and poultry products, processing of fruits and vegetables, salt, beverage, will also require adequate expansion in capacity. In the leather and rubber sector, much of the private sector investment is expected to take place in footwear, tanning and rubber products.

In the textile sector large investments are planned in hosiery and knitted fabric, synthetic textile weaving, specialised textiles, spooling and threadball manufacturing and finishing and printing. It is to be recalled that much capacity for weaving will be created in the handloom sector and spinning and weaving capacity will also be created in the public sector.

In the chemical and pharmaceutical sector, large investments are planned for in the pharmaceutical sector followed by soaps and detergents, paints and varnishes, ink and plastic compound. In the mineral sector the private sector is expected to expand capacity in glass products, in building bricks and in ceramics.

In the engineering industries, large investment is expected in cast iron foundries, light engineering workshops, bicycle plants, aluminium utensil production, agricultural implements manufacturing units, metal structures, wire products, metal containers, hurricane and stove producing unit, locks and padlocks production, textile machinery parts, accumulator, etc. Investment in cinema houses, buildings, hotels, etc. is likely to be substantial.



TABLE IX-25  
Financial Implication of Private Sector Investment  
(Taka in crore)

| Sector                                    | Ongoing    |           |            | New        |           |            | Balancing, Modernisation and Replacement |           |             | Research and Development |            |             | Total       |            |             |
|---|------------|-----------|------------|------------|-----------|------------|--|-----------|-------------|--------------------------|------------|-------------|-------------|------------|-------------|
|   | Local<br>2 | F.E.<br>3 | Total<br>4 | Local<br>5 | F.E.<br>6 | Total<br>7 | Local<br>8                               | F.E.<br>9 | Total<br>10 | Local<br>11              | F.E.<br>12 | Total<br>13 | Local<br>14 | F.E.<br>15 | Total<br>16 |
|   |            |           |            |            |           |            |  |           |             |                          |            |             |             |            |             |
| 1. Food and Allied Products.              | ..         | ..        | ..         | 5.550      | 8.000     | 13.550     | 2.659                                    | 4.610     | 7.269       | ..                       | ..         | ..          | 82.60       | 12.610     | 20.810      |
| 2. Textile goods                          | ..         | ..        | ..         | 3.580      | 6.120     | 9.700      | 0.460                                    | 0.990     | 1.450       | ..                       | ..         | ..          | 4.040       | 7.110      | 11.150      |
| 3. Forest Products and furniture.         | ..         | ..        | ..         | 0.580      | 0.600     | 1.180      | 0.120                                    | 0.150     | 0.310       | ..                       | ..         | ..          | 0.700       | 0.790      | 1.490       |
| 4. Paper Printing and Paper Products.     | ..         | ..        | ..         | 2.390      | 3.410     | 5.800      | 0.550                                    | 1.160     | 1.710       | ..                       | ..         | ..          | 2.940       | 4.570      | 7.510       |
| 5. Leather and Rubber Product.            | ..         | ..        | ..         | 1.820      | 3.450     | 5.270      | 0.410                                    | 0.740     | 1.150       | ..                       | ..         | ..          | 2.230       | 4.190      | 6.420       |
| 6. Chemicals and Pharmaceuticals.         | ..         | ..        | ..         | 2.880      | 5.290     | 8.170      | 0.840                                    | 1.550     | 2.390       | ..                       | ..         | ..          | 3.720       | 6.840      | 10.560      |
| 7. Mineral, Oil and Gas                   | ..         | ..        | ..         | 1.450      | 1.680     | 3.130      | 0.560                                    | 0.920     | 1.480       | ..                       | ..         | ..          | 2.010       | 2.600      | 4.610       |
| 8. Engineering Industries                 | ..         | ..        | ..         | 13.280     | 18.010    | 31.290     | 3.010                                    | 5.320     | 8.330       | ..                       | ..         | ..          | 16.290      | 23.530     | 39.820      |
| 9. Miscellaneous Industries               | ..         | ..        | ..         | 2.350      | 3.680     | 6.030      | 0.480                                    | 0.840     | 1.320       | ..                       | ..         | ..          | 2.830       | 4.520      | 7.350       |
| 10. Industries not else where classified. | ..         | ..        | ..         | 0.710      | 0.850     | 1.560      | 0.150                                    | 0.250     | 0.400       | ..                       | ..         | ..          | 0.860       | 1.100      | 1.960       |
| 11. Service Industries                    | ..         | ..        | ..         | 4.350      | 4.050     | 8.400      | 0.550                                    | 0.970     | 1.520       | ..                       | ..         | ..          | 4.900       | 5.020      | 9.920       |
| Sub-Total                                 | ..         | ..        | ..         | 38.940     | 55.140    | 94.080     | 9.780                                    | 17.740    | 27.520      | ..                       | ..         | ..          | 48.720      | 72.880     | 121.600     |
| 12. Cottage Industries                    | ..         | ..        | ..         | 17.900     | ..        | 17.900     | ..                                       | ..        | ..          | ..                       | ..         | ..          | 17.900      | ..         | 17.900      |
| Total                                     | ..         | ..        | ..         | 56.840     | 55.140    | 111.980    | 9.780                                    | 17.740    | 27.520      | ..                       | ..         | ..          | 66.620      | 72.880     | 139.500     |



## 9.9 INSTITUTIONS FOR INDUSTRIAL DEVELOPMENT

Growth of requisite institutions are preconditions of planned industrial development. These institutions are needed for research in technology and product development, for technical and managerial training, for setting standards of products, for providing technical assistance in pre-investment studies, etc. Proposals are indicated below for growth and expansion of such institutional infra-structure. Financial Institutions are mentioned in other sections and scientific and industrial research is dealt with in the sectoral programme on scientific training and research.

### 9.9.1 Central Testing Laboratory

Central Testing Laboratory was established for assessing quality of materials purchased by various Government departments. This has helped in a very elementary way in rudimentary quality checks on finished products. There is only one laboratory at Dacca. To help the authority and to induce further awareness of quality control, it is proposed to establish one laboratory at Chittagong and, later, one in Khulna.

### 9.9.2 Bangladesh Standards Institution

It is necessary to prepare and promote adoption of standards for products, particularly industrial products designed for export, to eliminate waste, to rationalise varieties, and finally to co-ordinate efforts of producers and users for improvement of materials, processes and methods. To make this possible, it is essential to use the existing and expanded Laboratory facilities equipped with proper technical personnel of the Central Testing Laboratory. It is desirable to set standards for products and to institute quality control devices in all industrial units worth their name. If the small units cannot have their own quality control units, they can co-operate to have one jointly. Bangladesh Standards Institution should establish standards and all sector corporations and other major industrial units should be required to install quality control units in their premises.

### 9.9.3 National Consultancy Institute

If the country has to minimise its dependence on foreign expertise and skills for planning and implementation of economic development programme for all time to come, some conscious efforts will have to be made to develop the local skills. Among others, the following will expedite the process:

- (i) Each engineering organization should expand its planning and design departments and give them thorough training within the country and abroad.
- (ii) A number of national organizations in the public sector for undertaking consultancy services would be set up as quickly as possible. These organizations should develop capability for undertaking economic and technical feasibility studies, large project planning, conducting surveys and studies of various descriptions, undertaking detailed designs and even providing field supervision for construction and commissioning. Initially they should be allowed assistance of foreign expertise for getting organised and starting work. Sectors such as medium and large industries, small and cottage industries, power development, water development, building and housing for both urban and rural areas, transport including highways and bridges, etc., are clearly identifiable areas where proposed consultancy organization can make significant contribution.



- (iii) To this end a National Consulting Institute would be set up. The sphere of activity should not only include industry but also other identifiable sectors. It should not merely be an Investment Advisory Services but may also provide for Engineering and Management Consultancy Services. The Industrial Advisory Centre of Bangladesh will become nucleus of such an institute.

#### 9.9.4 National Productivity Council

Substantial improvement of productivity in industry has to be attained. Studies indicate that not only the machine rated productivity has not been attained but there has been reduction in productivity levels compared to the past in some units. Increase in productivity is possible through labour discipline, judicious management, timely solution of 'bottlenecks', ensuring a steady supply of power, etc. A national productivity council and productivity units in each sector of the enterprises may render useful assistance.

National Productivity Council, a federated unit of all industrial research and development institutions, is proposed as a clearing house of information on productivity; a centre for cross fertilization of disciplines and joint consultation is also proposed to be set up during the plan.

#### 9.9.5 Industrial and Technological Research

Investment in industrial research so far has been limited. Industries have lagged behind whilst the research institutions failed to create any interest within the industrial sector. There is an apparent lack of communication between the researchers and industry. The imperative need for stimulating scientific, technological and industrial research has to be recognised. Technological research should not only include product development but also development in respect of design, modification and adoption of technology. There seems to be ample justification and need to set up a separate institution for basic design. Financing of industrial research institutions need to be rationalised. In this regard financing through a body which is close to the industry and can direct, control and gear up research to the industrial needs for commercial exploitation, may be found helpful.

#### 9.9.6 Institute of Industrial Technology

For the growth of the engineering industry it is essential to establish an institute to provide training for top and middle management in marketing, production planning, organisation and control techniques; to provide access to information and assistance for the acquisition and utilization of modern technologies and know-how; to establish and maintain contacts with firms and research institutes abroad concerning improved techniques and machinery, product design and development; to conduct research on adoption and transfer of new technology; to provide facilities and guidance for research on development of new products from domestic resources; to provide on request, advisory services for machine selection; to supervise quality as established in consultation with Standards Institution; and, finally, to prepare programmes of sub-contracting in the sector itself. BITAC and LESI may preferably become the nucleus of such an institute. An institute so conceived may become a part



of the Engineering and Shipbuilding Corporation though its Board should be constituted on a broad basis to get the benefit of independent opinions.

#### **9.9.7 Institute of Chemical Technology**

In the chemical sector, particularly with the setting up of petro-chemical industries, chemical research institute for improvement and development of products, for design and adaptation of technology and for training of man-power is suggested. This should be under the BFCPC.

#### **9.9.8 Leather Development Centre**

To improve the quality of leather, to provide training to technicians, to develop products and to adopt technology a leather development centre, based at Hazaribag Leather Institute is suggested. This may be placed under the Tanneries Corporation.

#### **9.9.9 Manpower Development**

Development of manpower and skill through a programmed approach is needed. This not only implies reorientation of education towards skill development but also integrating man-power requirement with education. The technical graduates will be required to acquire working experience in industry for their degree. The management graduates and commerce graduates should also be similarly treated. Besides, growth through inservice training should be initiated. Training at the lower levels may remain specialised and concentrated on narrowly defined subjects but at higher level, a general understanding of interrelated problems and leadership qualities are essential.

#### **9.9.10 Jute Industries Development Centre**

Research and development has been a neglected sphere in the jute sector. As a result technology, management and promotion have suffered very badly in the past. The Jute Centre is designed to undertake research through national and international effort for the jute industry. It will explore new grounds as to the market and usage of jute products, as well as endeavour to organise intensive management development schemes in the jute industry. It is proposed that the JIDC be made an integral part of the Jute Mills Corporation.

#### **9.9.11 Institute of Management Development and Research for Textile Industries**

A textile institute on the lines of JIDC may go a long way in streamlining the problems of the textile industry. The problem in this sector has been acute in the development of skill. Training and personnel development and research in management practices and organisation is mostly inadequate. The institute should be a part of the Textile Mills Corporation.



#### 9.9.12 Small Industries Technical Institute

A training programme for improvement in skills in selected trades, industrial management, industrial extension, rural area development and market analysis will be undertaken for different small industries.

A Small Industries Training Institute will be set up under BSIC to organize and train the existing and prospective entrepreneurs and the officers of small industries organisations and agencies in the technical, trade and industrial management courses. The trade oriented courses will be moulded to improve the skills of workers in small units and broaden their sphere of competence. The important fields of industrial management will include production management, financial management, cost accountancy, etc. Special courses such as financing of small industry, small industry production, training methods and skill and supervisory course for executive development will also be organised and conducted in this institute.

#### 9.9.13 Film Institute

A Film Institute is proposed to be set up during the First Five Year plan. This will train technicians and artists in various trades of film making. For this the FDC has undertaken a programme which will result in finalising proposal for the said institute.

#### 9.9.14 Sugarcane Research

A well equipped sugarcane research centre is essential for intensive cane development efforts to increase yield per acre and recovery rate. Quality cane development and its duplication is essential. Training of staff is required to carry out the package extension programme inclusive of technical assistance, inputs and credits. Intercropping with sugarcane may be encouraged to bring down cost of sugarcane and to improve the income of the farmers. Modernisation of sugar mill farms should be given priority in order to supply better cane to the mills and to demonstrate to the cultivators the impact of improved practices. This has already been placed under the Sugar Mills Corporation.

#### 9.9.15 Technical Assistance

Technical assistance will be required for financing of laboratory equipments, technical books, foreign experts/consultants, fellowship and training, and feasibilities, research and special studies. The assistance will be of a general nature and will not include those coming in for turnkey projects and a total requirement of Taka 10.00 crores for the Five-year Plan is estimated, all in foreign exchange. Almost an equal amount will be required in local currency to be met out of our own fund. In the industrial sector the breakdown of technical assistance comes to Taka 6.5 crores for foreign experts and advisors, Taka 0.6 crore for training of Bangalees abroad, Taka 2 crores for feasibilities, research and special studies and Taka 1.7 crores for laboratory equipments, technical books, journals and periodicals.



TABLE IX-26.  
Financial Implication of Institutional Investment in Industrial Sector

(Taka in lakh)

| Sector.  | On-going. |      |        | New.   |      |        | Balancing, Modernisation and Replacement. |      |        | Research and Development. |       |        | Total. |       |        |
|--|-----------|------|--------|--------|------|--------|---|------|--------|---------------------------|-------|--------|--------|-------|--------|
|  | Local.    | F.E. | Total. | Local. | F.E. | Total. | Local.                                    | F.E. | Total. | Local.                    | F.E.  | Total. | Local. | F.E.  | Total. |
|  |           |      |        |        |      |        |   |      |        |                           |       |        |        |       |        |
| 1  | 2         | 3    | 4      | 5      | 6    | 7      | 8   | 9    | 10     | 11                        | 12    | 13     | 14     | 15    | 16     |
| 1. Bangladesh Standard Institution.                        | ..        | ..   | ..     | ..     | ..   | ..     | ..  | ..   | ..     | 18.0                      | 2.0   | 20.0   | 18.0   | 2.0   | 20.0   |
| 2. Central Testing Laboratory.                             | ..        | ..   | ..     | ..     | ..   | ..     | ..  | ..   | ..     | 35.0                      | 15.0  | 50.0   | 35.0   | 15.0  | 50.0   |
| 3. National Consultancy Institute (Incorporating I.A.C.B.) | ..        | ..   | ..     | ..     | ..   | ..     | ..  | ..   | ..     | 40.0                      | 60.0  | 100.0  | 40.0   | 60.0  | 100.0  |
| 4. National Productivity Council.                          | ..        | ..   | ..     | ..     | ..   | ..     | ..  | ..   | ..     | 40.0                      | 60.0  | 100.0  | 40.0   | 60.0  | 100.0  |
| Total  | ..        | ..   | ..     | ..     | ..   | ..     | ..  | ..   | ..     | 133.0                     | 137.0 | 270.0  | 133.0  | 137.0 | 270.0  |



## 9.10 PROBLEMS AND POLICIES FOR THE NATIONALISED SECTOR

Since the major part of modern industry is nationalised, the efficiency of the Public Sector is critical for the success of the industrial sector programme. The main factors currently inhibiting the efficiency of the nationalised sector are discussed below:

### 9.10.1 Employment Practices

Many corporations inherited a standing administrative staff from the old, pre-independence, public sector. Furthermore, as far as new recruitment is concerned, it is urgently necessary to devise appropriate rules for employment practices and terms of employment in the nationalised sector without delay. In its absence, responsibility for the poor performance of the personnel/staff cannot always be clearly defined. Whilst recognizing that there are some hazards in giving unrestricted freedom of employment to the corporations it must be recognised that the wisdom of selection must only be judged by the performance at years' end recorded in the balance sheet for which top management should be held fully responsible.

### 9.10.2 Purchases and Sales

The compulsory recruitment of purchases through public tender in all cases as well as the obligation to refer all tenders above Tk. 10 lacs for the prior approval of the Cabinet Sub-Committee have in many cases affected the smooth and efficient flow of imports and purchases in the nationalised sector. There are commodities which require quick decisions and spot purchases, specially in a situation of scarcity. These commodities suffer from the frequent price fluctuations and are traded in limited, non-competitive markets. It may be necessary to exempt many of them from requirements of public tender.

In the past centralised purchases by the Trading Corporation of Bangladesh of all items exclusively used by the nationalised industries led to the delays and lack of coordination. However, the recent policy of decentralisation, and delegation of authority for imports to corporations and enterprises is a step in the right direction. It is expected that possibilities of further decentralisation will be explored.

The sector corporation are to be encouraged to sell at prices which are profitable from the commercial point of view. Within the framework of guidelines to be set by the Government for public sector pricing each corporation should have flexibility in pricing decisions. In addition, the sector corporation should be left free to determine their own marketing and distribution arrangements subject to overall policy directives of the Government. Centralisation of procedures may have justification in relation to the operations of administrative departments where no alternative checks are easily available. In contrast the nationalised industries sector operate on commercial principles where performance is judged on results recorded in the balance sheet. If enterprises make procurements on other than commercial consideration this will be reflected in the profitability of the enterprise.

The appropriate approach to check corruption lies in seeing that the upper tiers of the corporations and chief executives of the enterprises are basically trustworthy. They must be checked through an efficient information and audit system which does not come in the way of quick decision making. In turn, their internal auditing system should provide a check on their employees.



### 9.10.3 Demarcation of Responsibility

The need for a clearcut demarcation of responsibility between the Minister as the policy maker, the sector corporation as regulating agency for the nationalised enterprises and the individual enterprises directly incharge of productive operations, can hardly be exaggerated. Absence of detailed rules of business relating to their specific functions as well as their inter-relationships contributes to delays in decisions making and difficulties in assigning responsibility for action and policies. In the absence of a clearcut demarcation of responsibility, it is difficult to implement the principle of accountability. It is expected that action already underway in framing the rules of business for the nationalised industries would go a long way in establishing the principle of accountability of different tiers of administration as well as increasing the efficiency of management in the public sector enterprises. Once the corporations are able to develop management boards in the enterprises and recruit adequate personnel, a greater authority could be delegated to the individual enterprises. It is expected that the problems of nationalised sector which is an important experiment and crucial for the success of the socialist transformation in Bangladesh are now appreciated and corrective measures under considerations must be implemented without delay.

### 9.10.4 Management Problems

Shortfalls in management performances stem from inadequacy in the availability of motivated and experienced managers. This deficiency is aggravated by lack of management guidelines within the nationalised sector. The main management problems facing the sector may be identified as follows:

(i) Clearly defined objectives must be set for each sector. Production targets, efficiency levels, cash surplus generation and other defined objectives should be spelt out for the corporations and by the corporations for the enterprises. Even within enterprises, objectives are needed to be set up for sections and even individual workers. Absence of precise targets makes it difficult to evaluate performance, motivate workers and identify and correct lapses.

(ii) Definition of objectives requires an efficient information system which keeps each tier of authority informed of the performance of the tier beneath them and finally provides a simple format of important and accurate information for the Minister to communicate to Parliament. The management consultants advising the nationalised sector have worked out a format for each corporation which has recently been put into use in varying degrees by the corporations. A uniform accounting system for all enterprises is also essential so that the basic data are generated in a form which feeds the information system. At the time of nationalisation the corporations inherited a diversity of accounting systems which now needs to be unified and adapted in all enterprises.

(iii) In a socialist economic system the top executives of the nationalised sector should not only be people of outstanding ability but should also be committed to the socialist goals of the country. These executives should be supplemented by socialist cadres distributed within middle management and workers whose role will be to motivate their colleagues to higher efficiency and who will act as watchdogs over corruption, mismanagement and sabotage of the nationalisation programme. In Bangladesh no such infra-structure was available.

In the initial transition phase professional skills of the managerial class are necessary to make a success of nationalisation even where such expertise has no particular political commitment.



They need to be motivated by material incentives and challenge of responsibility. Their salaries and benefits must ensure not just comfort and security but must compare with those enjoyed by their professional colleagues elsewhere in society. Where public policy makes it difficult to match the material rewards of the private sector, this must be compensated by giving our top management a sense of freedom and responsibility in their job. Finally, our public sector managers must be given the status and recognition traditionally enjoyed by the top bureaucrats. Indeed, since they are the productive elements in society they should be kept at the top of the social scale to compensate for any major decline in living standard once they enter the public sector.

Top executives in the corporation so far received fixed salaries on an ad-hoc basis. They consequently suffer from a sense of insecurity as to their income, prospects and lack of incentive to improve their performance. It is necessary now to spell out principles on which their future remuneration should be based. At the enterprise level apart from the question of remuneration for management, the need to relate their efforts to the performance of their enterprise has to be established through an efficient incentive system.

The Pay Commission has defined the upper salary limits of our socialist society where it is suggested the permanent employees of the nationalised sector have been kept at the top of the scale. This should be given effect along with an incentive programme which relates performance to remuneration. For non-permanent appointments all corporations and enterprises should be free to negotiate salary contracts with employees based on their worth and value to the organisation. Each corporation should be instructed to work out its own proposals for a management incentive system for each of the enterprises under its control. This may be related to profits, production norms or any other yardstick deemed expedient by the corporation. The various proposals emanating from each corporation should be reconciled at the level of the Minister and the Cabinet with a view to sorting out the divergences between sectors and enterprises.

(iv) A special problem arises with regard to the ex-owners who were asked to stay on at their enterprises under the nationalisation order but who have been not paid nor guaranteed any compensation. This leaves room for misuse of power. The corporations would need to undertake a scrutiny of the ex-owners in respect of honesty and efficiency at the earliest. Those who are willing to work sincerely and honestly for the public sector must be given the chance to prove their worth. Similarly, with respect to the administrators of the absentee/abandoned units, many of whom were appointed in the post-liberation period without reference to their experience or calibre, the relevant corporations should select the competent ones for appointment as permanent managers.

## **9.11 INSTITUTIONAL CHANGES IN THE NATIONALISED SECTOR**

The nationalised sector needs to be reorganised so that the freedom of action and an efficient management system can be ensured. The relations between the various tiers of the sector need to be clearly defined with a view to assigning specific responsibilities. The rules of business should be based on the following principles:—

(i) The individual corporation Chairman should have maximum commercial autonomy and be personally responsible to the Minister for the operation of his corporation.

(ii) Chairman should have either the appropriate status or the authority to enable them to have formal direct relationships with their Minister, other Ministers and their Secretaries. They should act as the Minister's Secretary for their own corporations.

(iii) Executive Control over any corporation should only be exercised by the Minister and the individual Chairman.



(iv) A Nationalised Industries Committee should be set up with the following composition:—

*Permanent Members:*

- (a) The Minister for Industries as Chairman.
- (b) Minister of State for Industries as Vice-Chairman.
- (c) Member, Planning Commission, In-charge of Industries.
- (d) The Concerned Corporation Chairman.
- (e) Secretary, NID— Member-Secretary.

*Ad-hoc Members:*

For example, representatives of Ministries of Finance, Labour, Law and Commerce, investment bankers and industrialists invited by the Minister to contribute in discussion of particular items of agenda.

This committee should meet monthly, be deliberative and not executive, dealing with matters of common interest to all corporations.

(v) The functions of the Secretary to the Nationalised Industries Division (NID) should be as follows:—

- (a) arranging that the Minister, acting on behalf of the Government as owner of the corporations, has the appropriate documents containing information about performance of the Nationalised Industries.
- (b) communicating to the corporations the Government's social, economic and development policies on behalf of the Minister and obtaining for the Minister any general information that may be required to prepare industrial policy.
- (c) analysing the half-yearly financial reports of the corporations and advising the Minister of any deviation in performance from budget so that the Minister can take the necessary action.
- (d) arranging on behalf of the Minister that the presentation of financial information conforms to the procedure laid down.

(vi) The corporation is responsible for ensuring that the overall targets and objectives of the Nationalised Industries Sector are achieved. The corporations prime roles in relation to the enterprise are:

- (a) guardian of the assets on behalf of the Government;
- (b) supervisor of the performance of the enterprise;
- (c) provider of practical advice and assistance to the enterprise to help it to optimise production quality and efficiency; and
- (d) development of its Nationalised Industrial Sector.

The direct and formal link between the corporation and the enterprise should be the corporation nominee on the Enterprise Board. His role would be to:

- (a) guide the Enterprise Board in determining policies to achieve its targets, objectives and budgets that are in line with basic corporation and Government policy.
- (b) foster the spirit of entrepreneurship.
- (c) identify areas where advice and assistance from the corporation would be beneficial and arrange for it to be given.



## 9.12 MANAGEMENT DEVELOPMENT PROGRAMME

### 9.12.1 Need for a Programme

Deficiencies identified earlier in the number, experience and motivation of public sector managers point to the need for an intensive management development programme specially designed for the nationalised sector. Such a programme, will need to impart both management skills as well as socialist values to new recruits as well as managers inherited from the old order. To develop these skills a programme of management development both within the corporations and in specialised training institutions has to be worked out. A committee has been set up to examine available facilities for management training and to work out programmes for developing existing and new institutions to cope with the responsibility of training managers for running socialist enterprises.

### 9.12.2 Existing Training Units

Facilities for management training in Bangladesh are modest. At present these are limited to the Management Development Centre (MDC) and Industrial Relations Institutes (IRI). The MDC offers training courses to the middle and higher level executives and the IRI to Trade Union Leaders and Labour Welfare Officers. Institute of Business Administration (IBA) attached to Dacca University offers Diploma courses to working executives and Degree courses to would-be executives. The National Institute of Public Administration (NIPA) also offers training courses in Administration, Economic Development and Planning to middle level executives. Facilities provided in all these institutions are limited and between them there seem to be no clear demarcation of spheres. It is to be admitted that these programmes did not create a visible enthusiasm amongst the enterprises or the trainees. A follow-up programme and evaluation of the programme are also absent. Since all these institutions catered to the needs of a capitalist system the changed social parameters may require some re-orientation in their approach. No industry or corporation has yet developed its own training programme.

### 9.12.3 Programme

Any comprehensive programme to develop management skills must await the recommendations and acceptance of the report of the Committee. The lines on which management development may take place may *ad interim* be tentatively indicated below:

- (a) Creation of management cadres in all corporations.
- (b) Entry into the lowest tier through competitive examination. Initial appointment to be as apprentice/trainee; horizontal induction may also be made with due consideration. Initially it will pay to recruit in large numbers to take care of dropouts and failures.
- (c) Each large corporation or a group of small corporations together may institute a programme for on-the-job and in-service management training to train them further into the specifics of objectives of management, in the context of technology, production and social goals. Training in special fields (e.g., budgeting, inventory control) should also be undertaken. Trainees should be brought back for refresher courses and training programmes be so graded that one who does well in the course and is able to apply it should get credit in his service record and be counted for promotion. In developing this programme the services of the management consultants currently advising the nationalised sector may be used.



- (d) In-service training and a seminar/workshop of short duration is to be organised by a central body of the corporation or in the project, under the initiative of the corporations, to review, change and introduce improved management practices.
- (e) A special workshop in each project has to be introduced to make labour and management understand the implications of "social management", the responsibilities under it, the participation of workers and the concept of joint effort.
- (f) Industrial Relation Institute must train the workers, Trade Union Leaders, the members of the Works Committees and Corporation Labour Executives in the specifics of labour law, need for labour discipline, role of collective bargaining in a socialist economy, and the concept of socialist management.
- (g) Management Development Centre (MDC) may continue with programmes detailing techniques of scientific management. But they should offer lectures to all trainees on socialist management. They should institute follow-up programmes and maintain close liaison with the corporations and enterprises.
- (h) MDC will offer special intensive course to labour leaders on management so that they can fully participate on management matters in the enterprise management boards to be set up.
- (i) The trainers, selected groups of trainees and a group of corporation executives may be sent to socialist countries to study their management procedures and their training programme. Similarly experts from socialist countries may be invited to advise and give courses on socialist management training.
- (j) The Institute of Business Administration must be converted into the seed bed for providing socialist management cadres to the nationalised sectors. Their courses must be reoriented to this specific objective and all graduates must be absorbed into the nationalised sector. To enable them to immediately play a meaningful role in industry, from the outset, the IBA degree programme must be practical and involve close contact with industry throughout the course.
- (k) Another institute at diploma level may be set up to train a larger number of socialist management cadres somewhat less intensively. Graduates from this institute may expect to go through a period of apprenticeship in the nationalised sector before being given responsible positions.
- (l) Co-ordination in training programme of MDC, IRI, IBA and the new institute and corporations may be affected through a co-ordination committee for which MDC will provide the Secretariat. To give it both status and direct relationship to the Industries Sector all corporation Chairmen should be on this committee which should be convened under the Chairmanship of the Minister of Industries. It is proposed that MDC be placed under the Ministry of Industries (NID).

## 9.13 LABOUR POLICY

### 9.13.1 Problems

The success of the industrial enterprises in the achievement of national objectives depends to a large extent on the responses of the workers in the factories. A motivated labour force committed to raising productivity and sharing in the fruits of its effort was an essential premise for nationalisation. To realise this, the contradictions between labour and capital needed to be eliminated by associating workers in the management of their enterprise.



This assumption has not been fully realised. Instead workers have been a seriously disaffected social group. Their disaffection has manifested itself in demands on the management of the enterprise for increased wages and improved benefits, along with redress from a variety of grievances, some inherited, some new. All this has led to a serious breach of communications between the managerial staff and the workers. Such a situation has had its inevitable impact on productivity and this has been an important factor inhibiting revival of the economy.

Some of the outstanding factors in the current period which have contributed to the disaffection of the workers are identified as follows:

- (a) Price inflation has eroded the effect of increase in money wages in 1972.
- (b) Absence of integrity and competence, of some administrators who were appointed to manage the industries, abandoned by the Pakistanis, before the Nationalisation Order was implemented in 1972.
- (c) Anomalies in the wage structure and lack of uniformity of wage rates between different enterprises in the same industry.
- (d) Absence of a system of incentive payments related to the levels of productivity.
- (e) The delay in putting into effect the proclaimed policy on workers participation and more specially the appointment of workers to the management boards had created misgiving in the mind of some workers.
- (f) Others amongst workers see the implicit threat from workers participation to the principle of collective bargaining and are not at all convinced that the surrender of what they feel to be a fundamental right will be adequately compensated by the benefits emanating from workers participation.
- (g) Within the current social milieu workers feel justified in staking their claim to a better life today notwithstanding the consequences to the economy. They feel that calls for restraint cannot in all conscience be made by a society which demonstrate inequalities in income and levels of living.

The administrative difficulties have been increased by the absence of trained socialist cadres or trade unions to serve as a bridge between the Government and the workers. These could have played an effective role in conveying the policies of the government to the workers and mobilising workers towards higher productivity where workers benefits would have come out of the incremental output.

The difficulty seems to have been founded in part in the history and character of the trade Union movement. Some of these difficulties may be summarised as follows:

- (a) In a situation where trade unions are founded on political regional and even personal loyalties a variety of union and federations are today competing for the loyalties of the workers.
- (b) In pre-nationalisation days this tendency was encouraged by the capitalists who adopted one of the factions or put up one of their own to divide the movement. By providing material incentives to some union leaders they brought peace or broke up workers movements.



- (c) Today new groups seeking a foothold in the movement or to expand their support have put most groups into a competitive situation where they bid for the loyalties of the workers on the basis of what they can secure for them from the management.
- (d) Thus whilst factionalism persists, the nationalised sector cannot resort to expedients open to the private sector to buy peace. The use of political instruments to substitute for these traditional techniques used by the employers has not been very effective.
- (e) In such a situation the concept of the elected bargaining agent has not been very successful. The agents are under constant pressure from their defeated opponents to raise their own demands lest they lose their support. Agreements reached with such agents in many cases are undermined because of pressure from below. Of late this has been aggravated by splits in the various union and federation where bargaining agents themselves represent divided factions.
- (f) Under these circumstances the scope for a constructively motivated union leadership capable of mobilising all workers in the enterprise to productive effort is seriously inhibited.
- (g) The contradiction on the factory floor is projected into the national stage where a wide variety of factions put themselves forward to speak for the workers in any area industry profession or even factory so that any single agreement reached at a national level can be negated at various levels. In such a situation any national agreement has to involve all the major groups who speak for the broad mass of the workers.

### 9.13.2 Labour Policy

(i) Labour Policy is now being finalised and should be implemented as early as possible. The fundamental objective of this policy is to eliminate the contradiction between labour and management. To this end the policy needs to ensure worker's representation on the management boards where they can participate in policy making for the enterprise and also at the level of the work floor through works committees where they can participate in solving day to day problems affecting the enterprise.

(ii) Attempts must be made to break down the traditional social barriers dividing the managers and the workers and to develop a spirit of partnership in the nationalised enterprises including occasional participation in manual work on the part of the top managers.

#### (A) *The Role of the Trade Unions*

(i) Labour Policy should include a constructive role for the trade unions. The elected bargaining agent must, through the instrument of the works committee, act as the link between the management board and the workers. The union must not only convey the views and problems of the workers to the Board but must motivate them to reach the targets set by the Board.

(ii) It should be a goal of policy, that when the objective conditions permit, all workers when an enterprise should be represented by a single union. These unions should be turn federate at the industry and national level. This will enable workers at each stage to speak with a unified voice thereby enabling accountability to be established on the workers' representatives just as it is sought to define responsibilities within the management of the nationalised sector.



(iii) A unified trade union movement would make it possible and necessary to associate the industry federations in policy making at the corporation level and the national federation in framing the economic policy of the country.

#### (B) *Wage Policy*

(i) The Industrial workers wage commission had already submitted its report which has now been accepted by the Government. Problems arising out of its implementation are now being examined. The wage commission has attempted to eliminate the widespread anomalies affecting the wage structure of various nationalised industries. Whilst seeking to ensure a minimum wage it has however recognised that complete uniformity of wages are not feasible. It has however sought to establish broad parities in the recommended wage scale for the various industries to the extent possible and considered fair.

(ii) The Commission has recognised that changes in cash wages must be supplemented by an assured supply of wage goods such as foodgrains, edible oil, kerosine oil, standard cloth and sugar at stable prices. Environmental support also needs to be provided in the way of housing medical and transport benefits along with facilities for workers education. Most important, retirement benefits to provide security for the worker's future should be provided for. These facilities need to be standardised for all workers but their provision should be integrated with the specific wage structures to be introduced for each industry.

(iii) Scope for rewarding efficiency has been provided for through acceptance of the principle of incentive bonus. Different standards, but based on uniform principles, will be provided for each industry and details of these should be worked out by the respective corporations concerned. In this way workers will directly benefit from harder and more efficient work and will have a direct stake in the production performance of their enterprise.

(iv) The wage commission has recommended that wage policy be reviewed every five years. In fact this review may be made to coincide with the commencement of a new five year plan since the implementation of the commission's recommendations are likely to be co-terminus with the beginning of the new five year plan. It should however be considered whether a standing wage board may be set up to resolve any disputes relating to wages and benefits which cannot be sorted out at the enterprise or corporation level.

(v) Policy for using the surplus from the nationalised enterprises needs to be worked out. This should work but the various shares to be realised by the exchequer and the enterprise. The enterprise share should be distributed between a fund for reinvestment in modernisation, balancing and expansion. The other share should constitute a worker's welfare fund to be used in such areas as providing share capital for worker's housing cooperatives and other environmental benefits.

(vi) Finally, it must be kept in mind that workers will always respond to other than material incentives. If efficiency and effort of both industrial workers as well as groups of workers are given social recognition this will constitute a powerful complement to proposals for material incentives spelt out earlier. This involves giving awards, wide publicity in the news media, regular contacts with public leaders and senior corporate officials for workers or even enterprises who perform above the norm. This social recognition for work will stimulate a spirit of healthy competition amongst workers and between enterprises. Each corporation may be asked to work out a programme for such non-material incentives which can then be co-ordinated by the Nationalised Industries Committee with the participation of the Ministry for Information who will have to gear the media to publicise the worker's achievements.



## 9.14 FINANCING THE NATIONALISED SECTOR

### 9.14.1 Financing Investment

Investment and financing functions with respect to both public and private sector enterprises have been streamlined to do away with the overlapping functions and anomalies.

(i) In order to make the system simple and more functional, the former IDBB has been merged with Equity Participation Fund to form the Shilpa Bank and entrusted with the task of financing mainly the private sector industries. The Shilpa Reen Sangstha was formed by merging the former ICB, NIT, BICIC and is to finance units with assets above Tk. 20 lakhs. This will cover mostly public sector units.

(ii) It has been decided that all existing projects in the public sector will have to guarantee a fixed return of 7.5 per cent of the original investment (irrespective of the book value) inclusive of loan and equity.

(iii) The enterprises will further be required to provide for standard 7.5 per cent rate of depreciation on the basis of original investment cost.

(iv) All the past debts of the existing projects on or before March 26, 1972 will be ascertained and will be written off or converted to long term loans.

(v) The Government will prescribe a formula to distribute any surplus after tax between workers' fund and reinvestible surplus or on any other head it deems necessary.

(vi) All project schemes will have to be submitted to the Planning Commission or financial institutions in the revised PC-I proforma of the Planning Commission. Project evaluation will be undertaken by the respective financing agencies. Projects submitted to the Planning Commission will go through the normal project approval procedure. For funds provided by the Government but administered by the financial institutions, the financial institutions will be allowed to charge a fixed commission over and above the fixed Government rate of 7.5 per cent.

(vii) All financial institutions will continue to finance the on-going public sector projects within their jurisdictions till they are completed.

(viii) All new projects costing below Tk. 50 lakhs but without any project aid lined up by the Government shall be financed by Bangladesh Shilpa Reen Sangstha (B.S.R.S.)

(ix) All public sector projects falling under the category of Balancing Modernisation and Replacement (BMR) shall also be financed by the B.S.R.S.

(x) The Bangladesh Shilpa Bank (BSB) will mainly be financing the private sector industries below Tk. 25 lakhs.

(xi) The lending procedures in the financial institutions are cumbersome and time consuming. It is suggested that the procedures should be simplified and loan operation should be made quicker.

(xii) Bangladesh Small Industries Corporation (BSIC) will also finance and help the small industries specially in promotional activities and in joint ventures. The financing requirement of debt equity ratio has been assessed at 70:30, i.e., while the small investor is required to provide his own equity of 30 per cent, 70 per cent will be provided as loan by the BSIC.

(xiii) Projects costing Tk. 50 lakhs or more as well as those where project aid is lined up by the Government will be financed through Annual Development Plan (ADP).



### 9.14.2 Release of Funds

Public sector units often complain about delay in release of funds. This is a legacy of the past regime. Under the colonial system responsibility was not matched by trust and hence repeated checks were instituted often leading to higher consequential losses than the loss against which such checks were in the first place established. It was expected that at least our nationalised sector would be spared the traditional delays in sanctioning funds in deference to their commercial status. But they continue to be subject to multiple scrutiny in spite of the best efforts to simplify their problems. These added to the normal bureaucratic delay of getting a file to pass through a chain of functionaries causes immense problems for the units which are supposed to run on commercial lines. This may be seen from the procedures for release of funds enumerated below:

- (a) Physical programme of expenditure during the year is to be submitted by the corporation. This is subject to scrutiny by the controlling Ministry and then the Division concerned in the Planning Commission whose recommendations are sent to External Resources Division (ERD) of the Planning Commission for foreign exchange release and to Ministry of Finance for actual release of both Taka finance and foreign exchange.
- (b) External Resources Division after scrutiny of foreign exchange needs, sends its approval to Ministry of Finance for release of funds. ERD does its own exercise to determine whether the corporation's foreign exchange requirement will be met from barter, credit, grant or cash foreign exchange.
- (c) Ministry of Finance is supposed to automatically release funds on instructions of ERD but, constrained by the state of the reserves, has tended to initiate its own scrutiny for schemes obtaining ERD sanction for cash foreign exchange.
- (d) During 1972-73, NID also carried out its own scrutiny of allocations made in the ADP and has in many cases modified ADP allocations leading to further delays in release of funds.

### 9.14.3 Streamlining Release of Funds

In order to streamline release procedures the following principles should be followed:

- (i) The corporations should receive and scrutinise the development expenditure budgets of the enterprises under them at least three months before the commencement of the ADP.
- (ii) The consolidated budgets of the enterprises under the corporation should be presented with the approval of the Minister to the Planning Commission.
- (iii) The Industries Division of the Planning Commission will scrutinise these budgets in joint meetings with the Corporations, Finance Ministry and External Resources Division (ERD) of Planning Commission.
- (iv) During these meetings, ERD will indicate external resources position and the forms in which it can be made available to finance external requirements of the project.
- (v) Funds will be released on a half-yearly basis. Funds for the first half will be released automatically at the beginning of the half-year as programmed in (iii).



- (vi) Programme for the second half will be released subject to evaluation of utilisation in first half and resource position.
- (vii) Review procedures will follow the same sequence as for the ADP.
- (viii) Following on approval of revised ADP, allocations for the second half year will be released automatically.
- (ix) Funds for balancing and modernisation will be processed through Bangladesh Shilpa Reen Sangstha.
- (x) Foreign exchange for recurring costs of enterprises will be financed through import entitlements under import policy.

## 9.15 PRICING POLICY

### 9.15.1 Nature of Public Sector Units

Pricing policy of the public sector units have been viewed with concern. If the units are to operate on commercial lines, the demand for freedom to price their product cannot be withheld. On the other hand, Government is genuinely concerned that consumers get a fair price and that inefficiency is not covered by profit in a scarcity situation.

In certain cases the public sectors are single producers (*e.g.*, fertiliser, sugar, jute goods, paper, cement, etc.), where Government through imports and price control restrict their monopoly position. In dealing in other fields there are private sector units competing with the public sector. With the pricing policy, it is to be recalled that:

- (a) Input prices are given either because Government pursues a price policy (*e.g.*, sugar-cane, jute, furnace oil, power) or because they are imports and are bought at international prices.
- (b) Salary and wages are largely determined by Government labour and wage policy and salary structure.
- (c) Duties and taxes, depreciation and interest are also predetermined.
- (d) Further, it has been decided to levy a fixed charge on fixed investment (7½ per cent).

### 9.15.2 Issues and Implication of Managed Price

Under these circumstances the corporation's freedom to fix prices of its choice is restricted by the circumstances enumerated above. This raises difficulties in using price and profits as a measure of the efficiency and performance of any enterprise.

If we wish our nationalised sector to operate on commercial principles then the market mechanism must be permitted to guide their production decisions within the limits set by social policy.

If the nationalised sector is left free to fix its prices then it will be dictated by cost and demand factors and its own estimates of profit maximisation. These will raise the traditional problems relating to monopoly suppliers, where through government investment and import policy certain enterprises emerge as single sources of supply. Freedom to fix prices of their choice will involve high profits at the cost of the consumer or buyer.



In the event that state policy wants to protect certain sectors of society from high prices a conflict of objectives arises as between the goal of compelling enterprises to operate on commercial principles and an obligation to the consumers. Here it may be argued that regulating prices of the enterprises is not an efficient or necessarily just way of compensating consumers. This should be done if so desired by budgetary subsidies and distributional controls. Budgetary subsidies will enable the government to identify the difference between the economic cost paid to the producer and the lower cost paid by the consumer. The amount of subsidy will then have its own economic and political opportunity cost which the people's representatives can assess when they determine the need and extent of the subsidy.

In the event that subsidised goods are to be provided to consumers at below their market price then suitable distributional institutions will need to be established to ensure against black-marketing and equal distribution of goods at controlled prices.

Notwithstanding this problem there remains a question of products sold even under normal condition on inter-industry basis or to consumers under monopoly conditions where the government may want to limit the exercise of the enterprises monopoly powers. To the extent that it also wants to regulate a wage/price spiral some intervention may be necessary.

### 9.15.3 Guidelines

The following guidelines to pricing policy are, therefore, proposed:

- (i) All corporations/nationalised enterprises will be free to fix their prices up to a limit of 10 per cent over their costs of production. It is presumed that fiscal anomalies will be taken care of by other means than making domestic production bear higher tax incidence than imports.
- (ii) There is nothing to prevent them from selling below this ceiling if dictated by market considerations.
- (iii) Any fixation of price involving a mark up over 10 per cent will be referred to a special Prices and Tariff Commission for clearance. This clearance may be sought for a variety of reasons including the need for a higher rate of return on capital or the need to extract a higher level of revenue from certain classes of consumers. The Commission will examine all such cases and put up the facts and their recommendations to the National Economic Council for final decision.
- (iv) In order to facilitate clearance, the National Economic Council may appoint a special prices sub-committee.
- (v) The Prices and Tariff Commission will monitor all prices and costs of the nationalised sector on a regular basis. For this all enterprises should keep the Commission supplied with the prices and cost of production for every commodity on a quarterly basis.
- (vi) Where a particular enterprise or product is in need of a subsidy in order to compete in the export market or for meeting temporary difficulties whose solution is outside the ambit of the corporation, the case should be referred to the Commission. The Commission after due study of the problem and options will put up their recommendations to the prices sub-committee of the National Economic Council.



- (vii) If any agency of government faces difficulties as a result of the free pricing policy by the enterprises they may put up a case to the Commission for subsidy. This case after study will be put up by the Commission along with their recommendations to the sub-committee of the National Economic Council.
- (viii) Prices charged in the private sector may also be brought within the purview of the Commission and the case may be assessed on the same basis as for public sector prices.

#### 9.15.4 Price and Tariff Commission

The Prices and Tariff Commission may be built around the existing Tariff Commission which should be suitably redesignated and its capabilities raised sufficiently to enable it to discharge the new responsibilities now invested on it:

- (i) The Commission should, in addition to the functions of price review designated above, play the role traditionally assigned to Tariff Commission. This should aim mainly to examine all cases, for complete or partial ban of imports. All recommendations should be referred to the same sub-committee of NEC designated for prices.
- (ii) The Commission should have necessary judicial powers to summon all parties concerned or records to their hearings. They should also have right of entry into all enterprises to verify facts needed to prepare the Commission recommendations.
- (iii) The Commission should be located under the Ministry of Commerce. However, it should have enough authority to exercise its enhanced responsibilities.

#### 9.16 FOREIGN INVESTMENT

Foreign equity investment had never played a significant role in the economy of Bangladesh during the last two decades. At liberation foreign capital controlled an insignificant part of fixed assets in the modern industrial sector. The major part of this investment was tied up in subsidiaries of international pharmaceutical companies and tea gardens which had been inherited from British India.

The need for foreign investment to bridge the foreign exchange gap is recognised as is the need for importing both technology and management. At the same time it is seen that within the framework of a socialist commitment, foreign investment cannot play an unrestricted role in our economy.

The Government's foreign investment policy was designed to reconcile any potential contradiction between these two objectives. The present policy, therefore, provides for 51 per cent ownership by the public sector which will be the sole partner of the foreign firm. At the same time it seeks through the agency of a management contract to give a free hand in management to the investor where their management and know-how is essential for the efficient functioning and growth of the project.

To give a sense of assurance to investors about their future earning prospects, the following facilities were provided by the investment policy:

- (I) All foreign investment will be free to remit:
  - (a) All post-tax dividend on foreign capital.



- (b) 50 per cent of net salary of foreign nationals subject to a maximum of £150 per month per individual.
- (c) Savings from earnings, retirement benefit and personal assets of the individual.
- (II) Repatriation of capital including capital gains and reinvestment out of profits will be permitted. However, within the first 10 years from the commencement of production repatriation cannot take place in one instalment but will have to be spread over a 10-year period.
- (III) Government has extended a guarantee against nationalisation for a period of 10 years and also assures equitable compensation in case of nationalisation after this period.
- (IV) Government has further expressed its willingness to enter into treaties to avoid double taxation.

It is now proposed that certain additional incentives be provided to investors. These include:

- (i) A tax holiday for foreign investment in the joint enterprises for a period of five years after it goes into production provided that 50 per cent of the profits exempted from tax are ploughed back into the project.
- (ii) Exemption from import and export duties, sales tax and excise duties on all imports for those enterprises which will export 100 per cent of their output. Special zones in the vicinity of our seaports may have to be designated for the location of such enterprises.

The sector corporations which will invest in joint-ventures with foreign investors will have to launch promotional campaigns among foreign investors to participate in our industrial development. They would seek to line up investors for projects which lend themselves to foreign collaboration.

## 9.17 GEOGRAPHICAL DISPERSAL

### 9.17.1 The Present Situation

Industrial activity has shown a pronounced tendency towards geographical concentration and thus exhibited widely varying rates of growth among the various areas of Bangladesh. The distribution of industrial activity is influenced by a variety of considerations. These include:

- (a) Access to government decision-making agencies. This was particularly relevant in the pre-liberation period.
- (b) Costs of procurement of raw materials, cost of distribution, and access to markets.
- (c) Relationship to the entire system of spatial linkages between a given plant and other industries and location of physical infra-structure.
- (d) In Bangladesh all these economic considerations operated in varying degrees. In the public sector, besides economic considerations, social and political interests also played a role.



The results of an analysis of the present pattern of industrial location show that :

- (i) The district of Dacca with large industrial complexes at Narayanganj, Demra, Tongi, Joydevpur, Ghorasal and Narsingdi is the leading industrial centre of Bangladesh.
- (ii) Dacca is followed by Chittagong.
- (iii) The other two concentration areas are Khulna and Sylhet (mostly for tea).
- (iv) The remaining districts fall much below average degree of concentration, the lowest being scored by Patuakhali and Barisal followed by Faridpur, whereas the highest in this low concentration group is scored by Chittagong Hill Tracts.
- (v) Poor areas of manufacturing activity are also poor in transportation facilities and availability of power, whereas rich areas of manufacturing activity are not only fortunate in these respects but also exhibit a high degree of concentration in area indicating a market for products.

An analysis of spatial patterns of individual industries indicate:

- (i) Cotton textiles exhibited a wide dispersal not for modern manufacturing units but because of handloom factories. Even then cotton textiles are mainly concentrated in the districts of Dacca and Chittagong.
- (ii) Of the food manufacturing units, tea is concentrated in Sylhet, salt in Chittagong and Noakhali, fish processing in Chittagong, Noakhali and Khulna, fruit processing in Sylhet and Dacca, oil milling in Noakhali, Bogra and Dacca, whereas sugar and cold storages are widely spread.
- (iii) In the chemical sector matches are concentrated in Khulna and Dacca, fertilizer in Sylhet, Dacca and Chittagong, pharmaceuticals in Dacca and Pabna, other chemicals in Chittagong and Dacca. Paper and Board is concentrated in Chittagong Hill Tracts, Khulna and Dacca; Pabna and Sylhet are to be added soon.
- (iv) Basic metal industry exhibits concentration in Chittagong and Dacca, metal products in Dacca and to some extent in Bogra, non-metallic products in Sylhet, Dacca, Chittagong and Bogra, engineering industries and transport equipments exhibit concentration in Dacca, Khulna and Chittagong; miscellaneous industries in Dacca followed by Mymensingh.
- (v) In printing and publishing Dacca leads the list, followed by Chittagong, Barisal and Bogra. In leather Dacca again tops the list followed by Chittagong, Khulna and Bogra.
- (vi) The moderately diversified and intermediate categories are confined to the districts of high concentration for manufacturing. They are Dacca and Chittagong. In both cases jute textiles dominate followed by cotton textiles.
- (vii) With the exception of sugar, tea, jute pressing and cement, most of the industries are market-oriented. Industries generally tend to concentrate in certain areas which have developed a tradition of manufacturing activity, possess skill, entrepreneurs, administrative and service facilities.



### 9.17.2 Location of Public Sector Units

In its choice of location of public sector industry the Government may be guided by a variety of criteria designed to serve the social goals it has set itself. Within the limits of these goals an attempt has been made to identify the dispersal of industries to be set up in the public sector during the Five-Year Plan. The location of a number of these is undecided. Locations will be determined after a fuller study of the various considerations involved. In the choice of location of a particular project the corporations will be guided by the following considerations:

- Development of backward areas.
- Social benefits.
- Availability of land.
- Nearness to market.
- Transport facility.
- Availability of power.
- Raw material, if local raw material is used.
- Port facilities if import or export oriented.
- Availability of sweet water (for chemicals and textile sectors).
- Inter-industry linkage.

### 9.17.3 Locating Private Investments

In the private sector the following inducements may be used to promote investments in more backward areas:

(a) Industrial estates have been identified as the main institutional mechanism for aiding the private sector. These may be used to promote development of backward areas. It is specifically proposed that:

- (i) 50 per cent of all resources earmarked for the private sector within the industrial investment schedule be tied to utilisation in industrial estates outside Dacca, Chittagong and Khulna.
- (ii) 20 per cent of investment will only be designated for industrial estates in Khulna, Chittagong and Dacca.
- (iii) 30 per cent of investment will be left free to the choice of the entrepreneurs. Here it is expected that some investment will go to backward regions where there are no industrial estates.
- (iv) In order to reflect the Government's basic priority towards various areas, it is proposed that a specific quantum of resources within the investment schedule be designated for each industrial estate. This will ensure a basic minimum of development within each region. In making this allocation the need for balance has had to reconcile in this transitional period with some concession to be made to the pull of market forces.

(b) It will not be enough to merely use the instrument of resource allocation to persuade investors to move to backward areas. The following additional steps are suggested:

- (i) Fiscal and monetary inducements as spelt out in the section on private sector.



- (ii) Over and above these specific incentives, general improvements in the infra-structure may assist in promoting the development of backward areas. These may include:
- An improved transportation network and increased carrying capacity.
  - An increase in the distribution network for electricity and gas and water supplies.
  - Specific sector programmes in the Five-Year Plan will seek to develop these facilities.
- (iii) Improvement in the income earning potential of backward areas under the agricultural sector programme will provide a market incentive to investors by making areas more economically attractive than before. This will be supplemented by the special incentives and sectoral investments spelt out above.

### 9.18 ROLE OF THE PRIVATE SECTOR

The constitution has permitted operation of the private sector within the limits of law. In this context Private Sector includes co-operatives. Industrial enterprises organised in co-operatives, provided investment in them does not exceed the ceiling set for the Private Sector will be allowed to operate. The areas in which and the conditions under which private sector may operate have been spelt out in the industrial policy. Instead of delimiting the role of the private sector in terms of industrial sectors as in the case of mixed economies the Bangladesh Government has restricted the role of the private sector to small and medium sized industrial units below Tk. 25 lakh of fixed assets, including land.

Government has also given assurances that there will be a moratorium on nationalisation for 10 years from the date of publication of policy for old units up to Taka 25 lakh and from the date of going into production for new units set up during the First Plan. This is only subject to utilisation of capacity and efficient management. Government has left scope for expansion up to Tk. 35 lakh through reinvested profits.

As it stands within the modern industrial sector the private sector accounts for fixed assets estimated at Tk. 300 crores in 4236 units employing about one million workers. In terms of ownership of industrial assets the private sector accounts for about 30 per cent of fixed investment in modern industry.

Four hundred and fifty units with assets estimated at Tk. 50 crores are currently under disposal of the Disinvestment Board and may be potentially classified as part of the private sector. However, the provision that first preference in disinvestment should be given to worker's cooperatives make it uncertain as to how many of these enterprises will be disinvested to private owners.

Whilst the private sector is restricted to units below Tk. 25 lakh it is evident that in terms of number, dispersal and employment, the private sector still constitutes a significant component of the economy. If we take into account the more traditional cottage industries sector which is very roughly estimated to account for 50,000 units then industrial output from the private sector appears likely to play an important role in our attempt to meet the consumption and investment needs of the economy.

The importance of the private sector has been recognised in the Industrial Investment Schedule which earmarks Tk. 121.60 crores for private investment during the Five-Year Plan. This may be compared with a realised investment of Tk. 54.00 crores during the period 1965—70. Even allowing for price escalation and for the fact that traditional sectors such as jute and cotton are now nationalised this implies a substantial acceleration. If we keep in mind



that an estimated 50 per cent of fixed assets in the private sector in the past had been in the hands of non-Bengali elements, the claims on the resources and entrepreneurship of the local entrepreneurs are likely to be considerable.

This ambitious programme for the private sector must be seen in the context of the difficulties faced by the private sector in post-liberation Bangladesh. As of today no definitive information is available about the performance of the private sector. What evidence is at hand indicates that production performance is substantially below normal which in any case was itself well below the full capacity operation possible in most plants.

The reason for low levels of output in post-liberation Bangladesh may be enumerated as follows:

- (i) lack of imported and local raw materials;
- (ii) lack of spare parts and components;
- (iii) disruption and dislocation of distribution and power systems;
- (iv) sudden interruption of inter-industrial and market linkages with former West Pakistan;
- (v) lack of proper organisation and management;
- (vi) labour/management problems;
- (vii) burden of debt in some enterprises due to unwillingness of banks to finance working capital;
- (viii) high cost of production resulting in difficulty in exporting goods and fall in production;
- (ix) lack of technical and professional services; and
- (x) shortage of foreign exchange and Taka credit.

It is evident both from past and current performance that if the investment targets for the private sector are to be realised a very substantial effort will have to be made through government policy to supplement the efforts of private enterprise.

### 9.18.1 Policy Measures

#### A. Credit

(a) In the past several intermediaries were available for financing industrial development in Bangladesh. Presently Small Industries Corporation and Shilpa Bank are responsible for financing private sector industry in the country.

(b) Attainment of the investment goals in the private sector will require a continuous flow of taka loans and planned allocation of foreign credit, technical and advisory services.

(c) The break-up of the investment target, the requirement of Taka loans, foreign credit and equity financing is indicated below:



## Investment in Private Sector Industry by Source

| Source of Investment.   |    |    |    |    | [Taka in crore.] |
|-------------------------|----|----|----|----|------------------|
| Taka Credit             | .. | .. | .. | .. | 20.00            |
| Foreign Exchange Credit | .. | .. | .. | .. | 65.60            |
| Equity Financing        | .. | .. | .. | .. | 36.00            |
| Total                   |    |    |    |    | 121.60           |

(d) To diversify the source of credit and to meet the needs of industry, commercial banks have been brought into the field of long term credit. Bilateral agreements with the Commercial Banks and BSIC have been made for long term financing of private sector industry. The main terms of agreement between the BSIC and Commercial Banks are:

- (i) BSIC will examine the technical and economic feasibility of the project, supervise and check the utilization of loan, arrange foreign exchange and foreign credit.
- (ii) Commercial Banks will examine the credit worthiness of the applicant, arrange Taka fund and will be responsible for documentation, disbursement, the follow-up and recovery of loan.
- (iii) The period of loan will not exceed 10 to 15 years.
- (iv) Rate of interest will be 2—3½ per cent above the bank rate.
- (v) BSIC will receive 50 per cent of the interest and Bank will retain 50 per cent.
- (vi) The Consortium Loan Programme provides the Bank's financial expertise to supplement the BSIC's professional capability in technical and economic appraisal of the project.
- (vii) Financing requirement of debt-equity ratio has been assessed at 70:30, that is, whilst the small investor is required to provide his own equity for upto 30 per cent of the total cost of the project, the loan of 70 per cent will be provided to him.

(e) Bangladesh Shilpa Bank will continue to discharge its traditional role of financing the private sector. To this end:

- (i) Foreign credits will be placed at its disposal for disbursement to private applicants.
- (ii) Taka funds will be raised by Bangladesh Shilpa Bank.
  - through floating of loans from the Commercial Bank.
  - borrowing from the Government.
  - accepting direct deposits from the public.
- (iii) Terms of lending will be determined as part of Government's policy to private industry.
- (iv) Bangladesh Shilpa Bank will also play a promotional role analogous to BSIC in helping investors to formulate projects plan, design, install and commission their projects.



## B. Fiscal Incentives

Fiscal incentives are designed to provide inducements to investors to conform to Government's industrial policy of helping small investors and dispersing industry to less developed areas. To attract private investment in the industrial sector the following incentives have been offered:

- (i) Exemption from import and export duties, sales tax on machinery, spares and imported raw materials including excise duties for enterprises exporting 100 per cent. of their output.
- (ii) A tax holiday for new local industrial investment for a period of five years after the unit goes into production, provided, subject to the ceiling of Tk. 35 lakhs, 60 per cent. of the profits exempted from taxes are reinvested in industry or invested in the purchase of Government bonds.
- (iii) Payment of 50 per cent. customs duty on machinery may be deferred for a period up to six years from the date of import of the machinery.
- (iv) A rebate of 5 per cent. of the customs duty may be allowed on capital machinery up to Tk. 10.00 lakhs against existing limit of Tk. 5.00 lakhs after the unit goes into production.

## 2. Incentives for Geographical Dispersion

The following additional incentives and fiscal concessions may given to the industries to be set up in areas other than the industrial zones of Dacca, Narayanganj, Chittagong and Khulna:

- (i) The period of repayment of loan may be extended by an additional grace period up to 5 years.
- (ii) A tax holiday for a period of five years after the unit goes into production provided 30 per cent. of the profits exempted from tax are ploughed back or invested in the purchase of Government bonds.
- (iii) A higher percentage of debt equity than that obtaining in developed areas may be allowed.

## C. Industrial Estates

(a) The Industrial Estates will be focal point for development of industries in the private sector. It will serve as a necessary base for an institutional framework for providing infrastructural facilities to the entrepreneurs. Eighteen industrial estates will be fully developed during the plan which will provide plots for setting up industrial units.

(b) To resolve time-consuming problems concerned with setting up and running as industrial project, the Small Industries Corporation, Shilpa Bank, Director-General of Industries, Controller of Imports and Exports and Commercial Banks need to be at hand. It is suggested that an administrative complex to house officer of these agencies be established in each Industrial Estates and that these agencies should post high enough officers who are in a position to take decisions on matters arising out of dealings with the enterprises. This delegation of authority is absolutely essential.



(c) In order to combine the objective of utilisation of the estates and geographical dispersal both domestic and foreign exchange resources should be divided up for utilisation on the basis of location. The areawise allocation for the industrial estates in the country which are intended to be developed as the main foci of industrial activity, are as follows:

| Location,   | Allocation of resources/<br>schedule provision. |
|---|---|
| (i) Estates located in developed area ..<br>Dacca, Chittagong and Khulna.   | Not more than 20 per cent.                      |
| (ii) Estates located in less developed ..<br>area (all other estates).  | Not more than 50 per cent.                      |
| (iii) Foot-loose industries (Industries ..<br>located outside industrial estates ..<br>and excluding Dacca, Chittagong ..<br>and Khulna). | Not more than 30 per cent.                      |

(d) Financing agencies should disburse funds for projects located in a particular area up to the limits defined for the area.

#### D. Technical Assistance

(a) The promotional, professional and technical services will be provided to the private entrepreneur and BSIC/BSB's consultancy services for pre and post-investment counselling will be strengthened and expanded :

- (b) These will *inter alia* provide the following services to those requesting it :
- (i) preparation of investment briefs;
  - (ii) feasibility reports;
  - (iii) project appraisal;
  - (iv) drawing up of specifications for machinery, selection of machinery and installation;
  - (v) drawing up of plant layout;
  - (vi) supervision in construction of factory building, trial operation, production and assistance in arrangement of imported raw materials; and
  - (vii) in-plant counselling.

#### E. Industrial Association

To establish closer liaison and authority over the private sector as well as to promote the co-ordinated and integrated development of public and private sector industries in government may consider grouping of all industrial enterprises in the private and public sectors together in industrial associations. Many industries such as cotton, jute, vegetable oil have their association. These have, with some exception, such as jute mills, been moribund organisation often dominated by a few individuals operating as a pressure group. To activate moribund associations and develop new ones in areas as yet uncovered, the following course of action is proposed:

- (i) All industrial enterprises should be grouped into association.
- (ii) Once an association is formed, membership should be made compulsory.



- (iii) The Ministry of Industry in association with the representatives of the private sector and public corporations would delimit the associations.
- (iv) Once the associations have been set up and all enterprises enlisted as members, a representative committee for each association should be set up. This should cover both private and public sector enterprises within the same industrial group as well as government, workers and political representatives.
- (v) The association's office and administrative expenses should be financed out of a compulsory levy on all member enterprises, private and public, based on their size of assets.
- (vi) All associations should be federated into a National Federation of Industries whose role should be to advise the government on all matters pertaining to industry.
- (vii) The responsibilities of Industrial Associations will cover :
  - (a) Provision of up-to-date information on all matters pertaining to the industry such as data on production employment, license utilisation, export, inventories and to assist the Ministry of Industries in collecting what data they require.
  - (b) To see that government policies pertaining to the industry are carried out by all members.
  - (c) To formulate a common labour and wage policy for the industry and establish standards for working conditions in the enterprises.
  - (d) To identify problems afflicting the industry and to make recommendations to the government for their resolution.
  - (e) To promote the exports of the industry where relevant.
  - (f) To set and maintain production standards for the enterprises.
  - (g) To make recommendations about expansion of capacity at the time when the investment schedule is being formulated.
  - (h) To handle through the executive board, imports for those members of the Industrial Association whose entitlement are too small or whose experience too limited to warrant independent imports.

#### **F. Licensing Procedures**

- (a) It is necessary to re-evaluate license entitlements in view of the devaluation, cessation of supplies from Pakistan and need to operate the units in multiple shifts.
- (b) Public sector units should have their entitlements so revised and they should get their license directly.
- (c) Licensing procedures should be simplified:
  - (i) Entitlements to import should be granted on an annual rather than half-yearly basis with built-in restrictions to limit utilisation all at one time. This will permit restrictions on utilisation in case there is a foreign exchange crisis.
  - (ii) Once issued, licences may be administered locally through banks or CCI&E offices in the industrial estates.
  - (iii) Bangladesh Bank should monitor utilisation of licences and keep policy makers regularly informed of utilisation.



### G. *Administrative Apparatus for the Industrial Sector*

(i) As of now the private investor has to make reference to the following agencies of Government:

(a) The office of the Director-General of Industries in the Ministry of Industries who is responsible for:

- survey of industries
- fixing of import entitlements
- processing of new capacity
- secretariat work for Investment Board
- technical appraisal of schemes
- promotion of foreign investment
- information centre for industry
- running of certain vocational schools.

(b) The BSIC under Ministry of Industries provide credit and technical assistance and builds infrastructural facilities.

(c) The Shilpa Bank for credit.

(d) The Controller of Imports and Exports under the Ministry of Commerce for import licences.

(ii) All these agencies of Government need to function in close harmony if the entrepreneur is to function effectively. This does not always happen leading to needless harassment and delays as the investor is driven from one agency to another to solve his problems.

(iii) In order to streamline administrative procedures for the industrial sector, machinery at the local level tied to the Industrial Estates has been suggested, which will service the local investors. A corresponding simplification of measures is necessary at the national level.

(iv) This should be guided by the following principles:

(a) Specialised financial institutions should assess the feasibility of a project, finance it and assess its recurring requirements of foreign exchange.

(b) One administrative agency should deal with all promotional services involved in setting up and running an industry.

(c) Commercial Banks should administer import licence utilisation.

(d) The three agencies designated above should discharge their responsibilities from within a single administrative complex with locally delegated authority to take all routine administrative decisions and all except major policy ones.

(v) Such a simplification in procedures would involve considerable reorganisation within the administrative framework spelt out in (i). This may take time to implement but the task remains essential if the private sector is to be efficiently served to realise its plan targets.



### 9.18.2 Bangladesh Small Industries Corporation

The Bangladesh Small Industries Corporation (BSIC) will constitute the main institutional mechanism to assist the private sector. According to the units set by the investment policy of the Government for the private sector, the concept and scope of the small industries sector will be co-terminus with that of the private sector.

This will imply a redirection in BSIC's role towards promoting and supplementing small industries in the private sector.

Bangladesh Small Industries Corporation's main functions will cover:

- (i) Provision of credit to the private sector. Here they will share with the Shilpa Bank the role of meeting the credit needs of the private sector.
- (ii) The setting up and administration of the industrial estates. The role of these estates has been spelt out earlier.
- (iii) Investment promotion for private investors. This will involve:
  - (a) Identifying projects from the investment schedule for investors.
  - (b) Where required, the working out of feasibility studies for projects. This should establish the economic viability of the project, design the plant and lay out of the machines, identify the necessary machinery and best source of supply.
  - (c) If it is further required BSIC must be prepared to supervise plant construction and installation of machinery and even assist the investor in the commissioning of the plant.
  - (d) In the early stages of operation, BSIC will provide technical advice, advise on marketing and procurement of raw materials.
- (iv) BSIC may seek to set up a commercial wing to handle bulk imports of raw materials for small investors and procurement and marketing of their products. This move must again emerge as a result of the felt needs of the private investors and should only be attempted when BSIC is fully equipped for the task.
- (v) BSIC should set up a small industries training institute which will seek to train managers of small industries in improved management practices and will impart technical training to improve the skills of the workers.

Bangladesh Small Industries Corporation will have to keep the closest liaison with the corporations on behalf of the small industries sector. This will involve:

- (i) Identifications of projects which can feed the larger industries in the corporations and can utilise their output as an input in the small industries sector.
- (ii) Once such projects are identified, BSIC should seek to promote contractual relations between the enterprise and the small industry which will guarantee a regular source of procurement or supply over a period of time.



- (iii) Bangladesh Small Industries Corporation will seek to encourage the corporations to provide technical assistance to the small investors within the framework of the contract.

Apart from assisting private investors, BSIC will make some direct investments in industry. For this Tk. 3 crores has been provided for in the plan. These investments will be directed towards:

- (a) Industries within the investment schedule of a priority nature where private investors are not forthcoming.
- (b) Industries in the industrial estates of relatively backward regions where private investors are initially reluctant to come forward. Here it is hoped that pioneering efforts by BSIC will encourage investors to come forward once the external economics generated by the BSIC investment have been made apparent.
- (c) Units set by BSIC and established as commercially viable concerns should be disinvested. In their disinvestment policy BSIC should establish the following priority:
  - (i) A co-operative formed by the workers of the enterprise in question.
  - (ii) Farmers Co-operatives organised at the level of Thana Co-operative Associations.
  - (iii) Local Government authorities.
  - (iv) Expatriate Bangalees willing to make non-repatriable investment in foreign currency.
  - (v) Local private investors.
- (d) To run these enterprise efficiently BSIC should equip itself with professionally qualified personnel with commercial experience. The enterprises should be run as commercial ventures with maximum delegation of authority and should be free of bureaucratic interference.

## 9.19 COTTAGE INDUSTRY, HANDICRAFT, RURAL INDUSTRY AND HANDLOOM

Surveys show that there are an estimated 50,000 handicraft units which can be classified as cottage industry, employing 2-50 lakh artisans. However, cottage industries have been neglected in the past and this sector hardly showed any sign of progress. Cottage industries are not suited to modern capital intensive practices except in very few cases. Most units are characterised by limited specialisation in management and close integration with the local community. They suffer from a lack of market information, absence of institutional credit, use of obsolete tools, dearth of attractive designs and at times inadequate supply of raw materials. The quality of product needs improvement either through adaptation of better design or use of simple but improved tools. If an organisation can work on marketing outlets, provide credit, essential raw material and tools, the functioning of this sector can improve and the economic potential can be augmented. In an effort to provide self employment, it may also help if training is given to artisans to improve and widen their skills.

The establishment of a special corporation for the development of cottage industries indicates the importance attached by the Government to this sector.



**(iii) INSTITUTIONAL SUPPORT**

Government is establishing a separate Cottage Industries Corporation for effective implementation of the above functions.

**(iv) OUTLAY**

The Plan programme envisages an outlay of Taka 2.0 crore in the public sector.

**9.19.2 Rural Industry**

Stress has been laid on promoting intensive and extensive development of village or rural industries with the objective of enlargement of employment opportunities, diversification of rural occupations and development of agro-industries to support and boost agricultural production. A programme to provide technical assistance and consultancy services to the rural units is to be implemented by the Rural Industries Service under the Cottage Industries Corporation. RIS will work:

- (i) Through extension of services by giving in-plant counselling to the existing units and investment counselling to the potential entrepreneurs from the primary stage of the selection of units up to the final stage of production;
- (ii) By organising and imparting training courses in different trades both for existing artisans, to improve and up-date their skill, and for the new entrants so as to make them employable skilled labour. Both mobile and fixed training courses will be organised so that the benefit reaches to the rural artisans.
- (iii) In order to perform the above functions efficiently, workshops fully equipped with adequate facilities for providing training in different trades will be established in the regions of Chittagong, Rajshahi and Khulna. For this purpose, existing vocational schools may be used.
- (iv) The existing workshop at Narsingdi of Rural Industries Services Project of BSIC with its expanded facilities and personnel will serve as one of the centres for the Dacca region.
- (v) The organisation of Rural Industries Service of the Bangladesh Small Industries Corporation will be strengthened and expanded. It is now inactive and has got to be activated for promotional work and technical assistance. This should be made available at the doorstep and without waiting for the owners to ask for it.
- (vi) Workshop and infra-structural facilities will be provided in growth centres. The main advantage for establishing such workshop and training facilities is that it will create a congenial environment for investment growth in the depressed and underdeveloped rural areas.
- (vii) Institutional credit and marketing services will be made available to village or rural industries through the various centres.
- (viii) The promotional programme calls for an outlay of Tk. 1.5 lakh in the public sector.
- (ix) It is expected that 7,000 production units of rural industries will be organised which will produce goods estimated at Tk. 1.50 crore.



### 9.19.3 Handloom

A programme to help the handloom sector in the following respect is proposed to be implemented by Cottage Industries Corporation :

- (i) Provide credit for working capital loan and equipment loan from banking and financing institutions.
- (ii) Effect regular supply of yarn and essential raw materials needed by them.
- (iii) Training in power loom equipment and appliances.
- (iv) Produce specified varieties of production in organised units.
- (v) Sales centre and emporia to be set up.
- (vi) Designs, prototypes and services of common facility will be made available for improvement of quality.
- (vii) Efforts on priority basis will be made for the formation of effective cooperative societies and association of weavers in order to strengthen the organisational structure of the handloom sector.

In order to implement the above programme effectively it is proposed that :

- (i) The Registrar, Cooperative Society will distribute yarn, dyes and chemicals to all handloom weavers.
- (ii) Cottage Industries Corporation (Handloom Division) will distribute yarn, dyes and chemicals to handloom factory owners and other users.
- (iii) A statutory high powered Handloom Board will be constituted with Minister for Industries as Chairman. The function of the Board will be :
  - (a) Determination of formula or ratio of distribution of yarn among cooperatives, handloom factory owners, hosiery and other users of yarn.
  - (b) Policy for pricing of yarn, dyes, chemicals and handloom products.
  - (c) Removal of bottlenecks and problems faced by the operating agencies.
  - (d) Coordination between concerned agencies like Cooperatives, Cottage Industries Corporation, Bangladesh Textiles Industries Corporation, and Consumers' Supply Corporation.

To develop weavers' cooperative societies there will be :

- (i) An integration of all textile services and common facilities which should be put under one organisation.
- (ii) The Registrar, Cooperative Society will conduct a complete survey of the existing facilities and identify the need for creation of any additional service facilities, if so required.
- (iii) The Registrar will also complete the establishment of cooperative societies covering all the weavers of the country.



- (iv) The cooperative should, presently, go for wholesale marketing. They may, however, open sales emporium in the Division Headquarters.
- (v) Public retail outlets for the cooperatives may be provided by the consumer's corporation.

Handloom sector programme envisages :

- (i) An outlay of Tk. 3.00 crore in the public sector.
- (ii) The average production of 40 crore yards of cloth by handloom is expected to be increased to 56 crore yards by the end of the Plan period.
- (iii) It is also anticipated that about 100,000 improved looms will be set up during the plan period in the private sector.
- (iv) In addition 1000 synthetic/art silk power looms will be set up all over the country to supplement the production of handlooms.

#### 9.19.4 Sericultures

The Cottage Industries Corporation will help to:

- (i) consolidate and improve the existing nurseries and seed stations;
- (ii) effect increased supply of mulberry plantations and healthy layings;
- (iii) expand rearing facilities for silk works;
- (iv) effect improvement of seedlings; and
- (v) expand and strengthen extension services.

The programme includes:

- (i) The intensification and expansion of the extension activities bringing in more land under mulberry cultivation by supplying mulberry saplings to private growers.
- (ii) Expansion of the rearing facilities of the existing nurseries and supplying disease-free hybrid silk worms to private rearers.
- (iii) Proper supervision and collection of the cocoons and processing in improved filature basins and *charkas* to provide for increased production and better quality of silk yarn.

#### 9.19.5 Salt

The promotional programme includes the extension and technical services for:

- (i) The preparation of improved and scientific beds for increased production and improvement of quality of salt.
- (ii) Production of industrial and refined salt in the new areas.
- (iii) Exploring the possibilities for growing salt in the new areas.
- (iv) The existing staff of the salt project of BSIC will be strengthened by additional professional personnel.



- (v) The programme envisages an outlay of Tk. 50 lakh.
- (vi) It is expected to increase the average annual production of 1.5 crores mds. to 2.50 crore mds. of salt.

#### 9.19.6 Survey of Cottage, Rural Industries and Handloom

The programme envisages detailed survey of cottage industry, handloom and rural industry. Provision of Tk. 50 lakh has been made for this purpose.

#### 9.19.7 Handicraft Institute

Handicraft Institute for cane and bamboo is proposed to be set up for:

- (i) Training of the artisans for improvement of their skills and adaptation of new and improved processes.
- (ii) Production of modern and attractive designs.
- (iii) Production of diversified items.
- (iv) The institute will be set up as a nucleus under Cottage Industries Corporation. More trades will be added to this institute according to the needs of the country.
- (v) An expenditure of Tk. 1.00 crore is envisaged for this purpose.

#### 9.19.8 Design Centres

Design Centres for development of designs have to be more effective than it has been in the past. For this assistance from countries that have successfully developed such centres for handicrafts may have to be sought. The present Design Centre has been developing modern designs and prototypes in selected trades such as handloom weaving and printing, doll making, pottery, cane and bamboo. The centre has been providing design service in a few concentrated areas. A programme has been drawn up for expansion of the product development wing and inclusion of additional functions of design, research, market survey and consumer tastes study.

#### 9.19.9 Sector Programme

The total sector programme for cottage industries is projected at Tk. 26.9 crore.

Public sector outlay of Tk. 9 crore is estimated to be made for promotion, training, technical assistance, survey and such other essential activities.

In addition, a private sector outlay in cottage and rural industries is estimated at Tk. 17.9 crores. Out of this Tk. 10 crores is expected to be invested in handlooms by the weavers themselves as part of a programme of expansion, replacement and modernisation of their weaving facilities.



## Plan Outlay for Cottage Industries

(Tk. in lakh)

## A. Public Sector

|  |         |        |
|--|---------|--------|
| Integrated Programme for Cottage Industry and Handicraft | ..      | 200.00 |
| Rural or Village Industry                                | .. .. . | 150.00 |
| Sericulture  | .. .. . | 150.00 |
| Salt   | .. .. . | 50.00  |
| Survey of Cottage Industry                               | .. .. . | 50.00  |
| Handloom   | .. .. . | 300.00 |

Sub-Total .. 900.00

## B. Private Sector

|                                    |         |         |
|------------------------------------|---------|---------|
| Handlooms                          | .. .. . | 1000.00 |
| Other Cottage and Rural Industries | .. .. . | 790.00  |

Sub-Total .. 1790.00

Total .. 2690.00



## CHAPTER X

### TRANSPORT

#### 10-1 OBJECTIVES AND STRATEGIES

##### 10.1.1 Introduction

An efficient and adequate network of transport system is indispensable to economic growth. It helps the growth of the economy by providing cheap and efficient services for movement of men and materials. Inadequate port facilities and transport connections thereto delay ships in ports, raise the cost of import, slow down the distribution of raw materials as well as the finished products of industry and restrict the timely supply of agricultural inputs to the farmer and farmer's produce to the market.

The geography of Bangladesh has given rise to a varied and complex transport system. Bangladesh is divided in the middle along a generally north south line by the Brahmaputra/Jamuna river. The two parts are further divided into two parts by the Ganges and the Meghna. In addition, there are many smaller rivers, canals and water courses criss-crossed all over the country. These waterways, on the one hand, provided natural highways for riverine transport and on the other make construction and maintenance of railways and roads highly difficult and expensive. Consequently there exists both in the rail and road systems a number of unbridged gaps which are linked by ferries.

Transport network in Bangladesh consists of railways, waterways, coastal and ocean shipping, ports, road transport services and aviation. In view of the geography and terrain movement of persons and goods often involves inter-change between two or more modes and selection of the best means of transport among several alternative routes, on the basis of costs, is difficult.

Due to the subsistence nature of the economy major demand for transport is for arterial movement. The arterial traffic flow is dominated by movement of imports and exports between the two major ports of the country and a limited number of other points. In volume, imports are substantially greater than exports, the ratio being 4:1. By and large rail and water transport share almost the entire arterial traffic. Because of an inadequate road system, relatively small size of the road transport fleet and the primitive state of the road industry itself, the share of road transport in arterial traffic is small. Road transport services are provided mostly for movement of short haul traffic. Consequently, prior to the War of Liberation the pattern of arterial traffic flow was such that railways used to carry three times as much north bound out of Chittagong as south bound to Chittagong, and the waterways used to carry twice as much south bound from Narayanganj to Chalna as north bound. The net result of these imbalances by mode and direction is a higher transport cost and poorer service standard than necessary.

One of the major weaknesses of earlier transport planning efforts was lack of overall planning. This reflected an acute lack of basic data in the transport field. Consequently the various transport sectors developed in an isolated manner without being complementary to each other and adequate to meet the total demand for transport.



### 10.1.2 War Damages and Reconstruction

Due to continued neglect during the 25 years of Pakistani rule, an adequate transport system could not be built up. In addition, the transport network was completely shattered and disrupted during the War of Liberation. In addition to damages to railway workshops, signalling, telecommunication, locomotives and other installations, about 299 railway bridges and 274 road bridges were either destroyed or damaged. The sea ports and the inland channels were blocked by sunken vessels and war debris. Equipments and installations of the sea ports and the inland ports suffered heavy losses. Quite a sizeable portion of the fleet of road transport vehicles was damaged. Airports and other installations were heavily damaged and Bangladesh was left with no aircrafts. Similarly no ocean-going ship was available to Bangladesh on gaining independence. Besides, a good number of key operational personnel were lost. A summary of war damages and progress in reconstruction is presented in Table X-1.

TABLE X-1  
Progress in Repair and Reconstruction up to March, 1973

*(Figures in Number).*

| Serial No.     | Description of Items.          | Extent of damage and loss during the war. | Progress up to 30-6-1972. | Progress up to 31-3-1973. |
|----------------|--------------------------------|---|---------------------------|---------------------------|
| 1              | 2                              | 3   | 4                         | 5                         |
| <b>RAILWAY</b> |                                |   |                           |                           |
| 1.             | D.E. Locomotives .. ..         | 45  | 4                         | 32                        |
| 2.             | Steam Locomotives .. ..        | 95  | 6                         | 43                        |
| 3.             | Passenger Carriages .. ..      | 722                                       | 55                        | 543                       |
| 4.             | Freight Wagon .. ..            | 1484                                      | 150                       | 1474                      |
| 5.             | Bridges:                       | 299                                       |                           |                           |
|                | (a) Permanently repaired .. .. | ..  | 82                        | 194                       |
|                | (b) Temporarily repaired .. .. | ..  | 198                       | 102                       |
|                | (c) Not passable .. ..         | ..  | 19                        | 3                         |
|                |                                | ..  | 299                       | 299                       |



TABLE X-1—*Concl.*

(Figures in Number).

| Serial No.             | Description of Items.                         | Extent of damage and loss during the war. | Progress up to 30-6-1972. | Progress up to 31-3-1973. |
|------------------------|---|---|---------------------------|---------------------------|
| 1                      | 2   | 3   | 4                         | 5                         |
| ROADS AND HIGHWAYS     |   |   |                           |                           |
| 1.                     | Bridges:                                      | 274                                       |                           |                           |
|                        | (a) Permanently repaired .. ..                | .. ..                                     | 55                        | 90                        |
|                        | (b) Provided Bailey .. ..                     | .. ..                                     | 67                        | 83                        |
|                        | (c) Temporarily repaired .. ..                | .. ..                                     | 96                        | 96                        |
|                        | (d) Ferry .. ..                               | .. ..                                     | 7                         | 5                         |
|                        | (e) Diversion .. ..                           | .. ..                                     | 16                        | ..                        |
|                        | (f) Not passable .. ..                        | .. ..                                     | 33                        | ..                        |
|                        |   |   | <u>274</u>                | <u>274</u>                |
| 2.                     | Ferries:                                      | 66  |                           |                           |
|                        | (a) Repaired .. ..                            | .. ..                                     | 40                        | 55                        |
|                        | (b) Acquisition of new unifloat ferries .. .. | .. ..                                     | 20                        | 20                        |
|                        |   | ..  | <u>60</u>                 | <u>75</u>                 |
| ROAD TRANSPORT         |   |   |                           |                           |
| 1.                     | Buses .. ..                                   | 1952                                      | ..                        | 627                       |
| 2.                     | Trucks .. ..                                  | 4244                                      | 1400                      | 1724                      |
| INLAND WATER TRANSPORT |   |   |                           |                           |
| 1.                     | Oil Tanker .. ..                              | 5   | ..                        | 5                         |
| 2.                     | Coasters .. ..                                | 7   | ..                        | 3                         |
| 3.                     | Self-propelled Barges .. ..                   | 16  | ..                        | 5                         |
| 4.                     | Tugs .. ..                                    | 11  | ..                        | 4                         |
| 5.                     | Barges .. ..                                  | 29  | ..                        | 17                        |
| 6.                     | Ferries .. ..                                 | 8   | ..                        | (Batty barges) 4          |



### 10-1-3 Institutional Changes

The role of the Government in providing transport services in various fields has undergone a radical change after liberation. Prior to liberation, the Government was responsible for management and operation of railway and air services. In regard to road and water transport, Government's responsibility was limited to providing infra-structure facilities such as roads and navigational facilities. Ownership of the equipments and their operation were mostly in the private sector; Government's participation was nominal through the erstwhile EPRTC and the EPSC. After liberation about 50 per cent of the mechanised IWT fleet have been nationalised and expansion of the private sector has been limited to small vessels having DWT capacity up to 300 tons only. Similarly the Government has decided to assume much larger direct responsibility in the operation of road transport by expanding the services of the BRTC in a big way and setting up a Trucking Division under the BRTC. The entire responsibility of ownership and operation of the oceangoing ships also lies with the Government. Because of the assumption of a larger responsibility by the Government in the field of transport there has been a corresponding increase in responsibility on the part of the various transport agencies under the Government to provide more efficient and cheaper services.

### 10-1-4 Problems

Loss of capacity and skilled manpower and damages to equipments and installations during the War of Liberation resulted in low operating efficiency and fall of productivity by various transport agencies. Although substantial progress has been made towards reconstruction and rehabilitation work of the transport system, the same has not been proportionately reflected in the recovery of the operational efficiency of the system. Problems currently being faced by the transport agencies and standing in the way of improvement of the efficiency are enumerated below briefly.

#### *A. Railway*

The operational efficiency of the entire railway is linked up with the reconstruction of the Bhairab bridge. In addition, shortage of effective goods wagons, wagon ferries, locomotives, spare parts, skilled staff and workers, frequent failure of control phones and signalling system have been responsible for low operational efficiency. On top of all these, inability to motivate the labour force has kept efficiency levels from recovering as rapidly as was required.

In order that the railway system may be brought back to normal levels of efficiency it is essential to enforce discipline in all cadres of officers and staff leading to improved productivity of workshops and improved maintenance of all equipments and facilities. Besides, it is also imperative to fill up the gap in skilled staff through judicious recruitment and training on an emergency basis. Speedy completion of the reconstruction work and import of essential spare parts in order to commission a large number of rolling stock lying idle is also needed.

#### *B. Road Transport*

##### **Buses**

Major bus services are provided by the private operators. Government's participation is through the BRTC.



(i) The performance record of the BRTC is low, by any standard. Lack of managerial and technical expertise, frequent theft of spare parts, shortage of spare parts in the country, frequent management/labour problems, etc., are mainly responsible for extremely low levels of operational efficiency of the BRTC. Management cadres need to be substantially strengthened if they are to adequately fulfil the big increment in responsibilities arising from the growth of public sector services. Concentration of authority at the secretariat prejudices quick decision making and commercial approach.

(ii) Private bus services are equally poor. Overloading, infrequent services and a high accident rate are symptomatic. Fare rates, at current costs, do not make it remunerative to the private sector to provide better and more efficient service. They prefer to overload and make fewer trips. Lack of foreign exchange for import of spare parts and delay in import due to proliferation of small and inexperienced importers compound these shortages.

### **Trucks**

Trucking capacity though still not fully recovered to pre-liberation levels has been substantially improved by assistance from abroad as well as local production. Unfortunately trucks operated by various government agencies to move food, relief and imports are poorly maintained leading to an estimated 33 per cent trucks being off the road. Those on the road operate at well below capacity. This has led to a programme to organise trucks under a specially created Trucking Division of BRTC, to provide trucking services as a specialised service operated on commercial principles. Since this represents a new approach, management and technical assistance from abroad has been lined up to develop our own expertise in this field. There have, however, been delays in transferring trucks to the BRTC resulting in continuing underutilisation. The Division is now expected to be operational in the next three months. It will provide specialised trucking services to both public and private sector agencies on a commercial basis. Special provision has, however, been made to give priority to key agencies moving food, relief and vital consumer goods.

### **C. Inland Water Transport**

Operational level of the inland water transport fleet, particularly that of the bay crossing fleet is rather low. Reasons for such low performance have been general inefficiency in loading and unloading by public sector cargo owners, problems of labour motivation, inadequacy of berthing facilities at Chittagong and inland ports. There is lack of co-ordination between arrival of jute loaders at Chalna and despatch of export jute and jute goods from the inland ports. As a result, considerable inland water transport capacity remains locked up at Chalna and thus the overall capacity is reduced. It is essential that arrival of ships and inland barges with export cargo at Chalna is synchronised as far as practicable.

### **D. Transport Co-ordination**

For reasons explained in the preceding sub-paras, transport capacity in all sectors, in spite of heavy demand for transport capacity, is being underutilized. A major effort has, therefore, to be made to ensure a much more coherent and efficient utilization of the existing capacity. To this end, the Transport Co-ordination Division in the Ministry of Communications needs to be activated and given the leadership and authority necessary to ensure a centrally planned and directed logistical system designed to ensure effective utilization of our limited resources.



### 10.1.5 Objectives

Government aims at achieving self-sufficiency in production of food and rapid industrialisation of the country and self-reliance in its development effort. These programmes would necessitate flow of greater volume of imports, particularly agricultural inputs, capital goods for industry and industrial raw materials as well as exports, particularly of jute and jute products as also a growing number of other exports.

In order to meet the demand for transport, particularly the priority demands of agriculture and industry as set forth in the Plan, the main objectives of transport planning would be:

- (a) to ensure speedy rehabilitation and reconstruction of the war damaged transport system,
- (b) to provide cheap, adequate and efficient transportation services to the common people,
- (c) to make good the previously existing deficiencies and bring about a balanced co-ordination of the various modes of transport through allocation of traffic to various modes on the basis of economic costs,
- (d) to augment the efficiency and capacity of the various modes of transport in a manner so that cheap services are provided and unnecessary wasteful investments are avoided,
- (e) to ensure increasing participation of the Government in major sectors of transport keeping in view the Government's commitment to socialism,
- (f) to gradually reduce areas of exploitation by substituting co-operatives of drivers/pullers/workers for private ownership in those areas of the transport sector not directly under public ownership.

### 10.1.6 Strategy and Priorities

It has already been stated in para 10.1.1 that there is an acute lack of basic data in the transport field. Forecasts of demand for transport are not yet available in the detailed way that is needed and knowledge of the costs of the complex operations in many transport operations is lacking. Consultants are currently working with the Planning Commission on a full scale transport survey, the final results of which will be available at the end of the first quarter of 1974. Therefore, the investment programme in the transport sector has, of necessity, to be treated as tentative. Decision on future allocations has to be dependent on a review of the recommendations which would be forthcoming out of the study of the consultants.

On the basis of the available data, Bangladesh Transport Survey has carried out a number of exercises to determine the projection of traffic through the ports and over the important rail and water routes. Some exercises have also been carried out to determine the costs of operation of different modes—both terminal cost and haulage costs. Some recommendations as to allocation of traffic to be moved through the ports and over the different important rail and water routes have been made on the basis of the least costs. Due



consideration has also been given to the suitability of a particular mode of transport to carry particular type of goods. For example, rail and water are normally more suitable for long distance bulk traffic and road for short distance and high valued traffic.

Summary of these studies are shown in the tables given below:

TABLE X-2  
Projection of Imports and Exports.

|                                    |    |    |    |    |    | (In lakh tons.) |          |
|------------------------------------|----|----|----|----|----|-----------------|----------|
|                                    |    |    |    |    |    | 1973-74.        | 1977-78. |
| 1. Imports                         |    |    |    |    |    |                 |          |
| Total Dry Cargo                    | .. | .. | .. | .. | .. | 46.73           | 50.15    |
| POL                                | .. | .. | .. | .. | .. | 14.38           | 25.14    |
| Total                              |    |    |    |    |    | 61.11           | 75.29    |
| 2. Exports                         |    |    |    |    |    |                 |          |
| Total Dry Cargo                    |    | .. | .. | .. | .. | 16.70           | 19.90    |
| Grand Total of Imports and Exports |    |    |    |    |    | 77.81           | 95.19    |

TABLE X-3  
Projection of Traffic on Principal Routes.

(Allocation of Inter-Area freight movements to Alternative Modes, Principal commodities and Products only)

A. Rail Allocated Traffic on Important Sections.

(In lakh tons)

| Sections                             | 1973-74   |      |      |       |       | 1977-78   |      |      |       |       |
|--------------------------------------|-----------|------|------|-------|-------|-----------|------|------|-------|-------|
|                                      | Dry Cargo |      | POL  | Total |       | Dry Cargo |      | POL  | Total |       |
|                                      | Up        | Down | Up   | Up    | Both  | Up        | Down | Up   | Up    | Both  |
| <b>Metre Gauge</b>                   |           |      |      |       |       |           |      |      |       |       |
| Chittagong-Laksham..                 | 8.47      | 5.80 | 2.19 | 10.66 | 16.46 | 11.68     | 7.70 | 3.84 | 15.52 | 23.22 |
| Akhaura-Sylhet ..                    | 2.47      | 4.99 | 0.72 | 3.19  | 8.18  | 3.15      | 6.12 | 1.26 | 4.41  | 10.53 |
| Akhaura-Bhairab ..                   | 8.12      | 4.50 | 1.10 | 9.22  | 13.72 | 11.19     | 4.30 | 1.92 | 13.11 | 17.41 |
| Bhairab Bazar-Narshingdi             | 3.72      | 1.45 | 0.38 | 4.10  | 5.55  | 5.50      | 1.84 | 0.66 | 6.16  | 8.00  |
| Tongi-Mymensingh ..                  | 4.40      | 3.05 | 0.72 | 5.12  | 9.17  | 5.99      | 2.46 | 1.26 | 6.95  | 9.41  |
| Bahadurabad-Fulchori..               | 1.34      | 3.77 | ..   | 1.34  | 5.11  | 2.59      | 4.36 | ..   | 2.59  | 6.95  |
| <b>Broad Gauge</b>                   |           |      |      |       |       |           |      |      |       |       |
| Bheramara-Ishurdi (Hardinge Bridge). | 4.18      | 4.02 | 0.75 | 4.93  | 8.95  | 2.88      | 6.25 | 1.26 | 4.14  | 10.39 |



## B. Water Allocated Traffic.

(In lakh tons.)

|                              |  | 1973-74   |      |      |                      | 1977-78   |      |      |                      |       |
|------------------------------|--|-----------|------|------|----------------------|-----------|------|------|----------------------|-------|
|                              |  | Dry Cargo |      | POL. | Total both direction | Dry Cargo |      | POL. | Total both direction |       |
|                              |  | Up        | Down |      |                      | Up        | Down |      |                      |       |
| <b>Bay crossing Routes</b>   |  |           |      |      |                      |           |      |      |                      |       |
| Chittagong-Dacca-Narayanganj |  | ..        | 4.83 | 1.49 | 4.28                 | 10.60     | 3.57 | 1.74 | 7.48                 | 12.79 |
| Chittagong-Khulna            |  | ..        | 0.45 | 0.10 | 5.03                 | 5.58      | 1.10 | 0.10 | 8.80                 | 10.00 |
| <b>Inland Water Routes</b>   |  |           |      |      |                      |           |      |      |                      |       |
| Chalna-Khulna                |  | ..        | 8.89 | 5.12 | ..                   | 14.01     | 6.43 | 6.31 | ..                   | 12.74 |
| Chalna-Dacca-Narayanganj     |  | ..        | 2.85 | 4.21 | ..                   | 7.06      | 3.29 | 5.04 | ..                   | 8.83  |
| Khulna-Dacca-Narayanganj     |  | ..        | 1.27 | 1.44 | ..                   | 2.71      | 1.76 | 2.14 | ..                   | 3.90  |

TABLE X-4

## Allocated Movements of Dry Cargo Traffic Through Principal Ports.

## A. Chittagong port (including direct up-country shipments from outer anchorage).

(In lakh tons.)

| Mode of clearance                 |    |    |    |    | 1973-74 |         |       | 1977-78 |         |       |
|-----------------------------------|----|----|----|----|---------|---------|-------|---------|---------|-------|
|                                   |    |    |    |    | Imports | Exports | Total | Imports | Exports | Total |
| Rail                              | .. | .. | .. | .. | 6.97    | 2.92    | 9.89  | 8.71    | 3.54    | 12.25 |
| Water                             | .. | .. | .. | .. | 3.88    | 1.10    | 4.98  | 1.89    | 1.26    | 3.15  |
| Road                              | .. | .. | .. | .. | 10.52   | 3.34    | 13.86 | 13.57   | 4.19    | 17.76 |
| Special (for plants in port area) | .. | .. | .. | .. | 5.45    | ..      | 5.45  | 7.60    | ..      | 7.60  |
| Total                             |    |    |    |    | 26.82   | 7.36    | 34.18 | 31.77   | 8.99    | 40.76 |

## B. Chalna Anchorage.

(In lakh tons)

| Immediate internal origin or destination of cargo. |    |    |    |    | 1973-74 |         |       | 1977-78 |         |       |
|--|----|----|----|----|---------|---------|-------|---------|---------|-------|
|  |    |    |    |    | Imports | Exports | Total | Imports | Exports | Total |
| Khulna   | .. | .. | .. | .. | 8.89    | 5.12    | 14.01 | 6.43    | 6.31    | 12.74 |
| Other local  | .. | .. | .. | .. | 2.55    | ..      | 2.55  | 1.61    | ..      | 1.61  |
| Up-country   | .. | .. | .. | .. | 2.85    | 4.21    | 7.06  | 3.24    | 5.04    | 8.28  |
| Total  |    |    |    |    | 14.29   | 9.33    | 23.62 | 11.28   | 11.35   | 22.63 |



As regards allocation of traffic to the two ports and over the important routes, it should be borne in mind that this is highly tentative as the exercises on costs were carried out on the basis of inadequate data. This exercise of allocation just indicates the pattern of traffic movement that may eventually develop but at the same time may undergo substantial change when rigorous analysis on the basis of detailed information is completed. Present allocation deals in general only with main commodities and products with inter area movements.

Allocation exercises imply that 40 lakh tons and 23 lakh tons would move through Chittagong and Chalna ports respectively during the terminal year of the First Five-Year Plan period. The allocation makes no allowance for diversion of traffic away from Chittagong as a result of construction of permanent port facilities at Chalna and assumes only a negligible use of direct shipments to the Dacca area from the outer anchorage due to stoppage of import of foodgrains. In the event port facilities are provided at Chalna, traffic commensurate with the facilities at Chalna would be diverted from Chittagong.

The allocation exercises would indicate that the relative proportion of the distribution of traffic through Chittagong and Chalna at the beginning and at the end of the Plan period remains more or less the same. This has been due to the assumption that permanent port facilities at Chalna will not be available and as such more general Cargo will arrive through Chittagong. The allocation, however, ensures a better balance of traffic movement direction-wise over the principal routes.

No conclusion as to the road transport industry has been deduced from allocation exercises since road transport is concerned with short distance movements and this exercise has been concerned primarily with medium and long distance traffic.

Keeping in view the projection of traffic and the implications of the allocation exercises, emphasis has been laid on augmentation of capacity by making the best possible use of the existing facilities, operating them efficiently and modernising them wherever necessary. Fresh investment for addition of capacity would be minimal. Provision has, however, been made for acquisition of a fleet of ocean-going ships and aircrafts. This is in the nature of a replacement since the planes which carried our internal and overseas passengers and vessels which carried a good part of our ocean cargo were forcibly kept by Pakistan. On-going projects where substantial capital has already been sunk should, however, be completed as early as possible so that benefits to the economy may be available at the earliest. Emphasis has also been laid on speedy completion of the reconstruction programme and all efforts will be made to develop an integrated transport system that will give the greatest overall benefit to the current trade and the strongest stimulus to the future development.

#### **10.1.7 Summary of Programmes and Allocations**

Summary of the investment programmes including Reconstruction and Rehabilitation programme for the entire transport sector is given in Table X-5. Details of the programme and the actual strategy to be followed for each sub-sector have been explained separately in the individual paper for each sub-sector.



With the successful implementation of the First Five-Year Plan, major physical achievements under different sub-sectors are expected to be as follows:—

1. *Railway*—After taking care of the huge replacement requirements, 30 Diesel locomotives, 272 passenger coaches and 1,900 wagons are expected to be added to the bench mark figures of 174 D.E. locomotives, 1,683 Passenger carriages and 16,039 wagons respectively. Besides, the B.G. and M.G. route miles are also expected to be increased by 60 miles and 40 miles respectively.

2. *Roads and Highways*—550 miles of high-type road and 454 miles of low type road are expected to be added to the bench mark figures of 2,500 miles and 1,466 miles respectively indicating an increase of 22% and 31% respectively. In addition, 58,634 ft. of bridge works are expected to be completed during the Plan period.

3. *Road Transport*—Bench mark figures of 7,200 buses, 11,100 trucks and 6,536 auto-rickshaws are expected to increase by 39.20 per cent, 22 per cent and 53.50 per cent respectively indicating a net addition of 2,830 buses, 2,440 trucks and 3,491 auto-rickshaws respectively.

4. *Inland Water Transport Authority*—About 500 miles of waterways, 2 major ferry terminals, 10 secondary ports and 115 launch landing stations are expected to be developed during the Plan period. In addition, 6 hydrographic survey vessels, one oceanographic survey vessel, 10 dredgers are expected to be acquired besides mechanisation of about 1,500 country boats.

5. *Inland Water Transport Corporation*—After meeting the replacement requirements, net addition in this sub-sector is expected to be of the order of 5 oil tankers, 30 Inland barges, 8 Inland tugs, 30 Shallow draft barges, 5 Shallow draft tugs, 5 ferries, etc.

6. *Ports*—Addition of two new jetties and rehabilitation of 8 old jetties are expected to be completed at Chittagong port. At Chalna 8 new jetties along with ancilliary facilities are likely to be completed.

7. *Bangladesh Shipping Corporation*—20 more ocean-going cargo ships are expected to be added to the bench mark fleet of 7 ships during the Plan period.

8. *Bangladesh Biman*—Two Jet aircrafts and two Fokker aircrafts are expected to be added to the bench mark fleet of 6 aircrafts.

9. *Civil Aviation*—3 new airports (Kurmitola, Barisal and Saidpur) are expected to be completed during the Plan period.



Details of the bench mark and physical targets for the First Five-Year Plan have, however, been shown in Annexure IX-1 :

TABLE X-5.

Summary of the First Plan Allocation (1973-78).

(Taka in crore)

| Sub-sector                                 | Plan Allocation. |        |        |        |                           |        |
|--|------------------|--------|--------|--------|---------------------------|--------|
|  | On-going         |        | New    |        | Total of on-going and new |        |
|  | Total.           | F.E.   | Total. | F.E.   | Total.                    | F.E.   |
| 1  | 2                | 3      | 4      | 5      | 6                         | 7      |
| <b>1. Bangladesh Railway</b>               |                  |        |        |        |                           |        |
| Development .. ..                          | 38.781           | 13.025 | 78.646 | 46.287 | 117.427                   | 59.312 |
| Reconstruction and Rehabilitation .. ..    | ..               | ..     | ..     | ..     | 8.700                     | 5.791  |
|  |                  |        |        |        | 126.127                   | 65.103 |
| <b>2. Roads</b>                            |                  |        |        |        |                           |        |
| Development .. ..                          | 77.811           | 28.387 | 26.038 | 7.460  | 103.849                   | 35.847 |
| Reconstruction and Rehabilitation .. ..    | ..               | ..     | ..     | ..     | 4.328                     | 1.325  |
|  |                  |        |        |        | 108.177                   | 37.172 |
| <b>3. Road Transport</b>                   |                  |        |        |        |                           |        |
| (a) <i>Public Sector.</i>                  |                  |        |        |        |                           |        |
| Development .. ..                          | ..               | ..     | 41.020 | 1.380  | 41.020                    | 1.380  |
| Reconstruction and Rehabilitation .. ..    | ..               | ..     | ..     | ..     | 0.210                     | 0.155  |
|  |                  |        |        |        | 41.230                    | 1.535  |
| (b) <i>Private Sector.</i>                 |                  |        |        |        |                           |        |
| Development .. ..                          | ..               | ..     | 63.662 | ..     | 63.662                    | ..     |
| <b>4. Inland Water Transport Authority</b> |                  |        |        |        |                           |        |
| Development .. ..                          | 21.765           | 11.141 | 26.260 | 6.850  | 48.025                    | 17.991 |
| Reconstruction and Rehabilitation .. ..    | ..               | ..     | ..     | ..     | 3.310                     | 2.793  |
|  |                  |        |        |        | 51.335                    | 20.784 |
| <b>5. Inland Water Transport</b>           |                  |        |        |        |                           |        |
| (a) <i>Public.</i>                         |                  |        |        |        |                           |        |
| Development .. ..                          | ..               | ..     | 18.220 | 8.739  | 18.220                    | 8.739  |
| Reconstruction and Rehabilitation .. ..    | ..               | ..     | ..     | ..     | 4.000                     | 1.500  |
|  |                  |        |        |        | 22.220                    | 10.239 |
| (b) <i>Private.</i>                        |                  |        |        |        |                           |        |
| Development .. ..                          | ..               | ..     | 2.740  | 1.700  | 2.740                     | 1.700  |



TABLE X-5 (Contd)

(Taka in crore)

| Sub-sector.  | Plan Allocation. |        |         |         |                            |         |
|--|------------------|--------|---------|---------|----------------------------|---------|
|  | On-going.        |        | New.    |         | Total of on-going and new. |         |
|  | Total.           | F.E.   | Total.  | F.E.    | Total.                     | F.E.    |
| 1  | 2                | 3      | 4       | 5       | 6                          | 7       |
| <b>6. Ports</b>                                    |                  |        |         |         |                            |         |
| (a) <i>Chittagong</i>                              |                  |        |         |         |                            |         |
| Development .. ..                                  | 24.903           | 12.271 | 12.700  | 7.100   | 37.603                     | 19.371  |
| Reconstruction and Rehabilitation .. ..            | ..               | ..     | ..      | ..      | 1.000                      | ..      |
|  |                  |        |         |         | 38.603                     | 19.371  |
| (b) <i>Chalna</i>                                  |                  |        |         |         |                            |         |
| Development .. ..                                  | 32.021           | 15.000 | 9.665   | 7.415   | 41.686                     | 22.415  |
| <b>7. Shipping</b>                                 |                  |        |         |         |                            |         |
| (a) <i>Bangladesh Shipping Corporation.</i>        |                  |        |         |         |                            |         |
| Development .. ..                                  | ..               | ..     | 31.310  | 31.085  | 31.310                     | 31.085  |
| (b) <i>Marine Academy</i>                          |                  |        |         |         |                            |         |
| Development .. ..                                  | ..               | ..     | 0.860   | 0.430   | 0.860                      | 0.430   |
| Reconstruction and Rehabilitation .. ..            | ..               | ..     | ..      | ..      | 0.002                      | ..      |
|  |                  |        |         |         | 0.862                      | 0.430   |
| (c) <i>Mercantile Marine Department</i>            |                  |        |         |         |                            |         |
| Development .. ..                                  | ..               | ..     | 0.200   | 0.180   | 0.200                      | 0.180   |
| <b>8. Civil Aviation</b>                           |                  |        |         |         |                            |         |
| Development .. ..                                  | 21.526           | 11.093 | 9.710   | 3.841   | 31.236                     | 14.934  |
| Reconstruction and Rehabilitation .. ..            | ..               | ..     | ..      | ..      | 2.000                      | 1.056   |
|  |                  |        |         |         | 33.236                     | 15.990  |
| <b>9. Bangladesh Biman</b>                         |                  |        |         |         |                            |         |
| Development .. ..                                  | 1.579            | 0.967  | 30.633  | 22.680  | 32.212                     | 23.647  |
| <b>10. Transport Survey</b> .. ..                  | ..               | ..     | 0.200   | ..      | 0.200                      | ..      |
| Total { Development .. ..                          | 218.386          | 91.884 | 351.864 | 145.147 | 570.250                    | 237.031 |
| { Reconstruction and Rehabilitation .. ..          | ..               | ..     | ..      | ..      | 23.550                     | 12.620  |
| <b>Grand Total—</b>                                |                  |        |         |         |                            |         |
| Development and Reconstruction and Rehabilitation. | 218.386          | 91.884 | 351.864 | 145.147 | 593.800                    | 249.651 |



## Analysis of total Allocation

(Taka in crore).

|                |       | Development Programme. |         | Reconstruction and Rehabilitation Programme. |        | Total of Development and Reconstruction and Rehabilitation. |         |
|----------------|-------|------------------------|---------|--|--------|---|---------|
|                |       | Total.                 | F.E.    | Total.                                       | F.E.   | Total.  | F.E.    |
| 1              |       | 2                      | 3       | 4  | 5      | 6   | 7       |
| Public Sector  | .. .. | 503.848                | 235.331 | 23.550                                       | 12.620 | 527.398   | 247.951 |
| Private Sector | .. .. | 66.402                 | 1.700   | ..   | ..     | 66.402  | 1.700   |
| Grand total:   | ..    | 570.250                | 237.031 | 23.550                                       | 12.620 | 593.800   | 249.651 |

## 10.1.8 Policies

To ensure effective Plan implementation, policy proposals in regard to each sub-sector have been indicated in the papers dealing with each sub-sector. Some important policy guidelines have, however, been given below:

- (a) There will be common criteria for investment in all sub-sectors of transport and cost-benefit analysis will be the main guideline in this respect.
- (b) Assembly capacity in the railway and road transport sectors and yard facilities for IWT sector should be fully utilized. Manufacturing capacity should also be set up gradually. In addition, ancilliary industries for spare parts should be set up.
- (c) Distribution of traffic to various modes of transport should be done rationally based on costs of transportation. Rates and fares should be on this criterion only. Taxes and tolls levied on various transport sub-sectors should also be rationalised and there should be no discrimination in this respect.
- (d) Private operators in road transport and IWT sub-sectors should be organised on a co-operative basis. Eventually, no individual should be allowed to own a vehicle or a vessel which he does not operate himself or through a co-operative. To start with, co-operatives may be formed with the existing operators for operation and management and these will gradually take over ownership within a stipulated period. Import of spares and accessories should be allowed through the co-operatives alone. Till such time the co-operatives are not formed the existing associations such as the motor vehicle and launch owners' associations should be organised on a more broad based and effective manner so that it becomes possible on the part of the Government and concerned agencies to deal with them more effectively in matters of general policy issues rather than with the individual operators.



- (e) Necessary facilities for training of new recruits and for those who are in service should be provided by all agencies responsible for providing services.
- (f) All the corporations and agencies in the public sector for operation should be run on established commercial principles keeping the national interest in view. Free carriage of goods or passengers must not be allowed. If necessary, subsidy should be provided to the user agencies. All the organisations and agencies should be reorganised, if need be, to ensure maximum autonomy in their management and operations. Adequate authority should be delegated to them for discharge of their functions.
- (g) A system should be evolved to ensure regular availability of statistics which are vital for operational as well as planning purpose. This should emanate from the Transport Co-ordination Division for operational purposes and from the Transport Survey for planning purposes.
- (h) Existing regulatory acts in respect of road transport and IWT should be amended to bring these in line with the present day requirements.
- (i) Action should be taken to eliminate slow moving vehicles from the urban areas, particularly from the metropolitan city in a phased manner within a stipulated period.
- (j) Under the present system, the R & H Directorate is also involved in building roads which essentially serve the social needs of small localities. To enable the R & H Directorate to concentrate on their functions in the arterial field, and to give the local authorities greater freedom of choice of investment in their areas, an attempt will be made to involve the local authorities in decision-making process. Involvement of the R & H Directorate will be limited to the provision of services such as consultancy, supervision, etc., to the local authorities.

## 10.2 BANGLADESH RAILWAY

### 10.2.1 Introduction

Numerous rivers, canals and water courses flowing through Bangladesh have profoundly influenced the growth and operation of the railway system. The railway system is divided into two distinct parts by the river Brahmaputra/Jamuna. East-West connections are made by ferries at Bahadurabad and Serajganj which are naturally slow and highly expensive. The large number of rivers which overflow their banks necessitate construction of high embankments and a large number of bridges. Consequently construction of new lines and maintenance of the existing ones involve a lot of technical difficulties and high costs.

Bangladesh Railway inherited a total mileage of 1,776 of which 574 miles are broad gauge and 1,202 miles are metre gauge. There are about 470 stations and nearly 4,000 bridges including the minor ones. Prior to liberation there was a stock of 492 locomotives,



1,192 passenger carriages, 479 other coaching and departmental vehicles and 19,628 freight wagons. The system had changed little in size during the 10 years from 1959-60 to 1969-70, as the following table shows:

TABLE X-6  
Physical Assets of Railway System in 1969-70 and 1959-60.

| Items                                | 1959-60. | 1969-70. | (+) or (-) | Remarks.                         |
|--------------------------------------|----------|----------|------------|----------------------------------|
| Route mileage .. ..                  | 1,714.47 | 1,775.61 | (+) 61.14  | Average addition 6 miles a year. |
| Locomotives owned .. ..              | 472      | 492      | (+) 20     | Addition only 2 per year.        |
| Passenger carriages owned ..         | 1,125    | 1,192    | (+) 67     | 6/7 vehicles per year addition.  |
| Other coaching vehicles ..           | 496      | 479      | (-) 17     | Reduction.                       |
| Freight wagons owned (4-wheel units) | 19,640   | 19,628   | (-) 12     | Do.                              |

Although the size of the rail system has changed very little during the 10 years from 1959-60, it has played a very important role and will continue to play a very important role because of its fairly large coverage of the country and its suitability for transportation of bulk and long distance traffic.

The traffic carried by the Railway in the ten years 1960-61 to 1969-70 is indicated in table X-7 below:

TABLE X-7  
Year-Wise Statistics of Railway Passenger and Freight Traffic from 1960 to 1970.

| Year.         | Number of passenger carried (thousand). | Passenger mile (thousand) | Freight tons carried (thousand) | Net ton miles (thousand) |
|---------------|---|---------------------------|---------------------------------|--------------------------|
| 1960-61 .. .. | 71,175                                  | 1,881,881                 | 5,885                           | 945,112                  |
| 1961-62 .. .. | 72,799                                  | 1,916,266                 | 6,266                           | 973,121                  |
| 1962-63 .. .. | 72,002                                  | 1,935,535                 | 6,815                           | 1,062,460                |
| 1963-64 .. .. | 73,145                                  | 2,003,397                 | 6,784                           | 1,052,686                |
| 1964-65 .. .. | 71,326                                  | 1,921,791                 | 6,074                           | 892,965                  |
| 1965-66 .. .. | 67,191                                  | 1,787,490                 | 5,437                           | 854,040                  |
| 1966-67 .. .. | 73,017                                  | 2,004,532                 | 5,515                           | 867,002                  |
| 1967-68 .. .. | 70,806                                  | 2,078,707                 | 4,953                           | 806,142                  |
| 1968-69 .. .. | 72,836                                  | 2,205,212                 | 4,737                           | 724,968                  |
| 1969-70 .. .. | 72,885*                                 | 2,061,084*                | 4,802*                          | 959,495*                 |

\* Provisional.



The two Tables above indicate that there was little growth in the total railway activity in the period of ten years, passenger traffic showing a peak in 1968-69 and freight in 1962-64. There was a recession in both passenger and freight traffic after the Indo-Pakistan war of 1965, with loss of international traffic which has not yet been recovered. In respect of passenger traffic, decline has been mainly due to diversion to other modes as the railway was unable to meet all demands with reasonable standards of comfort.

### 10.2.2 Consequence of War

The events of the last war caused serious damages to the rail system, not only in the loss of significant number of its staff but in large scale physical destruction of the property including the following:

- (a) 299 bridges including several major bridges were damaged,
- (b) about 71 miles of track were up-rooted and removed,
- (c) five diesel locomotives were damaged beyond repair,
- (d) Signalling and communication facilities were damaged and disrupted,
- (e) ferries, both wagon and passenger, were sunk and damaged.

A large portion of the reconstruction programme of the railway has been completed with the result that all the bridges excepting the Bhairab bridge have been made passable. More than 100 bridges have been permanently repaired and others on temporary basis. Temporary arrangement where permanent restoration could not be made, has been made in regard to signalling, communication and other facilities.

### 10.2.3 Objective and Strategy

Due to Government's decision to attain self-sufficiency in food production and to bring about rapid industrialisation during the First Five-Year Plan period there would be greater demand on the rail transport for movement of both domestic and international traffic. Besides, as a result of the restoration of Indo-Bangladesh trade and commitment of the Government to allow transit facilities to Indian Traffic, Bangladesh Railway would be called upon to move a larger volume of traffic than that in the recent past. On the basis of a preliminary study undertaken by the Bangladesh Transport Survey, it transpired that railway's share of additional traffic, mainly long distance traffic, would represent an increase of about 25 per cent as compared to that handled by the railway during 1969-70. The following Table indicates the projected ton and passenger miles during the terminal year of the Plan period as compared to those for 1969-70.

TABLE X-8  
Projection of Passenges and Ton Miles.

|                 |     |     |     | (In lakh miles) |          |
|-----------------|-----|-----|-----|-----------------|----------|
|                 |     |     |     | 1969-70         | 1977-78  |
| Passenger miles | ... | ... | ... | 20610.00        | 25762.00 |
| Ton miles       | ... | ... | ... | 9595.00         | 11994.00 |



Keeping these factors in view the basic strategy for development programme of Bangladesh Railway is to improve, consolidate and modernise the existing system for providing better standards of service, both goods and passengers, by running faster, more regular and reliable trains with long distance through traffic and reducing services for short distance traffic. To secure these objectives, emphasis has been laid on renewal of track, replacement of rolling stock, improvement of existing bridges, modernisation of signalling system, development of terminal facilities and provision of facilities for manufacture and assembly of rolling stock and spares. Stress has also been laid on continuous improvement of technical and administrative efficiency through regular training. Although expansion of the rail network will be subject to detailed evaluation of needs following the study by the Bangladesh Transport Survey, provision has, however, been made for carrying on the construction of on-going projects where substantial capital has already been sunk.

#### 10.2.4 Programmes

Major schemes included in the investment programme of the Bangladesh Railway are—

- (a) replacement of rolling stock, plant and machinery, bridge girders and renewal of tracks;
- (b) improvement of signalling and tele-communication facilities;
- (c) improvement of workshop and maintenance facilities;
- (d) completion of doubling of M. G. track from Chittagong up to Laksham;
- (e) completion of Faridpur-Barisal railway line up to Bhanga.

Although allocation has been made for construction of Khulna and Mongla Railway line and a rail-cum-road bridge over the river Rupsa this should be treated as tentative. In view of the recent trend in international shipping for construction of bigger ships, justification for construction of full-fledged permanent port facilities at Mongla has to be thoroughly reviewed. Foreign consultants attached to Bangladesh Transport Survey are currently engaged in an economic study on the justification of construction of permanent port facilities at Mongla *vis-a-vis* additional investment at Chittagong port and construction of a deep draft port near Kutubdia. It has also been decided to undertake a technical study on the feasibility of constructing the deep draft port. Construction of Khulna-Mongla railway line and the rail-cum-road bridge over the Rupsa river has to be lined up with the final decision as to construction of full-fledged port facilities at Mongla.

A token allocation of Taka 70 lakh has also been made for undertaking preparatory works for Jamuna bridge. Construction would however, be taken up only after a detailed technical and economic study as to the feasibility of the project.

Allocation has been made for Faridpur-Barisal Railway line which is an on-going project. Out of a total length of 82 miles, construction of 15 miles from Faridpur has so far been completed and has already been opened to traffic. Apparently there is not enough justification for construction of this railway line, particularly when provision has been made for construction of three road bridges between Faridpur and Barisal, providing through road communication from Faridpur to Barisal. In this context,



it will be necessary to make fresh evaluation of the project as to whether or not the project should be completed or abandoned or completed up to Bhanga only. Allocation made would, therefore, cover the costs for construction up to Bhanga.

### 10.2.5 Plan Allocations

The total allocation for railway during the First Plan period is Taka 126 crore 12 lakh and 70 thousand including Taka 8 crore 70 lakh for reconstruction of war damages. The allocation under major heads are given below :

TABLE X-9  
Allocation for the First Five-Year Plan

(Taka in crore)

| Items  | On-going. |        | New.   |        | On-going and new. |        |
|--|-----------|--------|--------|--------|-------------------|--------|
|  | Total.    | F. E.  | Total. | F. E.  | Total.            | F. E.  |
| <b>A. Development</b>  |           |        |        |        |                   |        |
| 1. Rolling stock ..  | 14.350    | 7.619  | 40.000 | 24.000 | 54.350            | 31.619 |
| 2. Plant and machinery ..  | 0.441     | 0.271  | 0.855  | 0.620  | 1.296             | 0.891  |
| 3. Bridge works ..   | 1.076     | 0.659  | 5.700  | 4.000  | 6.776             | 4.659  |
| 4. Rehabilitation of track   | 5.064     | 2.202  | 9.000  | 4.500  | 14.064            | 6.702  |
| 5. Line Construction ..  | 11.383    | 1.461  | ..     | ..     | 11.383            | 1.461  |
| 6. Line capacity works ..  | ..        | ..     | 4.493  | 2.584  | 4.493             | 2.584  |
| 7. Engineering and other structural works.                               | 5.182     | 0.463  | 2.004  | 0.905  | 7.186             | 1.368  |
| 8. Construction and modernisation of workshops, storage and depots, etc. | ..        | ..     | 9.500  | 5.360  | 9.500             | 5.360  |
| 9. Signalling, Tele-communication and Radio-wireless works.              | 0.903     | 0.018  | 2.411  | 1.484  | 3.314             | 1.502  |
| 10. Marine crafts, etc. ..   | 0.382     | 0.332  | 1.183  | 0.834  | 1.565             | 1.166  |
| 11. Training, consultancy and feasibility studies.                       | ..        | ..     | 3.500  | 2.000  | 3.500             | 2.000  |
| Total A ..   | 38.781    | 13.025 | 78.646 | 46.287 | 117.427           | 59.312 |
| <b>B. Reconstruction and Rehabilitation Programme</b>                    | ..        | ..     | ..     | ..     | 8.700             | 5.791  |
| Total A & B ..   | 38.781    | 13.025 | 78.646 | 46.287 | 126.127           | 65.103 |



### 10.2.6 Policies

I. Commercial-*cum*-utility service will provide the guiding principle for running the railway in Bangladesh. Commercial viability in railway operation cannot be ignored while making huge capital investment in this area. Railway should not be allowed to operate on loss and as a subsidised concern.

II. The Railway Board should be reorganised following the report of the Railway Commission in order that it can operate as efficiently as may be necessary to achieve the objectives of providing efficient and cheap services.

III. Railway should not be called upon to carry passengers or goods free or at a nominal rate such as relief goods, defence personnel and stores, etc. Subsidy may be given to the user agencies, if required because subsidy to the Railway distorts the accounting and forestalls proper evaluation of the performance.

IV. Current practice of 4 per cent return on capital according to the separation convention should be abolished in view of the fact that the Railway have to undertake responsibility for debt servicing and repayment of interest on loan.

## 10.3 ROADS AND ROAD TRANSPORT

### 10.3.1 Introduction

Roads and Road Transport play a very crucial role in rapid economic growth of a country. Road transport is particularly suitable for short haul traffic and for some specified types of goods, such as perishables and high valued commodities, because of its flexibility, shorter transit time, lower loss or damage during transit and consequent reduction in costs.

Statistics on roads and road transport are thoroughly inadequate and almost non-existent. As a result it is difficult to estimate the overall capacity of roads and road transport industry or the extent of services currently supplied by the industry. Survey has already been undertaken by the Bangladesh transport survey team on a priority basis to remedy this serious information deficiency.

During the First Five-Year Plan period, with the attainment of self-sufficiency in food and planned development of other sectors, the subsistence type economy of Bangladesh will rapidly move towards market economy and structural change from agriculture to manufacturing is also inevitable. These changes would naturally generate greater demand for transport and here road transport has to cater for its share of traffic. Besides its contribution to the arterial movement, road transport has to play a very significant role in providing transport services on short hauls covering routes leading to rail and river heads and trunk roads.

### 10.3.2 Roads and Highways

#### A. Effects of the War

Development of roads and highways had been very slow during the last 25 years. Again whatever was developed, was very badly damaged during the liberation war. Out of 4,656 bridges and culverts measuring about 200,000 ft. scattered over available 2,500 miles of



paved and 1,500 miles of fair weather road system, as many as 274 bridges and culverts measuring 21,569 ft. were destroyed during the liberation war. A large number of ferries were also sunk or destroyed.

Through Reconstruction and Rehabilitation Programme and with international assistance, all the roads and highways have now been opened to traffic. Most of the smaller bridges have already been reconstructed. At another 67 places, Bailey bridging of 2,600 ft. have been provided while 5 major road gaps where temporary ferry services have been provided, will continue for some time.

#### *B. Strategies and Priorities*

Although highways would continue to be one of the most essential modes of transportation for years to come all essential road schemes could not be included due to resource constraint. The First Five-Year Plan Programme for this sub-sector has, therefore, been prepared on the basis of the following guidelines, strategies and priorities:—

- (i) Completion on a priority basis of all on-going schemes as rapidly as possible to ensure that full benefits of past investment are secured. This is subject to a critical examination of all schemes with a view to discontinuing or reducing the scope of those which are not economically justified (particular scrutiny being paid to those in which little investment has already been made).
- (ii) Construction of bridges at all possible unbridged gaps—bearing in mind that in the majority of cases investment in improved ferry facilities and services will involve a lesser financial commitment and give a higher return. Bridges and major bridges in particular would, however, be constructed only when engineering and economic feasibility of such constructions have been established.
- (iii) Completion of all important on-going infra-structure schemes.
- (iv) Improvement of ferries at important river crossings.
- (v) Upgrading of important roads and bridges, *i.e.*, improvement of the standard of maintenance and upgrading and rehabilitation of existing roads and bridges where these are clearly inadequate on structural or capacity grounds.
- (vi) Partial completion of new infra-structure schemes.

#### *C. New Institutional and Organisational Framework for Roads and Highways*

Under the existing system, the major transport agencies are involved even in the provision of transport facilities that essentially serve the social needs of small localities; this notably applies to Roads and Highways Directorate and Inland Water Transport Authority and in some cases to Railway also. But to enable these agencies to concentrate on their functions in the arterial field which concerns the whole nation, and to give the local groups greater freedom of choice of investment in their areas, an attempt would be made from the beginning of the First Plan, to involve the newly elected local representatives of the people in decision-making process, thereby removing the major agencies from direct involvement at this level of the transport system. The involvement of major transport agencies might, for example, be limited to the provision of consultancy and supervisory services to the local authorities.



The technical, financial and physical implications of the above thinking are being studied. It is proposed that the responsibility of the roads falling under the following categories would be handed over to the local authorities and as such no allocation has been provided for these roads under Roads and Highways Sub-Sector:

(a) Construction of roads to connect :—

- (i) Subdivisional headquarter with district headquarter.
- (ii) Important trade and industrial centres.
- (iii) Inaccessible and special areas.

(b) Construction of new roads of local importance including some of the less important on-going road schemes dropped from the list of Roads and Highways Directorate.

For construction of roads under the above category the following arrangement is proposed:

- (i) District authorities will prepare a road building programme for roads under the above categories.
- (ii) This programme will be presented to the Ministry of Communications for evaluation in relation to its technical feasibility and in relation to the national highway network.
- (iii) An agreed priority list for the District will be developed by a Committee involving:
  1. Ministry of Communications.
  2. Ministry of Local Government (including newly proposed Physical Planning Division).
  3. Ministry of Rural Development.
  4. Ministry of Irrigation and Flood Control.
  5. Head of the Zilla Parishad whose programme is under scrutiny.
- (iv) Every year an allocation for the above road building programme based on an agreed formula will be made to each District under the Works Programme Section of the ADP.
- (v) This allocation will be provided for the express purpose of procuring material inputs such as cement, steel, coal for brick burning, stone and bitumen required for the road building programme for that year.
- (vi) District authorities will be expected to provide land and labour required for the programme. This may be done either by mobilising voluntary labour and donations of land or by raising resources locally to procure all or part of their local contribution of land and labour.
- (vii) Roads selected by the District for execution during a financial year should be submitted in advance to the Roads and Highways Directorate for providing technical designs and specification including soil testing.



- (viii) The roads so designed by the Roads and Highways Directorate will in the first instance be constructed under the supervision of Roads and Highways Directorate engineers.
- (ix) It is expected however that all District authorities will require a permanent staff of engineers who will be sufficient and capable to supervise their roads building programme.
- (x) The District authorities will be responsible from the outset in engaging sufficient overseers on their staff to direct the road building programme.
- (xi) For the Five-Year Plan period a sum of Tk. 25 crores is budgeted under the Works Programme for financing the material inputs required under the programme. This means that local authorities will have to generate counterpart resources roughly amounting to Tk. 25 crores in cash or non-monetised forms to enable the total programme of Tk. 50 crores to go ahead.

Under the new concept, Roads and Highways Directorate would be solely responsible for roads and highways which consist mainly of—

- (a) Roads and bridges which form the basic arterial or trunk system,
- (b) Road links connecting adjacent districts,
- (c) Road links of strategic and socio-economic importance.

#### **D. Plan Allocations**

A sum of Tk. 103 crore 84 lakh and 90 thousand with FEC of Tk. 35 crore 84 lakh and 70 thousand has been provided to the Roads and Highways Directorate for the execution of responsibilities entrusted to it. Major programmes included in the Plan are:

Completion of two foreign aided road schemes, viz, Dacca-Aricha highway and Dacca-Chittagong-cum-Narayanganj highway, besides completion of another 20 on-going road schemes, upgrading of 5 important on-going roads and completion of 8 on-going bridge schemes. Remaining work of Dacca Road Research Laboratory and installation of weigh bridges at several places would also be completed. Among the new schemes—bridging will be provided at 4 different road gaps and ferry services would be modernised at 20 major river crossings. In addition, provision has been made for upgrading of roads and bridges at several places and for establishment of 4 regional laboratories and workshops.

The total road building programme will, therefore, involve an estimated investment of Taka 154 crores, including both Road and Highway roads and District roads.

### **10.3.3 Road Transport**

#### **A. Present Position**

The vast majority of road transport services are provided by privately owned vehicles. And in most cases those vehicles are owned by individuals who operate these vehicles with a view to maximising profit without having any regard to the quality of the services. Government's participation in this field has been through the BRTC alone whose aim was to supplement private efforts as well as to set up a minimum standard of comfort, safety and reliability.



The War of Liberation has given a serious blow to the road transport sub-sector. About 4,244 trucks and 1,952 buses including a fleet of 33 buses belonging to BRTC were damaged. In addition, a large number of the bus and truck fleet have been rendered temporarily ineffective due to non-availability of spares. Except in the cases of buses and trucks, it was not even possible to estimate within an acceptable degree of error the extent of loss and damages caused to other types of road vehicles such as auto-rickshaw, taxi, cycle-rickshaw, bullock cart, thela, tonga, etc.

Meanwhile, it is clear that a substantial proportion of the capacity lost during the War of Liberation has already been or will have been made good by the beginning of the First Plan period. A large number of vehicles have already been received under international aid or grant arrangements. Others have been imported in CKD form and are being assembled in Chittagong by Pragoti Industries. Position of the fleet at the beginning of the period is given in Table X-10

TABLE X-10  
Road Vehicles Statistics (As on 30-5-1973)

| Type of vehicles | Available on<br>30-6-1973<br>(Nos) |    |        |
|------------------|------------------------------------|----|--------|
| Truck            | ..                                 | .. | 11,100 |
| Bus              | ..                                 | .. | 7,200  |
| Auto-rickshaw    | ..                                 | .. | 6,536  |

#### B. Future Requirements

Regarding future requirements of road transports, in the absence of adequate road transport statistics, it became terribly difficult to estimate future demand. Based on preliminary studies, the estimates of the requirement of commercial vehicles (buses and trucks) during the Plan period is presented in Table X-11.

TABLE X-11.  
Requirement of Commercial Vehicles (Buses and Trucks) during the Plan Period

| Year    | Bus              |                |       | Trucks           |                |         |
|---------|------------------|----------------|-------|------------------|----------------|---------|
|         | Replace-<br>ment | Expan-<br>sion | Total | Replace-<br>ment | Expan-<br>sion | Total   |
| 1973-74 | ..               | 139            | 566   | 419              | 698            | 1,117   |
| 1974-75 | ..               | 259            | 566   | 551              | 698            | 1,249   |
| 1975-76 | ..               | 225            | 566   | 291              | 698            | 989     |
| 1976-77 | ..               | 365            | 566   | 551              | 698            | 1,249   |
| 1977-78 | ..               | 322            | 566   | 313              | 698            | 1,011   |
| Total   | ..               | 1,310          | 2,830 | 2,185            | 3,490          | 5,675   |
|         |                  |                |       | 1,610**          | 2,440**        | 4,050** |

\*\*In view of increased carrying capacity of each new truck (say present capacity 6-7 tons per truck as against previous capacity of 3-5 tons per truck) the required absolute number of new trucks would be about 30% less i.e. about 4050 new trucks instead of 5675 old trucks. Similarly 1610 trucks instead of 2185 and 2440 instead of 3490 trucks will be needed respectively for replacement & expansion.



With the acquisition of additional 2,830 buses, 2,440 trucks and 3,491 auto-rickshaws over the Plan period, increase in carrying capacity in terms of tons and passenger miles would be as follows:

TABLE X-12.  
Estimated Carrying Capacity Over the Plan Period

(In lakh)

| Types of vehicle. | 1973-74.        |           | 1977-78.        |           |
|-------------------|-----------------|-----------|-----------------|-----------|
|                   | Passenger miles | Ton miles | Passenger miles | Ton miles |
| Buses .. ..       | 90,000.00       | ..        | 1,60,480.00     | ..        |
| Trucks .. ..      | ..              | 9,150.00  | ..              | 12,170.00 |
| Auto-rickshaws .. | 5,090.00        | ..        | 7,800.00        | ..        |

#### C. Measures to Improve Road Transport.

In order to ensure that road transport plays its full part in the economic development of the country, measures will be taken to ensure that before any new acquisition, maximum use is made of the existing vehicle fleet. In the case of new acquisition, all vehicles would be imported in CKD condition and then assembled in Chittagong by Pragoti Industries which has adequate capacity to meet the requirements for trucks, buses and cars throughout the Plan period. In view of this fact, no provision has been made for the foreign exchange component of the cost and the entire cost of buses and trucks has been shown in local currency.

In order to graduate from mere assembly operations Pragoti Industry will have to aim for progressive manufacture of its components. To this end ancillary industries for the manufacture of components and spares will also be set up. This will lead to a gradually increasing availability of domestic manufactured parts for trucks, buses and other types of road transport vehicles. Concentration upon locally assembled vehicles will be assisted by standardisation of a small number of models (say 2 to 3 models). Standardisation will gradually lead to economy in import and supply of spare parts and will also lead to more efficient manufacture and repair.

Provision of an adequate supply of spare parts to ensure that all vehicles are available for full utilization is already a priority of the Government and it is anticipated that by the beginning of the Plan period, the number of vehicles off the road and awaiting maintenance and repair will have been reduced to normal proportions.

In view of the Government's commitment to socialism, a cheap and efficient public road transport system will be necessary. The publicly owned BRTC would thus have to be strengthened substantially. Its passenger fleet will be expanded from 776 bus and coaches



to 2,260 at the end of the Plan. Adequate workshop and maintenance facilities will, however, have to be provided to BRTC which has so far demonstrated a poor capability for maintenance resulting in a large proportion of their fleet being off the road. At the same time BRTC will need to provide efficient and economic road transport services designed to ensure its commercial viability. Provision of adequate facilities, skilled manpower and an improved organisational framework with first class management is particularly important given the expanded role assigned to the public sector in future. BRTC bus services will be augmented by the private sector whose fleet will be expanded from 6,424 units to 7,770 units.

A new Truck Division under BRTC has been established with an initial fleet of 1,000 trucks out of the trucks received as grant from India and other friendly countries through UNROB. During the Plan another 1,350 trucks will be added to this fleet. This will be the first commercial venture by the public sector in the field of trucking which has been hitherto dominated by private operators. The objective is to provide a bridge head in a private enterprise preserve, whilst keeping competitive pressure on the Private Sector not to charge excessive freights. At the same time public sector agencies will have ready access to a public sector service at competitive rates. To realise this objective commercial autonomy and efficient operation are essential. Since this is virgin territory for the public sector, management expertise has been imported in the short run whilst our own operatives acquire experience in running a modern trucking fleet.

As already mentioned earlier, besides buses and trucks, there are several other types of vehicles which form an integral part of the overall road transport system and cater for a large number of passenger and cargo movement particularly on short-hauls. Some of these vehicles are not mechanised such as thela, bullock carts, tonga, cycle-rickshaw, etc. In addition, private vehicles such as cars, motor cycles, pedal cycles, also cater for a large amount of passenger movement.

The future requirements of both mechanised and non-mechanised road transport (excluding buses and trucks for which estimate has already been prepared) would depend largely on the overall economic development of the country, policies being adopted regarding the development of other competing forms of road transport and emphasis being laid on the development of feeder system, particularly in rural areas. As it stands pedicabs and auto-rickshaws are a standard form of public transport for low income groups along with the buses. In view of this fact, based on preliminary studies, adequate provision has been made for addition and replacement requirements of these vehicles in the private sector. Private operatives may be expected to manufacture from local resources as many pedicabs as the market will sustain. However, provision will have to be made to import auto-rickshaws in CKD condition for local assembly and progressive manufacture. The Bangladesh Engineering and Shipbuilding Corporation, in fact, aims, under licence from a leading foreign manufacturer, at setting up a capacity to produce three wheelers during the Plan period.

In the field of road transport some provision will have to be made for some private ownership of the means of transport. Here our social policies must put maximum emphasis on meeting the needs of lower income groups. To this end bye-cycle manufacturing capacity is being substantially augmented from a benchmark capacity of 47,000 to 2,20,000 during the Plan period. For slightly higher income groups motor cycles will be produced



from the publicly owned Atlas Honda company under the BESC. This has a capacity of 6,000 units per year but will need to balance its capacity to graduate from assembly of imported CKD to progressive manufacture.

Some amount of cars will have to be produced during the Plan period. This will be primarily designed for commercial services either through the Tourist Corporation's taxi fleet or even for normal taxi services in urban centres. Some provision will however be made for Government's own requirements. As a residual measure, if resources so permit, some cars may be available for private purchase but priced to reflect its scarcity value. Pragoti Industries after meeting the need for trucks and buses to the extent of 1,638 units a year will have enough capacity to cater to this need. It is proposed to programme their annual capacity of 6 000 units of bus/trucks and 2,000 units of Car/JEEP type vehicles as follows:

|                             | Bus. | Trucks. | Cars/Jeeps. |
|-----------------------------|------|---------|-------------|
| Annual requirement (Nos) .. | 828  | 810     | 270         |

#### D. Plan Allocations

A sum of Taka 41 crore and 2 lakh with FEC of Tk. 1 crore 38 lakh has been provided for the development of road transport in the public sector and a further provision of Taka 63 crore 66 lakh and 20 thousand without any foreign exchange component exists for the development of road transport in the private sector, which is detailed below:

TABLE X-13  
Summary of the Plan Provisions for Road Transport.

|                         |   | (Taka in crore) |        |
|-------------------------|---|-----------------|--------|
| Serial No.              | Type of vehicles/schemes.   | Total.          | F.E.C. |
|                         |   | Taka.           | Taka.  |
| <b>Public Sector:</b>   |   |                 |        |
| 1                       | Buses (2,250 Nos.) .. .. .  | 22.500          | ..     |
| 2.                      | Maintenance, Training and other facilities ..<br>for Bus Division of BRTC | 5.850           | 0.940  |
| 3                       | Trucks (1,350 Nos.) .. .. .   | 11.610          | ..     |
| 4.                      | Workshop and drivers' training school ..<br>for Truck Division of BRTC    | 1.060           | 0.440  |
|                         | Sub-Total .. .. .   | 41.020          | 1.380  |
| <b>Private Sector :</b> |   |                 |        |
| 1                       | Buses (1,890 Nos.) .. .. .  | 18.900          | ..     |
| 2                       | Trucks (2,700 Nos.) .. .. .   | 23.220          | ..     |
| 3                       | Auto-rickshaws .. .. .  | 7.442           | ..     |
| 4                       | Taxis .. .. .   | 1.450           | ..     |
| 5                       | Pedal rickshaws .. .. .   | 2.200           | ..     |
| 6                       | Thelas .. .. .  | 0.050           | ..     |
| 7                       | Bullock carts .. .. .   | 1.250           | ..     |
| 8                       | Private cars .. .. .  | 4.500           | ..     |
| 9                       | Motor cycles and pedal cycles .. .. .                                     | 4.600           | ..     |
|                         | Sub-Total .. .. .   | 63.662          | ..     |
|                         | Total for Public and Private Sector .. .. .                               | 104.682         | 1.380  |



### *E. Policy Recommendation for Road and Road Transport*

For effective implementation of the First Plan targets of road transport sub-sector, following policies shall have to be adopted:

- I. Strengthening of the administration, organisation, and technical capacity of the R & H Department both centrally and at regional and district level; completion of the Road Research Laboratories and adequate staffing is a particular priority.
- II. A strategy to be adopted for the present and future in concentrating resources on a smaller number of schemes to ensure that those which are economically justified are only taken up and completed quickly instead of distributing limited resources on too many schemes at a time.
- III. Road and road transport statistics in the country are absolutely inadequate. Some system would, therefore, be evolved to ensure regular collection and maintenance of statistics. Transport Survey Group under the Planning Commission would be made responsible, among others, for the collection and maintenance of these statistics on a continuous basis. In addition, organisation in the ministries and agencies would be set up/strengthened for collection and maintenance of these statistics.
- IV. Notwithstanding the expanded role of the public sector, the private sector will continue to provide major road transport services. In order to ensure that these services are provided safely and economically in the public interest, the system of regulation of the industry will need to be thoroughly overhauled and the Motor Vehicles Act brought up-to-date. Pending the recommendations of the Transport Survey in this respect, a start will be made by carrying out the recommendation of the Road Transport Enquiry Committee set up by the erstwhile Government of East Pakistan in 1970.
- V. Government policy would be to initiate formation of bus and truck co-operatives in the private sector within a stipulated period of time. No fresh permits would be given to the individuals for acquisition of buses or trucks. Eventually these co-operatives would be owners of all new buses and trucks. Attempts would be made to give licence for import of spares only to the co-operatives and this would also encourage formation of co-operatives.
- VI. This same principle must be extended to pedicabs and auto-rickshaws. Here Government policy must be guided by the slogan "Ownership to the pullers/drivers". Both rickshaw pullers and auto-rickshaw drivers are an exploited community working long hours at the cost of their health and life and generating only a small surplus to meet their subsistence. At the same time the surplus extracted by the owners is partly paid for by the public in higher fares.
- VII. To end exploitation and reduce fares to the common man it is aimed to vest ownerships in pullers/drivers co-operatives. A first step has already been taken where 1,900 out of 2,000 auto-rickshaws imported during 1972-73 have been handed over to Auto-rickshaw drivers co-operatives. These will buy the vehicles from TCB through a loan from the commercial bank and seek to sell them to their members through a system of hire-purchase. An even more advanced form of co-opera-



tive is being tried out on an experimental basis with 100 auto-rickshaws where ownerships will remain with the co-operative which will serve 150 drivers who will share the profits from the venture. Both co-operatives will be used to take up new units coming on the road and eventually we may aim at making the drivers of today's privately owned autos into owners through co-operatives. The same principle must be extended to the even more suppressed pedicab pullers over the Plan and an increasing number of pullers must be made owners.

- VIII. The capacity of the assembly plant, Pragoti Industries would be fully utilised. As the capacity of the Pragoti Industries is adequate to meet the requirement of the country for the next few years, buses and trucks would be imported in CKD condition only and the same policy would be adopted in the acquisition of other road vehicles where assembly capacity exists within the country.

#### 10.4 INLAND WATER TRANSPORT

##### 10.4.1 Inland Water Transport Authority (IWTA)

Waterways in Bangladesh being abundant, the strategy here would be to improve the conservancy of this national asset and thus provide the foundation for more efficient utilisation of the country's coastal and inland waterways fleet. The importance of inland waterways in the national economy has been strikingly emphasized both during the War of Liberation and the post-liberation period, since inland water transport became the backbone of movement at a time when both railway and highways were in a state of disarray from war damage.

Whilst waterways require less infra-structure investment for any given volume of traffic than railway or highways, they nevertheless require constant attention to dredging, and the installation and maintenance of river training works, marks, bouys and other navigational aids to ensure the safe movement of craft at all seasons of the year. In addition, port facilities have to be provided to keep pace with the expansion of trade. The Plan provision, therefore, provides for some expansion and improvement of the system of navigational channels and of inland ports.

Major programmes, some still tentative, that are included in the Plan are—(a) completion and opening of Mongla-Ghasiakhali canal—shortening the riverine distance from Mongla Anchorage to Chandpur and above for vessels of deep draught, (b) development of about 500 miles of waterways, (c) survey and conservancy of about 1,000 miles of waterways, (d) provision for increased number of discharge points at the major inland river ports along with efficient loading and unloading facilities including construction of some transit sheds, (e) development of some new inland ports, (f) mechanisation of about 1,500 country boats including construction of some ferro-cement boats/pontoons based on the results of the pilot project which has already been taken in hand., (g) procurement of 10 dredgers, (h) aids to navigation and training of IWT personnel. In addition, provision has been made for undertaking comprehensive feasibility studies for the development of waterways, inland ports, etc., at several places. In all, a sum of Taka 48 crore 2 lakh and 50 thousand with FEC of Taka 17 crore 99 lakh and 10 thousand has been provided for the programmes under IWTA. Of this, about Taka 21 crore 76 lakh and 50 thousand with FEC Taka 11 crore 14 lakh and 10 thousand is provided for the completion of on-going schemes only.



A detailed study is required to identify dead and dying rivers in Bangladesh whose resuscitation is economically justified. Such a study must examine not just the costs and benefits of investment in this field in relation to alternative investments in the transport sector but must examine each river identified for resuscitation in relation to its impact on irrigation, flood control and ecology. It will have to be further investigated whether rivers so identified can be resuscitated by the expanded dredging fleet to be acquired during the next five years or whether a special task force would be in order.

Some provision has been made for development of new inland ports. In this connection it may be borne in mind that the traffic pattern after liberation has undergone a substantial change as compared to that which obtained during the preliberation period due to development of new trade relationship with India. Traffic pattern may further change on provision of permanent port facilities at Chalna or at some other place and as a result of the realisation of the industrial programme as set forth in the First Plan. Actual development of new inland ports will, therefore, have to be undertaken after completion of the study currently undertaken by the Economist Intelligence Unit (EIU).

#### 10.4.2 Inland Water Transport Corporation (IWT)

##### A. Present Position and War Damages

Prior to the War of Liberation almost the entire fleet of IWT vessels were in the private sector operated individually as well as by formation of companies. This resulted in more of profit making than improving the quality of service. With a view to improving this situation, the Government has formed the Bangladesh Inland Water Transport Corporation (BIWTC), incorporating all the former major companies. As a result about 50 per cent of the total cargo capacity and 15 per cent of the passenger capacity has been brought under Government control and further acquisition may be made during the Plan period.

During the War of Liberation, a large number of IWT vessels of different types were damaged. A list is given below:

| IWT Public Sector.  |    |    |    | IWT Private Sector.         |    |    |     |
|---------------------|----|----|----|-----------------------------|----|----|-----|
| Ferry .. .. .       | .. | .. | 8  | Passenger launch ..         | .. | .. | 113 |
| L. C. T. .. ..      | .. | .. | 2  | Coaster .. .. .             | .. | .. | 7   |
| Passenger vessel .. | .. | .. | 4  | Oil Tanker .. ..            | .. | .. | 4   |
| Oil tanker .. ..    | .. | .. | 1  | Barge .. .. .               | .. | .. | 18  |
| Tug .. .. .         | .. | .. | 5  | Flat .. .. .                | .. | .. | 2   |
| Flat/Barge .. ..    | .. | .. | 11 | Tug .. .. .                 | .. | .. | 6   |
| Pontoon .. .. .     | .. | .. | 1  | Self propelled cargo launch | .. | .. | 16  |
| Sub-total .. ..     | .. | .. | 32 | Sub-total .. ..             | .. | .. | 166 |

Loss of bay crossing capacity has already been made up through acquisition of coasters and self-propelled barges as relief grant. Similarly 4 tankers have also been received as relief grant and six more are expected to be acquired during the current year under the Reconstruction and Rehabilitation programme. The major loss yet to be made up is in the private sector in passenger carrying capacity.



Even after the Government decision of diverting more and more of imported bulk cargo from Chittagong to Chalna, the IWT traffic is not likely to increase much particularly because the overall import of food grains would be gradually decreasing with the planned attainment of self-sufficiency in food. The preliminary traffic allocation shown in table X-4 would reveal this fact.

### B. Strategy.

The strategy for the IWT sub-sector would, therefore, be to aim for an improvement of overall vessel usage during the Plan period of some 20-30 per cent without any considerable expenditure and purely by more intensive use of the fleet, terminal and repair facilities and better use of personnel.

To achieve rapid improvement in the efficiency and utilisation of the country's large inland transport fleet, efforts would be concentrated on the following:

1. Reduction of turn-round of vessels at terminals;
2. Improvements in transit time between points;
3. Co-ordination of operations within the IWT sector and between it and other modes;
4. Removal of existing delay at vessel repair yards;
5. Improved navigational aids on major river routes, which is covered by the IWTA's five year plan programme.

Keeping in view the above strategy, investment programme for the I.W.T.C. and private sector is rather modest, consisting essentially of replacement of lost, damaged and overaged vessels to bring the fleet up to its present static capacity in up-to-date tonnage, capable of carrying an increased volume of traffic both on existing routes and certain new routes proposed to be developed. A special policy with regard to the private sector will be to organise it on a co-operative basis.

### C. Major Programmes.

Major programmes included in the Plan are:

Acquisition of 5 oil tankers of 1000 tons capacity each, 70 inland barges with 12 inland tugs, 30 shallow draft barges with 5 shallow draft tugs, 6 passenger vessels, 5 ferries and 3 floating cranes for public sector (I.W.T.C.). For private sector, major programme included acquisition of 113 passenger launches and 16 self-propelled cargo launches.

With the addition of above vessels to the existing fleet strength of both public and private sector, carrying capacity would increase as follows:

(In lakh)

| Type of vessels.            | 1973-74          |            | 1977-78          |            |
|-----------------------------|------------------|------------|------------------|------------|
|                             | Passenger miles. | Ton miles. | Passenger miles. | Ton-miles. |
| IWT Passenger vessels .. .. | 5180.00          | ..         | 6807.00          | ..         |
| IWT Cargo-vessels .. ..     | ..               | 3740.00    | ..               | 5280.00    |



Financial allocations made for the above programme are as follows:

|                        |    |    |    | (Taka in crore) |        |
|------------------------|----|----|----|-----------------|--------|
|                        |    |    |    | Total.          | F.E.C. |
| (a) IWT Public Sector  | .. | .. | .. | 18.220          | 8.739  |
| (b) IWT private Sector | .. | .. | .. | 2.740           | 1.700  |
| Total                  |    |    |    | 20.960          | 10.439 |

#### *D. Policy Recommendation for IWT Sub-sector*

- I. Private operators in IWT sub-sector would be organised on a co-operative basis. No individual would be allowed to own a vessel. To start with, co-operatives would be formed with the existing operators for operation and management and these will gradually take over ownership within a stipulated period. Attempts would be made to allow imports of spares and accessories through the co-operatives alone.
- II. Existing regulatory act in regard to movement and control of IWT vessels would be amended to reflect the present day requirements.
- III. A large number of taxes and tolls are levied on IWT. These would be rationalised in line with other competing modes of transport.
- IV. Various types of IWT vessels are in operation in Bangladesh. A large number of them do not conform to the minimum standard of safety and comfort. In order to ensure standardisation of all IWT vessels designs and specifications of all vessels to be constructed in the country or outside shall have to be approved by the design centre proposed to be located in the IWTA.
- V. Existing dockyards and boat building yards would be modernised and expanded if necessary to meet the entire boat building requirement of the country.
- VI. In order to make the IWTC an efficient and commercially viable organisation it will need to be given maximum autonomy in its operations whilst it will remain subject to overall control of the Ministry in policy matters.
- VII. A proper incentive system should be developed to relate the reward structure to performance at all levels from senior managers to workers.
- VIII. In order to ensure its commercial viability its entire tariff structure will need to be reappraised in the light of post-liberation changes in the pattern of traffic and costs.
- IX. The component units of IWTC must be immediately integrated into a single fleet with a unified labour force responsible to a single administrative authority.

### **10.5 PORTS**

#### **10.5.1 Present position and war damages**

Ports being the "gateways" of a country their development needs to be geared to both external and internal transportation developments. Resources spent on shipping for external transportation and on railways, highways and waterways for inland transportation will not be optimally utilised if ports are not developed simultaneously.



Both Chittagong and Chalna Ports suffered severely during the War of Liberation, having their entrance channels and fairways obstructed by sunken ships, with consequent restrictions upon navigation. In addition, Chittagong suffered further war damage to fixed installations—jetties, transit sheds, warehouses—as well as to other port equipments afloat and ashore. Salvage work at Chittagong has removed the principal wrecks already, and navigation is now restored to its pre-war standard. At Chalna, a programme of salvage of the principal wrecks is well underway, for completion by the onset of the 1973 monsoon. Chittagong may be regarded as having been substantially recommissioned to the point of handling a monthly average of 3.12 lakh tons of dry cargo during July-December, 1972 compared to a monthly average of 2.86 lakh tons of dry cargo during 1969-70. This has been achieved in spite of extreme congestion in the face of abnormal relief foodgrains imports because of logistic support provided by the U. N. Many of the jetties and supporting installations remain however sub-standard as to design and state of repair, and there is an urgent need both for rehabilitation, rebuilding and fresh construction to bring the port facilities up to modern standards capable of a consistently high rate of throughput of cargo.

Traffic through the ports has been increasing at a rapid rate in recent years. But with the planned attainment of self sufficiency in food within the First Plan period, the sea-borne traffic (both dry and oil) of Bangladesh is estimated to increase only a little from 77.8 lakh tons in 1973 to 95.2 lakh tons in 1978.

Till recently traffic through both Chittagong and Chalna has been imbalanced with marked excess of imports over export traffic at Chittagong and the reverse at Chalna. The ratio for 1969-70 was 4:1 for imports and 1:1.75 for exports. Attempts would therefore, be made to reduce this imbalance and thus enable the inland transport links with the two ports to be used more efficiently, with beneficial effects upon shipping also.

In view of the situation outlined above, the Plan for the sea ports provides for expansion and improvement of port facilities to cater for the sea-borne traffic projected under other sectors of the Plan, but related to changed pattern of internal movement.

#### 10.5.2 Chittagong Port.

On the basis of a preliminary allocation of forecasted traffic to mode and port on a least cost basis, it is calculated that 25 lakh tons of general cargo (imports and exports combined), would pass over general cargo berths at Chittagong in 1973-74 raising to 33 lakh tons in 1977-78. If these projections materialise, Chittagong Port will be heavily overloaded from the beginning since the port does not have the full use of all its existing berths. The reconstruction of berths Nos. 1 to 6 is in hand, but the last one will not be handed back to the port for use until the end of 1974; whilst Nos. 14 to 17 are sub-standard berths which also require reconstruction or replacement; work on these cannot be started until berths 1 to 6 are back in service. At an average throughput of 190,000 tons per berth per annum, Chittagong port needs 13 general cargo berths in 1973 and just over 17 in 1977-78 for the tonnage forecasted.

In view of the above requirements, provision is made for reconstruction of berths 1-6 as early as possible concurrent with the construction of two new general cargo berths immediately up stream of berth No. 14. As and when jetties 1-6 are commissioned



reconstruction of two out of the four sub-standard berths in the group 14—17, can be put underway for completion in the First Five Year Plan. The other two jetties, if still needed, may be taken up in the Second Plan.

To realise the assumption of 190,000 tons of cargo to be cleared per jetty an improvement in the efficiency of handling operations at the port will be called for. During the Plan period this will require investment to improve facilities in the way of construction of transit sheds and warehouses, improvement of stacking yards and roads as well as installation of further mechanical equipment ashore. Completion of workshop and slipway projects will be needed to service the small port fleet. Provision of additional floating equipments and conservation measures will also be needed.

The off-shore oil terminal under the Chittagong Port Trust which has now been out of commission since 30th April 1970 will need to be restored within 1973 if the current drainage of foreign exchange in lighterage is not to continue. A new off-shore oil terminal may need to be constructed to handle even larger tankers. This may be covered by the programme of the Oil and Gas Corporation which may, as the sole customer be given control of these facilities.

A financial provision of Taka 37 crore 60 lakh and 30 thousand with FEC of Taka 19 crore 37 lakh and 10 thousand is made for the development of Chittagong port, of which Taka 24 crore 90 lakh and 30 thousand with FEC of Taka 12 crore 27 lakh and 10 thousand is provided for on-going schemes.

#### 10.5.3 Chalna Anchorage/Port

For many years there has been a plan for the building of a permanent port at Mongla, with rail and road connections to the interior in partial replacement of the Chalna Anchorage, and work actually started on the construction of deep water quays before the War of Liberation. The question of the extent to which this work should be resumed, in the light of changes which have taken place in the overseas trade of Bangladesh and in the types of ships to be handled, is under active consideration to determine whether the construction at Mongla should go ahead within the Plan period, and if so what the optimum size of the project should be.

Since the total tonnage that it is calculated should be handled at Chalna at the end of the Plan period (23 lakh tons) does not differ greatly from that at the beginning (owing to the projected reduction of massive foodgrain imports), based on preliminary studies, it has been decided to go ahead with the construction of 3 general purpose berths at Chalna along with warehousing and cargo handling facilities. Plan provision, however, exists for the construction of a full-fledged permanent port at Chalna, but no expenditure would be incurred beyond the construction of 3 general purpose berths, till the results of a comprehensive study having the following scope is completed:

"In view of the changes which have taken place in the overseas trade of Bangladesh and in the types of ships to be handled, a comprehensive study would be undertaken to see the need for, and means of, providing facilities for handling large ships in Bangladesh notably bulk handling facilities in sheltered waters south of Chittagong for super-tankers (say up to 100,000 tons) and other deep-draft bulk carriers, for which facilities cannot be provided at either Chittagong or Chalna even with extensive dredging".



The EIU consultants of the Bangladesh Transport Survey are expected to cover the economic aspect of the above study. Further studies on technical aspect will also continue simultaneously. The results of these investigations will shed much light upon the desirable direction and extent of further development of both Chittagong and Chalna, thus enabling current plans for both ports to be confirmed, modified or extended during the currency of the First Plan period.

Besides the construction of permanent berths, other major programmes included in the Plan are: deepening of approach channel to increase the draught from 26' to 32', improvement of navigational aids to enable day and night movement of ships and replacement of harbour crafts.

A provision of Taka 41 crore 68 lakh and 60 thousand with FEC of Taka 22 crore 41 lakh and 5 thousand has been made for the Chalna Port of which about Taka 32 crore 2 lakh and 10 thousand with FEC of Taka 15 crore has been allocated for the only on-going scheme "Permanent port at Passur".

## 10.6 SHIPPING

### 10.6.1 Bangladesh Shipping Corporation

#### A. General Background

Prior to liberation, Bangladesh had no independent shipping line of its own—neither in the Public Sector nor in the Private Sector. National Shipping Corporation, a Public Sector Corporation of Pakistan had 32 ships out of a total fleet of 72. These were all forcibly retained by Pakistan at liberation. Bangladesh was, therefore, left with no ships after the War of Liberation.

In 1972, the Government set up the Bangladesh Shipping Corporation to perform, amongst others, the following functions:

- (a) To provide safe and efficient shipping services on international routes.
- (b) To acquire, charter, hold or dispose of ships or crafts.

The need for Bangladesh to have a fleet of ocean-going ships under its ownership and control is three-fold: to be independent of foreign flag vessels in times of international difficulty and as an insurance against adverse movements of freight rates; to save foreign exchange by carrying a reasonable proportion of the country's imports and exports and to give employment to Bangladesh nationals in a vocation for which their skills are world famous.

Plans have already been made for Bangladesh to enter some of the traditional cargo liner trades, starting with the Bangladesh-U.K.—Continent, the most important, to be followed by Bangladesh—North America, with gradual expansion to other routes. Bangladesh Shipping Corporation has already achieved membership of the Bangladesh-United Kingdom/Continent Conferences, with entitlement to carry 40 per cent of Bangladesh overseas traffic in those trade routes in its own tonnage, owned or chartered.

Projections of the actual trade between Bangladesh and U.K. and Bangladesh and the European Continent before the War of Liberation, related to the Bangladesh entitlement under the Conference system, indicates a requirement of 12 ocean-going ships for these trades, whilst the projection for the U.S. East coast trades is 6 vessels. The size of the fleet



required to carry 50 per cent of Bangladesh's over-sea trade on the major shipping routes by 1980—an ultimate target is approximately 40 ships in total, based on the immediate pre-war pattern of trade and types of ships.

The immediate plans provide for a mixed policy of chartering (both voyage and time charter), purchasing second hand and building new ships. The objective is two-fold: to take advantage of market trends by purchasing wherever possible on what is at present a rising market, and at the same time to limit the expenditure of foreign exchange in the general interest—not because such expenditure will not produce direct savings in current outgoings in freight paid to foreign carrier, but because of the constraints which shortage of foreign exchange impose on all sectors of the economy.

### *B. Shipping Programmes*

Taking these factors into consideration provision has been made for acquisition of 20 ocean-going cargo vessels and some workshop and training facilities. The ratio between new and second hand vessels will be decided by the Ministry of Shipping keeping in view the comparative advantages of each type of vessels. Additional provisions will need to be made for oil tankers for which external resources may have to be diverted or separately lined up. A provision for procurement of lighterage vessels in lieu of payments on current accounts for lighterage charges will also have to be made. Total Plan outlay is Taka 31 crore and 31 lakh having a F.E. Component of Taka. 31 crore 8 lakh and 50 thousand. This fleet of ships along with the existing ones could be able to handle approximately 5 lakh tons of imports and 4 lakh tons of exports.

#### **10.6.2 Mercantile Marine Academy**

The Mercantile Marine Academy was established by the then Government of Pakistan to train Nautical and Engineering officers. There is no provision for training of radio operators who used to be trained in Karachi of Pakistan. There is also no arrangement for holding examination of Mates and Masters for awarding certificate of competency for running the merchant fleet in the country. Consequently the candidates have to go to U.K. or India for such examinations and this means expenditure in foreign exchange. It is, therefore, essential to make necessary arrangements for holding such examinations. It is also necessary to provide facilities for training of seamen. Provision has, therefore, been made for these facilities. Total estimated cost is Taka 86 lakh with a F.E. Component of Taka 43 lakh.

#### **10.6.3 Mercantile Marine Department**

This department is responsible for providing navigational aids such as light houses, lighted buoys, etc, for international shipping. Provision has, therefore, been made for Sonadia island light house and south patches unmanned light float. Plan outlay for this purpose is Taka 20 lakh having a F.E. Component of Taka 18 lakh.

### **10.7 CIVIL AVIATION AND BANGLADESH BIMAN**

The Civil Aviation Authority is responsible for providing airports and associated facilities and the Bangladesh Biman is responsible for management and operation of air transport services.



Growth of surface transport in Bangladesh is conditioned by its peculiar geography and terrain. The country is criss-crossed by numerous waterways and canals with high rain-fall which occasionally leads to flooding of the road and rail transport media. Viewed in this background, air transport can play a very significant role for quick movement of passengers and cargo, eliminating the irregularity of travel time due to geographical and climatic conditions.

In the past air transport services in the country did not develop following a careful study and planning of requirements. In fact the services were started on the physical infra-structure facilities which were available after the second world war. These facilities were not the result of careful planning and technical study nor were these built for civil/commercial purposes.

Prior to liberation, Civil Aviation authorities and the airline were responsible mainly for catering to the demand for domestic traffic. The present Dacca Airport was never designed to be an international port and hence the airport authorities are facing difficulties arising out of the sudden increase of domestic and international traffic after liberation.

Before the liberation of the country, PIA used to meet the domestic air transport demand of Bangladesh with four F-27 and 3 Twin-Otter (STOL) aircrafts based in Dacca. On the domestic routes regular scheduled services were operated connecting Dacca with Chittagong, Jessore, Sylhet, Ishurdi, Comilla, Cox's Bazar and Shamsheer Nagar. On the regional routes, regular flights were operated to link Dacca with Katmandu and Rangoon. Besides, scheduled Boeing services were operated by the PIA linking Dacca with China, the Far East, the Middle East and European countries.

Limited engineering facilities were available at Dacca for maintenance of F-27 and STOL aircrafts as major overhauls of air frames and engines used to be done in Karachi. Besides, the problems faced by Civil Aviation authorities and Bangladesh Biman have been compounded by shortage of adequately trained personnel.

During the War of Liberation all the aircrafts were removed to the then West Pakistan. Extensive damages were also caused to the runways, air communication facilities, hangers, buildings and other equipments and installations.

By now a substantial progress in reconstruction and rehabilitation of the damages has been made. All the runways have been made operational. Six F-27 aircrafts have been procured as grant as well as through purchase and air transport navigational facilities have been restored though not fully. Work on rehabilitation and reconstruction is expected to be completed by the end of 1973-74.

All statistical data as to traffic handled by the PIA and its operations used to be maintained in the PIA Head Office in Karachi. Therefore there are severe limitations in making any projection of passenger traffic during the Plan period. Projection of passenger traffic has, however, been made on the basis of 1970 figures. It has been assumed that up to the period 1975-76 there would be an annual increase of 15 per cent in passenger



traffic dropping to 10 per cent after that period. Projected passenger traffic during the first year and the last year of the Plan period has been shown in the following table:

| (Figures in thousand) |    |    |    |          |          |
|-----------------------|----|----|----|----------|----------|
|                       |    |    |    |          |          |
|                       |    |    |    | 1973-74. | 1977-78. |
| Domestic              | .. | .. | .. | 589.00   | 11,69.00 |
| Regional              | .. | .. | .. | 34.00    | 107.00   |
| International         | .. | .. | .. | 30.00    | 84.00    |
| Total                 |    |    |    | 653.00   | 1,360.00 |

Investment programmes for Civil Aviation and Bangladesh Biman have been made keeping in view the above projection of traffic and the following objectives:

- (i) to restore air transport facilities to all the existing air fields subject to commercial viability;
- (ii) to provide adequate frequency to meet the traffic demand of the existing airport and to make suitable provisions for meeting the anticipated demand of the future traffic;
- (iii) to construct airports where these are needed on the basis of traffic demand and provide air transport facilities;
- (iv) to provide air services to regional as well as foreign countries with which Bangladesh has a significant community of interest and thereby earn and save foreign exchange;
- (v) to provide modern and adequate air communication and terminal facilities;
- (vi) to provide adequate training facilities for the personnel, of both the Civil Aviation and Bangladesh Biman; and
- (vii) to complete construction of the International Airport at Kurmitola.

Major schemes included in the investment programme of the Civil Aviation are (a) completion of the international airport at Kurmitola, (b) completion and improvement of Barisal and Saidpur airports, (c) improvement and recarpetting of runways at Cox's Bazar, Ishurdi, Comilla, Sylhet and Tejgaon, (d) development and expansion of terminal facilities at Chittagong, (e) making the runway at Sylhet Jet capable, (f) establishment of training centre for Civil Aviation personnel at Dacca.

Financial implications of this programme are as follows:

| (Taka in crore.)                            |    |    |    |        |        |
|---|----|----|----|--------|--------|
|   |    |    |    | Total. | F. E.  |
| On-going schemes                            | .. | .. | .. | 21.526 | 11.093 |
| New schemes                                 | .. | .. | .. | 9.710  | 3.841  |
| Total                                       |    |    |    | 31.236 | 14.934 |
| Reconstruction and Rehabilitation programme |    |    |    | 2.000  | 1.056  |
| Grand Total                                 |    |    |    | 33.236 | 15.990 |



Major schemes included in the investment programme for Bangladesh Biman are (a) establishment of ground training school, (b) purchase of two Jet aircrafts, (c) construction of two hangers and purchase of hanger equipments, handling equipments, motor vehicles, (d) construction of new flight kitchen, etc.

Financial implications of this programme are as follows:

|                  |    |    |    |    | (Taka in crore.) |        |
|------------------|----|----|----|----|------------------|--------|
|                  |    |    |    |    | Total            | F.E.   |
| On-going schemes | .. | .. | .. | .. | 1.579            | 0.967  |
| New schemes      | .. | .. | .. | .. | 30.633           | 22.680 |
| Grand Total ..   |    |    |    |    | 32.212           | 23.647 |

### 10.8 BANGLADESH TRANSPORT SURVEY

The present team of Economist Intelligence Unit (EIU) consultants started their work on the Bangladesh Transport Survey from November, 1972. The main objective of this transport survey is to formulate a co-ordinated short and long-term development programme for the transportation sector as a whole. To this end, the survey would provide:

- (1) A detailed programme of transport investments for the period 1973-74-1977-78, based on the economic priorities of specific projects;
- (2) A perspective programme of transport investment for the following ten years;
- (3) Recommendations for the improvements of the operation, planning, organisation, administration and management of each transport mode;
- (4) Recommendations for the improvements of Government transport policies, specially policies for effective transport co-ordination;
- (5) Identification of needs for and scope of further pre-investment studies;
- (6) Training of Bangladesh counterparts during the survey and recommendations on the retention of advisers and on further training abroad of Bangladesh national in the field of transportation planning.

The final report of the transport survey is expected to be available by March/April, 1974 when the investment programme included in the Plan would be reviewed and modified wherever required.

The survey being a continuous process, the local counterpart portion of the transport survey group should continue their work even after the completion of the present survey. Besides other work, this group under the Planning Commission would be made responsible for collection, maintenance and analysis of transport statistics on a continuous basis. A Plan provision of Taka 20 lakh has, therefore, been made for this purpose.



## BENCH MARK AND PHYSICAL TARGETS FOR FIRST FIVE YEAR PLAN (1973-78)

## Transport Sector.

| Sl. No.  | Sub-sectors. | Units. | Bench-Mark position at the end of 1972-73. | Targets for the First Five year Plan (1973-78). |              |        | Position at the end of the Plan period: 1977-78*. | Percentage increase in 1977-78 over 1972-73. |
|--|--------------|--------|--|---|--------------|--------|---|--|
| I  | 2            | 3      | 4  | Addition.                                       | Replacement. | Total. | 8   | 9  |
| <b>1. Railways.</b>                                  |              |        |  |   |              |        |   |  |
| (a) Diesel Locomotives                               | B.G.         | Nos.   | 30   | ..  | 20           | 20     | 30  | 0.00   |
|  | M.G.         | "      | 144  | 30  | 20           | 50     | 174   | 20.80  |
| (b) Steam Locomotives**                              | B.G.         | "      | 118  | ..  | (- )15       | (- )15 | 103   | -12.70                                       |
|  | M.G.         | "      | 222  | ..  | (- )25       | (- )25 | 197   | -11.30                                       |
| (c) Passenger Carriages and other Coaching vehicles. | B.G.         | "      | 408  | 60  | 100          | 160    | 468   | 14.70  |
|  | M.G.         | "      | 1,275                                      | 212   | 50           | 262    | 1,487   | 16.70  |
| (d) Wagons   | B.G.         | "      | 4,367                                      | 700   | 600          | 1,300  | 5,067   | 16.00  |
|  | M.G.         | "      | 11,672                                     | 1,200   | 1,071        | 2,271  | 12,872  | 10.20  |
| (e) Route mileage                                    | B.G.         | Miles  | 574  | 60  | 90           | 150    | 634   | 10.45  |
|  | M.G.         | "      | 1,202                                      | 40  | ..           | 40     | 1,242   | 3.33   |
| <b>2. Roads and Highways</b>                         |              |        |  |   |              |        |   |  |
| (a) High type roads ..                               | ..           | Miles  | 2,500                                      | 550   | ..           | 550    | 3,050   | 22.00  |
| (b) Low type roads ..                                | ..           | Miles  | 1,466                                      | 454   | ..           | 454    | 1,920   | 31.00  |
| (c) Bridges ..                                       | ..           | Rft    | 205,644                                    | 58,634  | ..           | 58,634 | 2,64,278  | 28.50  |
| <b>3. Road Transport</b>                             |              |        |  |   |              |        |   |  |
| (a) Buses ..   | ..           | Nos.   | 7,200                                      | 2,830   | 1,310        | 4,140  | 10,030  | 39.20  |
| (b) Trucks ..  | ..           | Nos.   | 11,100                                     | 2,440   | 1,610        | 4,050  | 13,540  | 22.00  |
| (c) Auto-rickshaws ..                                | ..           | Nos.   | 6,536                                      | 3,491   | 3,951        | 7,442  | 10,027  | 53.50  |
| <b>4. Inland Water Transport Authority</b>           |              |        |  |   |              |        |   |  |
| (a) Development of waterways (Perennial).            |              | Miles  | 3,500                                      | 500   | ..           | 500    | 4,000   | 14.3   |
| (b) Development of secondary inland river ports.     |              | Nos.   | Nil  | 10  | ..           | 10     | 10  | ..   |
| (c) Launch landing stations ..                       | ..           | Nos.   | 150  | 115   | ..           | 115    | 265   | 76.66  |
| (d) Major ferry terminals ..                         | ..           | Nos.   | 5  | 2   | ..           | 2      | 7   | 40.00  |
| (e) Mechanization of country boats                   |              | Nos.   | 30   | 1,500   | ..           | 1,500  | 1,530   | 5,000.00                                     |
| (f) Hydrographic survey and inspection vessels.      |              | Nos.   | 22   | 6   | ..           | 6      | 28  | 27.27  |
| (g) Oceanographic survey vessels                     |              | Nos.   | Nil  | 1   | ..           | 1      | 1   | ..   |

\*Indicates bench mark plus net addition during the Plan period.

\*\*Negative sign indicates condemnation of steam locomotives.



## BENCH MARK AND PHYSICAL TARGETS FOR FIRST FIVE YEAR PLAN (1973-78)

## Transport Sector.

| Sl. No.                               | Sub-sectors  | Units            | Bench-Mark position at the end of 1972-73.        | Targets for the First Five-year plan (1973-78). |            |             | Position at the end of the plan period: 1977-78*. | Percentage increase in 1977-78 over 1972-73. |
|---------------------------------------|--|------------------|---|---|------------|-------------|---|--|
| 1                                     | 2  | 3                | 4   | 5   | 6          | 7           | 8   | 9  |
|                                       | (h) High powered salvage unit ..   | Nos.             | Nil   | 1   | ..         | 1           | 1   | ..   |
|                                       | (i) Dredgers ..  | Nos.             | 3   | 10  | ..         | 10          | 13  | 333.33                                       |
|                                       | (j) Training centre for Masters, Serang and Deckhands for IWT in Bangladesh. | Nos.             | Nil   | 1   | ..         | 1           | 1   | ..   |
| 5. Inland Water Transport Corporation |  |                  |   |   |            |             |   |  |
|                                       | (a) Oil tankers ..   | Nos.             | 13  | 5   | ..         | 5           | 18  | 38.45  |
|                                       | (b) Inland barges/flats/jute boats ..  | Nos.             | 382   | 30  | 43         | 78          | 412   | 7.85   |
|                                       | (c) Inland tugs ..   | Nos.             | 56  | 8   | 4          | 12          | 64  | 14.28  |
|                                       | (d) Shallow draft barges ..  | Nos.             | Nil   | 30  | ..         | 30          | 30  | ..   |
|                                       | (e) Shallow draft tugs ..  | Nos.             | Nil   | 5   | ..         | 5           | 5   | ..   |
|                                       | (f) Passenger vessels ..   | Nos.             | 13  | 6   | ..         | 6           | 19  | 46.15  |
|                                       | (g) Ferries ..   | Nos.             | 14  | 5   | ..         | 5           | 19  | 35.70  |
|                                       | (h) Floating cranes ..   | Nos.             | 3   | 2   | 1          | 3           | 5   | 66.66  |
| 6. Ports                              |  |                  |   |   |            |             |   |  |
|                                       | (a) Chittagong Port ..   | Nos. of Jetties. | 17 Marginal* Jetties, (i.e. 11 standard jetties). | 2 Jetties.                                      | 8 Jetties. | 10 Jetties. | 19 Marginal* Jetties, (i.e. 18 standard jetties). | 18.20  |
|                                       | (b) Chalna Port ..   | Do.              | Nil   | 8 Jetties.                                      |            | 8 Jetties.  | 3 Jetties.  | ..   |
| 7. Shipping                           |  |                  |   |   |            |             |   |  |
|                                       | (a) Ocean going cargo vessels including coasters.                            | Nos.             | 7   | 20  | ..         | 20          | 27  | 285.75                                       |
| 8. Civil Aviation                     |  |                  |   |   |            |             |   |  |
|                                       | (a) Airports ..  | Nos.             | 9   | 3   | ..         | 3           | 12  | 33.33  |
|                                       | (b) Civil Aviation training centre   | Nos.             | ..  | 1   | ..         | 1           | 1   | ..   |
| 9. Bangladesh Biman                   |  |                  |   |   |            |             |   |  |
|                                       | (a) Aircrafts ..   | Nos.             | 6   | { 2-Jet aircraft.<br>2-Fokker                   |            | 4           | 10  | 66.66  |
|                                       | (b) Aircraft hangers ..  | Nos.             | 1   | 2   | ..         | 2           | 3   | 200.00                                       |

\*Notes—In the bench mark year, 7 jetties were standard jetties i.e. in good condition and the other 10 jetties were sub-standard. Out of these 10 jetties, 8 jetties are expected to be rehabilitated as standard jetties thereby raising the number of standard jetties to 15. To this number 2 more new jetties are being added thereby raising the number of standard jetties to 17 and total number to 19 because, even at that stage two jetties will remain sub-standard.



## CHAPTER XI

**POWER, NATURAL RESOURCES AND SCIENTIFIC AND TECHNOLOGICAL RESEARCH****11.1 POWER****11.1.1 History of Power Development****A. Introduction**

Power as part of a nation's economic infra-structure, is of paramount importance in the economic development of a country. The *per capita* consumption of electricity is regarded as an index of progress of a nation and standard of living of its people. In other words the growth of national income and the economic development of a country have invariably been marked by an increase in the *per capita* consumption of power. The *per capita* consumption of electricity in Bangladesh is one of the lowest in the world and so is the G.N.P.

**B. Power Development in Bangladesh in the Pre-liberation Period**

In the pre-liberation period Electric Supplies were in the hands of both public and private sectors. The demand of electricity was rapidly increasing all over the country during the last two decades. But due to inadequacy of trained manpower and managerial skills, and the fact that other industries offered larger profits, much private capital did not flow into electric supply undertakings. In view of the importance of the supply of electric power, Government invested capital in some of the existing major supply undertakings and also acquired others for operation by the Electricity Directorate.

The efforts of the Government in power development were then confined primarily to setting up of local power plants in the main industrial and urban zones with associated high and low voltage transmission and distribution systems, followed subsequently by interconnection of some generating stations. Government initiative also included the gradual taking over of private electric supply undertakings where they failed to give proper service to the customers. The total investment of Electricity Directorate for the period 1947 to 1960 came to Tk. 10.00 crores. The installed capacity rose from 21 MW in 1947 to 74 MW in 1960 and the maximum demand of the isolated systems was 42 MW at the end of this period. Amongst major works undertaken by the Directorate were Siddhirganj diesel and steam station, Chittagong diesel station, Goalpara diesel station, with their associated 33 and 11 KV distribution system. The Directorate initiated the interconnection of Chittagong with Siddhirganj at 132 KV and that of Goalpara with the steam plant at Bheramara.

While Government investment helped to prevent the total collapse of the electric supply industry, it did not go far enough to augment the generating capacity required to meet the increasing demand. Although the Electricity Directorate began to occupy an important role in the generation and sale of electric power, the limitations inherent in the working of Government departments in handling large commercial operations were soon realized. The need for a single, autonomous agency charged with the responsibility of investigating, planning, designing and constructing large scale multipurpose projects for the development of both water and power resources was felt. Foreign aid-giving agencies were also favourably inclined towards such organizations for implementation of power projects in preference to the regular Government departments. Accordingly the Water and Power Development Authority was created. This Authority, besides planning and developing the water and power resources, was authorised to acquire private electric supply undertakings and integrate them, if necessary, with the regional grids. The Electricity Directorate was merged with this Authority. The result of these acquisitions and merger was that by 1961, over 90 per cent of the country's generating capacity was being operated by the erstwhile E. P. WAPDA.



The transfer of the responsibilities of power management to the newly created WAPDA in February, 1960 coincided with the beginning of a new phase in power development. The programme for power development during the period 1960 to 1965 envisaged an outlay of Rs.28.80 crores which was later increased to Rs.37 crores. The expenditure actually incurred was Rs.39.74 crores.

Although the schemes for adding the 3rd unit of 40 MW capacity at Kaptai and the extension of the Siddhirganj Plant by installing a 50 MW unit were initiated, no new generation capacity was added to the system during the period 1960-65 other than the commissioning of two units of 40 MW capacity each at Kaptai. At that time it was thought that the Kaptai capacity would be able to take care of the power requirements of the country for a long time to come. During this period the work of linking Kaptai with the Siddhirganj-Chittagong system and connecting Goalpara with Bheramara were completed. A number of 33 KV and a substantial number of 11 KV and lower voltage distribution lines were built.

Achievement in the Power Sector by the end of 1965 is presented below:

|                                   |    |    |    |    |            |
|-----------------------------------|----|----|----|----|------------|
| Generation (Installed Capacity)   | .. | .. | .. | .. | 202 MW     |
| 132 KV Transmission Line          | .. | .. | .. | .. | 170 miles  |
| 66 KV Transmission Line           | .. | .. | .. | .. | 29 miles   |
| 33 KV Transmission Line and below | .. | .. | .. | .. | 2100 miles |
| Maximum demand                    | .. | .. | .. | .. | 103 MW     |
| No. of consumers                  | .. | .. | .. | .. | 1,04,000   |

It was during the 1965-70 period that the power development in Bangladesh received the greatest impetus. A Plan with an estimated cost of Rs.155 crores was taken in hand. Though the actual expenditure incurred during the period was Rs.176.53 crores, i.e., Rs.21.53 crores more than that of the planned expenditure, the physical targets achieved was far below the planned one. This may be clearly seen from the following table:

| Item.                       | Total capacity at the end of June, 1970. | Addition during the period. | Planned targets. | Achievement in percentage of target. |
|-----------------------------|--|-----------------------------|------------------|--------------------------------------|
| (i) Generation ..           | .. 545 MW                                | 343 MW                      | 607 MW           | 56.5                                 |
| (ii) 132 KV & 66 KV Line .. | .. 647 miles                             | 448 miles                   | 700 miles        | 64                                   |
| (iii) 33 KV and below ..    | .. 5620 miles                            | 1182 miles                  | 3260 miles       | 36                                   |
| (iv) Maximum demand* ..     | .. 213 MW                                | 110 MW                      | 500 MW           | 22                                   |
| (v) No. of consumers ..     | .. 2,20,000                              | 1,16,000                    | 1,46,000         | 80                                   |

\*This load was registered in April, 1970 which rose to 223 MW in October, 1970 but dropped subsequently.



The supply position during the 1965-70 period remained unsatisfactory due to delays in the execution of almost all the major generation schemes, occasional failures of the Karnaphuli Hydro-Electric Power Station, breakdown of the Kaptai-Siddhirganj interconnector on account of unprecedented cyclones and above all inadequacy of marketing facilities. The over all picture was one of the shortfalls particularly in respect of demand targets and consequent sales and revenues.

The peak demand recorded in the WAPDA system by the end of 1970 was 223 MW and the total energy generated during the year was 1130 MKWH. Energy generated by non-WAPDA installations in the country, *i.e.*, those owned by the industries themselves during 1970 was of the order of 300 MKWH. The *per capita* consumption of electricity was then 20 units. Depression in power development started soon after, initially due to strikes and lockouts in mills and factories which continued up to March 25th, 1971 and ultimately due to the War of Liberation. The load demand fell to only 30 MW on the day of liberation.

### *C. Damage during Liberation War*

The extent of damage suffered by this sector is manifest in the figures of power supply. The decline in demand from 223 MW to 30 MW has been partly due to displacement of urban population and partly due to decline in industrial activity. But the main reason was the destruction of the physical assets of the Power system. This has affected the capacity of the system to meet even the reduced demand. The full revival of the industrial activities in the country will be impossible without the complete rehabilitation of the power system.

In March, 1971 the Liberation War started when WAPDA was busy with improving the quality of the existing service and expanding the system. The result was that all development work was interrupted and the existing service was seriously dislocated. All the grid lines in the country were badly damaged. Over 125 broad based towers of 132-KV and 66-KV transmission lines were damaged. One major 132-KV Grid station has been completely destroyed with the loss of a 50-MVA transformer and other equipment. Similarly distribution lines of different voltages (33 KV, 11 KV and 400 KV), sub-stations of various capacities ranging from 15 KVA to 10 MVA and consumers' connections were severely damaged all over the country. Out of 87 centres of electric supply in the country as many as 52 were affected ranging widely in the character of damages. Some of the isolated Diesel Power Stations in the country (Dinajpur, Brahmanbaria, Satkhira, Meherpur, etc.) have either been completely destroyed or partly damaged.

Besides extensive damages to the installations in service, serious losses have taken place in several central warehouses through fire and other causes during the Liberation War resulting in loss of huge stores meant for operation, maintenance as well as construction. There have also been losses to buildings, offices, furniture, appliances and fittings, vehicles, tools and tackles and construction materials.

### *D. The Post-War Reconstruction*

After liberation, full attention was given to restore transmission and main distribution lines for meeting the power needs of the war ravaged economy of the country. Grid power has been made available in almost all the places though some of the sub-stations have been energised with reduced voltage. However, reliability and flexibility of power supply cannot be achieved unless spare materials and equipment are available to repair/replace the damaged facilities permanently.



Temporary arrangements have also been made by installing transformers and switch-gears etc., and repairing distribution lines and consumers' services by utilising equipment and materials out of stock procured for other on-going development work. This has been done on a purely stop-gap arrangement for immediate restoration of power supply to the affected areas.

Apart from physical disablement of the power system in the country and shortage of fuel at the isolated power plants in the remote areas, the sophisticated plants and equipment in the generating stations, grid and distribution sub-stations could not be maintained and serviced properly from the beginning of the War of Liberation to-date due to various reasons. As a result the functioning of much of the equipment has become unreliable which is contributing heavily to the present unsatisfactory state of power supply. Besides, due to lack of original replacement materials which are dependent on imports, temporary and improvised arrangements had to be made in most places to restore power supply immediately after liberation, as has already been pointed out.

To restore the power system to the pre-liberation level as fast as possible a Reconstruction Programme has been under execution by the Power Development Board, the total cost of which stands at Tk.27.6 crores including a foreign exchange component of Tk.13.10 crores. The work has been planned to spread over a period of three financial years, i.e., 1972-73, 1973-74 and 1974-75. The estimated cost of the Reconstruction Programme for the year 1972-73 is Tk. 4.2 crores which includes a foreign exchange component of Tk. 2.2 crores and the rest will be spent during the year 1973-74 and 1974-75.

#### 11.1.2 The Plan Objectives, Priorities and Policies

The Five-Year Plan has been prepared to create additional capacity to meet our future requirements and also to substantially improve the performance of the power system. The Plan Objectives, Priorities and Policies are summarised below:

##### A. Objectives

- (i) To remove the deficiencies of power supply in different regions of the country.
- (ii) To remove the imbalance between generation and distribution facilities.
- (iii) To sustain economic growth by meeting the increasing needs of the productive sectors of the economy.
- (iv) To embark upon an effective rural electrification programme in conjunction with electrification of pump irrigation/drainage as well as cottage industries with a view to stimulating the rural economy and to provide the rural population with their share of the benefits of power supply.
- (v) To improve the quality of service especially for industrial requirements and activities directly relating to the revival of the economy.

##### B. Priorities

- (i) Improvement and addition of physical facilities specially in the transmission and distribution system.
- (ii) Building generation capacity in the Western Zone to meet the demand. This is necessary in view of the fact that electricity cannot be transmitted from the eastern to the western grid.
- (iii) Completion of the on-going and reconstruction schemes.
- (iv) Improvement of the quality of service especially for the industrial requirements.



### C. Policies for Plan Implementation

- (i) Re-organization of power sector implementing and regulating agencies including training facilities.
- (ii) Developing indigenous manufacturing capacity for production of basic electrical equipment and materials.
- (iii) Power tariff will need to be so fixed as to include cost of the service except in the case of rural electrification where marginal cost of electricity may be charged.
- (iv) Assist agricultural production programme through electrification of pumps and tube-wells.

### 11.1.3 The Plan Strategy

#### A. Strategy

The electrical system in Bangladesh is divided geographically into two completely independent zones, namely, the eastern and western zones separated by the Jamuna/Brahmaputra River each having a separate supply network. Natural Gas reserves in the eastern zone, however, are appreciable with scope for extensive expansion for cheap thermal power generation. The flat deltaic land offers little scope for the generation of large scale hydro-electric power in either of the zones. Though there is some potential for hydro-power in the eastern zone, there is little scope for this in the western zone. The western zone at the present moment, therefore, is the high cost energy area, dependent on imported fuels. The main rivers with large seasonal variations of water discharges and shifting beds make reliable inter-connection between the two zones difficult and costly.

Therefore, the two zones will be developed separately during the First Five-Year Plan. The two systems may have to be interconnected at an early date if increased demand justifies such integration. In addition to reducing the requirement of reserve capacity and improving the reliability of both the systems, it will allow for optimum use of low cost energy available in the eastern zone from natural gas. However, part of the interconnector, Ghorasal-Tongi including the sub-station at Bheramara should be completed during the First Plan period to provide an alternative supply to Dacca area. A study will be undertaken to examine the technical and economic feasibility of the East-West interconnector. The timing of construction of the interconnector will be determined on the basis of this study.

As the distribution projects in the past could not be financed as scheduled compared to generation projects, there is an imbalance between generating capacity and transmission and distribution facilities. This Plan, therefore, attempts to achieve a balance between generation and marketing facilities through higher allocations to distribution. The different isolated systems need to be interconnected by transmission lines and the existing one's strengthened to increase the capacity for carrying a large quantum of power in order to meet future needs.

#### B. Rural Electrification

The existing pumps and tube-wells for irrigation are powered mainly by diesel. It has been established that electricity is a cheaper and more reliable source of power which, *inter alia*, reduces the enormous distributional problems implicit in the diesel based motive power in the countryside. For this reason providing electricity to low-lift pumps and tube-wells has been identified as a key Plan objective for this sector.



In rural areas where electricity is introduced for irrigation, cottage and small scale industries can be simultaneously energised. This Rural Electrification will revolutionise the rural economy and also go a long way to modernising the habits and social activities of the people and will thus contribute to bridging the gap between urban and rural life.

Although rural electrification will stimulate the economy through increased production in agriculture and industry, it may not in the short run bring adequate financial return on the investment, even if the tariffs are comparable to those prevailing in the urban high density loading areas. The programme will be economically viable only with the spread of electricity in the rural areas which can be accelerated by the formation of cooperatives of the users of electricity.

### *C. Indigenous Manufacturing Capacity*

In order to meet the development target in the Power Sector in the foreseeable future with reduced dependence on foreign assistance great emphasis should be given on creating indigenous manufacturing capacity for the production of a variety of electrical goods, currently procured through import. This import is at present largely financed by foreign assistance. There will be enough demand for equipment, machinery, cable and appliances to justify the establishment of manufacturing units.

At the moment the indigenous manufacturing capacity for electrical equipment, machineries and accessories, specially for capital goods is small. The demand for power and lighting PVC cables up to 11 KV could be met from Eastern Cables, Chittagong having a production capacity of 6,000 tons of various sizes and types such as multicore, armoured, screened cables, etc. It is envisaged that the factory will be expanded and production processes will be diversified to include ACSR, Super Enamelled Copper Wire, Flat Copper Bars, etc.

We have a considerable demand of ACSR conductors in our electrification programme. It is expected that the requirement will amount to 2500 tons a year during the First Five-Year Plan. Manufacture of round and rectangular cross-section super enamelled and cotton covered copper wires will be required in large quantities (800-900 tons per year) for the General Electric Manufacturing Plant being set up by the Engineering and Shipbuilding Corporation (BESC). S. Gazi and Co. also under BESC who are at present producing super enamelled copper wires, may be expanded to meet the requirements of the same during the First Plan period and beyond.

The only heavy electrical complex, the General Electrical Manufacturing Plant located at Chittagong, with an annual capacity of 10,000 tons of electrical equipment is being set up with assistance from the USSR and is expected to go for commercial production by 1976. When completed this will meet our requirement of distribution and power transformers up to 10 MVA capacity and voltage up to 33 KV, high voltage switch gears up to 33 KV, low voltage switch gears, distribution pannels, fuses, capacitors, potential transformers, etc. Before the GEM Plant goes into production, semi-knocked down (SKD) parts may be imported from USSR and assembled at the GEM plant training centre/workshop which will save foreign exchange and at the same time train our people.

In addition to the above the following items which are vital for the successful implementation of our electrification programme should be manufactured within the country:

- (i) Poles—tubular steel poles, pre-stressed concrete poles, wooden poles, lattice steel towers, etc.



The only indigenous source of line supports in the country were the wooden poles which did not prove satisfactory. Even when creosoted these did not last for more than 4/5 years. As a result line supports have mainly been imported. In view of the huge demand for line supports and the need for having them in different types for different purpose, plants for manufacturing poles need to be set up within the country during the Plan period.

(ii) Insulators e.g. Pole insulators (33 KV, 11 KV and 0.4 KV), insulating bridges and bases for switches, cut-outs, fuse, distribution board, etc. There is enough demand for these items to justify the establishment of a manufacturing unit. Basic raw material is available in abundance at Bijoypur, Mymensingh. Investigation made by BCSIR Laboratory indicates that the beneficiated Bijoypur clay is a siliceous Kaoline of primary origin and is suitable for production of insulators and white-ware. But for the production of 11 KV and 33 KV insulators further investigation may be necessary.

(iii) Switches:

(a) Iron clad switches, distribution board, etc.

(b) Tumbler switches, holders, plugs, ceiling roses, push button switches, etc.

(iv) Bulbs, (v) Meters, (vi) Fans, (vii) Conduits, (viii) Domestic fittings and appliances, (ix) Motors and (x) Fire bricks.

#### D. Energy Resources in Bangladesh

**Hydro-Power:** Bangladesh is a flat deltaic terrain through which flow the two largest rivers, the Ganges and the Brahmaputra, with their tributaries to the Bay of Bengal. The total fall from the north of Bangladesh to the Bay of Bengal is hardly 60 feet (18 meters). Although millions of cusecs of water flow down the plains, the potential for the development of large scale hydro-power is limited.

The hilly rivers in the south-east portion of the country have possibilities of generation of some hydro-power. The Karnafuli river in the Chittagong Hill Tracts has been harnessed to yield 80 MW capacity to which another 50 MW would be added in about two years time. There is possibility of having another 100 MW from the same reservoir for peaking purposes. The Sango river holds promise for 87 MW indicating installation of two units. The Brahmaputra, in the northern part of the country can generate about 400 MW firm capacity out of 1000 MW Peak Hydro-Power, if it is harnessed by means of a barrage. But this is a long-term possibility.

**Coal:** Exploration carried out by Geological Survey of Bangladesh with the assistance of the United Nations Development Programme has led to the discovery of substantial deposits of good quality coal in Bogra District in the north-western part of the country. The estimated reserve is about 700 million tons which in heating value is equivalent to about 2.5 times the proven gas reserves. Therefore, as a potential source of energy, this coal can play an important role in the energy economy of the country. The coal lies at a depth of 3000-4000 feet under alluvial soil and its extractions would require the use of sophisticated, costly and time-consuming mining techniques including freezing. Utilization of this source for power generation would need to be phased over subsequent Plan periods. At present feasibility study on the most economical use of coal at Jamalganj is under way.

**Oil:** Bangladesh has no known oil reserves. It imports about a million tons of crude oil per year which is refined locally at Chittagong. In addition a substantial quantity of middle distillates is imported. The Chittagong refinery with a crude oil capacity of 1.5 million tons a year produces different grades of refined products including about half a million tons of



furnace oil which today can just meet the requirement of the country. Oil is used in substantial quantity in the western zone for power generation where no alternative fuel is available. However, when the proposed East-West Interconnector is completed, the power produced in the Eastern Zone could be used in the Western Zone and this may reduce the need for oil in the Western Zone for Power Generation.

*Natural Gas:* Natural Gas constitutes the most important indigenous resource for Bangladesh. It was in 1955 that gas was discovered. The seven known fields, all located in the Eastern Zone, have estimated reserves of 8.29—9.36 million million cft. The prospects for finding more gas fields in this area are very bright. But no gas has been found in the Western Zone. There are some indications that gas may be found in the Western Zone also and exploratory drilling is contemplated in the Barisal area.

The gas found in Bangladesh is of very high quality having methane content ranging from 95—99 per cent. This makes it not only an important industrial fuel but also a very valuable chemical raw material. A detailed analysis of the use of gas as fuel and potential industrial raw material has not been done and the economic price of gas has not yet been determined. However, if an allocation of 45 per cent out of the proven reserve is assumed for power generation then the natural gas reserve would support about 3200 MW of the gas fired capacity over its economic life at 50 per cent Plant factor.

#### 11.1.4 The First Five-Year Plan

##### A. *The Development Plan*

The eastern zone has nearly 80 per cent of the total electrical load of the country. This zone also has low cost hydro-electric resources and abundance of natural gas. The electrical grid serving this region is quite extensive, comparatively well developed and fairly reliable. On the other hand, the western zone has only 20 per cent of the total load. This region has no developed fuel or hydro-electric resources and relies mainly on imported fuel oil for its energy needs. The electrical system serving this zone is not as developed as in the eastern zone and its performance is poorer and reliability lower.

Traditionally, the first step in planning the expansion of an electric power system is to forecast peak demand to determine maximum generating capacity and to determine the total amount of energy required annually. The second step is to identify the various possible sectoral development strategies, e.g., varying combinations of hydro and thermal plant in different sizes/sequences which would both meet the anticipated demand and satisfy the system's technical requirements. The third step is to select the alternative which has the lowest present value of capital and operating costs at a reasonable test rate of discount. Revenues do not enter into this calculation since they are assumed to be equal for all strategies.

##### B. *Load Forecast*

The power requirement was assessed by WAPDA in 1963-64 on the basis of the planned investment programme of different sectors of the economy which indicated a maximum demand of 540 MW (500 MW for WAPDA system and 40 MW for industries having their own generation) by June, 1970.



Forecast of peak demand was also made by different agencies in the past such as M/S. I. E. Co., General Consultant, Harvard Advisory Group, EPWAPDA (Power), Power Commission, Black and Veatch International Company, etc. These forecasts shown in Annexure 1 were not widely different except the one made by M/S. Black and Veatch which indicated a lower peak demand. In the case of the Master Plan and Power Commission, the peak demand during the base year had been assumed to be much higher than what was actually been achieved. Planning Department and WAPDA forecasted a higher rate of load growth, namely, 36.5 per cent and 33.5 per cent respectively during the period based on the investment programme of the Industry and Agricultural sectors.

Development Programme for 1965—70 was based on an anticipated peak demand of 540 MW in 1970 including 40 MW for industries having their own generations. It may be seen from Annexure II that WAPDA achieved a peak demand of 223 MW as against a forecast of 500 MW which shows clearly the shortfall in achievement of various types of anticipated loads. The major reasons for such a shortfall were as follows:

- (i) Non-completion of the proposed industries and agricultural projects;
- (ii) Recurrence of cyclones, tornadoes, floods and other disturbances;
- (iii) Lack of financing especially in the distribution of Power.

Peak load demand recovered to 225 MW in June, 1973. However it is yet difficult to anticipate precisely when the consumption of power will return to the level of 1130 million KWHR experienced in 1970. It is reasonable to assume that once the economic life of the country fully revives, it will again experience a rapid increase in power demand.

The industrial load consists mainly of jute processing and cotton textile mills, chemicals, fertilizer, insecticide and pharmaceutical plants, and three paper mills, *plus* numerous sugar mills. Of these, the majority of the sugar mills and two of the paper mills are on the western grid, the chemical plants and most of the textile mills are on the eastern grid, while the jute mills are more or less evenly distributed on both grids. There is also a cement plant, a steel mill and an oil refinery on the eastern grid, and a shipyard at Khulna on the western grid. In the First Five-Year Plan emphasis has been placed on development of agro-based industries, natural gas-based petrochemical complex, and a machine tool factory together with further expansion of the steel, textile, jute, paper and chemical industries.

The present agricultural load consists of two fairly large pumping schemes, G. K. Project at Bheramara on the western grid, and Dacca-Narayanganj-Demra Project near Dacca on the eastern grid, and a tube-well scheme at Thakurgaon in the north-western area of the country. With the large scale irrigation programme proposed in the First Five-Year Plan the power requirements of this sector will grow rapidly from the present low level.

Preparation of the load forecast according to normal utility practice is to be based on data collected from each on a sub-station by sub-station basis for various load classes, *e.g.*, domestic, commercial, industrial and agricultural. Since the data on the industrial prospects, by far the largest load class and the agricultural predictions (geographical locations) have not yet been firmed up and no detailed up-to-date market survey is available, three procedures have been adopted to arrive at a reasonably good load forecast, namely, (i) load growth based on historical-trends, (ii) load projection based on planned investment programme of different sectors consuming power, (iii) load projection based on a population related equation,



### C. Summary of Load Projections

The methodology and background data for projecting load growth according to the three techniques indicated above are presented in Annexures III—V. The summarised results of these forecasts are presented below:

| Year. | Growth based on historical trends. |            |                                   |            | Growth based on Investment Programme. |            |                                   |            | Growth based on population related equation. |            |                                   |            |
|-------|------------------------------------|------------|-----------------------------------|------------|---------------------------------------|------------|-----------------------------------|------------|--|------------|-----------------------------------|------------|
|       | Peak demand MW.                    |            | Energy $10^6 \times \text{KWhr.}$ |            | Peak Demand MW.                       |            | Energy $10^6 \times \text{KWhr.}$ |            | Peak demand MW.                              |            | Energy $10^6 \times \text{KWhr.}$ |            |
|       |                                    |            |                                   |            |                                       |            |                                   |            |  |            |                                   |            |
|       | East Zone.                         | West Zone. | East Zone.                        | West Zone. | East Zone.                            | West Zone. | East Zone.                        | West Zone. | East Zone.                                   | West Zone. | East Zone.                        | West Zone. |
| 1978  | 373                                | 144        | 1940                              | 768        | ..                                    | ..         | ..                                | ..         | 357  | 138        | 1900                              | 758        |
|       | =517                               |            | =2718                             |            | =517                                  |            | =2735                             |            | =495   |            | =2678                             |            |

It may be seen that projections following historical trends, population related equation and investment programme compare quite closely with one another. For the Plan forecasting purposes it has been assumed that 515 MW (375 MW for East Zone + West Zone 140) and 2600 MKWH (East Zone 1900 MKWH + West Zone 700 MKWH) will be achieved at the end of the Plan period. In addition there will be a 40 MW Peak load for industries having their own generation. It has been planned to reduce the system-losses from the existing 25% to 20% during the Plan period thereby reducing actual loss by 100 million KWhr. Energy-demand estimate has been lowered by that extent.

#### 11.1.5 The Investment Programme

##### A. The Eastern Grid

This consists of a double-circuit 132 KV line from Kaptai Hydro-electric Plant through Chittagong and 160 miles north-westerly to Siddhirganj Plant near Dacca, continuing north-easterly to Ashuganj and Shahjibazar Plants. It continues some 75 miles beyond Shahjibazar to Sylhet as single-circuit line of which the last 45 miles are yet to be commissioned. A 132 KV radial feed from Ashuganj traverses a north-westerly route terminating in Jamalpur; this is still under construction. Distribution to outlying areas adjacent to this grid is effected through the use of radial 33 KV and 11 KV feeders. The transmission line designs in this Zone are primarily double circuit steel towers with both circuits strung. Exceptions to this are the Ashuganj-Jamalpur and the Shahjibazar-Chhatak line sections, which have only one side strung. The installed capacity of the PDB system in the eastern zone is 439 MW (Annexure VI). By type of generation the system has 208 MW (47 per cent) of steam generation, 80 MW (18 per cent) of hydro and 114 MW (26 per cent) of gas turbine and the rest are diesel. In addition to these units, 82 MW of industrial generation is located throughout the system.

##### B. The Western Grid

The Western Grid consists of a single-circuit 132 KV line from Goalpara extending more than a 100 miles north and across the Ganges river to Ishurdi. It is being extended east-by-south from Goalpara some 56 miles to Barisal and 190 miles northward from Ishurdi to Thakurgaon. The major generating units (Annexure VI) include four 4-MW steam sets, two



12-MW and one 6-MW naphtha-fired combustion turbine sets, and seven 1-MW diesel sets at Goalpara and two 4 MW steam units at Bheramara. A new 60 MW steam unit is nearing completion at Goalpara. The western grid has suffered extended periods of shortage of generation due to extensive forced outages, and load shedding was often necessary. The projected peak load for this grid is 63 MW when the on-going transmission line extensions are completed. This load could be carried by the 60 MW unit at Goalpara which should be in service soon and the diesel and gas turbines may be shut down because of their much higher fuel cost. But this situation will pose a very serious threat to service continuity because any trouble on the big boiler turbine-generator could result in complete grid outage, and service restoration with small generating units would be slow and complex. This situation would be much improved by having another 40/60 MW unit installed either at Goalpara or at Bheramara/Ishurdi.

A summary of eastern and western zone generation is shown in Annexure VI. The loads which are now served by isolated diesel stations will be picked up on both the grids when the line extensions in progress are completed. The load distribution (MW) in 1970 for the whole country is shown in Annexure VII.

### *C. Capacity Expansion*

Given the construction lead time, decisions about capacity expansion have to be made several years in advance. Thus, they have to be based on projected loads rather than on actual ones. Load projection have a margin of uncertainty. The construction schedule of new capacity is also uncertain, so is the reliability of the equipment already in service. The investment programme and the annual financial requirements visualised in the Plan are somewhat approximate, since much of the data necessary for accurate compilation was not available. None of the major projects should, therefore, be implemented before being subjected to a careful scrutiny. Eventually, of course, accurate load forecasts will have to be developed for making the capacity planning process effective.

In the case of the eastern grid, there will be a large surplus of generation capacity at least during the First Five-Year Plan assuming that the load demand continues to grow at the same rate as over the past 10 years. This being so, there is no immediate pressure to establish a reserve capacity. Since the present overall surplus (theoretical) in the western grid is relatively smaller than in the eastern grid, the question of capacity expansion will arise first in the western grid. Even after the commissioning of the new 60 MW unit at Goalpara, the western system will be difficult to operate because of the complex character of the system. When the main 132 KV lines are completed, there will be approximately 63 MW of peak demand, catered for by a single 60 MW steam set, backed by an array of some 30 small units, the two largest of which are only 12 MW each.

The most promising solution to this particular problem would be the establishment of another 60 MW capacity at Khulna, which may be a duplicate of the existing unit. As a result spare parts could be shared, each would provide a reserve for the other, operator training would be simplified, and maintenance procedures would be the same. But, we may not afford to wait for 4/5 years, which is the time normally required to complete the entire process from designing to commissioning a steam turbine plant. The alternative appears, therefore, to be the establishment of a 40/60 MW gas turbine plant at Bheramara/Ishurdi which could be put into operation in about 2 years time. To meet the anticipated demand in the western zone another 60/100 MW or so capacity may be required to be commissioned by the end of the Plan period.



#### *D. Investment Programme*

One of the objectives of the industrial plan is to provide for proper development of modern and efficient industries widely dispersed throughout the country. And one of the objectives of the power sector plan itself is to embark upon an effective rural electrification programme. Both of these objectives will lead to widely scattered loads all over the country necessitating extensive transmission and distribution facilities which the present system lacks very badly. The power sector programme has been designed to ensure extensive transmission and distribution facilities subject to our resource constraints.

The power development plan envisages an investment of Taka 423.5 crores including Taka 200.9 crores in foreign exchange to achieve as much of the sectors' objectives as possible. The investment programme has been classified into reconstruction, on-going and new projects. An allocation of Taka 23.4 crores including Taka 10.8 crores of F. E. is made for the reconstruction projects. For the completion of all the on-going schemes a provision of Taka 110.7 crores including a F. E. component of Taka 53.6 crores has been kept in the Plan. The emphasis on new projects is by far the largest and an allocation of Taka 289.4 crores has been provided which is about 68 per cent of the total investment in the power sector. Annexure VIII gives a summary of the total investment allocations and foreign exchange requirement for each sub-sector.

#### *E. Plan Strategy*

(i) Emphasis has been placed in the Plan on transmission lines in order to provide adequate interconnection of power stations and to reach all major load centres by high voltage transmission lines from central generating stations. Enough provision has been made for speedy completion of the on-going transmission projects. The total allocation for this sector stands at Taka 40.2 crores.

(ii) Highest priority will be given in the Plan to the secondary transmission and distribution programme for which an allocation of Taka 267.2 crores has been made. This is 63 per cent of the total allocation.

(iii) In order to improve the level of reliability some alternative supply arrangements have been provided for apart from renovation of the existing distribution mains.

(iv) New areas are to be opened up for electrification, so that electricity is made available to the masses within the limits of our resource constraints.

(v) It is envisaged that in addition to the electrification of Water Development Board's central pumping stations and 2,440 deep tube-wells, 8,000 deep/shallow tube-wells and low-lift pumps of BADC, 1,000 villages will be electrified during the plan. In the rural areas the immediate task will be centred round electrification of pumps which will be nearer to the existing lines initially. This will be gradually extended as the economy picks up. Electrification of villages will at this stage follow as a by-product of the tube-well electrification programme rather than as a prime objective.

(vi) On the generation side only one additional 60/100 MW Unit at Goalpara Station will be added during the plan period in addition to the completion of the on-going schemes. This includes the 40/60 MW North Bengal Power Station. A token provision has been kept



for two more 100 MW units, one in the Western Zone and one in the Eastern Zone. Installation of further units on either side are, however, predicted by a comprehensive feasibility study to identify the optimal mode for catering to the need for additional power in the western region.

There are several alternatives for the future development of the power system in Bangladesh:

- (i) The first alternative assume that each zone will continue to develop independently, thus maintaining its own development schedule consonant with natural resources indigenous to the region. This assume discovery of gas or availability of coal or use of Nuclear Power in the Western Zone.
- (ii) The second alternative assumes that the two zones will be interconnected through a high capacity intertie. In this case, joint system development could occur and optimization of system reserve through sharing of reserve capacity could be secured. Low cost energy (gas fueled) generated in the east could thus be used in the west.
- (iii) Alternatively gas could be piped across to the west to feed the power stations. But the main rivers with large seasonal variations of water discharges and shifting beds make reliable interconnection through gas pipe line between the two zones difficult. A thorough study is, therefore, needed.
- (iv) Coal as a source of power may be examined both in terms of imports from India and the early exploitation of reserves in Jamalganj.
- (v) The possibilities of atomic energy as a source of power is to be fully evaluated in comparison to the above options. These options must in turn provide guidance for either expansion or creation of new refinery capacity.

All these alternatives including that of Rooppur Nuclear Power Plant which is currently under study need to be weighed and the most suitable solution found before any major financial commitment can be made. When definite information is provided by the feasibility study the power programme will be reviewed and if necessary additional resources will be made available for creation of the additional power source.

Lack of education and skill in a very large section of the operating and maintenance personnel was identified to be one of the biggest handicaps for quality services. Adequate provision has, therefore, been made in the Plan for the different training programmes so that our dependence on foreign consultants and specialists is gradually reduced. Taka 16.2 crores has been kept for the technical assistance programme. This is in addition to the training programme under aided projects and the technical experts needed for erection and commissioning of such projects. Provision has been kept for technical experts and consultancy services of a general nature and training of our personnel at home and abroad for the development of critical skills and know-how. Requirements are heavily weighted (to the extent of two-thirds) in the direction of equipment needed for creating training facilities within the country.

The unreliability of the present power system is largely due to the lack of adequate physical facilities. It is, therefore, considered important to create as much additional physical facilities as possible during the plan period for which adequate allocation has been made.



### 11.1.6 Improving Performance of the Power Sector

#### A. *Quality of Service*

It has been a common occurrence for power supply to fail frequently and often for prolonged periods. This has caused great inconvenience to the consumers in general and substantial production loss to the industrial sector in particular. In addition there have been persistent complaints regarding the poor quality of services (poor voltages, fluctuation of voltages and frequency of supply).

Whilst power failures are hardly a new phenomenon, in post-liberation Bangladesh the damages to the distribution system during the Liberation War has aggravated the problem in specific areas such as the industrial sector. This has had some impact on the recovery of industrial output and therefore needs urgent attention.

#### B. *Some Factors Affecting Performance*

##### Indecision of the Management

Lack of initiative in decision making was aggravated by labour/management problems.

##### Labour Problems

(i) Retrenchment of employees is difficult even where work has been completed.

(ii) It has also not been possible to use this surplus man-power in areas where there is deficiency as employees were reluctant to leave their respective areas and go elsewhere.

(iii) Where there was adequate work, departmental workers demanded additional payment in various ways for doing such work but higher productivity of outside workers made it more economical to engage contractors to get such work done thus allowing the departmental man-power to remain idle.

##### Loss due to Pilferage, inaccurate Meter Reading, etc.

The total units generated by PDB during 1970 totalled  $1130 \times 10^6$  KWHR but only  $898.9 \times 10^6$  KWHR was recorded as sales to customers. The greater portion of this difference of  $279 \times 10^6$  (about 25 per cent of the total Generation) is energy lost. This represents not only losses in transformation, transmission and distribution but also losses on account of pilferage, inaccurate metering, incorrect meter reading and billing. If proper corrective measures were taken, losses could perhaps be brought down to 15 per cent of generation. A mere one per cent reduction in losses in 1970 would have meant an increase in sales of approximately  $11 \times 10^6$  KWHR and a revenue increase of about Taka 22 lakhs.

##### Fuel Problem

Owing to periodical shut-down of the Oil Refinery as well as other reasons regular supply of fuel to many power stations posed a serious problem. Even when fuel and lubricants were available, difficulties in transportation have often prevented their movement and caused crisis.



### Availability of Trained Manpower

Due to the departure of the Engineers, Technicians and Skilled workers there has been shortage of technical man-power specially in the construction firms resulting in difficulties of implementation.

#### *C. Suggested Actions for Improved Performance*

The above analysis of the factors affecting improved performance in the power sector indicates that while there is certainly a need to make greater use of the generating facilities, that by itself is not enough to make the Power Development Board self-sufficient. There is, in addition a great need to improve the efficiency of the operation itself by changes in organization, methods and procedures. In so re-organising the power sector the problems involved and the course of action recommended are presented below:

- (i) Though the WAPDA has been bifurcated into Bangladesh Power Development Board and the Bangladesh Water Development Board since 31st May, 1972, this bifurcation cannot alone be expected to achieve the desired objective as there are serious built-in deficiencies in the working of the Power Wing itself.
- (ii) The generation, transmission, distribution and sales of power are entrusted to a single executing agency under the administrative control of the General Manager. The management and sale of power for efficient and dependable service call for a management concept radically different from that required for installation and maintenance of generating stations and transmission lines. The rapidly multiplying number of electricity consumers in the electrified cities and localities, requires employment of linemen, line-supervisors, hundreds of meter-readers, billing clerks, etc. This is likely to throw a great strain and an unnecessary burden on a single executing agency responsible for the generation, transmission and sale of power.
- (iii) In the Power Development Board there are fifteen department heads reporting to the General Manager which seems to be unwieldy for effective control and administration. The importance and magnitude of projects for the generation and transmission of power as well as their operation and maintenance make such heavy calls on managerial resources that a single agency is unable to maintain contacts with large sections of the public or to attend to a variety of demands from the consumers spread over the country. To relieve the personnel responsible for the generation and primary transmission of power from this otherwise unnecessary burden, it is necessary that the business of distribution and retail sale of power to hundreds and thousands of consumers all over Bangladesh should be entrusted to a separate agency under the Power Development Board exclusively set up for the purpose. The Power Generation and Transmission Wing of Power Development Board should then concentrate their resources and address themselves primarily to the business of generation, transmission and sale of bulk power.
- (iv) The Power Supply and Distribution Wing under Power Development Board may run on commercial lines and operate for the entire country. It will deal with a variety of commercial and local problems and therefore it is desirable to decentralise their management and operation by self-contained and properly staffed regional branches which should look after the distribution business in defined areas such as Dacca, Chittagong, Khulna, etc., placed under their jurisdiction.



(v) Since rural electrification may not initially be a commercial proposition the Power Supply and Distribution Wing may not undertake this work on a large scale. Rural Electrification on a large scale may be undertaken as part of the rural development programme on the basis of co-operatives. Liberal credit facilities will be needed as most of the rural population may not even be able to bear initial expenses of doing the internal wiring of their houses. For the purpose of planning, designing and actual erection work a Rural Electrification Wing may be set up in the PDB.

(vi) The above structural changes will improve the operational efficiency of the Power Development Board which ultimately will improve the quality of service. In addition to the above, the establishment of a properly constituted organisation for the administration of regulatory control over the activities of the power supply authorities is also a prerequisite to the improvement of the quality of service, reducing dissatisfaction among the consumers and conflict and disputes between the consumers and supply authorities. A strong regulatory organisation will also:

- (a) effectively discharge the statutory functions and set up standards for safety and sound engineering practice commensurate with the laws and regulations of the land,
- (b) minimise badly constructed electrical installation which are liable to frequent power failures, and
- (c) minimise the losses of life of workmen and members of the public for not adhering to the safety rules.

#### Personnel Policies

(i) The Power Development Board seems to be handicapped in its efforts to improve the efficiency of the operation by the personnel policies in effect. The personnel policies generally set the tone of an organisation and are reflected in the attitude of the employees. The personnel policy of Power Development Board must be revised to encourage all levels of management to assume responsibility and exercise authority. To motivate them for better work more weight will need to be given to merit, ability and initiative and less to seniority, when considering cases for promotion. Generally such promotion should be within an individual's existing field of work. The traditional practice of promotion irrespective of good, indifferent or bad performance will never stimulate the personnel concerned for quality performance. Good work must be rewarded and proper motivation should be there for this.

(ii) To give guidance to the employee and ensure that he exercises specified responsibility, position or job descriptions should be prepared. Eventually job evaluation should be made to serve as a guide for promotion.

#### Training

(i) Lack of education and skill in a very large section of the operating and maintenance personnel appear to be one of the biggest handicaps for quality service. A very systematic in-service training at all levels has to be launched under each unit of Power Development Board's operation to achieve the desired result. Steps were taken to provide training through the establishment of Kaptai Engineering Academy and the Training and Research Institute at Tongi. To date, however, both the Kaptai and Tongi establishments have been inordinately underutilised.



(ii) To be effective the training programme needs to be up-dated and streamlined and Kaptai and Tongi establishments revitalised. Training must become a continuous process and in particular should include on-the-job training at the basic operating and maintenance level.

#### Improving Managerial Efficiency

(i) *Accurate information on Assets and Liabilities:* Accurate information on capital investment in plant and equipment is needed to determine the proper depreciation rate and adequacy of the depreciation reserve; to develop the cost data required in rate making; and to arrive at the rate base to be used when fixing the rate of return required to maintain the operation in a sound financial position. The present accounting procedures of Power Development Board are entirely inadequate, by modern standards, since they provide little of the information essential to the effective financial management of a power utility. In particular, the present accounting system is largely on a "Cash" basis which consequently does not provide adequate information on the amortised value of existing plant and equipment.

(ii) *Purchasing Policy:* Purchasing policies and the management and control of inventory have a great deal to do with the financial results and efficiency of a utility. Improvement of financial management and procurement depend on steps taken towards evaluation of inventory, standardization, provision of standard specifications, development of local industry as sources of supply.

(iii) *Inventory:* It is essential to have an inventory of the stored imported equipment and the plan of their utilisation. An inventory and maintenance team should go over the entire system periodically. At each location the useful items should be separated from the obsolete or damaged ones. Damaged and obsolete equipment should be taken to a central repair depot for salvage. Obsolete supplies or those damaged beyond repair should be written off and sold if possible. Immediate steps should be taken to inventorise all weather-sensitive equipment now stored out-doors and arrange for its dry, covered storage.

(iv) *Clearance and Movement:* The entire clearance and movement function requires streamlining, improved coordination and some re-organization if costly delays and unnecessary expenditure are to be avoided. Malfunction in the operation of clearance and movement has disastrous and sometimes irreparable effects on the progress schedules of construction and development projects.

(v) *The KWH Meter:* The KWH meter is the cash register of the Power Development Board and as such it deserves more attention than it usually gets. Care must be taken to ensure that meters bought suits the purpose for which they are to be used, are rugged, easily installed and tamperproof. The meter and metering installation at least for large industrial loads should get special attention. Due to the large consumption of this type of load a small error in metering can have a serious adverse effect on gross revenue, either through under-billing the customer or over-billing and forcing him to look elsewhere for his source of energy.

(vi) *Financial Forecast:* Due to the capital intensive nature of an electric utility, it is most important that effective control be exercised over items proposed for inclusion in the capital budget, to ensure the most efficient use of the available funds. In PDB's case, this control is doubly important in view of the extreme shortage of available capital, so that critical review of proposed capital investments is essential in order to maximise the benefits obtainable from limited funds. A separate financial forecast should be maintained and up-dated every year, covering at least the next five years. This will give ample time for arrangement of necessary financing



(vii) *Progress Reports*: Management of the Power Development Board at all levels is severely handicapped in its ability to manage and control affairs due to lack of timely, concise and pertinent financial, operating and progress reports. As the reporting goes up the line of management it should be consolidated, condensed and only data of significance to the next echelon retained. To be useful, reports must be accurate, complete, produced with a minimum of delay and received on time. A suitable reporting form could be devised. It is through an efficient information system that necessary control over autonomous institutions can be exercised.

#### Physical Facilities and Improvement of Service

(i) *Improved Capacity*: Since one of the major reasons for the present lack of reliability of the power system is inadequacy of physical facilities, it is of vital importance that the planned development work specially the distribution facilities are completed within the earliest possible time. Additional sub-station capacity and loop lines should be created to provide alternative sources of supply. Voltage regulators and static condensers should be installed to stabilise the voltage to consumers. Fuse gears for important load centres should be replaced by circuit breakers. 33 KV and 11 KV automatic reclosures for controlling spur lines as well as sectionalising long secondary lines should be installed.

(ii) *Coordination of the Protective Devices*: Coordination of the protective devices of the various 132 KV lines and sub-station is indispensable for a reliable power supply. Already a number of deficiencies have been discovered and to the extent it was possible without the import of additional equipment, arrangements have been modified on the basis of recalculations. Extensive work is yet to be done in this field so as to improve the co-ordination. This is the result of heterogeneous imports from different countries creating a condition of ill-matching in the power system which ultimately influence the performance of the supply. A team of Engineers should, therefore, be trained exclusively for relay coordination who will constantly check the operation of relays for trouble-free service. Additional equipment required for the improvement and removal of deficiencies in the system should be imported without loss of time.

(iii) Extensive maintenance work is necessary to remove the deficiencies in the distribution system. The prevalent practice of maintenance should be gradually replaced by fast moving trouble shooting vans equipped with workshop facilities. Special efforts should be made for improving the communication system including introduction of radio telephones. A comprehensive communication system consisting of power line carriers, VHF radio, including mobile telephone is essential for safe and economical operation of any electrical system. Without it, it is impossible to give the continuity and reliability of service demanded by the consumers. An investigation should be made of the overall needs of the Power Development Board and long-term plans formulated making full use of existing power line carrier and radio links.

(iv) *Planned Maintenance*: To raise the effective efficiency of power plant immediate steps should be taken to integrate operation and coordinate maintenance programmes so that the period of outage of any unit for routine maintenance and the number of such outages at any given time are kept down to the bare minimum. The scheduling of planned outages on an annual basis could help to develop better preparation for use and maintenance time. When planned maintenance has developed and schedules are made and followed, it may be found justifiable to use round-the-clock work during maintenance outages to minimise outage duration, specially in the western grid.

#### Quality of Supply

Highly reliable power supply calls for a very capital intensive system with automatic devices which our economy may not permit at the moment. But the huge loss that our



production sector is incurring due to power failure makes a strong case in favour of quality supply so as to reduce immediately the power interruptions, at least in the major industrial areas of the country. Moreover, there appears to be a crisis in the confidence of the people in general and therefore, investment for rehabilitating the confidence through reasonably trouble-free supply needs immediate attention.

#### Luxurious Construction

Luxurious and unproductive constructions should not be undertaken at all. All construction work should be standardised by the Government as far as practicable.



# COMPARATIVE STATEMENT OF DIFFERENT PEAK LOAD AND ENERGY FORECAST

| Agency.                                       | Base-year.   |                |                        | Annual Load growth per cent. | 1970  |                |                       |
|---|--|----------------|------------------------|------------------------------|---|----------------|-----------------------|
|   | Peak demand (MW)   | Energy Mkw.hr. | Load factor. per cent. |                              | Peak demand (MW)  | Energy Mkw.hr. | Load factor per cent. |
| Master Plan ..                                | 297 (1966)   | 1,357          | 55.5                   | 22                           | 614   | 2,836          | 52.6                  |
| Planning Deptt. ..                            | 88+1.5<br>=89.5<br>July 1964<br>Peak +<br>other<br>non-grid. | 466.0          | 59.5                   | 36.5                         | 576.5   | 2,830          | 56                    |
| EPWAPDA Fore-<br>cast for 1970.               | 88<br>July 1964<br>actual.                                   | 457.636        | 59.22                  | 33.5                         | 500<br>540<br>(including<br>genera-<br>tion by<br>industries<br>themselves. | 3007.5         | 68.4                  |
| Power Commission                              | 246 (1965)   | 1,100          | 50                     | 15                           | 493   | 2210           | 50                    |
| Black and Veatch<br>International<br>Company. | 96 (1964)  | 471            | 56                     | 23                           | 331   | 1,625          | 56                    |



**PLANNED ADDITION VIS-A-VIS ACTUAL ACHIEVEMENT IN RESPECT OF LOAD DEMAND DURING THE PERIOD 1965-66 AND 1969-70.**

| Complex.                                       |                                    |     |     |     | Additional<br>Peak Load<br>(in MW)<br>by 1970<br>(Planned). | Actual<br>achievement<br>Peak<br>demand in<br>MW by<br>1970. |
|--|------------------------------------|-----|-----|-----|---|--|
| 1.   | Jute                               | ... | ... | ... | 40.10   | 35.4   |
| 2.   | Textile                            | ... | ... | ... | 70.90   | 9.3  |
| 3.   | Fertilizer                         | ... | ... | ... | 26.05   | 5.0  |
| 4.   | Cement and Limestone               | ... | ... | ... | 25.30   | ...  |
| 5.   | Paper and Pulp                     | ... | ... | ... | 28.30   | 8.00   |
| 6.   | Iron and Steel                     | ... | ... | ... | 18.00   | 15.00  |
| 7.   | Hard Board                         | ... | ... | ... | 2.2   | ...  |
| 8.   | Tea Garden                         | ... | ... | ... | 6.5   | 0.5  |
| 9.   | Oil Refinery                       | ... | ... | ... | 5.0   | 1.5  |
| 10.  | Rayon                              | ... | ... | ... | 10.0  | ...  |
| 11.  | Chemical Industries                | ... | ... | ... | 10.00   | 3.5  |
| 12.  | Petro Chemical                     | ... | ... | ... | 10.00   | ...  |
| 13.  | Dockyard/Shipyard                  | ... | ... | ... | 6.00  | 1.0  |
| 14.  | BSIC and Medium Size<br>Industries | ... | ... | ... | 2.5   | 1.5  |
| 15.  | Railways                           | ... | ... | ... | 2.5   | 1.0  |
| 16.  | Rural Electrification              | ... | ... | ... | 2.5   | 1.0  |
| 17.  | Domestic and Commercial            | ... | ... | ... | 66.0  | 28.0   |
| 18.  | FIDC                               | ... | ... | ... | 5.0   | 0.7  |
| 19.  | WASA                               | ... | ... | ... | 10.25   | 3.0  |
| 20.  | Irrigation and Drainage            | ... | ... | ... | 54.50   | 7.0  |
| 21.  | Other Industries and miscellaneous | ... | ... | ... | 47.50   | 14.0   |
|  |                                    |     |     |     | 449.10  | 135.4  |
| Actual Peak demand 1964                        |                                    |     |     |     | 88.00   | 88.0   |
|  |                                    |     |     |     | 537.10  | 223.4 MW   |
| Expected Peak demand allowing D.F. and losses. |                                    |     |     |     | 500.00  | ...  |
| Industries having own generation               |                                    |     |     |     | 40.00   | 40.0   |
| Total  |                                    |     |     |     | 540 MW  | 263.4 MW   |



## GROWTH BASED ON HISTORICAL TREND

In the early 60's both peak demand and energy consumption increased at a rate of 17-18 per cent in both East and West Zone, which dropped to 15-16 per cent in the late 60's. In the load forecast based on historical trends shown below the lower annual growth rate of 16 per cent has been assumed. It may be pointed out here that WAPDA achieved a peak demand of 170 MW in the East Zone and 53 MW in the West Zone in late 1970. The industrial consumption of electricity was about 70 per cent, commercial 15 per cent, domestic 10 per cent and agriculture 5 per cent of the total consumption. Although during the period of the liberation war the total peak demand dropped sharply, a total peak demand of 225 MW has been realized by June, 1973. To estimate the likely peak demand at the end of the plan period, the peak demand of 167 MW in the Eastern Zone and 55 MW (including 10 MW of suppressed load) in the Western Zone have been increased at a compound annual growth of 16 per cent and additional peak load due to central pumping stations and rural electrification have been added. The total peak demand thus stands at 517 MW assuming load demand due to tube-wells and low-lift pumps to be operated at off peak hours.

## PEAK DEMAND AND ENERGY CONSUMPTION BASED ON HISTORICAL GROWTH RATE OF 16 PER CENT PER YEAR

(Excluding Agricultural Loads)

| Year. |    | East Zone. |                                   | West Zone  |                                   | Total.     |                                   |
|-------|----|------------|-----------------------------------|------------|-----------------------------------|------------|-----------------------------------|
|       |    | Peak<br>MW | Energy.<br>10 <sup>6</sup> X KWHR | Peak<br>MW | Energy.<br>10 <sup>6</sup> X KWHR | Peak<br>MW | Energy.<br>10 <sup>6</sup> X KWHR |
| 1973  | .. | 167.0**    | 850.0                             | *55.0      | *280.0                            | 222.0      | 1130.0                            |
| 1974  | .. | 193.7      | 986.0                             | 63.8       | 324.8                             | 257.5      | 1310.8                            |
| 1975  | .. | 224.7      | 1143.8                            | 74.1       | 376.8                             | 298.8      | 1520.6                            |
| 1976  | .. | 260.7      | 1326.8                            | 86.0       | 437.0                             | 346.7      | 1763.8                            |
| 1977  | .. | 302.3      | 1539.1                            | 99.7       | 506.9                             | 402.0      | 2046.0                            |
| 1978  | .. | 350.7      | 1785.3                            | 115.6      | 588.0                             | 466.3      | 2373.3                            |

\* Actual non-agricultural peak-load in 1973 was 45 MW and 8 MW agricultural load. Another 10 MW has been added to compensate the suppressed load in that zone.

\*\* 3 MW has been taken as agricultural load.

Note : (i) It is assumed that energy consumption in 1973 would be 1130 million kwhr by excluding the agriculture load and including the suppressed demand.

(ii) To find total (agril. and non-agril.) peak-load and energy consumption in 1978 irrigation and rural load of 51 MW and 345 million kwhr respectively should be added to the figures above which stands at 517 MW and 2718 million Kwhr.



## GROWTH BASED ON INVESTMENT PROGRAMME

An attempt has been made to estimate peak demand of power at the end of the First Five-Year Plan based on investment made in the Industrial and Agricultural Sectors. It has been assumed that the Industrial Sector will launch a programme for Taka 880 crores during the first Five-year Plan. It has also been assumed that 8000 tube-wells (deep and shallow) and low-lift pumps of BADC, 2440 deep tube-wells and several Central Pumping Stations of BWDB will be electrified during the period. While estimating power requirement for industries rate of 1 MW/TK. 3 crores of investment has been taken in lieu of earlier estimates of 1 MW/TK. 1 crore of investments. Additional peak power requirement of 50 MW for urban, domestic and commercial categories and a 10 MW load for rural electrification including cottage industries has been estimated.

## Annexure IV-a

## ESTIMATED PEAK DEMAND FOR 1973 BASED ON INVESTMENT PROGRAMME

| Sl. No.                    | Name of the Project.                             | Nos. to be electrified. | Connected load. | Additional peak demand                                      |   |
|----------------------------|--|-------------------------|-----------------|---|---|
|                            |  |                         |                 | Tube-wells and low-lift pumps if operated during peak hour. | Tube-wells and low-lift pumps if operated at off-peak hour. |
| 1 Water Development Board— |  |                         |                 |   |   |
| (a)                        | Pumping Stations .. .. .                         | .. .. .                 | ..              | 29.00   | 29.00   |
| (i)                        | Pabna Project .. .. .                            | .. .. .                 | 9.60 MW         | ..  | ..  |
| (ii)                       | Khowai Project .. .. .                           | .. Gravity              | ..              | ..  | ..  |
| (iii)                      | Belkuchi Project .. .. .                         | .. .. .                 | 9.00 MW         | ..  | ..  |
| (iv)                       | Monu River Project .. .. .                       | .. .. .                 | 2.00 MW         | ..  | ..  |
| (v)                        | Gumti F/C Project .. .. .                        | .. .. .                 | 0.58 MW         | ..  | ..  |
| (vi)                       | Comprehensive Drainage Scheme (Noakhali) .. .. . | ..                      | 5.00 MW         | ..  | ..  |
| (vii)                      | Chandpur Irrigation Project .. .. .              | .. .. .                 | 3.00 MW         | ..  | ..  |
| (viii)                     | Tista Project .. .. .                            | .. .. .                 | 5.00 MW         | ..  | ..  |
| (ix)                       | Meghna-Dhenagoda Project .. .. .                 | .. .. .                 | 5.00 MW         | ..  | ..  |
| (x)                        | Little Feni River Project .. .. .                | .. .. .                 | 2.00 MW         | ..  | ..  |
| (xi)                       | Muhuri River Project .. .. .                     | .. .. .                 | 2.50 MW         | ..  | ..  |
| (xii)                      | Karnafulli Irrigation Project .. .. .            | .. .. .                 | 4.00 MW         | ..  | ..  |



## Annexure IV-a—Continued.

| Sl. No.   | Name of the Project.                             | Nos. to be electrified. | Connected load. | Additional peak demand.                                     |   |
|---|--|-------------------------|-----------------|---|---|
|   |  |                         |                 | Tube-wells and low-lift pumps if operated during peak hour. | Tube-wells and low-lift pumps if operated at off-peak hour. |
| (xiii)  | Dacca City Project                               | ..                      | 4.00 MW         | ..  | ..  |
| (xiv)   | Upper Kushiara Project                           | ..                      | 1.00 MW         | ..  | ..  |
| (xv)  | Small Electric Pump Irrigation Project           | ..                      | 5.00 MW         | ..  | ..  |
| (xvi)   | Small F/C and Irrigation Project                 | ..                      | 0.30 MW         | ..  | ..  |
|   |  |                         | 57.98 MW        |   |   |
| (b)   | Deep Tube-wells                                  | ..                      | ..              | 39.30   | ..  |
| (i)   | Tentulia-Panchagarh Tube-well Project            | ..                      | 540 15.30 MW    | ..  | ..  |
| (ii)  | Thakurgaon Tube-well Extension Project           | ..                      | 300 9.00 MW     | ..  | ..  |
| (iii)   | Rangpur Tube-well Extension Project              | ..                      | 300 9.00 MW     | ..  | ..  |
| (iv)  | One thousand Tube-well Project (Rangpur, Bogra). | ..                      | 1000 30.00 MW   | ..  | ..  |
| (v)   | Other deep Tube-well Projects                    | ..                      | 300 15.30 MW    | ..  | ..  |
|   |  |                         | 78.60 MW        |   |   |
| 2.  | BADC—  |                         |                 |   |   |
| (i)   | Deep Tube-well (Total 19,500 Nos.)               | ..                      | 4000 80.00 MW   | 60.00   | ..  |
| (ii)  | Shallow Tube-well (Total 15,000 Nos.)            | ..                      | 2000 20.00 MW   | ..  | ..  |
| (iii)   | Low-lift Pump (Total 45,000 Nos.)                | ..                      | 2000 20.00 MW   | ..  | ..  |
| 3.  | Industries—                                      |                         |                 |   |   |
| (1 MW/TK. 3 crore of investment)                            | 880 crore taka total investment.                 | ..                      | 293.00 MW       | 234.00  | 234.00  |
| 4.  | Domestic and Commercial—                         |                         |                 |   |   |
| (i)   | Urban  | ..                      | 100.00 MW       | 50.00   | 50.00   |
| (ii)  | Rural Electrification                            | ..                      | 15.00 MW        | 10.00   | 10.00   |
|   |  |                         |                 | 422.29  | 323.00  |
| Additional peak demand allowing for diversity and losses    |  |                         |                 | 388.00  | 294.00  |
| Peak demand so far achieved                                 |  |                         |                 | 223.00  | 223.00  |
| Total Peak demand expected at the end of 1st Five-Year Plan |  |                         |                 | 611.00  | 517.00  |



**ESTIMATED CONSUMPTION OF ELECTRIC ENERGY IN 1978 BASED ON  
INVESTMENT PROGRAMME**

| Sector.  | Connected<br>load MW | Peak<br>load MW | Average hours of<br>operation/year                         | Energy<br>require-<br>ment<br>mkwh. |
|--|----------------------|-----------------|--|-------------------------------------|
| <b>A. Irrigation:</b>  |                      |                 |  |                                     |
| (a) WDB Pumping Station ..   | 55.48                | 29.00           | 12 hrs./day for 90<br>days and 6 hrs./<br>day for 30 days. | 69.7                                |
| (b) Deep Tube-wells (6440 Nos.) ..                                       | 158.60               | 79.30           | 12 hrs./day for 90<br>days.                                | 171.30                              |
| (c) Shallow Tube-wells (2000 Nos.)                                       | 20.00                | 10.00           | Ditto  | 21.6                                |
| (d) Low-lift Pumps (2000 Nos.) ..  | 20.00                | 10.00           | Ditto  | 21.6                                |
| <b>Total Irrigation</b> ..   | <b>254.08</b>        | <b>..</b>       | <b>..</b>  | <b>284.20</b>                       |
| <b>B. Industries:</b>  |                      |                 |  |                                     |
| Based on taka 880 crore investment ..                                    | 293.00               | 234             | *60 % Y.L.F.   | 1230.00                             |
| C. Urban Development and Commercial                                      | 100.00               | 50              | Ditto  | 264.00                              |
| D. Rural Electrification Programme ..<br>(including Cottage Industries). | 15.00                | 10              | 6 hrs./day   | 32.85                               |
| <b>Grand Total</b> ..  | <b>711.08</b>        | <b>..</b>       | <b>..</b>  | <b>1811.00</b>                      |
| Present position ..  | ..                   | ..              | ..   | 1130.00                             |
| <b>Total in 1978</b> ..  | <b>..</b>            | <b>..</b>       | <b>..</b>  | <b>2941.00</b>                      |
|  |                      |                 | Say  | 2940.00                             |

\*Since most of the industries installed during the FFYP may not run at full capacity (three shift) for the initial years, yearly load factor may be assumed to 50 per cent for the new industries instead of 60 per cent for existing system. In that case, energy consumption during 1978 will be 2735.00 million KWH.



### GROWTH BASED ON POPULATION RELATED EQUATION

Briefly, the population related equation method involves the utilization of an empirical formula based on time series data from 97 countries which relates the annual load growth in percentage to the annual energy usage in KWH *per capita*. Given the current population of a country and the annual rate of population growth the formula will forecast energy consumption. To obtain a forecast of peak demand in MW it was assumed that the yearly load factor would not continue to increase in accordance with the past trend, due to the addition of considerable amounts of pumping load at low load factor (about 20 per cent), would remain at the present value of just under 60 per cent. Since the available data show similar energy trends for the Eastern and Western Grids, the same rate of growth was assumed for each. The same load factor was also assumed for each grid, with the result that the assumed percentage growth rates for peak demand on each grid are identical. The load growth projections by this method are shown below.

#### LOAD FORECAST BASED ON SCHEER'S FORMULA

Scheer's Formula :  $g = \frac{10^c}{U^{0.15}}$  where  
 $g$  = Percentage Energy growth per year.  
 $c = 1.33 + 0.02P$   
 $P$  = Average population growth rate.  
 $U$  = Energy consumption/capita in kwh.

Population in January, 1973 =  $74 \times 10^6$   
 Energy consumption/year =  $1440 \times 10^6$  kwh  
 Per capita energy consumption,  $U$ , = 19.6 kwh  
 Population growth rate,  $p$  = 3.0  
 $c = 1.33 + 0.02P$  = 1.39  
 $g = \frac{10^c}{U^{0.15}} = \frac{10^{1.39}}{19.6^{0.15}} = 15.6$

| Year. | Energy consumed in million Kwhr. |            |              |             | Peak Load in MW. |             |              |
|-------|----------------------------------|------------|--------------|-------------|------------------|-------------|--------------|
|       | East Zone.                       | West Zone. | Outside PDB. | Total.      | East Zone.       | West Zone.  | Total.       |
| 1973  | 850                              | 280        | 310          | 1440        | 170              | 53          | 223 (actual) |
| 1974  | 982.6                            | 323.7      | 310          | 1616.3      | 186.95           | 61.59       | 248.54       |
| 1975  | 1135.9                           | 374.2      | 310          | 1820.1      | 216.11           | 71.20       | 287.31       |
| 1976  | 1313.1                           | 432.6      | 310          | 2055.7      | 249.82           | 82.31       | 332.13       |
| 1977  | 1517.9                           | 500.1      | 310          | 2328.0      | 288.79           | 95.15       | 383.94       |
| 1978  | 1754.7                           | 578.1      | 310          | 2642.8      | 333.84           | 110.00      | 443.83       |
|       |                                  |            |              | Say, 334.00 |                  | Say, 444.00 |              |

Note—(i) It is assumed that energy consumption in 1973 would be 1130 million Kwhr by excluding the agricultural load and including the suppressed demand.

(ii) By 1973 additional peak load of 51 MW (irrigation 41, new and existing, rural electrification 10 MW) will be added to the system. Thus total peak load will be 495.0 MW, total consumption will be 2677.8 million Kwhr (including 345 MKWhr for irrigation & R.E.P) for the Power Development Board system.



## GENERATING CAPACITIES EXISTING

| Eastern Zone.           |    |           | Western Zone.       |    |           |
|-------------------------|----|-----------|---------------------|----|-----------|
| GRID:                   |    |           | GRID:               |    |           |
| 1. Kaptai               | .. | 80 MW     | 1. Goalpara SPS     | .. | 16.64 MW  |
| 2. Siddhirganj          | .. | 80 MW     | 2. Goalpara DPS     | .. | 7.80 MW   |
| 3. Siddhirganj Diesel   | .. | 10.75 MW  | 3. Goalpara GTPS    | .. | 24.00 MW  |
| 4. Ashuganj             | .. | 128 MW    | 4. Goalpara RMPS    | .. | 6.50 MW   |
| 5. Shahjibazar          | .. | 101 MW    | 5. Bheramara SPS    | .. | 8.00 MW   |
| 6. Chittagong GTPS      | .. | 13 MW     | 6. Smaller Stations | .. | 11.60 MW  |
| 7. Chittagong Diesel    | .. | 10.7 MW   |                     |    |           |
| 8. Smaller Stations     | .. | 6.2 MW    |                     |    |           |
| Total                   | .. | 429.65 MW | Total               | .. | 74.54 MW  |
| Isolated                | .. | 9.65 MW   | Isolated            | .. | 31.18 MW  |
| Eastern Zone Total      | .. | 439.30 MW | Western Zone Total  | .. | 105.72 MW |
| Total Existing Capacity |    |           | 545 MW              |    |           |

## Incoming

| Eastern Grid.           |    |        | Western Grid. |    |        |
|-------------------------|----|--------|---------------|----|--------|
| 1. Ghorasal             | .. | 110 MW | 1. Khulna     | .. | 60 MW  |
| 2. Kaptai               | .. | 50 MW  | 2. Bheramara  | .. | 60 MW  |
| 3. Chittagong           | .. | 60 MW  | 3. Khulna     | .. | 100 MW |
|                         |    |        | 4. Saidpur    | .. | 11 MW  |
| Total                   | .. | 220 MW | Total         | .. | 231 MW |
| Total Incoming capacity | .. | 451 MW |               |    |        |
| Total Existing capacity | .. | 545 MW |               |    |        |
| Grand Total             | .. | 996 MW |               |    |        |
| A. Eastern Zone         | .. | 660 MW |               |    |        |
| B. Western Zone         | .. | 336 MW |               |    |        |
| Total                   | .. | 996 MW |               |    |        |



## BREAK UP OF PDB SYSTEM PEAK LOAD, 1970

| Eastern Zone.            |    |                  | Western Zone.    |    |                 |
|--------------------------|----|------------------|------------------|----|-----------------|
| GRID                     |    |                  | GRID             |    |                 |
| Kaptai                   | .. | 35.00 MW         | Goalpara SPS     | .. | 10.20 MW        |
| Siddhirganj SPS          | .. | 15.30 MW         | Goalpara GTPS    | .. | 20.20 "         |
| Siddhirganj 50 MW        | .. | 32.00 MW         | Goalpara DPS     | .. | 3.00 "          |
| Shahjibazar              | .. | 56.40 MW         | Goalpara RMPS    | .. | 3.6 "           |
| Chittagong DPS           | .. | 0.50 MW          | Bheramara SPS    | .. | 1.50 "          |
| Ashuganj                 | .. | 27.00 MW         | Rajshahi         | .. | 2.00 "          |
| Feni                     | .. | 0.66 MW          | Sirajganj        | .. | 2.09 "          |
|                          |    |                  | Jessore          | .. | 0.35 "          |
| Total                    | .. | <u>166.86 MW</u> | Total            | .. | <u>42.94 MW</u> |
| ISOLATED                 |    |                  | ISOLATED         |    |                 |
| Mymensingh               | .. | 1.73 MW          | Thakurgaon       | .. | 4.15 MW         |
| Jamalpur                 | .. | 0.50 "           | Satkhira         | .. | 0.30 "          |
| Kishoreganj              | .. | 0.19 "           | Bogra            | .. | 2.92 "          |
|                          |    |                  | Rajbari          | .. | 0.33 "          |
| Cox's Bazar              | .. | 0.28 "           | Barisal          | .. | 1.59 "          |
|                          |    |                  | Chapai Nawabganj | .. | 0.18 "          |
| Netrakona                | .. | 0.15 "           | Kurigram         | .. | 0.09 "          |
|                          |    |                  | Gaibandha        | .. | 0.29 "          |
| Ajmiriganj               | .. | 0.04 "           | Bhola            | .. | 0.13 "          |
|                          |    |                  | Joypurhat        | .. | 0.09 "          |
| Sunamganj                | .. | 0.12 "           | Meherpur         | .. | 0.10 "          |
|                          |    |                  | Patuakhali       | .. | 0.91 "          |
|                          |    |                  | Jhalakathi       | .. | 0.02 "          |
| Total                    | .. | <u>3.01</u>      | Total            | .. | <u>11.10 MW</u> |
| GRAND TOTAL .. 223.91MW, |    |                  |                  |    |                 |
| Say .. 223 MW.           |    |                  |                  |    |                 |



## SUMMARY SHEET OF FIRST FIVE YEAR PLAN POWER PROGRAMME

(1973-74 to 1977-78)

(Taka in crore)

|   | Total.  | Foreign<br>Exchange. | Percentage<br>of Grand<br>Total. |
|---|---------|----------------------|----------------------------------|
| 1. Generation .. .. .                         | 63.194  | 31.209               | 15.00                            |
| 2. Primary Transmission .. .. .               | 40.288  | 15.515               | 9.50                             |
| 3. Secondary Transmission and Distribution .. | 267.260 | 126.285              | 63.00                            |
| 4. Miscellaneous .. .. .                      | 52.811  | 27.831               | 12.50                            |
| Grand Total ..                                | 423.553 | 200.840              | 100.00                           |
| Say ..  | 423.500 |                      |                                  |

## Part-I; Reconstruction and Rehabilitation:

|   |        |        |
|---|--------|--------|
| 1. Generation .. .. .                         | 5.576  | 2.831  |
| 2. Primary Transmission .. .. .               | 0.484  | 0.169  |
| 3. Secondary Transmission and Distribution .. | 17.358 | 7.888  |
| 4. Miscellaneous .. .. .                      | —      | —      |
| Total ..                                      | 23.418 | 10.888 |

## Part-II; On-going Schemes:

|   |         |        |
|---|---------|--------|
| 1. Generation .. .. .                         | 34.418  | 17.878 |
| 2. Primary Transmission .. .. .               | 21.254  | 7.697  |
| 3. Secondary Transmission and Distribution .. | 41.402  | 18.897 |
| 4. Miscellaneous .. .. .                      | 13.673  | 9.145  |
| Total ..                                      | 110.747 | 53.617 |

## Part-III; New Schemes:

|   |         |         |
|---|---------|---------|
| 1. Generation .. .. .                         | 23.200  | 10.500  |
| 2. Primary Transmission .. .. .               | 18.550  | 7.650   |
| 3. Secondary Transmission and Distribution .. | 208.500 | 99.500  |
| 4. Miscellaneous .. .. .                      | 39.139  | 18.686  |
| Total ..                                      | 289.389 | 136.336 |



## PHYSICAL TARGETS:

## Annexure IX

|                            |    |    |          | Estimated<br>Achievement<br>during Plan. | Position by<br>the end of<br>F. F. Y. P. |
|----------------------------|----|----|----------|--|--|
| A. Installed Capacity      | .. | .. | ..       | 451 MW                                   | 996 MW*                                  |
| B. Transmission Line       | .. | .. | ..       | 563 miles                                | 1,210 miles                              |
| C. Distribution Line       | .. | .. | .. 33 KV | 1888 miles                               | 3,130 miles                              |
|                            |    |    | 11 KV    | 10,622 miles                             | 15,000 miles                             |
| D. Pumps (Electrification) | .. | .. | ..       | 10,240 Nos.                              | 10,740 Nos.                              |
| E. Village Electrified     | .. | .. | ..       | 1,000                                    | 1,250                                    |

\*Some of the old generating units may be retired during the Plan Period.



## 11.2. NATURAL RESOURCES

### 11.2.1 History of Development of Natural Resources

In the pre-liberation period there were no full-fledged establishments for Geological Survey, Oil and Gas Development etc., in Bangladesh. Only a few small scale field offices were located here such as the Eastern Regional Office of the Geological Survey in Dacca and the Oil and Gas Development Corporation in Chittagong. The interests of Bangladesh were inevitably neglected under such a set-up.

We have only inadequate information about the geological environment, but the prospects of discovering economic and strategic minerals or mineral deposits seem bright. A promising resource potential has been established, part of which is in use and the rest awaits economic evaluation and development.

#### A. Rocks and Minerals

Investigations carried out by the GSB have revealed the existence of the following rocks and minerals in Bangladesh:

- (i) *Coal deposits in Jamalganj area*—Enormous deposits of Coal, totalling a thickness of about 140 feet, were discovered in the Jamalganj area of Bogra and Rajshahi districts in 1963. The mineable reserve of coal in the area is estimated to be 700 million tons at the minimum. A scheme for the development of Jamalganj Coal is under examination of the Government. Recent estimates show the reserve to be as high as 1,600 million tons which in heating value is equivalent to about 4-6 times the gas reserves of Bangladesh. However, its presence at depths under alluvium of about 2,700—3,000 feet requires the use of sophisticated and costly mining techniques. Exploitation of this source may not be expected before 1980.
- (ii) (a) *Lime-stone deposit of Jamalganj-Jaipurhat area*—An extensive deposit of lime-stone, discovered in 1963 is about 80 feet thick and lies about 1,600 feet below the surface. The estimated mineable reserve is 200 million tons. A development scheme has already been drawn up for mining of lime-stone and setting up a Cement Plant.
- (b) *Lime-stone of Takerghat, Sylhet*—The deposit was discovered in 1950-51 and it ranges from 30 to 200 feet in thickness. The estimated reserve is 3 million tons. On average, one hundred and thirty thousand tons of lime-stone are being mined per year for the Chhatak Cement Factory.
- (c) *Lime-stone of St. Martin's Island, Chittagong*—The deposit was discovered in 1960. The estimated quantity of the deposit is 1.8 million tons which still remains unused.
- (iii) *White Clay deposits of Bijoypur, Mymensingh*—The deposit was discovered in 1957 and it ranges in thickness from 8 to 14 feet with an average of 10 feet. The estimated reserve of the clay is about 0.2 million tons which is being utilised by almost all the ceramic industries of the country.



(iv) *Glass Sand deposits of Shahjibazar-Noyapara in Sylhet.*—The deposit was discovered in 1950. The workable reserve of glass sand in this area is about 0.4 million tons. The sand is being utilised by the glass industries of Bangladesh. Recently some more glass sand deposits in the districts of Sylhet and Chittagong have been discovered, and they are being utilised.

(v) *Hard Rocks of Ranipukur in Rangpur District.*—The deposit was discovered in 1966. Large quantities of hard rocks (igneous and metamorphic) are present at about 500 feet below the surface in the Ranipukur area of Rangpur district. These rocks when mined can be used for construction of roads, bridges, dams, heavy buildings and many other engineering structures. Rocks at lower depths indicates the possibilities of finding economic mineral and metallic ore deposits along the fault and fracture zones. The basement complex warrants a thorough search.

(vi) *Beach Sand Mineral Deposit.*—The placer concentration of heavy minerals of the Cox's Bazar Beach Sand contain a substantial amount of strategic minerals such as monazite and zircon along with rutile, ilmenite, and magnetite etc. The Atomic Energy Commission (AEC) in close co-operation with the Australian Government, is actively planning to set up a pilot plant at Cox's Bazar in connection with the exploitation of minerals from beach sand.

## B. Oil

(a) Till 1947 the only worthwhile exploratory work was done by Burmah Oil Company (B.O.C.) and its predecessor White Hall Petroleum Company. Subsequently the work was activated by STANVAC & Shell Oil Company respectively. As a result, the following structures in areas mentioned below were identified and exploratory works were carried out by various oil companies.

|  |   |                                     |
|--|---|-------------------------------------|
| (i) Patia, Chittagong .. .. .                                | } | B.O.C.                              |
| (ii) Patharia, Sylhet .. .. .                                |   |                                     |
| (iii) Sitakund, Chittagong .. .. .                           |   | White Hall Petroleum Company.       |
| (iv) Hazipur (Modhupur), Tangail .. .. .                     |   | STANVAC.                            |
| (v) Kuchma and Bogra .. .. .                                 |   | Ditto.                              |
| (vi) Kailas Tilla, Rashidpur, Habiganj, Titas and Bakhrabad. |   | Shell Oil Company.                  |
| (vii) Tangra Tilla, Haripur, Sylhet .. .. .                  |   | B.P.L. (Bangladesh Petroleum Ltd.). |

(b) During the last two decades, particularly during 1955—65, a considerable part of the prospective areas was covered with surveys of varying detail leading to drilling and discovery of commercial reserves of gas in almost all the structures mentioned at sl. vi & vii above.



(c) The OGDC was established in 1961 for conducting exploration, development, production, refining and marketing of oil and gas resources in the public Sector. The Government of the USSR provided technical know-how and equipment financed out of special Soviet loan.

Actual work under this assistance started in 1962. Extensive geological, including geomorphological, aeromagnetic and other geophysical studies were begun. Based on earlier information and the USSR expert's deductions, drilling of 4 deep and 4 relatively shallow wells were carried out at Jaldi and Semutang. One well at Semutang showed occurrence of gas and one well at Jaldi is at the final stage of production testing.

(d) Cumulative efforts of various private oil company's and OGDC led to the identification of some more structures as follows :

- (i) Jaldi, Chittagong—Drilled up to 4500 Meter and has a possibility of the presence of Gas. Production testing of One well is being undertaken.
- (ii) Semutang, Chittagong—Gas has been found but the present available reserve is inadequate for commercial exploitation.
- (iii) Olah Taung, Gobamura, Sitapahar, Chittagong Hill Tracts.
- (iv) Inani, Dakhin Nhila, Chittagong.
- (v) Lalmai, Daud Kandi, Comilla.
- (vi) Begumganj, Noakhali.
- (vii) Muladi (Hizla), Barisal.
- (viii) Patuakhali.

(e) So far, only two structures (Jaldi & Semutang) have been drilled by OGDC but lower and probably more prospective horizons have remained untested in both the places. The reasons for not drilling deeper horizon could be many. These could probably include lack of appropriate technical interpretation, international petroleum politics, lack of interest of the erstwhile colonial government for Bangladesh, foreign oil Companies interest in the leased area *vis-a-vis* their global interest. Although 'Oil Shows' have been recorded in one or two exploratory wells no discovery has at yet been made. It is not unlikely, however, that the continued exploration may succeed in locating oil in this vast sedimentary basin of Bangladesh.

(f) The task of exploration of oil & gas requires huge risk capital and expert services. In view of the importance of oil in an economy, the First Plan envisages on a priority basis exploration activities partly under OGDC and partly through foreign oil companies. The off-shore exploration is more arduous and expensive. Earlier Shell Oil Company drilled one well at Cox's Bazar. Although the result of that drilling was not very encouraging, prospective structures for drilling may be discovered in the Bay of Bengal.



(g) Recently a group of experts from the Ministry of Geology, USSR, after their visit during February-March 1973, submitted a recommendation for 1973-75 in which they have divided the areas of petroleum prospecting into three zones as under :

- (i) Bengal basin underlies thick series of sedimentary deposits which may have bright prospects for oil and gas. A number of structural units of possible potentiality such as Barisal-Chandpur-Daudkandi uplift zone, Khulna and Madhupur uplift zone have been identified by geophysical and geomorphological studies. None of these structures have been drilled.
- (ii) The platform slope, the continuation of the Indian Platform meets the basin on the West and North along the Calcutta-Pabana-Hazipur hinge line. The experts reckon that the hinge line is of interest for Petroleum exploration because of the possibility of reef deposits in this area.
- (iii) The folded flank constitutes en-echelon folds of Sylhet, Comilla, Noakhali and Chittagong. In these areas except for a few, most of them have cropped out on the surface as intensive tight folds. In this zone natural gas has already been discovered.

## C. Gas

Seven gas fields have so far been discovered. Of them four fields are producing gas while the fields at Bakhrabad, Kailastila and Rashidpur are yet to be exploited. The total proven reserve is between 8 to 9 million million cubic feet shown in Table XI-1 and possible reserves from the same fields may be of the order of 17 million million cubic feet.

TABLE XI-1  
Gas Reserves in Bangladesh.

| Field.         | Proven Reserve<br>(in million million cft.). | Quality<br>(Methane percentage). | Condensate recovery<br>BBL/10 <sup>6</sup> cft. | Calorific value<br>Gross<br>BTU/cft. | Mercaptan Sulphur<br>Grains/<br>100 cft. | Year of discovery. |
|----------------|--|----------------------------------|---|--------------------------------------|--|--------------------|
| 1. Sylhet ..   | 0.28-0.43                                    | 95.49                            | 3.7   | 1052                                 | 0.29                                     | 1955               |
| 2. Chhatak ..  | 0.04   | 99.05                            | Trace   | 1007                                 | Nil                                      | 1959               |
| 3. Rashidpur   | 1.06   | 98.020                           | 0.3   | 1014                                 | Nil                                      | 1960               |
| 4. Kailas ...  | 0.60   | 95.70                            | 10.0  | 1050                                 | Nil                                      | 1962               |
| 5. Titas ...   | 2.25   | 96.90                            | 1.7   | 1036                                 | Nil                                      | 1962               |
| 6. Habiganj .. | 1.28   | 97.80                            | 0.05  | 1020                                 | Nil                                      | 1962               |
| 7. Bakhrabad   | 2.78-3.70                                    | 94.03                            | 2.0   | 1022                                 | Nil                                      | 1963               |
| Total ..       | 8.29-9.36                                    |                                  |   |                                      |  |                    |

8. Jaldi—Production testing is being undertaken.

9. Semutang —Approximately 0.03 million million cft.



(ii) For many years, the use of gas was confined mainly to the Fenchuganj Fertilizer Factory and the Chhatak Cement Factory. For Power generation, gas was first taken to Shahjibazar in the year 1968-69 from the Habiganj Gas field. Large scale use of natural gas for diversified uses as generation of power, industrial, commercial and domestic uses commenced in 1968 after the discovery of the Titas Gas Field and the establishment of the Titas Gas Transmission and Distribution Company in 1964. The Company took up a development scheme for implementation in the year 1964 at a cost of Taka 10.25 crores with a F.E.C. of Taka 3.66 crores. As regards physical progress, the company has ensured supply to the consumers by restoring the gas supply from Titas field through two 6" and 4" temporary pipelines across the Meghna. Preparations are in progress for completing the 14" gas pipeline along the Bhairab bridge. The progress made by TGTD Co. during the year 1972-73 is shown in Table-XI-2.

TABLE XI-2  
Physical Progress of TGTD Co.

|                          | Total mileage of pipe line laid. | Off-take in million cft/day. | No. of consumers.               |            |          |       |
|--------------------------|----------------------------------|------------------------------|---------------------------------|------------|----------|-------|
|                          |                                  |                              | Industry, Power and Fertilizer. | Commercial | Domestic | Total |
| Prior to Liberation      | 214                              | 21                           | 39                              | 41         | 1655     | 1735  |
| Addition during 1972-73. | 12                               | 34                           | 35                              | 104        | 2481     | 2620  |
| Total                    | 226                              | 55                           | 74                              | 145        | 4136     | 4355  |

(iii) The quality of gas in Bangladesh is one of the purest as the percentage of total hydrocarbon remains always over 94 % thus keeping the calorific value comfortably over 1000 BTU/cft. Costly purification plants are not needed but absence of impurity also precludes possibilities of diversified manufacture. The economic use of primary energy source for various purposes has a profound bearing on the country. Therefore, it is necessary to evaluate the costs and benefits of the alternative uses of energy sources to ensure its optimum use. For the earlier period (*i.e.*, possibly before 1980) natural gas is the only available economic energy source in the country.

(iv) At present the main users of gas are NGFF/Fenchuganj (10MMCFD)<sup>1</sup>, UFF/Ghorashal (35MMCFD), CCF/Chhatak (5MMCFD), Siddhirganj Power Station (11MMCFD), Ashuganj Power Station (15MMCFD), Shahjibazar Power Station (16MMCFD), other industries (3.5 MMCFD), and Commercial and Domestic consumers (0.15MMCFD). More varied use may be found with the establishment of a petrochemical complex and a fertilizer factory.

(v) According to a frequently used rule of thumb for determining the maximum production rate, a gas field which can support, one trillion cu. ft. of recoverable reserve would justify a 20-year plateau rate of 100 million cu. ft./day. Therefore, excluding the small Chhatak and Sylhet fields, Bangladesh has enough reserves to support a production rate of 800 million cu. ft./day for 20 years. At present the total utilization of natural gas in Bangladesh is only

<sup>1</sup> MMCFD— Million Cubic Feet per day.



about 96 million cu.ft./day. Assuming a growth rate of 10 per cent per annum, the total requirement of Bangladesh till the year 2000 comes to about 4.0 million million cu.ft. Therefore Bangladesh would still have sufficient reserves to either export gas or use it locally at the rate of 400 million cu.ft./day for at least another 20 years. There should, therefore, be more use of gas along with attempts to find more gas reserves in areas, in the land and off-shore, which are yet to be explored. In the past the success rate of wild-cat wells in the on-shore of Bangladesh has been exceptionally good.

(vi) Out of the proven reserves of 8.29—9.36 million million cft. roughly 33 per cent would support 2250 MW of capacity over a period of 30 years at an average plant factor of 50 per cent. If 45 per cent of the reserve is deployed for power, the gas would support about 3200 MW of gas fired capacity over its economic life (30 years at 50 per cent plant factor). This may be seen in the perspective of a power generating capacity target of 996 MW by 1978, i.e., at the end of the First Plan.

(vii) On the basis of another exercise the gas consumption projection up to 2000 may be seen in Table XI-3.

TABLE XI-3  
Estimated Gas Usage in Bangladesh.

| Categories.                | Dispensed Usage. |      |      |      |      |      |      |
|----------------------------|------------------|------|------|------|------|------|------|
|                            | 1970             | 1973 | 1975 | 1978 | 1980 | 1985 | 2000 |
| Power ..                   | 45               | 40   | 100  | 100  | 100  | 200  | 700* |
| Fertilizer ..              | 23               | 48   | 100  | 150  | 150  | 190  | 230  |
| Petrochemical ..           | ...              | ...  | ...  | ...  | 75   | 100  | 125  |
| Cement ..                  | 0.25             | 5    | 5    | 5    | 18   | 18   | 18   |
| Pulp and Paper ..          | ...              | ...  | 3    | 3    | 62   | 92   | 92   |
| Big and Medium Industries. | 2                | 2    | 20   | 23   | 50   | 80   | 100  |
| Cottage, Small Industries. | ...              | ...  | 2    | 2    | 5    | 10   | 30   |
| Commercial/Domestic uses.  | 1                | 1    | 5    | 5    | 10   | 15   | 25   |
| Agriculture ..             | ...              | ...  | ...  | ...  | 10   | 25   | 25   |
| Total Daily consumption.   | 71.25            | 96   | 235  | 288  | 480  | 730  | 1345 |

Total Consumption by 2000 will be far less than total proven reserve.

\*700 million cft. of gas per day can support 5000 M.W. gas fired steam generating station at 60 per cent. Plant factor.



*D. Eastern Refinery Limited (ERL)*

(a) The Eastern Refinery Limited was set up at Chittagong in 1967 with an installed capacity to process 1.5 million tons of crude oil per year at a gross investment of US\$ 34 million. The plant was originally designed to process low sulphur Agajari crude from Middle East sources, but it was later decided to process Agajari and Murban in the ratio of 60:40 in order to have flexibility in crude purchase and produce more of the middle distillates, i.e., JP-1/JP-4, SKO, IKO, HSD, MS, etc., which were in high demand in the country. It went into production in May, 1968, and till December, 1972 about 3.7 million tons of crude were processed.

(b) This post-liberation crude oil charge rate represented about 50 per cent. of the rated plant designed capacity per year. The unusually low utilization factor was due to a variety of reasons including:

- (i) Disruption in delivery of crude supplies from traditional sources.
- (ii) Non-availability of crude oil at preferred prices.
- (iii) Excessive capital related charges.
- (iv) Operations at less than full capacity.
- (v) Absence of clear lines of authority in the management of ERL.
- (vi) Absence of adequate Jetty facilities for crude intake.
- (vii) Failure to repair the off-shore Oil Terminal (OSOT) outside Chittagong Port. The OSOT built for the purpose of loading/unloading has seldom functioned properly since installation of the single buoy mooring (SBM) in 1968. Since commissioning ERL has received over 3.5 million tons of crude without the services of OSOT and for that the country incurred lighterage charge of over Taka 350 lakhs. The repair or installation of a new OSOT will mean annual saving in foreign exchange of about Taka 295 lakhs at the minimum.

(c) Extension and improvement in the performance of the refinery will depend on the removal of these difficulties and bottlenecks and addition of new processing facilities or change in existing facilities so that the refinery has sufficient flexibility in processing high sulphur crude. It has also to be ensured that all by-products of the refinery are utilized to the best economic advantage of the refinery.



(d) Figures below (Table XI-4) shows ERL output and Table XI-5 shows the type of crude handled during 1969-72:

TABLE XI-4

ERL Production for the year 1969-72.

(All figures in tons)

| Product         | 1969     | 1970     | 1971     | 1972     |
|-----------------|----------|----------|----------|----------|
| Naptha .. .. .  | 56,546   | 28,309   | 40,667   | 36,363   |
| M. S. .. .. .   | 64,788   | 62,957   | 43,172   | 41,870   |
| HOBC .. .. .    | 1,974    | 4,246    | 1,719    | 2,853    |
| JP-1 .. .. .    | 12,668   | 34,131   | 25,784   | 6,283    |
| JP-4 .. .. .    | 4,544    | 5,856    | 2,726    | 2,749    |
| SK .. .. .      | 1,52,891 | 1,63,461 | 1,45,206 | 1,55,793 |
| IK .. .. .      | 1,17,169 | 39,732   | 44,316   | 5,186    |
| HSD .. .. .     | 85,443   | 87,954   | 53,025   | 67,771   |
| LDO .. .. .     | 7,254    | 10,807   | 29,076   | 32,894   |
| JBO .. .. .     | 14,422   | 56,175   | 41,450   | 41,461   |
| FO (HS) .. .. . | 3,74,421 | 3,25,759 | 3,03,258 | 3,12,884 |
| FO (LS) .. .. . | 23,270   | 18,853   | 16,897   | 25,573   |
| SBP .. .. .     | —        | 128      | 148      | 120      |
| MTT .. .. .     | —        | 24       | 239      | 531      |
| Total ..        | 9,13,410 | 8,18,392 | 7,45,685 | 7,32,331 |

TABLE XI-5

Crude Trade

(All in tons)

| Type of Crude.   | 1968.    | 1969.    | 1970.    | 1971.    | 1972.    |
|--|----------|----------|----------|----------|----------|
| Aghajari .. .. .   | 2,50,547 | 5,60,915 | 4,28,682 | 4,53,446 | 3,67,491 |
| Light Arabian/Heavy Arabian,<br>Rustum, Sepecial Arabian,<br>Arab mix. | ...      | ...      | ...      | 32,977   | 2,47,382 |
| Murban .. .. .   | ...      | 4,04,293 | 4,64,570 | 3,08,090 | 2,02,433 |
| Titas Condensate .. .. .   | ...      | ...      | 300      | 329      | 1,902    |
| BPL Condensate from Sylhet<br>Gas field.                               | ...      | ...      | 600      | 600      | 600      |
|  | 2,50,547 | 9,65,208 | 8,94,152 | 7,95,442 | 8,19,808 |



(e) In Table XI-6 below is presented ERL's production Plan of some major middle distillates and the country's requirement of POL products and probable deficit between July 1973 to June 1974.

TABLE XI-6

## ERL Production Plan

(All figures in tons)

| POL products.   |     |     | Country's<br>Requirement<br>estimate | ERL Production<br>estimate | Deficit (to be<br>imported) |
|-----------------|-----|-----|--------------------------------------|----------------------------|-----------------------------|
| AV. Gas 100/130 | ... | ... | 1,100                                | ...                        | 1,100                       |
| ON 73           | ... | ... | 200                                  | ...                        | 200                         |
| JP-1            | ... | ... | 34,000                               | 15,000                     | 19,000                      |
| JP-4            | ... | ... | 600                                  | 600                        | ...                         |
| HOBC            | ... | ... | 4,180                                | ...                        | 4,180                       |
| MS              | ... | ... | 80,330                               | 52,500                     | 27,830                      |
| SKO             | ... | ... | 4,05,000                             | 1,57,500                   | 2,47,500                    |
| IKO             | ... | ... | 2,45,000                             | ...                        | 2,45,000                    |
| HSD             | ... | ... | 1,87,000                             | 80,250                     | 1,06,750                    |
| LDO             | ... | ... | 62,000                               | 25,500                     | 36,000                      |
| FOHS            | ... | ... | 5,55,000                             | 5,10,000                   | 45,000                      |
|                 |     |     | 15,74,410                            | 8,41,350                   | 7,33,060                    |

The impact of the deficit will be felt more acutely, when the plant will be shut down for servicing in the 4th quarter of 1973. Hence, it is imperative that stocks should be built up well in advance.

In view of the continuously deteriorating condition of the refinery, the reserve stock should be 25 per cent more than the estimates of the deficit requirements given in Table XI-6.

(f) The long term requirements of POL up to 1978, are presented in Table XI-7. The fast rising prices of both crude and POL are due to the recent energy crisis in USA and the heavy buying by both USA and Japan. The oil exporting countries are also trying to secure higher revenues for themselves. Bangladesh will have to study these developments and seek solutions not only through a carefully planned procurement strategy but through development of relationships with the oil exporting countries, well in time.



TABLE XI-7  
Long Term Estimates and Projection of POL Products

[All figures in tons]

| Products.        | 1970.     | 1971.   | 1972.   | 1973.     | 1974.     | 1975.     | 1976.     | 1977.     | 1978.     |
|------------------|-----------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| Av. Gas 80/87 .. | 304       | 320     | 105     | 300       | 500       | 500       | 500       | 500       | 500       |
| 73-ON ..         | 58        | 61      | 85      | 150       | 200       | 200       | 200       | 200       | 200       |
| 100/130 ON ..    | 162       | 74      | 942     | 1,500     | 1,100     | 2,000     | 2,000     | 2,000     | 2,000     |
| JP-1 ..          | 40,175    | 33,097  | 13,606  | 31,000    | 34,100    | 37,500    | 41,250    | 45,500    | 50,000    |
| JP-4 ..          | 6,715     | 4,718   | 2,379   | 600       | 600       | 600       | 600       | 600       | 600       |
| HOBC ..          | 3,180     | 1,837   | 2,421   | 3,800     | 4,180     | 4,600     | 5,100     | 5,600     | 6,200     |
| MS ..            | 67,775    | 42,218  | 51,644  | 72,300    | 80,330    | 90,000    | 95,500    | 105,000   | 120,300   |
| SKO ..           | 212,534   | 166,746 | 231,171 | 372,000   | 405,000   | 425,000   | 445,000   | 490,000   | 540,500   |
| IKO ..           | 200,970   | 117,063 | 32,812  | 228,000   | 245,700   | 255,500   | 280,000   | 300,000   | 330,400   |
| IISD ..          | 96,004    | 67,005  | 112,679 | 170,000   | 187,000   | 206,000   | 226,000   | 249,000   | 274,000   |
| LDO ..           | 58,814    | 34,913  | 31,741  | 57,000    | 67,700    | 69,000    | 76,000    | 84,000    | 92,400    |
| FOHS ..          | 465,139   | 293,486 | 272,935 | 505,000   | 555,000   | 611,000   | 672,000   | 739,000   | 813,000   |
| JBO ..           | 43,732    | 31,115  | 36,655  | 48,000    | 52,800    | 58,100    | 64,000    | 70,500    | 77,500    |
| SBP ..           | 276       | 134     | 102     | 300       | 400       | 2,000     | 5,000     | 7,500     | 10,000    |
| MTT ..           | 458       | 205     | 141     | 500       | 1,200     | 1,500     | 2,000     | 2,500     | 3,000     |
| LUBS ..          | 17,653    | 8,829   | 7,863   | 18,000    | 20,000    | 22,500    | 25,000    | 28,000    | 32,000    |
| GREASE ..        | 471       | 208     | 136     | 500       | 500       | 750       | 750       | 1,000     | 1,200     |
| BITUMEN ..       | 1,099     | 325     | ..      | 50,000    | 60,000    | 75,000    | 85,000    | 100,000   | 120,000   |
| WAX ..           | 55        | 67      | ..      | 200       | 300       | 500       | 750       | 1,000     | 1,200     |
| FOIS ..          | 21,816    | 14,947  | 20,383  | 30,300    | 33,330    | 37,000    | 41,000    | 4,500     | 49,000    |
| NAPHTHA ..       | 42,932    | 33,535  | 42,833  | 40,500    | 44,550    | 49,000    | 54,000    | 59,000    | 65,000    |
|                  | 1,280,322 | 850,904 | 860,633 | 1,629,950 | 1,789,990 | 1,850,250 | 2,122,200 | 2,325,900 | 2,590,000 |



### 11.2.2 Plan Objectives and Policies

#### A. Objectives

- (i) To remove the imbalance between the gas discovered so far and the transmission and distribution facilities.
- (ii) To initiate, on a priority basis, exploration of oil and gas.
- (iii) To accelerate surface and sub-surface geological investigation and mapping.
- (iv) To reorganize and develop institutional facilities including physical facilities of the concerned agencies.
- (v) To impart training to improve technical capabilities of the professionals.

#### B. Policies

- (i) Emphasis will be placed on the use of gas as fuel for domestic, industrial and commercial purposes in the urban areas.
- (ii) Arrange optimum use of gas for generation of power.
- (iii) Exploration, development and marketing of oil and gas should be treated as an integrated function. The task should be the responsibility of a single corporation.
- (iv) Duality of authority between the Ministry of Industries and the Ministry of N.R. & S.T.R. should be eliminated.

### 11.2.3 Plan Strategies

A. Exploration for Petroleum has been identified as an arduous and expensive process. The following steps are suggested in this connection :

- (a) All reasonable measures should be taken to attract the large, high risk investment that such ventures will require.
- (b) Necessary technical expertise may need to be obtained from outside. A local infra-structure will be developed to sustain petroleum exploration and the following will be required :
  - (i) Delineation of specific areas for gas/oil prospecting will be difficult without sufficient laboratory tests and research. Full-fledged facilities in this respect will be set up.
  - (ii) Without geo-chemical studies indications of petroleum prospects on certain geological formations are difficult to obtain. Oil and Gas Development Corporation should create facilities for such studies.
- (c) Details of data for the areas of confluence of two or more structural zones are not available. Exploration should now be taken up in these areas. Necessary studies should be undertaken to see if scope for deep drilling exists.



- (d) Geological and geophysical studies for oil lease cover a very limited area of Bangladesh. The southern or south-western part including north Bengal received almost no attention. The Barisal structure has been recommended by USSR experts for drilling for its size and very gentle attitude of beds and nearness to the industrial areas of Khulna and Jessore. If oil/gas is discovered in commercial quantities in this area the consumption would not only resolve the energy crisis in the Western Zone but will also save substantial investments on long distance transmission lines from the east. For this it is proposed that the Rig lying at Semutang in Chittagong be moved to Muladi in Barisal.
- (e) Geologically, the eastern part of Bangladesh is closely linked with the Assam-Arakan Petroliferous region and there is no reason to believe that oil may not be discovered here. The Oil and Gas Development Corporation's exploration were confined mainly to Chittagong, Sylhet and some southern districts. In the plan period the Corporation will initiate exploration activities on a number of geological structures so far identified.
- (f) The possibility of off-shore oil prospecting may also be examined. But resource constraint and non-availability of local experts and technical know-how may require foreign collaboration.

B. (i) In the industrial and economic development of Bangladesh there is a great demand for petroleum products. In Bangladesh at present approximately one million ton of crude oil is imported and refined at the Chittagong Refinery. Although the present need of Petroleum product is met through ERL and some import, there is likely to be a gradual increase in the demand for these products. As such the possibility of either expanding the existing capacity of ERL or establishment of a new refinery needs to be considered in the near future.

(ii) The costs of crude and petroleum product imports amount to Taka 36 crores during the current financial year. This may rise up to Taka 80 crores per year at the end of the First Plan period. Therefore, it is essential to explore the possibility of substituting indigenous resources such as natural gas for oil in such areas, as power generation, domestic kerosene consumption and as a prime mover in industry.

C. (i) As a raw material substitute in the petro-chemical sector, gas utilisation will seek to save foreign exchange by producing PACN fibre as a cotton substitute, PVC as a metal substitute and urea as a vital input for food production. Various by-products of the petro-chemical sector will have a high foreign exchange saving potential.

(ii) The strategy adopted for expansion of the gas system will be to balance the existing distribution network in such a manner as to : (a) maximise the capacity utilization of the transmission system with minimum input so that in the relatively short run benefits of natural gas can be brought to as many consumers as possible, (b) prepare a master plan for building a countrywide network in a phased manner.

D. (i) The geological outline of the country needs to be clearly known for identification of the most promising areas for mineral or oil exploration. As such, necessary conditions must be created to launch a plan for extensive as well as intensive geological operations in the country



so as to achieve short, medium and long term targets in the minimum possible time. Primary work must, therefore, be initiated by the existing GSB to :

- (i) accelerate the pace of regional mapping;
  - (ii) undertake geophysical survey;
  - (iii) conduct research in stratigraphy, geomorphology; geochemistry, marine geology and petrology etc.;
  - (iv) appraise resources in connection with economic geology;
  - (v) build up in due course a number of teams capable of undertaking any future development projects;
  - (vi) set up data centre to collect, compile and process all geological information. This is vital for first five year geological activities.
- (ii) The value of geologic field work depends on the laboratory analysis of the samples and data collected in the fields. Laboratory facilities should, therefore, be built up commensurate with the expanded needs of GSB and OGDC.
- (iii) Exploration and development of ground-water as a necessary input to the agriculture sector, is closely linked with the study of the hydro-geological situation, aquifer characteristics, etc. Emphasis has, therefore, to be placed on a systematic survey in reference to geo-chemistry of groundwater in Bangladesh because the existing data seems to be inadequate for the purpose.

#### 11.2.4 Investment Programme

##### A. Reconstruction Programme (Gas)

This sector did not suffer any significant damage during the war of liberation. The Titas Gas Transmission and Distribution line was damaged due to the blowing up of Bhairab bridge by the Pak Army. This led to a reduction in the off take of gas but this will be made good with the repair of the Bhairab bridge by the end of September, 1973. Some seismic equipment and appliances of OGDC were also destroyed. In the GSB some transports and field facilities were damaged. The sum total of damage is not very substantial. Taka 10 lakhs including Taka 3 lakhs in F.E. has been provided for in the reconstruction programme.

##### B. Exploration and Development of Oil and Gas (OGDC)

- (i) Within the allocation made to them, the Oil and Gas Development Corporation will take up two schemes in the First Five-year Plan, one on-going and the other new. The on-going scheme, was started in 1964. Apart from conducting surveys in prospective areas of Bangladesh, four deep and four comparatively shallow drilling operations were carried out under this scheme, at Jaldi and Samutang. Only one well at Jaldi is at the final stage of production testing.
- (ii) On the basis of the geological, seismic and gravity surveys new drillings would be taken up at various regions in Bangladesh. Prospective structures proposed for test drilling during the Plan period are: Muladi, Begumganj, Sitakunda, Patharia, Olah Taung. Muladi has been considered as the first location for deep drilling. Approximate set up depth of the well on this structure would be about 4,500 meters, and penetration of upper Bhuban is expected. In the process of drilling the set-up depth of the well should be co-related with the available data. Efforts would be made to reach the Barail Series of Oligocene period which will be of significant interest.



(iii) Other programme include surveys (seismic, gravity and geological) in selected regions and detailed and semi-detailed geological mapping at Madhupur, Khulna, Chandpur and Sylhet. During the second year of the Plan period seasonal field work should be carried out on Madhupur uplift zone. The purpose of the work is to confirm the presence of the uplifted zone and to find out probable complications on the supposed reef body.

(a) Geological surveys will be conducted at Dakshin Nihila, Sitapaliar, Inani, Sylhet and mapping and collection of structural data for correct evaluation of their prospects for oil/gas will be made during the period October, 1973 to March/April, 1974.

(b) Geophysical survey (reflection) will be conducted in Khulna area. As a result of gravity surveys carried out earlier, presence of good structures was indicated. The proposed seismic survey is aimed at proving the positive anomaly and to locate suitable drilling points.

(c) Gravity survey will be conducted in Dacca and Faridpur. Earlier geomorphological studies indicate existences of oil/gas bearing structure under the alluvial plain. Faridpur region indicates the presence of a trough, which may yield oil/gas. The object of gravity survey is to determine the precise location and extent of the trough, to be confirmed later by seismic surveys. Similarly in the uplifted zone (underground) of Dacca extending to Barisal, suitable structures may be found for which a gravity survey is proposed during November 1973 to April 1974.

(iv) To assimilate and analyse the findings of various drillings and surveys proper laboratory facilities shall be created during the First Five-Year Plan.

#### C. Bangladesh Mineral Oil and Gas Corporation (BMOGC)

The BMOGC will undertake the following Programme:

##### (a) Feasibility Studies:

(i) To meet the energy requirement for Western Zone feasibility studies on various alternatives like setting up of an additional refinery or East-West interconnector or nuclear power plant, etc., would be made.

(ii) A feasibility study of Chittagong-Chandpur Oil pipe-line would also be made.

(iii) Feasibility of creating increased storage capacity of Petroleum products in the Western Zone will be explored.

##### (b) ERL:

(i) Asphalt bitumen plant: An asphalt bitumen plant would be set up to manufacture bitumen of different grades from furnace oil available locally from our refinery capacity. The plant will have an annual capacity to produce 50,000 tons with scope for further expansion.

(ii) LPG unit to utilise surplus petroleum gas (Butane and Propane)—At present about 31,000 tons of petroleum gas remain unutilised after processing of crude and is left to burn in the air at ERL. This can be liquified and used as industrial and domestic fuel.

(iii) Off-shore Oil Terminal (OSOT): Economic operation of ERL is vitally linked with the proper functioning of OSOT. Economic operation of ERL is only possible if crude oil is discharged from lighters berthed at an OSOT and pumped to the refinery through submarine pipeline.



- (1) The existing OSOT will be repaired and commissioned by the middle of 1974 as an ad-interim measure.
- (2) A feasibility study will be undertaken to investigate the most suitable location for constructing a Deep Water Terminal (DWT) to cope with the larger imports of oil and the increasing size of oil tankers.
- (iv) *Balancing of the Refinery:* Crude is normally associated with sulphur and sulphur compound in various forms. RRL is designed to process crude with only per cent sulphur at the maximum. When the desulphurisation plant is installed, the refinery will have flexibility of selecting high sulphur cheap crude.
- (c) *Gas:*
- (i) In the BMOGC (Gas) two big and one small gas transmission projects outside the Titas franchise area would be taken up during the Plan period. Titas Gas Transmission and Distribution including Greater Dacca will be the responsibility of TGID Co. Table XI-8 will show present and projected off-take of gas in MMCF/day for different consuming units.

TABLE XI-8

Present Status of Transmission and Distribution of Gas and Physical Targets at the end of Plan Period.

| Projects.  | Present off-take (1973). MMCF/Day). | Projected off-take at the end of the Plan period (1978). (MMCF/Day) |
|--|-------------------------------------|---|
| 1 Titas Gas Transmission and Distribution in Dacca and Greater Dacca including Siddhirganj Power Station (From Titas).   | 15                                  | 20  |
| 2 UFF/Ghorashal Power Station (From Titas) ..  | 35                                  | 65  |
| 3 CCF/Chhatak (From Chhatak) including Power ..  | 5                                   | 5   |
| 4 Power, Industrial, Commercial and other uses in Chittagong area and 1 million ton Fertilizer Factory (From Bakhrabad). |                                     | 140   |
| 5 Ashuganj Power Station (From Titas) ..   | 15                                  | 20  |
| 6 Shahji Bazar Power Station (From Habiganj) ...   | 16                                  | 20  |
| 7 NGFF Fenchuganj (From Sylhet) .....  | 10                                  | 15  |
| 8 Pulp and Paper ..  |                                     | 3   |
| Total ..   | 96                                  | 288   |



**(ii) Schemes under existing Titas Franchise:**

The following projects which are extension to existing Titas system are included in the first Plan:

1. Dacca and Greater Dacca distribution network.
2. Joydevpur distribution main project.
3. Narayanganj distribution network.
4. Sitalakhya east bank project.
5. Savar distribution main project.
6. Bhairab Bazar distribution network.
7. Ghorasal distribution net work.
8. Brahmanbaria distribution network.
9. Titas-Ashuganj Parallel pipe-line project.

**(iii) Schemes outside Titas Franchise:**

1. *South-eastern gas trunk line*—This trunk line will originate from Bakhrabad Gas field to cater needs primarily of Chittagong-Chandraghona industrial complexes. However, the township along the trunk line such as Comilla, Feni etc., may also be supplied with gas.

2. *Bakhrabad-Chandpur Gas Trunk Line*—The scheme is proposed for supply of natural gas to the existing and projected industrial units in and around Chandpur. This will also originate from Bakhrabad.

3. *Sylhet Tea Valley gas pipe line*—This is a scheme of relatively small network in Sylhet district to supply gas to a block of Tea Estates.

**D. Geological Survey of Bangladesh (GSB).**

The existing GSB would be gradually developed into a full-fledged National Geological Survey of Bangladesh and the following projects would be undertaken:

- (i) Roughly 15 per cent of the total area of Bangladesh will be surveyed and mapped in the scale of 1:50,000 to cover an area of roughly 8,000 sq. miles. Priority of areas shall be fixed in due course.
- (ii) Revision of Geological mapping in the scale of 3" to one mile.
- (iii) Surface and sub-surface Geological investigation will be carried out in prospective areas. The exploration comprising of detailed geological and geophysical surveys supplemented by test drilling at selected locations in Bogra-Rajshahi districts will make it possible to work out a complete sub-surface geological setting of the region and assess its potential.
- (iv) Geological exploration in Rangpur and Dinajpur districts. This project will delineate the distribution of the reserves in the area and determine scope of exploiting the same. The study will involve two types of investigation: (a) detailed geophysical survey of the area and (b) test drilling. The investigation may also indicate, the presence, if any, of limestone and coal at shallow depths.



(v) the programme will include:

- (a) Development of laboratories and field facilities. The proposed project will be set up within the GSB to cater to all geological programmes.
- (b) Development of exploration facilities to cater to the geological activities including drilling and exploration of other similar corporation such as Bangladesh Mineral Exploration and Development Corporation (BMEDC) and BMOGC.
- (c) Geophysical exploration should be conducted to delineate its regional geological configuration.
- (d) *Geochemistry of Ground-water*—The chemical and biological characteristics of water will be analysed to determine its usefulness to agriculture and industry.
- (e) *Deltaic research, marine geology and geomorphological study*—The rivers, and the nature of sedimentation etc., will be studied under this head and the results of these studies will be useful to the hydrologists, agriculturists, foundation engineers, petroleum geologists and other scientists.

Agencywise breakdown of allocation can be seen in Table XI-9.

TABLE XI-9  
Summary of the Financial Outlay.  
(1973-78)

|   |             | (Taka in lakh) |          |
|---|-------------|----------------|----------|
| Agency.   |             | Total.         | F. E. C. |
| <b>Reconstruction:</b>                                |             |                |          |
| 1 Bangladesh Mineral, Oil and Gas Corporation (BMOGC) | ..          | 10.00          | 3.00     |
|   | Sub-Total   | 10.00          | 3.00     |
| <b>On-going:</b>                                      |             |                |          |
| 2 Bangladesh Mineral, Oil and Gas Corporation (BMOGC) | { Gas ..    | 60.00          | 16.40    |
|   | { Oil ..    | ..             | ..       |
| 3 Oil and Gas Development Corporation (OGDC)          | ..          | 30.00          | 20.00    |
| 4 Geological Survey of Bangladesh (GSB)               | .. ..       | 177.20         | 85.40    |
|   | Sub-Total   | 267.20         | 121.80   |
| <b>New:</b>   |             |                |          |
| 5 Bangladesh Mineral, Oil and Gas Corporation (BMOGC) | { Gas ..    | 4270.00        | 2117.40  |
|   | { Oil ..    | 1445.00        | 940.00   |
| 6 Oil and Gas Development Corporation (OGDC)          | .. ..       | 1583.70        | 820.80   |
| 7 Geological Survey of Bangladesh (GSB)               | .. ..       | 600.00         | 272.50   |
|   | Sub-Total   | 7898.70        | 4150.50  |
|   | GRAND TOTAL | 8175.90        | 4275.30  |



### 11.2.5. Institutional Policies and Facilities

There must be appropriate institution and policies to ensure efficient exploration, production, distribution and marketing of mineral resources. With this end in view the following recommendations have been made in the Plan:

#### A. Organization

- (i) Bangladesh should have a single, strong National Geological Survey adequately staffed and equipped to undertake geological studies that are basic to the development of the natural resources of the country. The size of the organization should be commensurate with the needs of resources development. The present GSB may be improved and expanded to play this role.
- (ii) Once the mineral resource potential has been identified by GSB, exploration and exploitation will be required. Starting from feasibility study, exploration and exploitation to marketing of minerals will be the responsibility of Bangladesh Mineral Exploration Development Corporation (BMEDC). The present set up of BMEDC will be expanded and re-organized to form a full-fledged Corporation which will cater to the needs of mineral based industries of the country.
- (iii) Exploration, development and marketing of Oil and Gas should be treated as an integrated function. The task should be the responsibility of a single Corporation. This Corporation should include and be responsible for all matters relating to:
  - (a) *Exploration*: For this OGDC should be set up as an independent enterprise of the Corporation.
  - (b) *Production*: (i) Eastern Refinery, (ii) Shell Bangladesh Limited and (iii) Bangladesh Petroleum Limited should be put under this Corporation.
  - (c) *Marketing*: The following oil companies should be brought under the Corporation: (i) Jamuna oil company, (ii) Burmah Eastern Company (51 per cent share of Government in Burmah Eastern should be looked after by this Corporation), (iii) Padma Petroleum Company, (iv) ESSO Standard Eastern Inc., (v) Titas Gas Marketing functions under TGT Co. should also be brought under this Corporation.
  - (d) The Corporation should be placed under the Ministry of NR and STR and AE and the Chairman of the Corporation should be directly responsible to the Minister.

#### B. Concession Policies

- (i) Formulation and enforcement of the rules and regulation for Petroleum and Minerals concession, pricing and conservation shall be within this category. These activities will be vested on the Natural Resources Division (NRD) of the Ministry of NR and STR and AE.
- (ii) It is recognised that any Petroleum, Gas or Mineral which may exist in its natural state underground is the property of the state. Bangladesh will, therefore, have to decide upon the manner in which the search for and development of these resources within its territory shall be conducted. To the extent that concessions will be awarded to foreign Prospectors. Terms will have to be formulated which protect the nation's interests both now and in the future without frightening away Prospectors.



### *C. Training*

There is an acute shortage of locally available expertise to undertake difficult and complex assignments inherent in natural resources investigation and technology. Such personnel will be needed in survey, research, exploration, laboratories, and in production. A programme for training in this technology is urgently needed. Efforts should also be made to stop the current brain drain.

### *D. Gas Tariffs*

The tariffs for different uses of gas are currently being charged in more or less arbitrary manner. A national gas tariff will have to be formulated, taking into consideration the various aspects and economics of gas transmission and distribution during the Plan Period.



### 11.3 SCIENTIFIC AND TECHNOLOGICAL RESEARCH

#### 11.3.1 Introduction

Promotion of scientific knowledge and development of technology, through their increasing application pave the way for socio-economic development in every country. Technical know-how, locally developed or imported and then adapted through research, makes possible the economic exploitation of our natural resources.

In our country, the textile industries, the pulp and paper industries, hard board and fibre board, paints and varnishes, rubber and plastics, fine chemicals, pharmaceuticals, glass and ceramics, sanitary wares and stone wares and various types of food processing and food preserving industries can be developed by utilising indigenous raw materials provided suitable technical know-how can be developed and made available. In the field of agriculture, the application of radiation methods has already developed high yielding varieties of seeds for rice and jute and it is hoped that the same methods will soon replace the conventional use of insecticide for plant protection. The contribution of scientific knowledge and research in the development of water and power, health and medicine, physical planning and housing, and transport and communication is also significant.

Prior to liberation scientific and technological research in Bangladesh was a neglected field. Only about 0.13 per cent of the GNP of erstwhile Pakistan used to be spent on scientific and technological research but Bangladesh never received more than one-tenth of the total allocation.

The important agencies that had been at work at that time for promotion and dissemination of scientific knowledge, and development of technical know-how were, Council of Scientific and Industrial Research (CSIR), Atomic Energy Commission (AEC), National Scientific Documentation Centre (NSDOC), Museum of Science and Technology (MST), Jute Research Institute (JRI), Hydraulic Research Institute (HRI), and so on. After liberation most of these organisations which were only regional offices had to be elevated to national institutions.

#### 11.3.2 Past Achievement

##### *BCSIR Laboratories*

The BCSIR Laboratory in Dacca started functioning from 1955 as a regional laboratory. Subsequently two more laboratories were set up, one at Chittagong and the other at Rajshahi. The laboratories in Chittagong and Rajshahi are still incomplete. The three BCSIR Laboratories have now assumed responsibilities required of national organisations and are known as Bangladesh Council of Scientific and Industrial Research (BCSIR) Laboratories. A large number of processes has already been developed in these laboratories in the fields of glass, ceramics, food processing, leather, drugs and other natural products. Some processes have already gone into production and other processes are ready to be leased out.

##### *BAEC*

Prior to liberation an Atomic Energy Centre was set up in Dacca as a multipurpose nuclear laboratory and a Nuclear Medical Centre. Two more Medical Centres at Chittagong and Rajshahi and an Institute of Nuclear Agriculture at Mymensingh were under construction. Mineral surveys along the Cox's Bazar beach and offshore islands were underway in Bangladesh before liberation. A number of feasibility studies had also been made to introduce nuclear power in Bangladesh. A site was selected at Rooppur and about one crore rupees had been spent. An



Irradiation and Pest Control Research Institute (IPCRI) for Bangladesh had received approval but no action was taken to implement the decision. The results achieved within the limited facilities available, especially in the fields of physics and agriculture, had brought world-wide recognition. A number of research contracts were awarded and fellowships and equipment provided by the International Atomic Energy Authority (IAEA) as aid.

### *BANSDOC*

Bangladesh National Scientific and Technical Documentation Centre (BANSDOC) is engaged in collection and dissemination of scientific knowledge and information and promotion of research facilities in the country. Since its inception, BANSDOC has collected a large quantity of scientific information and distributed them amongst research workers.

### 11.3.3 Objectives and Strategies during the First Five-Year Plan

#### *A. National Science Policy*

The re-organisation of the existing research laboratories and institutes and the establishment of an effective central agency for the co-ordination, control and overall planning of scientific effort in the country are an immediate necessity. To achieve maximum results towards this end, it is necessary to formulate and implement a National Science Policy at an early date. At the initiative of the Ministry of Natural Resources and Scientific and Technological Research, such a policy may be formulated on the following lines:

- (i) To re-organise existing Governmental Research Laboratories and Scientific Institutions and to bring them under a unified system.
- (ii) Careful selection of the problems facing the country in each vital sector, where solutions are likely to have a significant impact on the economic and socio-cultural development of the country. To determine priorities when such problems are identified.
- (iii) Raising the standards and improving the facilities available to existing research institutions, including research in the universities.
- (iv) Establishment of new scientific and research institutions/laboratories, where research of high quality can be carried out on selected problems of national importance.
- (v) Improvement of standards of scientific education at all levels from the school to the university. Training of personnel and specialized scientific staff in the research institutions/laboratories and industrial establishments.
- (vi) Utilization and application of results of research for commercial and extension purposes.
- (vii) To create centralized facilities for collection and dissemination of scientific information and research findings.
- (viii) To provide centralised facilities for manufacture and repair of scientific apparatus and instruments of all kinds.



### *B. Research Institutions*

The new Research Laboratories/Institutes, that will be coming up in the plan period may be located as clusters (not in isolation from one-another) in different parts of the country. In the process of re-organisation of the existing research institutions and setting up of new ones, complete co-operation among the various research institutions will have to be established in order to avoid any duplication or overlap in research work and facilities. Owing to the inherent limitations on both material and human resources, scientific and technological research should be confined only to those fields which are of vital importance to our economy and on which parallel research results are not available. In other fields we should draw upon the vast pool of scientific knowledge which has accumulated in the world as a result of scientific effort in the developed countries. This will necessitate the expansion of scientific institutions and information centres such as the BANSDOC and the Museum of Science and Technology. A centralized scientific instrument manufacturing and repairing centre is also urgently required.

In formulating a research programme, basic research should be carefully distinguished from applied research. At this stage maximum stress should be laid on applied research which could lead to development and production of useful materials and devices, methods and processes in agriculture, industry, medicine and other fields. Scientific education at all levels should be remoulded so as to put emphasis on applied research at all levels.

Priority should be given to strengthen scientific research facilities in the universities. Whilst the Governmental Laboratories/Institutes will concentrate only on practical problems of an applied nature, the universities should be given greater freedom of choice in selecting research programmes, which may often be of a fundamental or theoretical nature.

An effective system requires to be developed for mutual co-operation, exchange of personnel and flow of ideas between the universities and scientific and research organizations. For this, there should be a close contact between the research workers of the Government Laboratories, centres/institutes and those of the Universities, higher technological institutions, industrial establishments and so on, so that the facilities existing in these institutions can best be utilised by a large number of research workers to promote research, design and development within or in collaboration with one another. The scientists of these organisations should also participate in annual national conferences on different subjects such as science, engineering, medicines, etc.

Several processes have already been developed by the Research laboratories and leased out for commercial use in certain industries such as ceramics, glass, leather, etc. The quality of these products needs further improvement and hence research activities in these fields should be intensified with a view to improving upon the quality and making the products internationally competitive.

The Bangladesh Atomic Energy Commission which has concentrated its efforts mainly on development of nuclear power and technology, physical sciences, Bio-sciences and space research will continue to promote its efforts for peaceful uses of nuclear energy. In the



First Plan, it will devote itself mainly to production of high yielding varieties of crops through the radiation method and application of radio-isotope for treatment. It will also strengthen its research on electronics to boost the electronics industry of the country.

#### *C. National Council of Science and Technology (NCST)*

Co-ordination of Scientific research in the research institution and the Universities is extremely important. For this purpose a high powered National Council of Science and Technology (NCST) may be set up. The main objectives and function of the council will be:

- (i) To advise the Government on matters both national and international, concerning Science and Technology, to determine the requirement of research in various fields and set priorities of research. It will also decide what research to initiate and what new research institutions to set up in future.
- (ii) To re-organise the existing research laboratories/institutes.
- (iii) To co-ordinate and evaluate work being carried out in different research institutions. It would also sponsor research programmes which may be carried out or undertaken either in one of its own laboratories or in the universities.

The Ministry in-charge of Scientific and Technological Research may maintain overall co-ordination between the activities of the research institutions concerned with researches on economic exploitation of the natural resources and those agencies which are mainly concerned with survey, investigation and exploration of these resources. This will minimise any abnormal time lag in the economic exploitation of these resources. Necessary co-ordination should also be maintained with the Ministry of Industries so that the actual application of processes developed takes place immediately in industries on a commercial scale.

#### *D. Training and Manpower*

There is an acute shortage of technically trained manpower at all levels, particularly at the level of leaders in science and research. Adequate facilities should be provided for higher training of research personnel and scientific staff of research institutions and universities. It should also be ensured that scientific research becomes sufficiently attractive to men of ability and talent. Decent salaries and due status in the society will attract many talented persons and men of ability towards a research career. Many young and talented scientists have a tendency to leave the country in search of better opportunities abroad. Effort should be made to stop such a brain drain, which our newly liberated and developing country can ill afford. In addition to the scientists who are working within the country and those who may return from abroad, it is estimated that about 800 scientists and technologists at the level of group leaders (Ph.D. or equivalent levels) will have to be trained during the First Five-Year Plan Period.

The different research laboratories and institutes should maintain international liaison with scientific bodies and academies and with specialised agencies of the U. N. O. concerned with scientific education and research.



### 11.3.4 Financing and Programmes

(a) Scientific and technological research is a vast field where various Ministries, Government agencies and the universities participate. In this chapter, the research programmes of only those agencies administratively controlled by the STR Division of the Ministry of NR and STR will be discussed.

(b) The agencies who will be receiving allocations from the STR Sector are the following :

- (i) Bangladesh Council of Scientific and Industrial Research Laboratories (BCSIR) at Dacca, Rajshahi and Chittagong.
- (ii) Bangladesh Atomic Energy Commission (BAEC).
- (iii) Bangladesh National Scientific and Technical Documentation Centre (BANSDOC).

The allocation for these agencies in the First Five-Year Plan is Taka 16.94.20 lakhs, Taka 10.59.20 lakhs for 17 on-going schemes and Taka 6.35.00 lakhs for 20 new schemes.

#### A. BCSIR Laboratories

(i) The First Plan allocation for schemes of the BCSIR Laboratories, Dacca is Taka 4.06.80 lakhs. This will cover seven on-going schemes and five new schemes in the fields of food, leather, glass, ceramics, fuel and other natural products such as jute textiles, silk, pulp and paper, etc.

(ii) In formulating the programme, attention has been given to the need for utilization of the indigenous raw materials of the country, improvement in the quality of certain kinds of products such as ceramics, and leather goods and diversification of the use of certain resources such as jute.

(iii) The BCSIR laboratory at Rajshahi will implement one development scheme for research and process development in the fields of fibre, lac, fats, oils and waxes. The First Plan allocation for this is Taka 1.28.80 lakhs.

(iv) The allocation for the Chittagong BCSIR laboratory during the First Plan is Taka 3.00.40 lakhs. This laboratory will concentrate mainly on research and development in the fields of Drugs, Pharmaceuticals and Tropical Products.

#### B. BANSDOC

BANSDOC will take up one on-going scheme. The total allocation for this scheme is Taka 30.00 lakhs. On implementation, the project will serve as a national centre for collection, documentation and dissemination of scientific information for the whole country.

#### C. BAEC

(i) During the first Five-Year Plan period, BAEC will concentrate on nuclear power development and associated scientific and technological problems; develop electronics and applied space science; extract beach sand minerals in commercial quantities; develop nuclear bio-sciences to solve problems of food and health.



(ii) For this, the Atomic Energy Commission will continue the implementation of 7 on-going schemes and introduce 15 new projects during the plan period. The schemes include :

A Nuclear Power Plant of appropriate size.

An Institute of Nuclear Technology at Rooppur.

An Institute of Beach Sand Minerals at Chittagong.

Commercial Extraction Plants in the Cox's Bazar area.

(iii) The bio-science programme will concentrate on evolving new varieties of rice, jute, sugarcane and pulses and recommend improved agricultural practices by studying soil-plant relationship. Also, commercial methods of radiation, preservation of food will be evolved.

(iv) Increased application of radiation and radio-isotopes will be used not only for diagnosis but also for treatment of many diseases, including goitre, cancer and blood disorders.

(v) Stress will be given on technological developments in electronics, metallurgy, analytical chemistry and precision workshop techniques whose impact will be felt throughout the country.

(vi) Increased application of radio-isotopes tracer techniques would provide quality control on industrial products and solve various hydrological problems, including the silt movement under rivers and at harbours. This is essential for our flood control and water communication programme.

(vii) The plan allocation for the A.E.C. programme, is Taka 8,28.20 lakhs, including token allocation of Taka 10.00 lakhs for the Rooppur Nuclear Power project.

Agency-wise allocations are as follows:

| First Plan Allocation |                      |    |    | (Taka in lakh.) |         |
|-----------------------|----------------------|----|----|-----------------|---------|
|                       |                      |    |    | Total           | F.E.    |
| 1.                    | BCSIR, Dacca ..      | .. | .. | 4,06.80         | 1,39.50 |
| 2.                    | BCSIR, Rajshahi ..   | .. | .. | 1,28.80         | 22.00   |
| 3.                    | BCSIR, Chittagong .. | .. | .. | 3,00.40         | 54.50   |
| 4.                    | BANSDOC ..           | .. | .. | 30.00           | 5.00    |
| 5.                    | BAEC ..              | .. | .. | 8,28.20         | 2,71.90 |
| Total ..              |                      |    |    | 16,94.20        | 4,92.90 |

Besides the above, research on science and technology will also be conducted in specific fields by other agencies under other sectors. These programmes have been detailed elsewhere under other sectoral programmes of the First Five-Year Plan.



The allocation for scientific research under those sectors are as follows:

|                                      |    | (Taka in lakh.) |    |    |          |
|--------------------------------------|----|-----------------|----|----|----------|
| Name of Sectors,                     |    | Allocation,     |    |    |          |
| 1. Agriculture                       | .. | ..              | .. | .. | 33,00.00 |
| 2. Industry                          | .. | ..              | .. | .. | 2,17.10  |
| 3. Flood Control and Water Resources | .. | ..              | .. | .. | 3,60.00  |
| 4. Transport and Communication       | .. | ..              | .. | .. | 2,90.30  |
| 5. Physical Planning and Housing     | .. | ..              | .. | .. | 11,15.00 |
| 6. Health                            | .. | ..              | .. | .. | 7,66.60  |
| 7. Education                         | .. | ..              | .. | .. | 2,00.00  |
| 8. Power                             | .. | ..              | .. | .. | 10.00    |
| Total                                |    | ..              | .. | .. | 62,59.00 |

Including the allocation that will directly flow from the Scientific and Technological Research Sector, the total allocation for scientific research in the First Five-Year Plan is:

|                   |    | (Taka in lakh.) |    |    |          |
|-------------------|----|-----------------|----|----|----------|
| Sector,           |    | Allocation,     |    |    |          |
| 1. STR            | .. | ..              | .. | .. | 16,94.20 |
| 2. Other than STR | .. | ..              | .. | .. | 62,59.00 |
| Total             |    | ..              | .. | .. | 79,53.20 |

Moreover, a sizeable amount will be invested in project-oriented engineering and geological surveys and investigations and feasibility studies. If allocations for such programme are included, the outlay for scientific research would increase considerably.

In addition to the Public Sector research programme on scientific and technological research as spelled out above, some research will also be carried out in individual industries in the private sector. Therefore, the Private Sector's contribution towards research in general and research on specific problems will add to the investment in this sector during the First Five Year Plan.



## SUMMARY OF THE FIRST FIVE YEAR PLAN

## Scientific and Technological Research

(Taka in lakh.)

| Name of the Agencies.                  | FIRST PLAN ALLOCATION |         |         |         |          |         |
|--|-----------------------|---------|---------|---------|----------|---------|
|  | On-going.             |         | New     |         | Total.   |         |
|  |                       |         |         |         |          |         |
|  | Total.                | F.E.C.  | Total.  | F.E.C.  | Total.   | F.E.C.  |
| 1                                      | 2                     | 3       | 4       | 5       | 6        | 7       |
| 1 BCSIR, Dacca ...                     | 3,32.80               | 1,20.40 | 74.00   | 19.10   | 4,06.80  | 1,39.50 |
| 2 BCSIR, Rajshahi ...                  | 1,28.80               | 22.00   | ...     | ...     | 1,28.80  | 22.00   |
| 3 BCSIR, Chittagong ...                | 3,00.40               | 54.50   | ...     | ...     | 3,00.40  | 54.50   |
| 4 Bangladesh Atomic Energy Commission, | 2,67.20               | 91.90   | 5,61.00 | 1,80.00 | 8,28.20  | 2,71.90 |
| 5 BANSDOC ...                          | 30.00                 | 5.00    | ...     | ...     | 30.00    | 5.00    |
| Total ...                              | 10,59.20              | 2,93.80 | 6,35.00 | 1,99.10 | 16,94.20 | 4,92.90 |



## CHAPTER XII

## PHYSICAL PLANNING AND HOUSING

## 12.1 INTRODUCTION

Physical Planning deals with the geographic expression of a country's economic and social policy and relates directly to planning of land, physical structures and various construction activities on a national, regional and local level. It thus assists in better use of land and resources. In the past the growth of physical welfare facilities, services and amenities has not kept pace with economic development in the country. This lack of emphasis on physical development has resulted in deteriorating living conditions in the face of a rising population as well as uncontrolled and unbalanced urban growth. Moreover, neither the benefits of economic growth, nor the inappreciable *per capita* increase of welfare facilities have been able to reach the poorer income group who constitute the majority of the people.

The housing situation in the country is gradually worsening every year. Houses built by both the public and private sector do not even meet a fraction of the total need. In order to tackle this enormous problem, more emphasis needs to be given to housing for low income groups constructed either through housing co-operatives or direct state investments. These need to be supplemented by improved civic amenities which are today inadequate and deteriorating in the face of a growing population.

Supply of pure drinking water is scarce. Only a very small percentage of the urban population has access to pure drinking water whilst the sewerage system is limited to only a few selected areas within the cities. In the rural areas the supply of potable water and a sewage disposal system are virtually non-existent leading to the spread of water borne diseases such as typhoid, dysentery and other gastroenteric disorders.

The Physical Planning and Housing component of the Plan seeks to cover the following sub-sectors: (1) Institutional Development, (2) Housing, (3) Community Services and Utilities, (4) Government Offices and Institutional Buildings, (5) Metropolitan Development Agencies, (6) Tourism. It may be noted that there are as many as thirteen executing agencies and four Ministries related to the above sub-sectors who will administer the allocations made under this sector.

## 12.2 PAST PERFORMANCE, PROBLEMS AND REQUIREMENTS

## A. Institutional Development

## 1. Physical Planning

Physical Planning as an activity started in a rudimentary form in Bangladesh in the early fifties with the preparation of a land-use plan for the city of Dacca and with the enactment of the Building Construction Act, 1952. It gained some momentum with establishment of the Dacca Improvement Trust (as a result of enactment of the Town Improvement Act) and Housing and Settlement Wing of the Buildings Directorate and other development authorities such as CDA, KDA in the late fifties. In 1964, with the rapid growth of urban agglomerations and unplanned location of industries, the necessity of creating a Physical Planning Organisation was felt to cope with the planning problems of the expanding urban areas and



growing industrial complexes. As a result in July, 1965, the Urban Development Directorate was created with the following objectives:

- To formulate an urban development strategy for the country with proper Physical and Socio-economic studies through the assistance of the United Nations.
- To identify new growth poles and delimit the Planning Regions.
- To prepare plans for the urban areas and growing industrial complexes.
- To advise the local authorities on the matters of planning and selection of sites.
- To frame Town and Country Planning Legislation.

While a number of land-use plans for various municipalities, new district and subdivisional headquarters and Industrial Complexes have been prepared by the Directorate, no substantial achievement in the objectives as envisaged in the U.N. assisted Project could take place due to the shortage of qualified Physical Planners in the country on the one hand and due to various difficulties in execution of the project and its eventual suspension at the time of War of Liberation by U.N.D.P. on the other.

Consequently we do not have today either a Physical Planning and Development Strategy or Comprehensive Town and Country Planning Legislation. Thus, co-ordinated and balanced development could not be achieved nor could haphazard and unplanned growth of urban centres and Industrial complexes be arrested even when some land-use plans were made available by the Directorate.

In a country like ours where the land-man ratio is extremely low and worsening, the capacity of our land to maintain and absorb the fast increasing population in our countryside is also declining progressively. This decline in the retentive capacity of our rural areas is bound to push more and more people out of the rural section leading to acute urban problems of deteriorating living conditions, squatter settlements and overloading of urban services. Simultaneously the progressively decreasing *per capita* availability of agricultural land will generate new problems of a considerable magnitude in the rural areas in terms of housing, housing facilities and services and utilities and other problems related to the rural component of human settlements. Thus the necessity for rational and optimum use of every inch of our land inescapably points to the need for complete Physical Planning coverage of the country and to the need for preparation of a rational physical planning and development strategy. Physical environment conducive to better economic and social output which helps to achieve better living conditions particularly for the masses of our population should be the objective.

Physical planning organisations which exist now in the form of "Urban Development Directorate" under the Ministry of Public Works and Urban Development and the 'Physical Planning and Housing Sector' in Planning Commission are not capable of handling the total physical planning problems and of attaining the objectives of Physical Planning. In the absence of appropriate organisations all developments relating to land are taking place in an unco-ordinated and haphazard manner resulting in unplanned growth of towns and cities, undesirable overcrowding in some urban areas, unbalanced regional development and inappropriate location of economic activity.

One of the fundamental and urgent problems of national development is the task of modernisation of our rural economy. Indeed the primary objective of our First Five-Year Plan is to develop the tradition bound and inefficient rural productive system through institution building.



supply of basic inputs and overhauling of the rural administration. However, increased economic output in the rural areas will not automatically ensure increased welfare and equitable distribution unless the extensive rural development programmes are implemented within the framework of regional physical development plans.

Therefore, regional and local planning needs to be initiated for the purpose of integrating, co-ordinating and balancing the policies and programmes relating to physical realisation of development activities within the national geographic space.

Appropriate legislation setting up procedures and institutions need also to be enacted and established for effective implementation of physical planning and programmes.

Special problems exist in the country arising out of uneven regional development due to concentration of development activities in and around the three metropolitan cities, Dacca, Chittagong and Khulna. Within the framework of the national objective of attaching equal emphasis to the development of all areas of the country, it has become necessary to programme for planning and development of a number of growth poles in the hitherto lagging regions.

Therefore, there is an urgent and immediate necessity of setting up appropriate organisations by restructuring and strengthening the present ones as well as creating new ones if need be for the purpose of realising the objectives of an eventual planned environment for Bangladesh.

## **2. Building and Housing Research**

Building and Housing research in Bangladesh was initiated in the early sixties with the establishment of a Building Research Institute under the Housing Wing of the Buildings Directorate. In the background of colossal damages to our existing housing stock due to natural calamities and growing scarcity of indigenous building materials the primary task assigned to this Institute was to evolve cheaper and more durable building materials, construction techniques and standards for low cost housing programmes. Unfortunately, for various reasons this Institute could not make much headway in its research activities.

There is an absolute lack of research and study in respect of building materials and construction techniques in the country. Considering the huge needs in relation to the lack of available resources both in terms of materials and finance, there is an urgent need for stepping up such research work on an emergency basis. The Building Research Institute has not yet made any impact so far on our building construction materials and techniques due to various difficulties. One of them is the low priority accorded to such research in the past and the other is the organisational inadequacies in terms of status and manpower of the Institute. Genuine efforts could be made for obtaining a team of international experts to organise and carry out urgent research work. Simultaneously action could be directed towards training of our own technical people for eventual manning of the Institution. No significant steps were taken in this direction. Consequently the Institute is suffering from an acute shortage of trained personnel. Further, lack of adequate incentive to attract necessary talents in the field of such research discouraged many who would have otherwise joined the Institution. Consequently, the problems of recruitment and retention of professional staff are still plaguing the Institution. In order to alleviate these problems a special committee constituted earlier recommended reasonable salaries and other fringe benefits for the professionals but these were not given effect.

For proper guidance, supervision and management of the affairs of this research institute and also to ensure effective output there is need for setting up a National Housing and Building



Research Council consisting of eminent technical and administrative personnel from the Government, Universities and professional organisations. There is also a need for reorganising the Institute itself by raising its status to that of an autonomous body and streamlining its internal functional and administrative system.

### 3. Special Studies, Surveys and Pilot Projects

In the process of First Five-Year Plan formulation the Physical Planning and Housing Sector is facing critical deficiencies in specific statistical data to provide the basis for policy formulation for the various sub-sectoral activities. As such the Planning Commission feels it necessary to provide for basic research and special studies under its own aegis during the Plan period. Some of the areas requiring studies and surveys have already been identified as under:

Urban Housing Survey.

Rural Housing Survey.

Also it is essential that the suspended UNDP Project on Location and Planning of Cities which aimed at the preparation of a national physical planning and development strategies for the country be revived on a priority basis.

#### B. Housing

##### 1. Historical Development

The housing situation in Bangladesh has never been satisfactory. The majority of dwelling units are temporary, sub-standard, unsafe and overcrowded. The ancillary physical, social and economical facilities and services essential for the development of healthy and harmonious community life are highly inadequate both in the urban and rural areas.

Past patterns of community housing development in the urban areas were largely concentrated on providing housing plots and community facilities to upper income groups and houses for the public servants. The exception was a special programme of low cost housing for displaced persons. In the private sector, the profit being the chief motivation factor it was always more profitable to build houses for upper income groups. As a result we have a large backlog of low income and middle income group housing. The current need is therefore, to restore the balance in urban housing development towards the needs of the low income groups before we can even begin to cope with substantial improvement in the living conditions of the urban poor. This implies a major emphasis on public housing and facilities for this class.

Traditionally rural housing has been taken care of by the villagers themselves and the public sector did not play any significant role apart from providing some services and facilities. Since the enormity of the rural housing problems cannot be tackled in any appreciable degree through the public sector during this Plan period due to resource constraints, we can only make a beginning in improvement of living conditions in the villages. This will mean the provision of community services such as pure drinking water, improved sanitation, and improved communication systems. Secondly, improvement in the quality of building materials capable of withstanding the elements is needed as is the need to plan village communities on a more rational basis, as a departure from the traditional pattern of isolated homesteads and scattered primary clusters.



## Rural Housing

The bulk of the rural population comprises the poorest income group of our population for whom the available dwelling units are only in the form of shelters which do not adequately meet their minimum needs. Village houses are mostly self built and the traditional houses provide mere shelter and are vulnerable to destruction and damage due to climatic hazards and flooding. Apart from ensuring that dwelling units keep pace with the population increase, there is thus a manifest need to improve the quality of village housing in terms of improved structures to reduce the recurring annual loss to the housing stock caused by climatic hazards and natural dilapidation.

Though data are not available to assess the annual shortfall brought about through destruction and damage by climatic and natural hazards, and by natural dilapidation, it can safely be said that the accumulated housing shortage is very large indeed. Further, the shortage is progressively increasing because replacement is not fully made up nor is the rate of construction keeping pace with population growth.

More recently the situation has been aggravated by the colossal destruction caused to the houses and local building materials by the occupation army during the War of Liberation. Though an appreciable number of dwelling units and shelters have been rebuilt through various international voluntary agencies, self-help and government efforts, there still exists a substantial shortfall in rural housing both to recompense the destruction and to cope with the increase in population.

Apart from the shortage of dwelling units and unsatisfactory service provisions in the rural areas, there are certain shortcomings endemic to our rural settlement pattern. There are about 64 thousand rural settlements scattered all over the country-side mostly in the form of primary clusters, small hamlets and isolated homesteads. This gives rise to a variety of problems in providing community services and utilities on an economic basis.

A further problem derives from the scarcity and high cost of building materials and the absence of building industry.

Another important facet of rural housing which merits special attention is the diversion of agricultural land for housing construction. During this plan period alone we will require about 3 lakh acres or 470 square miles of additional land for rural houses at the present village density rate of 30 person per acre. By the turn of this century, 10 lakh acres or 1,500 square miles of additional land will have to be diverted for housing at the same density rate, assuming that 10 crore persons (i.e., two-third of the total population) will live in the rural areas.

One of the basic reasons for lack of any programme in the field of rural housing stemmed from the absence of an organisation which could plan, programme and implement viable projects. These institutional and organisational deficiencies have also presented themselves as major constraints now that the Government is programming for substantial improvement of our rural living conditions.

In the rural areas according to the 1961 census over 77 per cent of the houses are temporary and approximately 2 per cent are permanent and semi-permanent and the remaining 21 per cent are unclassified. These figures will show substantial deterioration as a result of the problem identified earlier.



The population figure of the country is expected to be 8.54 crore by 1977-78. If the rate of construction of dwelling units fails to keep pace with the growth of population, the emerging problem will be acute. An approximate analysis of the requirement of dwelling units likely to be generated during the Plan period may explain this further. The population during this period is likely to increase by 1.2 crore in the country and at the rate of 6 persons per dwelling units an addition of 20 lakh new houses will be required to cope with this increase of population only. Of these, well over 15 lakh will be required for the rural areas. If we further assume that there had been requirement of 30 lakh dwelling units to be replaced due to damage, destruction and natural dilapidation up to the end of 1971, then the total requirement up to 1977-78 for the rural areas would be above 45 lakh.

However, the efforts of the government to provide shelter to the affected families (mobilised through the Ministry of Relief and Rehabilitation and other International Voluntary Organisations) have been able to offset a part of such shelter needs. The number of dwelling units reconstructed by these Voluntary Organisations is approximately 3 lakh (up to the end of 1972), while their target to extend such assistance is 4 lakh by 1973. The input in the form of cash doles and building materials extended by the Ministry of Relief and Rehabilitation towards the erection of shelters on an aided self-help basis for the affected families amounts to Taka 5 crore. There is also a programme for building a substantial number of dwelling units and construction of primary school-cum-cyclone shelters in the cyclone affected coastal belt with the provision of potable water and other utility services. Housing policy must therefore aim to:

- provide further input to the already constructed shelters built through aided self-help for their qualitative improvement, to raise the standards of these shelters to that of Basic Minimum Dwelling Units with better materials, to enlarge accommodation and elementary sanitation and to make other facilities available for each unit;
- give assistance for construction of dwelling units with ancillary facilities to meet the generated demand during this Plan period;
- improve the service utilities and to provide housing facilities and amenities which are practically non-existent in the rural areas;
- make an effort through pilot projects to promote the conception of planned villages for economising land use for housing purposes and also to facilitate provision of community services and utilities;
- frame adequate housing codes, building bye-laws and planning legislation.

### 3. Urban Housing:

The housing situation in the urban areas is equally acute. The situation is fast deteriorating due to the rapid influx of the rural migrants to the metropolitan areas and large cities. The growing pressure on the urban centres has manifested itself largely in the proliferation of slums and squatter settlements and a special breed of conditions which characterise most of our urban slums. The current mushrooming of these squatters in the capital city of Dacca on any available vacant land undermines any effort at rational planning of the urban community and hence posing a serious menace to urban sanitation and health. This deteriorating situation if allowed to continue unchecked will not only breed social discontent but may also threaten the stability of our urban communities.



In the urban areas approximately 27 per cent of the houses are permanent and semi-permanent in character the rest being temporary and unclassified. But quite a large fraction of the urban population live in the bustees and squatters settlements in the large towns and cities. The rate of influx of rural people to the major urban centres is progressively increasing. Consequently, on the one hand the number of squatters settlements have increased and on the other hand the occupancy rate per room has increased considerably, causing further deterioration of blighted areas and bustees. From the simple fact that the population has almost doubled during the last decade in Dacca City, and also because there has not been any corresponding increase in the housing stock, it can be safely deduced that the occupancy rate of the overcrowded houses has further gone up resulting in serious, unsafe and unhealthy overcrowding. The accelerated rate of rural immigration has also caused a tremendous pressure on the utility services and urban transport system.

Till the late 50's urban housing in the Public Sector consisted only of public servants housing and some plot developments in the metropolitan cities under the then Communication and Buildings Department (C&B). In 1958 a special Housing and Settlements Wing was created under the same department initially to cater for planned resettlement of the refugees. This organisation developed seventeen housing estates and constructed 26,000 nucleus houses and about 10,000 housing plots mostly for displaced persons. The Buildings Directorate Public Works Department, the autonomous bodies and the Urban Development Agencies meanwhile constructed a number of houses and flats and developed some housing plots. Except for the housing plots developed by the urban development agencies for the upper income groups, virtually no general housing programme has either been drawn up or executed so far.

The Housing and Settlement Wing of the Buildings Directorate was later elevated to a full-fledged Directorate in 1970. But with its present organisational structure and strength it is not capable of handling the total urban housing problems.

The urban development agencies are currently facing greater difficulties in terms of organisation and manpower. This situation is partly responsible for the general housing crisis in the metropolitan cities of the country. Past financing policies were also greatly responsible for the deficiencies.

The urgency of the problem in the urban areas arises not so much from the replacement needs due to damage and annual dilapidation but from the need arising out of heavy migration from the rural areas and natural increases. In addition to fundamental problems such as shortage of buildable land, limitation of resources, absence of building industry and high cost of building materials there are some special problems peculiar to the urban areas. These may be identified as shortage of houses particularly for the lower middle and lower income groups, overcrowding and acute congestion in the bustee areas, growth of squatter settlements and inadequacy of ancilliary housing facilities. Moreover, problems caused by the absence of proper organisation, Town and Country Planning Legislation. Housing Codes and bye-laws and the lack of adequate numbers of trained personnel are more pronounced in the case of urban housing.

The 1951 population census reveals that the urban fraction of the population in Bangladesh increased by 18 per cent over that of 1941. Between 1951 and 1961 urban population grew by 60 per cent from 18.2 lakh to 29.2 lakh. There has probably been an even higher rate of increase between 1961 and 1971. If we conservatively apply the same rate of growth prevalent between 1961 and 1971, urban population at the launching of the First Plan period will be 51.1 lakh. But from the past census figures, it is seen that the rate of urbanisation is accelerating with time. Therefore, the urban fraction of population in the country is likely to be higher than this conservative estimate.



Alternatively if it is taken that the present rate of urbanisation is between 6-7 per cent as estimated for the Developing Nations by the "Housing, Building and Planning Centre of United Nations", the urban population in the country has increased by 23 lakh over the last 12 years. Assuming this rate of increase total urban population in the country today is between 52 lakh to 55 lakh and may reach 80 lakh by 1977-78. So the total addition to the urban fraction of population between the period 1961 to 1977-78 is likely to register an approximate figure of 50 lakh. This indicates that during the last 12 years there had been a need for construction of at least 3.7 lakh dwelling units (at the rate of 6 persons per unit) without considering the backlog existing in 1961. It is very unlikely that the construction which has taken place during the last decade has met even a substantial fraction of the total requirement. If we optimistically assume that one-third of this generated demand has been met within the past decade through new construction by the private sector and public sector efforts, the rest of the urban dwellers have either squeezed themselves into the already overcrowded blighted areas and slums in the cities and/or are squatting in the urban areas. Assuming the total squatter population as 2 lakh the already high average occupancy rate of 3.1 persons per habitable room as of 1961 has further increased to 4.2. However, this average occupancy estimate does not reflect the actual over-crowding situation in the low-income housing areas and slums where most of the over-crowding has occurred resulting in a much higher occupancy rate.

However, since liberation the Government has constructed about 4,500 semi-permanent units in Dacca City for low-income groups, which has partly reduced the housing demand of this group. But yet, the present shortage remains considerable and the total requirement of dwelling units by 1977-78 will be around 700,000 units and approximately 70 lakh by the turn of the century, assuming the urban fraction of population to be 5 crore.

It may also be mentioned here that the total urban land to be developed for housing the estimated increase in the urban fraction of population by 1977-78 is about 43,000 acres or 70 square miles at the rate of overall town density of 100 persons/acre. By the turn of the century the requirement will be about 4,50,000 acres or 700 square miles.

The analysis showing the magnitude of requirement of dwelling units to be built during this Plan period and by 2000 A.D. indicates the tremendous effort needed to meet the requirement. It can best be visualized, perhaps, by saying that the building effort needs to cope with the construction of more dwellings by the end of the century than exist in present-day Bangladesh. The requirement being colossal a long range programme based on rational analysis and study is needed to meet the demand. In this Plan period we can only direct our efforts and resources towards the short-term objectives of (a) partially off-setting demand and (b) evaluation of this programme for framing long-term strategy and policies.

To achieve the short-term objectives the following programmes will be undertaken:

- Building of multistoried apartment houses within the urban areas for low and lower middle income groups in the Public Sector.
- Building of minimum shelters in a planned environment.
- Development of "Sites and Services" Schemes through the Urban Development Agencies and local bodies for building apartment houses.
- Organisation and financing of Cooperative apartment houses.
- Providing a planned environments for temporary settlements as temporary measures with a view to develop these into proper housing estate in future.



- Framing adequate legislation and building bye-laws, Housing Codes for guiding and controlling the development.

### C. *Community Services and Facilities*

The term housing does not mean only a shelter or a house; in its wider sense it embraces dwelling units and a network of all other services and ancillary facilities such as water supply, drainage and sewerage, garbage disposal system, power supply, transportation system, health services, educational and recreational institutions and facilities, shopping centres and market places. But the provision of these services and facilities are either totally inadequate or non-existent both in the rural and urban areas and they warrant immediate attention.

#### 1. **Rural Water Supply**

The position of potable water supply in the rural areas is alarming. There are at present only 1,85,000 tube-wells in the country sunk by the Public Health Engineering Department which is the only organisation responsible for rural water supply. The present figure works out to 375 persons per tube-well. This itself is grossly inadequate. The situation has become further aggravated due to the choking up of a sizeable fraction of the total number of tube-wells. In the saline belt and haor areas shallow tube-wells have been largely unsuccessful and the resources for deep tube-wells scant. These areas are, therefore, primarily dependent on surface water supply. As a consequence, large numbers of the population fall victims to gastroenteric diseases and other ailments. There are no available statistics of incidence of these diseases and duration thereof but had there been an assessment, the national loss in terms of man-months would be found to be staggering.

#### 2. **Rural Sanitation**

A satisfactory excreta disposal system in the rural area is still non-existent. The only effort to date has been in the form of supply of water-sealed slabs by the Public Health Engineering Department for excreta disposal and that too on a pilot basis in only ten thanas. Although this has been found satisfactory and acceptable to the villagers, no large scale effort could be made due to resources constraints. Tremendous increase in population and consequent sanitation problems have posed a menace to the health of the people.

#### 3. **Urban Water Supply**

Only a fraction of the urban population has access to piped water supply while a large part of the urban population wash and drink from ponds. According to the 1961 census there were 76 urban centres which might have increased to 100 at present. Piped water supply is available only to 30 of these urban agglomerations. Agencies responsible for supplying water are Water Supply and Sewerage Authorities in Dacca and Chittagong while the rest of the urban areas including Khulna are supplied by the Public Health Engineering Directorate. In the rural areas, at least water for domestic purposes is easily available. The urban dwellers, being deprived of this facility, have to depend by and large on piped water supply for all their needs. The consequences of non-availability of water in the urban areas is therefore more hazardous in terms of health, sanitation and welfare of the citizens.

#### 4. **Urban Sewerage Disposal System**

Piped sewerage systems are virtually non-existent in this country except in Dacca where the Dacca Water Supply and Sewerage Authority is responsible for it. In most of the urban areas sewage disposal is effected through septic tanks and service latrines on a limited scales



This arrangement is not only uneconomic and unsatisfactory but the number of people who can benefit from this kind of services is also severely limited. This results in a frequent break-down of such arrangements. Most of the sewage however goes into open drains and the effluent evaporates or disappears through seepage, thereby polluting the environment.

### **5. Drainage**

Only a fraction of the urban population has access to open drains for general drainage purposes. Drainage of storm-water and domestic waste is also very poor and streets and houses premises are often flooded posing a threat to public health. Water Supply and Sewerage Authorities in Dacca and Chittagong will look after the drainage problems of both the cities.

### **6. Garbage Disposal**

The traditional method of garbage disposal (collecting and dumping) is gradually proving to be unworkable in the large cities due to non-availability of suitable dumping land within easy access. This situation has further deteriorated due to expansion of built up areas of the cities requiring larger and longer haulage of the garbage. This system is satisfactory only to a certain size of town beyond which it becomes uneconomic and unworkable. Large cities essentially require more modernised arrangements for disposal.

### **7. Open Spaces**

There exists an acute shortage of open spaces, parks and playgrounds and other recreational facilities both in the large cities and smaller urban centres. The lack of recreational facilities is resulting in an increase in the rate of crime and delinquency.

### **8. Urban Transportation**

Urban transportation facilities had been quite inadequate in the past. The facility almost totally broke down after the War of liberation due to destruction of vehicles by the Pak Army. The situation had improved to a certain extent due to efforts by the Government to add to public transportation facilities, but this still has a long way to go before any reasonable standard of public transport is realised.

### **9. Fire Service**

The need for fire protection services being directly proportional to the extent of urbanisation, the extension and expansion of this service should have been proportional to urban growth. This could not be achieved in the past. Moreover, due to destruction of fire fighting vehicles and equipment during the War of Liberation, this organisation has been severely handicapped in achieving its desired efficiency. This implies that the risk of loss of properties due to fire incidences is much greater today than ever before.

## ***D. Government Offices and Institutional Buildings***

### **1. Present Position**

The requirements for Government offices and buildings are extremely urgent. After the War of Liberation the need for office accommodation to house the expanded and increased number of Ministries of the National Government has posed a serious problem for the efficient running of administration. Even previously, the situation was far from satisfactory, as was evident from the fact that a great number of Directorates and other offices had to be located in scattered and rented



buildings. The current demand has increased so much that the previous arrangement of rented office accommodation cannot fulfil the needs effectively. In the face of extreme shortage of office accommodation, the Government is not only paying very high rent for hiring private accommodation but the offices are scattered all over the large cities creating serious logistical problems. Moreover, the Ministries with their Secretariat cannot be spread all over the city without having serious dysfunctional effects. Therefore, a minimum office building programme at least to house the Central Secretariat and the Ministries will be provided within this First Five-year Plan. Building should be simple and functional in design.

There remains a popular demand for construction of certain institutional buildings and monuments to project the nation's aspiration and to symbolize the national heritage and liberation struggle.

## 2. New District Headquarters

The Government have adopted a definite policy of decentralized administration with the objective of taking administration closer to the people. This has led to the conversion of former subdivisions into districts. The existing physical facilities of these subdivisions, thus needs to be expanded to cope with the new responsibilities which have devolved on these subdivisions. In total there will be 58 districts out of which 19 districts headquarters have most of the necessary facilities for functioning as administrative headquarters. Out of the remaining 39 districts (proposed), a few of them are expected to be able to accommodate district administrative offices in the existing subdivisional headquarters. But in the rest of the newly created district headquarters some essential facilities are to be provided for the efficient functioning of administration.

## E. Metropolitan Development Agencies

In the wake of rapid urbanisation in the late fifties in the large cities such as Dacca, Chittagong and Khulna, the need for planned and controlled development of these urban areas was keenly felt. This resulted in the establishment of Urban Development Institutions with the following objectives:—

- Preparation of Master Plans.
- Implementation of major schemes for development of roads, residential and commercial areas; community facilities such as open space, parks and other recreation spaces, etc., as envisaged in the Master Plan.
- Planning and development control.

As sufficient trained planners were not available in the country at that time, international assistance under the Commonwealth Programme was obtained and Master Plans were prepared for Dacca, Chittagong and Khulna between 1958-1961.

These agencies were able to implement partially some of the Master Plan roads, build a few commercial areas and develop a number of upper income residential neighbourhoods. Their record of achievements has fallen far behind expectation especially in the field of planning and development control and also in creating open spaces, parks and other recreational facilities.



Reasons for this lack of success have been primarily attributed to the following facts:

- (i) Grossly inadequate number of planning professionals in these agencies for the preparation of plans and detailed layouts; proper and viable project formulation and imposition of effective development control.
- (ii) Unrealistic financing policies of the Government in the past which required all the schemes of these agencies to be self-financing including the schemes for development of roads, open spaces and recreational facilities.
- (iii) Inadequate financing.
- (iv) Sketchy legislative support.
- (v) Class pressures which directed the attention of these agencies to development of land primarily for upper-income housing.

After the emergence of Bangladesh the prevailing objective conditions demand a fresh look at this role and a vigorous effort for reconstituting these Metropolitan Development Agencies. Dacca being the National Capital merits special treatment. The previous Master Plan for Dacca prepared almost 14 years back has become totally outdated. Moreover, the territorial limits of the urbanising zone of the city and the growth of industrial area have long since passed beyond the Master Plan boundaries. With the raising of the status of this city to that of a national capital with its associated problems and requirements, it merits special attention. But the organisation in its present shape is inadequate to cope with the diverse problems of a metropolitan region.

Lack of co-ordination of physical development activities at the implementation stage has also given rise to various problems causing considerable difficulties and suffering to the citizen apart from causing unnecessary wastage of resources. So that need for fusion of different organisation and implementing agencies operating within the greater Dacca region into a *Metropolitan Regional Planning and Development Authority/Authorities* for the purpose of planned development has become imperative.

In the case of the two port cities of Chittagong and Khulna the same approach needs to be taken in the light of the recent growth rate, future prospect of rapid urbanization and added importance of these two vital gateways to the nation. Therefore, equal importance for planned development of these growing metropolitan areas must be given. Further, it is expected that the high rate of growth of industries in these two port cities is expected to continue unabated during the Plan.

### 12.3 STRATEGY

#### A. Introduction

The compelling necessity of rehabilitation and reconstruction of the war-ravaged economy, solution of the most urgent food problems and restoration of the communication and transportation infra-structure have to be given precedence over social sector investments. In view of overall resources limitations, after meeting the investment needs of these vital sectors, it is not possible to meet the full social sector investment needs. As such this sector is accorded a lower priority at least during the First Plan. This compels this sector to go for rigorous priority selection of programmes after a thorough evaluation of the available options.



### *B. Institutional Development*

The programmes for institutional development are essentially of an institution building nature. The real constraint in this field is shortage of qualified technical manpower. The major tasks for physical planning institutions are preparation of a national physical planning and development strategy, regional development plans for all planning regions including metropolitan, regional, development planning and urban development plans for municipalities, urban centres and industrial complexes. The acute shortage of qualified planners either in the Public or Private Sector compels us to include only a minimum programme which can be handled by the local planners with possible international technical assistance. The priority areas thus selected are:

- Preparation of National Physical Planning and Development Plans.
- Regional Development Plans specially for the National Capital Region and if possible for another planning region.
- Urban Development Plans for a number of selected urban centres, industrial complexes and new District Headquarters.

Since the shortage of qualified planners compels us to limit our programmes cutting short even some of the urgent and pressing needs, adequate and immediate steps must be taken to enhance the capabilities of the Faculty of Architecture and Planning of the University of Engineering and Technology by way of obtaining teachers from abroad on a priority basis. To encourage larger enrolment, certain incentives in the form of scholarships, better job opportunities, etc. are to be provided. In addition, a number of professionals in the field should be sent abroad for advance training so that they can eventually replace the foreign experts.

In case of Housing and Building Research Centre, organisational deficiencies and manpower shortage are the major constraints. Immediate efforts are to be made to obtain the services of a team of international experts to make the centre immediately operational and to train up local research personnel. Foreign training of adequate number of research personnel needs also be taken up on an emergency basis.

The Housing and Building Research Centre should be enabled to link up with other foreign research institutions in the field in order to launch joint research projects and thus economise on the cost and manpower needs.

Extensive research for utilisation and improvement of local as well as new building materials shall be given a high priority.

During this Plan period the modest programmes that are being taken up will hardly touch the fringe of the total problems of Physical Planning and Housing. However, in the successive Plan periods much bigger efforts will have to be made for making up much of the leeway within the framework of a long-term perspective for sectoral development. The data needed for preparation of a perspective plan are non-existent. Two basic surveys must be conducted as soon as possible to collect basic data on rural and urban housing.



## C. Housing

### 1. Rural Housing

In relation to the dimensions of the problem the meagre available resources limit us from launching any substantial programme of rural housing during this Plan period. However, we can make selective thrusts especially in evolving new institutions and in the extension of services and facilities in order to improve rural living conditions. In addition, a number of pilot projects can be taken up for testing the viability of planned approaches to rural housing and settlement.

Rural housing must be tackled as an aspect of overall rural development. As such the IRDP should be broad-based to include housing as an important area of its responsibilities. Since the cooperatives have already been identified as the institutional agent for implementation of the IRDP, the following arrangements are foreseen:

- (i) The primary cooperatives at the village or union level would be used for motivation, construction, maintenance and management.
- (ii) The federation of primary cooperatives (TCCAs) at thana level would have a regular housing section. This section would assess the loan requests by the primary cooperatives including credit-worthiness of individual applicants and process the consolidated loan requirements for obtaining funds from National Credit Institutions. The TCCAs shall also be responsible for supervision of utilisation of such credits by the primary cooperatives, procurement and distribution of building materials, and provision of technical assistance.
- (iii) While for the purpose of rural development, the TCCAs are federated to the National Federation of Cooperative Societies, for the purpose of housing, these should be affiliated to the National Federation of Housing Cooperatives to be set up under the Ministry of L.G., R.D. and Cooperatives.

Financing of rural housing activities through cooperative societies may be done by creating a new financing institution styled as Cooperative Housing Finance Corporation. This will also serve to finance the urban cooperative apartments.

The Government can assist the cooperative housing movement in a variety of ways. To stimulate the further development of cooperatives, Government may provide incentives in the form of acquisition of land for the benefit of Housing Cooperatives, certain preferential treatments including exemption from registration fees, stamp duties, etc.

The deficiencies of present drinking water supply are to be mitigated by providing at least one shallow tube-well for every 150 persons. In special areas where shallow tube-wells are not successful deep tube-wells will be provided. Materials and supervision of the installation of tube-wells will be done through Public Sector investments. However, local communities will have to provide land and labour and accept responsibility for the maintenance of the tube-wells.

Elementary rural sanitation programme shall be extended along with public health campaign explaining the methods of ensuring minimum standards of sanitation. The material component of the water-sealed slabs shall be provided by the government but local labour will have to be provided to fabricate and instal the slabs.



The improvement of rural settlement patterns shall be attempted on a pilot basis through the development of a number of rural service centres. Viability of model village concepts will also be tested to help evolve a long-term strategy through the evaluation of these projects. The Ministry of Local Government, Rural Development and Cooperatives shall sponsor and oversee the implementation of these projects.

## 2. Urban Housing

Since the low-income groups constituting 85 per cent of our urban dwellers cannot afford to build or even pay an economic rent for houses conforming to bare minimum standards, it is imperative that the public sector must launch programmes for providing housing for this class of people. The whole capital cost of this entire programme must be subsidised partially or in full depending on the nature of the housing.

Construction of multistoried flats and minimum shelters for the low-income groups is viewed as the desirable long-term solution of the problem especially in view of the extreme scarcity of buildable urban land and the economy that can be derived in provision of services. However, in the First Plan period the housing backlog is so large that investments in high-rise apartments may prove, at current costs, inadequate to make an impact on the problem. For this reason low-income housing will have two components:

- (i) Multistoried apartment housing providing a higher standard of accommodation.
- (ii) Nucleus shelters providing pucca accommodation of a basic sort at a much lower unit cost than the apartments. These will seek to house about 40 families per acre in shelters within about 80 square yards of space. Sanitary, recreational and other facilities will have to be communally provided.

The low-income housing construction is to be located within the core and inner periphery of the cities while sites and services schemes for cooperative apartments can be located outside the inner periphery and beyond that. It is required that transportation services be simultaneously provided for commuting residents of these peripheral housing estates.

For lower-middle and middle income group housing the Plan strategy is to promote co-operative apartment housing. For this, land will need to be developed under the sites and services scheme by the metropolitan agencies along with layout and building plans prepared by these agencies. Co-operatives will need to be organised to generate savings, mobilise finance from public sector, financing agencies and organise construction according to the plan of the agencies.

The modest industrial workers' housing programme that is to be launched during this Plan period shall be financed from the profits of the public sector enterprises supplemented by loans from the public sector finance institutions. A combination of dormitory type and family type accommodation are to be provided under this programme.

For those low-income groups who cannot be accommodated in the proposed housing schemes, special sites will have to be set aside for location of planned Temporary Settlements. These planned settlements will have to be provided with basic services.

Provision for nucleus housing by private persons will be there in the Plan. The large numbers of as yet unbuilt nucleus plots in the urban centres will be available for this type of construction. For this reason as also because of the social policy of the Government no new sites for nucleus housing will be developed during the Plan. The HBFC will continue to finance this form of housing construction.



The general strategy with regard to development of urban services and utilities is to achieve completion of on-going projects and optimum utilisation of capacities of existing installations.

A small networks of water supply shall, however, be established in those urban centres where no such system exists.

Development of a modern sewerage system shall be limited to the capital city of Dacca and feasibility and other studies in connection with establishment of such services in the other two metropolitan cities shall be completed during this Plan period.

Strategy for government housing will be directed towards eliminating the distinction between planned public housing and special housing project for government servants. To this end the following course of action is proposed:

- (i) Government servants will be encouraged and organised to form housing cooperatives, which will build apartment houses for its members under the cooperative housing programme.
- (ii) On-going construction work for public servants will be completed. This must reflect the austerity required of a socialist commitment.
- (iii) Abandoned houses now under state ownership will be progressively vacated to meet the needs of government servants.
- (iv) This process needs to be accelerated by vigorous law enforcement assisted by a policy of relocating bonafide war victims and genuinely needy families in the government and cooperative housing schemes. It is expected that some 5,000 units in Dacca city alone will be available for this.
- (v) Those abandoned houses which the government, *ad interim*, decides to allot legally to various private persons should be made to pay a reasonable rent to the government.
- (vi) This fund should be used for maintenance and renovation particularly when they are vacated to house government servants.
- (vii) Where feasible, structural changes should be carried out in houses and larger flats designated for government servants with a view to provide more apartments. For this some investment will be required.
- (viii) It is expected that the very substantial building programme envisaged in the Plan will divert a part of the housing demand of public servants who for the first time will be able to get reasonably priced accommodation in the metropolitan cities at least.
- (ix) A small provision is being made for construction of government housing in those towns where no abandoned properties are likely to be at hand to house government servants.



## 12.4 INSTITUTION AND POLICIES

### A. *The need for Integrated Development*

In view of scarcity of resources and possibility of severe pressure of population on land the need for planned utilisation of the non-expandable land resources has become a national imperative. A beginning should therefore be made right from the First Plan period to identify the eventual institutional and organisational infra-structure which will enable us to plan land use more efficiently. Planning institutions will be required to cope with this task. Preparation of a national physical planning and development strategy is deemed to be an important task during the First Plan period. Regional planning is another area which needs immediate attention particularly for the metropolitan regions of the country. Co-ordination of sectoral development activities in matters of actual physical development must also be ensured in order to avoid wasteful time-lags in complementary development. Necessary institutions have to be set up to cover these responsibilities. The following institutional developments are proposed:

Possibilities of creating a special agency for Physical Planning should be studied in all its aspects with a view to assuming all responsibilities for physical planning of the environment. They will formulate policies and administer related programmes and institutions dealing with physical planning. This agency and its work cannot however, divorce itself from the process of local Government. Given the objective of decentralising administration and decision making local bodies must be closely involved in plans for land use and their authority must be involved to give executive effect to such plans. In the future the prospect for transferring all construction work to local authorities may be seriously considered.

The existing Urban Development Directorate in the Ministry of Public Works and Housing may form the nucleus of this Division but with two components covering Regional Planning and Urban Planning.

The Physical Planning Division shall be made responsible for the following:

- (i) Preparation of Regional plans including Metropolitan Regional Plans,
- (ii) Approval of the District Plans.
- (iii) Preparation of Urban Development Plans for Municipalities, industrial complexes and other urban centres.
- (iv) *Ad Interim*, it may also have to scrutinise Thana Plans.

The mere preparation of plans will not ensure integrated and coherent development. New governmental structures are needed to be created or the existing ones substantially strengthened in order to exercise development control and guidance. The Thana Development Coordination Committees and the Zilla Development Coordination Councils that are being proposed by the Ministry of Local Government, are the logical structures through which both preparation and implementation of the Thana Development Plans and the District Plans could be carried out. It is noticeable that structures for development coordination at regional level (supra-district level) are missing from the proposed local government structures. If regional development plans are to be prepared and administered properly, then creation of a Regional Development and Coordination Council becomes unavoidable.



For the purpose of preparation of Plans and their approval the following procedures are suggested:

### **1. Regional Plans including Metropolitan Region Plans**

The Regional Planning Directorate of the Physical Planning Division will directly undertake preparation of such plans and these plans will be approved by a Physical Planning Council of the Government.

### **2. District Plans**

These plans are to be prepared by planners from the Regional Planning Directorate of the Physical Planning Division. As local institutions and resources develop, this task may be taken over by professionals in the service of the Zilla Parishads. Assistance from the officials of all nation-building Ministries and Agencies in matters of surveys, collection of data and plan formulation must be ensured by involving these officials in the district coordination councils.

The District Plans as and when prepared shall be approved by the Regional Development Coordination Councils. Until such times as these Regional Councils are set up the Physical Planning Division of the Ministry of Physical Planning and Local Government will be the approving authority of the District Plans.

### **3. Thana Development Plans**

These plans should be prepared by the Thana Parishads who must equip themselves for the task. Till they do so staff assistance may be provided by the Physical Planning Division. The approving authority for these plans should be the Zilla Parishads. These plans will be integrated into the Zilla Plans.

### **4. Urban Plans**

The preparation of Urban plans should ideally vest with the local bodies. Since some kind of structures are generally available in the shape of Town Committees, Municipalities, etc., the responsibility for plan preparation and implementation can be carried out by these bodies, initially with assistance from the Physical Planning Division. For providing required assistance an Urban Planning Directorate under the Physical Planning Division needs to be set up immediately. The approval of the Urban Development Plans can be vested with the Physical Planning Division.

An Urban Development Co-ordination Committee and District Co-ordination Committee should be set up for co-ordinating physical development activities as detailed later.

### **B. Organisation and Structure of the Physical Planning Division**

The creation of the Physical Planning Division in itself will not be effective unless various steps are taken to create the internal structure of this Division and to man them with appropriately trained man-power. Immediate steps must be taken to launch a crash programme for planners' training under more than one University in the country. This may require external technical assistance. The crash programme should aim at producing planning personnel at undergraduate level as well as at graduate level. The training of planners at undergraduate level through a condensed one year course will enable the Government to place para-technical



personnel at the Thana level in the course of the next five years. Planners at the District level of necessity should be better trained and more experienced.

For carrying out the internal planning and design responsibilities associated with execution of projects, an Architecture Planning and Design Directorate will need to be set up. The functions that are to be carried out by this Directorate are :

- preparation of site plans;
- preparation of detailed layout plans of housing estates and office complex;
- building and Housing planning and design, etc.

In accordance with the plans and designs prepared by the Directorate of Architecture and Planning the construction Directorates of the Ministry of Public Works and Housing will be responsible for the following:

- (i) All administrative construction should be entrusted to the Buildings Directorate.
- (ii) All Public Sector housing should be entrusted to the Housing Directorate.
- (iii) This implies that the P.W.D. inherited from the erstwhile Central Government of Pakistan should be dissolved and its responsibilities divided up as between the two above agencies.
- (iv) The Development authorities' building and housing construction responsibilities should be bifurcated between these two Directorates.
- (v) Sites and services functions including development of parks and other spaces, which is to remain ad-interim with these agencies, should eventually be entrusted to a separate directorate in the Public Works and Housing. In the metropolitan cities until such times as the Metropolitan Planning and Development Authorities are set up the existing urban development agencies will continue to be responsible for these functions.
- (vi) Dacca and Chittagong WASA may continue with this Ministry but once the development work is completed administration of water supplies and sewerage must vest with the Municipalities.
- (vii) A full fledged estate office will need to be set up as a separate agency within the Ministry to play the role of landlord to all the housing under the Ministry.
- (viii) Road building functions have no logical place in the Ministry of Public Works and Housing and should be vested in the Roads and Highways Directorate.

The overall physical planning of the geographical space of Bangladesh will continue to be intimately related to the social and economic planning currently carried out by the Planning Commission. Since a national physical plan is essentially a physical counterpart of the economic plan prepared by the Planning Commission it would be advisable to institutionalise this inter-relationship.

1. In the interim phase the Physical Planning and Housing Section should be raised to the status of Division in the Planning Commission. Its staff will have to be expanded and external



assistance invited to enable it to begin work on drawing up national physical plans for the annual, five year and longer term time phases and also for rational delimitation of the planning regions.

2. For the future it may be considered whether an institute of physical planning may not be created to embrace the very considerable responsibilities implicit in this task. This may continue to be in the Planning Commission.

As things stand, a general state of anarchy prevails in most urban areas in terms of physical construction. Power, sewerage, water, gas, road building maintenance, housing are carried out by different agencies. This involves duplication of work, wastage of resources and massive inconvenience to the public.

It is now time to coordinate all physical works as far as possible within particular areas. For this a National Physical Development Council should be set up with high level representation of the relevant agencies.

The Council should coordinate all construction plans of the executing agencies represented on the council. The idea would be to see that all physical construction in a particular area should be carried out on a coordinated basis. For this both release of funds and working out of a construction strategy will be needed. This may be coordinated by the council.

In the Five-Year Plan a number of metropolitan authorities in Dacca, Chittagong and Khulna may emerge. These authorities may have all functions and responsibilities assigned to the Council delegated to them.

Local authorities must be equipped to play their role in this sector.

In the interim phase all development works should vest with the various designated Ministries/Agencies. Where there is as yet no national network of services, the local authorities must take over the administration of such services as water supply and sewerage where the development programmes are completed by WASA and DPHE. Local authorities should continue to build local roads under the works programme and non-arterial R. H. roads in Municipal areas may also be maintained by them.

The institutional arrangements for the Public Health Engineering programme needs to be re-assessed. Under the present arrangements, the entire administrative and financial responsibility for sinking tube-wells and maintaining them vests with PIIE and is to be financed through the development budget to the extent of Taka 38.50 crores during the First Five-Year Plan. As part of our programme of development responsibility to local authorities with a view to mobilising local resources, both human and material the following institutional changes are proposed for executing this programme:

(i) PHE will determine on a district-wise basis the number of tube-wells to be sunk every year.

(ii) District authorities will then indicate to the District PHE the sites where tube-wells will be sunk in the district.



- (iii) The PHE representatives will then study these siting areas and on the basis of ground water conditions will indicate whether the site is feasible. If the site is technically unsuitable PHE may, in consultation with local authorities, identify an alternative site. In all matters of siting, PHE's judgement should be final.
- (iv) Once the site has been identified, it will be the responsibility of the Union Panchayat to see that the land on which the well is sited is made over to the Panchayat from the owner either on contribution or through payment from funds locally mobilised.
- (v) All labour must be of local Union. It may be mobilised in all or part on a voluntary basis by the Panchayats. Alternatively the Panchayat may impose water cess to pay for the labour and even land costs.
- (vi) As and when land labour are at hand, Union Panchayat will inform the District Panchayat who in turn will formally notify the District PHE.
- (vii) On this basis an annual sinking programme may be drawn up by PHE and the District Panchayat.
- (viii) On the basis of this programme the PHE will deliver tube-well materials and installation equipment to the site.
- (ix) PHE will provide services of a technically qualified hand to supervise the labour provided by Union Panchayat in sinking the well.
- (x) Union Panchayats will be responsible for maintenance of all tube-wells installed under this programme.
- (xi) where materials and technical services are required the Union Panchayat will approach the District Panchayat to secure these from the PHE.
- (xii) During the first plan period these materials will be provided under the budget as a grant.
- (xiii) For the future, Union Panchayats must be ready to pay for maintenance. This will ensure greater discipline in routine usage and maintenance.
- (xiv) Where Union authorities have failed to mobilise land/or labour within 3 months of the actual siting decision passed on to them, the district authority will reallocate the tube-wells to a different Union.
- (xv) If the entire district falls short of mobilising labour and/or land needed to fulfil the tube-well sinking targets allocated to it at the beginning of the budgeting year within six months of the allocation, PHE will reallocate the wells to another district.
- (xvi) The PHE must suitably strengthen its district offices with technical hands of various qualifications to ensure prompt discharge of their responsibilities.



- (xvii) The District Panchayats should also have on their staff skilled personnel to supervise routine maintenance of the wells. Eventually when local authorities are adequately equipped they may take over all responsibilities currently vested with PHE except for the task of inter-district allocation.

The Rural Sanitation Programme will continue to be vested with the PHE who will continue to educate the rural population on the subject. They will also fabricate the sanitary installation and make it available to the public on a subsidised basis. Since the idea is as yet experimental it may be advisable to let this arrangement continue for the five year period. However, once the benefits of the programmes have been made manifest it may be considered whether the responsibility for fabrication may not be taken over by the District/Thana authorities. These may initially be provided with material and technical supervision by PHE, but even these tasks can be taken over locally.

A National Council for Housing and Building Research consisting of eminent people in the fields of housing, building and planning should be immediately set up with the objectives of—

- identifying areas of research;
- approval of research programmes; and
- appraisal and evaluation of research activities.

The status of the Housing and Building Research Centre should be that of an autonomous body like other scientific and technological research institutes in the country. It should be placed under the Construction Division of the Ministry of P.W. and Housing to ensure close coordination between actual construction and research relating to it.

Incentives in the form of status, salary and other benefits should be provided in order to attract as well as to retain talented management and research personnel.

### *C. Cooperative Housing, Finance and Other Shelter Programmes*

The problem of shelter is acute throughout the urban areas, particularly for the low and lower middle income groups. It is incumbent upon the government to devise schemes to meet the shelter needs of these income groups, and to the maximum extent possible harness and mobilize private resources and initiative in attacking the problem. However, shelter, housing and cooperative housing programmes must not be dealt with in isolation, but rather in the entire context of the urban process, namely employment, transportation, sanitation, schools, commerce and water supply. In so far as possible the policy of the Government shall be to avoid subsidies to middle income groups and limit the application of such subsidies to the lower income sector of our society.

In broad terms Tk. 100 crores is envisaged for expenditure for cooperative housing and shelter programmes during the Plan period. The kind of programme and housing contemplated will largely be determined on the basis of the payment capacity of a particular income group.

Cooperative housing must not be seen as merely an administrative format but a way of life for the member of the cooperative communities emerging out of this programme. A move into cooperative living will logically lead to cooperative provisions for services, marketing, transport and eventually production for the cooperative communities. This will in itself have a significant impact on the social structure of the community and can only be carried through successfully



within the framework of a socialist commitment. Since socialism is now a declared objective of the Government and the Five Year Plan is an instrument to this end the institutions proposed over here are a concrete expression in the housing sector and of the overall philosophy of the Government.

Institutional arrangements will be required to successfully execute the programme. In order to provide an overall direction for this programme it is proposed that a *Cooperative Housing Advisory Board* be constituted. The Board will include representatives from concerned Ministries, agencies, institutions and the cooperative housing movement.

The Board will provide policy guidelines for the national programme including, but not limited to, the following:

- The development of a national strategy and policy regarding shelter and housing.
- The income levels and classes of people to be served.
- General terms for mortgage lending by the Cooperative Housing Finance Corporation and terms and interest rates on savings and investments in the CHFC by individuals and institutions.
- Determination of subsidy for different groups, and identification of sources for such subsidies.
- The allocation of public sector funds to be used for shelter programmes, including share capital and debt capital to be made available from public agencies, the nationalized banks and insurance companies, etc., to the CHFC.
- Advice on coordination of housing programmes with national, regional, and metropolitan and planning agencies, municipalities, and the development authorities.
- Recommendations to the Planning Commission regarding external multi and bi-lateral aid agencies to identify capital and technical assistance resources for the programme.
- Criteria and priority for importation of essential building materials.

The Board will designate the initial Board of Directors of the Cooperative Housing Corporation (CHC) to be comprised of 6 to 9 members. It shall include representative from the cooperative housing movement obtaining assistance from the Cooperative Housing Corporation, and suitable arrangements should be made for the gradual turning over of control and ownership to the cooperative housing sector as viable cooperatives are spawned. The Board of Directors should also include representation from the CHFC. The CHC will be the executing organization for the sponsorship, development, implementation, and management of cooperative housing programmes. It shall be an autonomous body corporate with full powers to transact and conduct business operations within a defined framework as set forth in the bye-laws. The Board of Directors shall appoint an Executive Director who shall have full responsibility for managing the organization. Arrangements will be made to provide CHC with an initial grant of an amount of Tk. 20 lakh as start-up capital over a period of three years. It shall operate as an economically viable and self-sustaining organization in accordance with its charter and bye-laws, and on behalf of the cooperative and non-profit housing sectors. To assure orderly and integrated development of its responsibilities CHC shall coordinate its programmes with the



Ministry of Public Works and Housing, the Planning Commission, the Ministry of Physical Planning and Local Government, the Ministry of Cooperatives and Rural Development, the regional, metropolitan and municipal planning bodies.

The Cooperative Housing Corporation will carry out or make arrangements for carrying out the following activities on behalf of prospective or existing cooperative groups:

- (i) Market analysis to determine groups and types of housing programmes, identification of social groups, socio-economic studies, etc.
- (ii) Site identification for housing programmes, and development of appropriate site plans to conform to master plans, zoning and other existing regulatory physical plans.
- (iii) Plans and specifications for projects, including infra-structure for projects, community, commercial and recreational facilities.
- (iv) Project construction on the basis of appropriate tender.
- (v) Project supervision in conjunction with designated government agency.
- (vi) Cooperative and community organisation for primary cooperatives and their members including, pre and post occupancy education and training, development of savings programmes, assistance in registration, etc.
- (vii) The construction and long term financing for programmes with the CHFC.
- (viii) Manage or assist in managing with primary cooperatives completed housing projects, including collections, maintenance of community services, and financial and budget control of cooperatives.
- (ix) Appropriate legal documentation for the cooperatives, including bye-laws, occupancy and mortgage agreements, etc.

Arrangements shall be made for auditing the CHC by chartered public audit firms and/or appropriate government agency.

The Cooperative Housing Finance Corporation (CHFC) will be established to marshal and channel funds for the cooperative and non-profit housing programme. It shall be an autonomous corporate body. With full powers to mobilize resources and dispense funds for purposes of financing cooperative housing, shelter and related urban and community development programmes. The CHFC will be controlled by a Board of Directors suitably representing the interests of the principal contributors of authorized and subscribed share capital and the interests of the individuals or cooperative shareholders and/or savings depositors.

The initial authorised share capital of the CHFC shall be 25 crore and taken up by the nationalised banks, and insurance companies, other agencies, enterprises and the general public. Legislation will be enacted to obligate specified government and quasi-government bodies to invest on a continuing basis a portion of their investment portfolio into the CHFC. The CHFC shall be authorized to float bonds and issue debentures with the backing of the government. Consideration will be given to requiring the industrial enterprises to purchase debentures from portion of their net profits.



A principal function of the CHFC will be to mobilize savings from the small, medium and large saver through a network of branches or correspondents throughout the country. Savings deposits must be guaranteed by the government in an appropriate manner.

Housing cooperatives will be entitled to receive directly or through the CHC financing for housing schemes submitted by the CHC on behalf of the cooperative. Government approval of such schemes will be a pre-requisite for loans. Lending would take place on the basis of conditions laid down by its Board and the Cooperative Housing Advisory Board.

The Cooperative Housing Corporation will also have responsibility for loan appraisal, disbursement, supervision and repayment.

The construction of housing, shelter and community service schemes shall, to the maximum extent possible, be carried out by cooperative types production enterprises.

The structure of the cooperative housing programme will be developed in accordance with generally accepted principles of cooperative movement. Essentially the CHC, in representation of prospective or primary cooperatives, will undertake the development of given schemes. It is intended in time, that the CHC becomes the national apex organization for cooperative housing. The title to each scheme will rest with the primary society. A flexible organizational and legal approach must be adopted until a sufficient body of experience is gained to clearly demonstrate and signal the most applicable, efficient and representative structure.

Within the Physical Planning and Housing Sector provision has been made for spending Taka 415.00 crore in public sector and cooperative building. Under present arrangements the construction work is carried out by private contractors. In most cases of public construction the agency concerned may provide cement, steel, bricks and even fixtures. In other cases these are provided in part or full by the contractor along with labour. If we include all other sectors involving construction work it may be reckoned that 30 per cent to 40 per cent of the entire plan expenditure will end up in the hands of private contractors. Even if we assume that the contractor makes as little as 10 per cent on a construction contract during Plan period a sizeable sum stands to be made by these contractors.

As things stand this process is likely to raise some contradictions within a socialist system. The contractor class operating in building construction, roads and highways tube well installation appears likely to emerge as a privileged class with scope for making fortune substantially in excess of the distributional norms of a socialist society. In such a situation if the Government is sincere to its socialist commitment it should aim to assume responsibility for all constructional work.

In the current phase this may impose a burden substantially beyond the administrative capabilities of the Government. For this reason taking over of construction from the private sector must be based over several Plan periods.

It is, however, imperative for a beginning in this direction to be made by the Government. It is, therefore, suggested that a Construction Corporation be set up in the public sector.

This should begin with amalgamating the personnel, assets and funds of abandoned construction firms into one or more enterprises.



This Corporation should be given maximum operating autonomy to compete with private firms for public contracts.

The Corporation itself should be manned by Senior Engineers and Architects with considerable commercial experience. The enterprises under the Corporation may be strengthened by recruitment of capable professionals.

The Government may pass onto this firm sophisticated construction equipment lying around from various projects. Additional equipment and even skills may be imported to enable the Corporation to compete for sophisticated construction work now being entrusted at great cost to foreign contractors.

As with other public sector enterprises this move will rest or fall on the freedom and responsibility vested in the Corporation to make itself commercially viable. For this an appropriate incentive system including profit sharing with employees is an essential prerequisite.

To the extent that the experiment is successful and assumes responsibility for a part of the construction work in the first plan a major expansion in its scope of operations can be attempted during the second plan.

Apart from publicly owned construction enterprises a more fundamental departure in the institutional arrangements for construction will need to be developed. This will involve the local representative institutions mobilising local labour for unskilled or semi-skilled construction work within the community either on a voluntary basis and/or through generating resources locally to pay unemployed local labour. This of course involves mass political mobilisation and appropriate institutions which have been discussed elsewhere. But as this option develops this will be able to mobilise labour on a much larger scale than the contractor system in less sophisticated construction projects, which will both save on national budgetary resources and convert underemployed labour into a productive asset. In the longer run our construction strategy must aim at depending on this technique for smaller projects and public construction firms for the more complex projects.

To the extent that private contracting continues, a positive effort must be made to mop up the monopoly profits made by these contractors. The fiscal mechanism has been notoriously taxed in making in-roads into these profits. The proposals for all public sector construction tenders are therefore as follows:

- (i) The tender stipulates the breakdown of costs, including profit margin.
- (ii) The public sector agency passes on the details of the contract made with the successful tender, along with tender documents, to the income-tax authorities.
- (iii) Income-tax authorities should keep these at hand when contractor files his returns. If he does not, I.T. authorities should follow this up.
- (iv) In order to be eligible to bid for a tender, contractors should be asked to produce an income-tax clearance certificates.
- (v) Where there are substantial arrears of tax, I. T. authorities may approach public agencies to withhold bills of the contractors.



- (vi) All contractors should be registered. A progressively determined licence fee should be charged on an annual basis. An I. T. clearance certificate will be required for verification at the time of renewal. No unregistered contractor will be eligible to bid for public or cooperative contracts.

Private house building is likely to play a substantial role in the years to come, if it is reckoned that Tk. 35 crore will be vested in private construction during the Plan period.

A further amount of Tk. 222 crores are identified as non-monetised investment in construction of shelters in the rural and urban areas. These may involve some cash outlay in procurement of C. I. sheets, bamboo thatch and even bricks. In most cases in rural areas the householder simply uses his labour whilst he collects his materials from the countryside. Since cash outlay plays a role what we define as non-monetised is inaccurate insofar as some claim on marketable resources is made from this sector.

The Tk. 35 crore of private housing in the monetised sector is thus really a reflection of investment in more permanent structures and does not reflect the full taka outlay on construction during the plan.

Policy decisions will be required in order to regulate the type of houses built. To the extent that austerity is a national objective, such houses should be modest structures catering to middle class tastes.

It must, however, be noted that as of now there are plots in Gulshan and Banani in local hands. If we add available land in private hands in other residential areas of Dacca, Chittagong and Khulna the compulsion to build larger houses to cash in on the high rents paid by foreigners will be very strong.

Government will have to decide whether to permit this type of construction to cope with foreigners demand or to permit this scarcity to persist and develop a policy for rising house-rents. A policy of public sector luxury apartments for foreigner may be considered as another option.

It should be noted that as of now all owners of land in these areas and houseowners stand to make windfall profits out of any restriction which the government imposes on luxury building during the plan period.

Keeping in view the problems of administering any control on housing construction the following policy is proposed:

- (i) Where feasible plots in Gulshan and Banani should be permitted to be divided up subject to a minimum unit of  $\frac{1}{4}$  bigha. This will increase somewhat the number of plots.
- (ii) In order to avoid windfall gains from the sale of scarce land in Gulshan or Banani or any other area, capital gains tax rates should be very substantially increased.
- (iii) Municipal housing rates should be significantly increased. This should aim to:
  - raise substantially the rates on houses rented out as distinct from those occupied by owners.
  - Having a progressively rising rate based on size and quality of the house which will discourage large and luxurious construction.



- All houses leased to foreign nationals in Bangladesh, must be done through lease agreements which should be registered with the income-tax departments in various cities. The Board of Revenue should specially designate officers to register these leases.
- All houses with a floor space of more than 1000 sq. ft. should also register their leases with the income-tax department.
- Income recorded in these leases should be scrutinised for evasion and then reflected in the tax assessments of the owners.
- A special surcharge on income from house-rent may be imposed.
- A special building permission tax may be imposed for government developed areas such as Gulshan, Banani and Dhanmandi designed to recover the increase in the value of land.

Such policies may recover to the Government some of the windfall profits currently accruing to home or landowners as a result of Government policies. To the extent that this can be re-channelled into public building programmes it will help to stabilise rents at least for middle or lower level housing. By relieving the intense pressure on existing housing space in these categories through providing public housing it is expected that a downward trend in house-rents may be initiated.

#### *D. Private Landownership*

Privately owned urban land is a scarce commodity whose value has increased and will continue to increase with the growth of urban population. Government policy will have to decide how far society can afford to permit this scarce land to lie idle, be used in a sub-optimal manner and provide a basis for windfall capital gains to its owner.

Landowners on the frontage of newly developed city roads have been given windfall gains in land value because land bordering the roads were never acquired. Valuable building sites are lying unutilised, or with uneconomic structures. Acquisition of such sites will impose a serious cost to the budget.

A policy, therefore, needs to be developed towards urban land. The following guidelines for policy are suggested for application during the First Five-Year Plan to the three metropolitan centres. These principles may be extended to other urban centres of Bangladesh in the second plan period:

- (i) A ceiling of half an acre per nuclear family be imposed on all land within the municipal limits. Land over and above this limit may be acquired by the Government for use in Government and Co-operative sector building programmes. This may be tied in with a policy for ceiling on ownership of urban property which may seek to limit ownership in terms of number, size and value of urban housing.
- (ii) A betterment levy should be imposed on all landowners whose property value has appreciated because of government infra-structure investments.
- (iii) Where such levies cannot be paid within two years of its imposition the land should be acquired and the levy should be deducted from the compensation awarded to the owner.
- (iv) All new construction in the three metropolitan centres should be approved by the planning agency. This approval will only be given where optimal use is made of lands sited at favourable locations.
- (v) All vacant sites and sites where unauthorised construction has come after this law is put into effect will be acquired within five years of the enactment of this law. No compensation will be paid for unauthorised constructions.
- (vi) Tax rates on capital gains on land values should be enhanced.



### *E. Planned Temporary Settlements*

It is evident that whatever emphasis the government puts on improved housing for lower income groups will be grossly inadequate. Pressure of population in urban centres will only permit, with the resources available to the Government, the housing of a small percentage of the increment in the urban population.

It may be expected that the unaccommodated population will continue to squat in whatever space they find and will continue to generate the problems inherent in such unplanned slums.

In such a situation a case presents itself for taking this development as a fact of life and attempting to plan for it. The only option available to the government is to specially designate certain available spaces for such shelter construction. Here even if the housing cannot be planned or be up to standards at least the environment can be planned. As resources become available and income levels increase these settlement areas may be re-developed with more durable and permanent structures. It is, therefore, proposed that :

- (i) The Physical Planning Division identify sites within the environs of the city where such temporary settlements can be located.
- (ii) A rudimentary layout plan for these spaces be drawn up guaranteeing a certain space to each dwelling unit.
- (iii) Inhabitants located in these settlements will have to enter into an agreement with the Government to vacate this land when more permanent habitation is provided to them. Land allotted will not ensure title or be transferable. Government must guarantee re-settlement at the time of eviction and must pay compensation for any investment in pucca construction.
- (iv) Once planned sites are allotted construction will be the responsibility of the allottee.
- (v) Government may build 'core' houses in some sites which will provide for foundations and roofing. These can be sold on instalment basis to the tenant. The tenant will have to invest in constructing walls and interior partitions according to his requirements.
- (vi) In each settlement provision should be made to provide minimum sanitation and water supply.
- (vii) Health services and schools may be set up.
- (viii) If such settlements are away from the centre of the town an efficient public transport system be provided.

Each temporary settlement should aim to administer itself through co-operatives. A federation of such co-operatives may be organised with an elected president.

A special Temporary Settlement Board be created to make policy for this programme. This may consist of existing representatives from local Government, public representatives, representatives of the Temporary Settlements, construction and planning agencies.

The Temporary settlement scheme should be implemented through the Ministry of Public Works and Housing who may carry out the ground work and planning of the programme. The



Directorate of Housing will provide the support work to the Board. A block allocation should be made for providing facilities to these settlements. A ground rent should be charged to each allottee to pay for the permanent staff, service and maintenance for each area.

Once such settlements are made available any shelter construction outside these areas must be prohibited and all such shelters removed forthwith. The law enforcement agencies must enforce the policy of eliminating squatters without fear or favour. Any lapse in the discipline necessary to enforce this policy will subvert the entire concept of planned settlements.

## 12.5 DEVELOPMENT PROGRAMME

### A. *Institutional Development*

#### 1. **Physical Planning**

The on-going project for location and Planning of Cities in Bangladesh is in fact a scheme for preparation of a National Physical Planning strategy. This includes the preparation of a perspective frame-work for inter-regional distribution of development activities, identification of growth poles, delimitation of Planning Regions and the preparation of one Regional Plan on a pilot basis. The Plan allocation of Taka 140.00 lakh for this project has a foreign exchange component of Taka 85.00 lakh (Table XII-1). It is expected that UNDP will provide the entire foreign exchange in the form of a grant which will be utilized for bringing in international experts, equipments and stationeries as well as for payments to international sub-contractors who will be engaged by UNDP to complete the tasks in co-operation with their local counterparts. The foreign exchange allocation also includes the provision of a number of fellowships for training local manpower. The counterpart allocation of Taka 55.00 lakh has been provided for meeting the expenditures on local staff-salary, operation and maintenance of the equipments and facilities, local surveys and general administration of the project.

The new schemes for Physical Planning that have been included in the First Five Year Plan are :

- (i) Regional Planning Scheme (1st Phase)
- (ii) Urban Planning Scheme (1st Phase)

The Regional Planning Scheme is partly a follow-up phase of activity which is expected to utilize the frame-work as well as methodology developed through the implementation of the on-going UNDP aided project. It, however, shall initially deal with the most pressing problem of Metropolitan Planning. Preparation of a Metropolitan Regional Development Plan for the national capital is the immediate task to be completed under this scheme. Utilisation of external assistance for this Metropolitan Regional Plan ranks high in order in the technical assistance need of the Physical Planning and Housing Sector. Of the total allocation of Taka 150.00 lakh for Regional Planning an amount of Taka 50.00 lakh in foreign exchange has been provided to account for the expected technical assistance inflow. The Taka component of Taka 100.00 lakh has been provided to build up the Regional



Planning Institution (Regional Planning Directorate) under the proposed Physical Planning Division which will enable the Government to train up and second professional and sub-professional planning staff at regional district and Thana level.

The Urban Planning Scheme envisages preparation of 20 Urban Development Plans of selected urban centres and industrial complexes. Each one of these plans is expected to cost Taka 3.00 lakh on average. As such a total allocation of Taka 60.00 lakh with a FEC of Taka 10.00 lakh has been provided for. The foreign exchange component is meant for purchasing essential survey, drawing and printing equipments and stationeries. The overhead establishment cost of the Urban Planning Directorate which is to be the executing agency for this scheme should come from the revenue sources.

## 2. Housing and Building Research

The on-going scheme of the Building Research Institute has already acquired a few physical infra-structural facilities such as the building and a sizable amount of equipments during the past years of its operation. The First Plan programme envisages procurement of additional equipments, essential stores of research materials and above all technical assistance in the shape of research expertise for enabling this centre to perform effectively. An allocation of Taka 50.00 lakh in foreign exchange has been provided for these essential needs. The local Taka component of 100.00 lakh (Table XII-1) is to be utilised for expansion of the staff services through a sustained programme of training and absorption of middle and upper level professionals, testing the field application of research findings both in materials and techniques through pilot projects, dissemination of research findings, and other overhead expenditures. The total allocation for Housing and Building Research thus amounts to Tk. 150.00 lakh.

## 3. Survey Schemes

Apart from the overall resource constraints, planning in the field of housing has been seriously handicapped due to lack of hard data. For obviating this deficiency two basic surveys on urban and rural housing conditions, requirements, and demand are to be conducted during the current plan period under the aegis of the Physical Planning and Housing section of the Planning Commission. An allocation of Tk. 20.00 lakh with a foreign exchange of Tk. 2.00 lakh has been provided for.

The total allocation for Basic Development during the First Plan period amounts, therefore, to Tk. 520.00 lakh with a foreign exchange component of Tk. 197.00 lakh (Table XII-1).

### B. Housing

Under the "Development of Urban Land and Construction of Public Housing" programme there are 16 on-going schemes. This programme aimed at construction of nucleus houses for the refugees and development of housing plots for the general public in the metropolitan cities as well as in those district Headquarters and urban centres where there were large concentrations of refugees from India as a consequence of partition. Launched in the early sixties, most of these schemes have either been completed or are in the final stages of completion. Allocations made for these schemes are required for residual works and clearing up of the outstanding liabilities excepting in the cases of Sylhet, Bogra and Parbatipur. In the



later cases, the projects are in the initial stages of implementation and as such there is scope for revising the physical targets of these projects to suit the new requirements. This implies that construction of nucleus housing under these schemes will be discontinued and the developed residential land be devoted to construction of low-income flats and shelters through the co-operative housing programme. An allocation of Taka 807.75 lakh (Table XII-1) with a foreign exchange of Taka 37.50 lakh has been made for completion of these projects during the First Plan period.

The on-going scheme for construction of housing for the low-income groups is the major public sector programme included in the Plan. This envisages construction of 45,000 multistoried flats and shelters in the three Metropolitan cities and other selected urban centres. A plan allocations of Taka 6500.00 lakh with a FEC of Taka 1300.00 lakh (Table XII-1) has been provided for this programme.

The "Pilot scheme for introduction of precast and prefabricated structures with ordinary and pre-stressed Steel" is an on-going scheme for which most of the machineries and equipments have been procured. This scheme will help to minimise the cost of construction as well as to speed up the time-process. As such there is an urgent need to make this project operational by importing the rest of the machineries, spare parts and installation/construction workshop and yardage facilities. An allocation of Taka 75.00 lakh with a FEC of Taka 25.00 lakh has been provided for this project in the First Plan.

Under the on-going schemes of Public Servants' Housing both by Buildings Directorate and BPWD the construction works that are now in progress are to be completed in the three metropolitan cities of Dacca, Chittagong and Khulna. The on-going schemes for other areas are to be implemented in full. This policy is adopted to remove the illogical distinction between public servants housing and the general housing to be taken up under the Public Sector. Another objective of this policy is to indirectly persuade and encourage public servants to organise themselves into housing co-operatives. The on-going schemes in outlying areas are to be completed in view of the limited prospects of co-operative housing development in these places. The First Plan Allocation for these schemes is Taka 576.37 lakh of which the FEC is Taka 141.66 lakh. The total addition to the stock of public servants' housing through this programme is expected to be 1,500 units.

The on-going programmes of housing that are being implemented by the Urban Development Agencies (DIT, CDA & KDA) are in fact land development schemes for housing estates. The financing policy with regard to these schemes in the past has been to provide loans from the Public Sector which were to be repaid with interest charges. This policy has now been revised and these schemes are to be financed through funds directly borrowed by these Agencies from the Banks, Insurance Companies and other sources. The policy with regard to disposal of land developed under these schemes will be parcelling of land into sizable blocks and allocations to housing co-operatives from whom the cost will be realised on mutually agreed upon terms and condition. This in other words means that the Urban Development Agencies shall henceforth be required to operate as corporate land developers with the provision, that they would operate on a non-profit basis and allocate developed lands to Housing Co-operatives. Government shall, however, assist



them in acquiring the land for housing development. Since the institutional developments of housing co-operatives and also financing institutions and policies will take sometime, the on-going schemes of the Urban Development Agencies will continue to be financed out of public sector allocations for the first year of the FFYP period. An allocation of Taka 129.41 lakh with a FEC of Taka 14.50 lakh has been provided for this purpose in the ADP, 1973-74.

The total allocation for the on-going schemes of the housing sub-sector amounts to Taka 8088.53 lakh which has a FEC of Taka 1518.66 lakh (Table XII-1).

The allocation for additional land compensation for the scheme "Development of Urban land and construction of Public Housing-Phase I" at Dacca is required to finally settle the claims of affected landowners who, for various reasons, could not get their full compensations during the past years. This issue, which affects a large number of people was taken up at the highest level and the decision was taken that the claims of the affected people should be finally settled with despatch. Since the original scheme provided for a much smaller component of land compensation and since the scheme has been virtually completed, it was decided that instead of revising the scheme final settlement should be done through a separate new scheme. The total allocation for this purpose is Taka 500.00 lakh which does not involve any foreign exchange.

The Housing Directorate will be required to execute a massive programme of low-income housing for which corresponding administrative and technical services will have to be expanded at the Headquarter level. This will require additional office space for this Directorate. As the existing office building of the Housing Directorate has the structural provision of vertical expansion by another two floors, it is economical to provide for a scheme for construction of these additional floors. This will also optimise the original investments in foundations, structures and services made in this building. An allocation of Taka 14.00 lakh with a FEC of Taka 3.50 lakh has been made for this new scheme.

There are only three new schemes of Public Servants' Housing included in the Plan. Of these one scheme alone accounts for Taka 400.00 lakh out of a total allocation of Taka 429.00 lakh (Table XII-1). This scheme envisages construction of Public Servants' Housing primarily for the Class III and Class IV employees in areas other than the three metropolitan cities of Dacca, Chittagong and Khulna. The physical target set for these schemes are:

- (i) Construction of 1600 units of flats.
- (ii) Gas connection to Government staff quarters.
- (iii) Construction of six Officers flats at Bangabhaban.

The total allocation of Taka 429.00 lakh includes FEC of Taka 91.80 lakh.

Under the programme of Pilot projects for Model Villages and Rural Service centres a total number of 17 model villages are to be built—5 in the coastal areas and 12 in other regions of the country. Under the model village programme the following physical work is envisaged for each one of the 400 family strong nucleated settlements:

- (i) Acquisition and development of 40 acres of land.
- (ii) Construction of CARE type nucleus houses.



- (iii) Community water supply and sanitation facilities.
- (iv) Village roads and drainage works.
- (v) Organised space for schools, playgrounds, shopping and community centre.

While the actual financing and construction of these model villages are to be done through Public Sector Agencies, it is expected that organisation, motivation and management will be handled by the Co-operative institutions. Each one of these model villages is expected to cost Taka 30.00 lakh on average.

Under the Rural Service centre programme the following works are envisaged with the view to create nucleus for new townships:

- (i) Physical reorganisation and extension of some key markets with potentials for rapid growth to be selected by Zilla Boards.
- (ii) Acquisition and development of 10 acres of land for cottages, Industrial sites, sites for community institutions such as schools, colleges and community centres, etc.
- (iii) Acquisition and development of 10 acres of land for residential purposes.
- (iv) Provision of services and utilities including electrification.

The financing and construction of the above facilities are to be done through the Public Sector. Organisation, motivation and management in this case are to be handled by appropriate Co-operative institutions. A total number of 20 such centres are to be taken up for development during the First Five-Year Plan. Each of these centres may cost Taka 30.00 lakh on average. The total allocation for the Pilot Projects of Model villages and Rural services centres amounts to Taka 1125.00 lakh with a FEC of 110.00 lakh.

The programme for development of temporary urban settlements is in reality the low-cost sites and services schemes that are to be implemented with the primary objective of relocating the urban squatters in and around the metropolitan cities. Physical work on the selected sites must be preceded by organisational and technical feasibility studies for which technical assistance from UNDP is likely to be available.

The key works that are envisaged under this programme are tentatively identified as under:

- (i) Acquisition and development of land in sizeable blocks.
- (ii) Laying of main services network along the periphery of these residential blocks.
- (iii) Demarcation of 80 sq. yd. size plots within the blocks for settlement by the squatter families.
- (iv) Building of some 'core' houses.
- (v) Essential community facilities such as schools, health centres, markets, etc.

The total allocation on this account is Taka 1000.00 lakh of which the FEC is Taka 100.00 lakh (Table XII-1). The sub-sectoral allocation for on-going and new housing schemes stands at Taka 11156.53 lakh with a FEC of Taka 1823.96 lakh.



### *C. Government Offices and Institutional Buildings.*

The major on-going schemes being executed by the Buildings Directorate and the B. P. W. D. under this programme are:

- (i) National Assembly Building Complex.
- (ii) National Secretariat Complex.
- (iii) Development of Sher-e-Bangla Nagar.
- (iv) Construction of District and Subdivisional HQs.
- (v) Government Office Buildings in the Metropolitan cities as well as in the outlying areas.
- (vi) Martyrs' memorial at Savar.
- (vii) Development of Suhrawardy Uddyan, Ramna Park, etc.

The total allocation for the on-going schemes is Taka 2703.38 lakh which includes a FEC of Taka 789.92 lakh.

The over-riding consideration for austerity precludes launching of any sizable programme of new offices and institutional buildings. Only a few new schemes have found place in the Plan of which the major one is acquisition of land for future expansion of Sher-e-Bangla Nagar. The other schemes are construction of a mausoleum over the graves of National leaders; miscellaneous office, storage and godown spaces essentially needed for implementation of the Plan programmes. An allocation of Taka 893.98 lakh of which the FEC of Taka 96.34 lakh has been made in the Plan for these purposes.

### *D. Community Services and Utilities*

#### *1. Public Health Engineering.*

Under the rural water supply programme there are three on-going schemes which, after completion, will raise the existing stock of drinking water tubewells to a total of 2,85,000 shallow tubewells and 1,200 deep tubewells. The major inputs for sinking 1,60,000 tubewells are being provided by the UNICEF as an outright grant under the reconstruction programme. The deep tube-wells in the coastal areas are also financed by the UNICEF as part of the 1970 cyclone Reconstruction Programme. A total allocation of Taka 711.80 lakh with FEC of Taka 343.00 lakh has been made for these projects (Table XII-1).

Under the on-going urban water supply programme provision is there for water supply systems for Khulna and Rajshahi and 21 other municipalities. The total allocation of Taka 371.89 lakh with a FEC of Taka 139.26 lakh (Table XII-1) accounts for the above schemes and some overhead expenditures such as consulting services etc. The total allocation for the on-going schemes of DPHE amounts to Taka 1083.69 lakh which includes a FEC of Taka 482.26 lakh (Table XII-1).

Under the rural water supply programme a major effort has been made to ensure safe drinking water supply to the rural inhabitants who constituted the overwhelming majority of our population. In addition, for the first time elementary rural sanitation in the form of supply of water-sealed slabs is being introduced on a massive scale to give such



coverage to as much as a quarter of our rural population. The three major schemes of water supply envisage sinking of 1,54,000 shallow tubewells and 21,900 deep tubewells during the next five years. The cost of these tubewells are to be shared in accordance with the following principles :

- In the case of shallow tubewells the cost of manufactured materials and technical supervision is to be borne by the Public Sector and the local costs of tools and equipments for sinking, local materials and hand tools, skilled and unskilled labours and other incidental expenditures will be borne by the beneficiaries/Local Government.
- In the case of deep tubewells, the total cost will be borne by the Government excepting for the cost of local materials, hand tools, unskilled labour and accommodation and shelter which will be borne by the beneficiaries/Local Government. The same principle will apply for maintenance of these tubewells where the Government will supply spare parts for maintenance of these tubewells and supervision and the cost, labour, etc., will be the responsibilities of the beneficiaries/Local Government.

The total public sector investment for the new rural water supply and sanitation programmes amounts to Taka 3677.13 lakh which includes a FEC of Taka 1118.17 lakh.

Under the new programme for Urban Water Supply the following major projects find place in the Plan:

- (i) Augmentation of the Water Supply Capacity in 7 important towns by way of extending the networks and improvement of water sources.
- (ii) Installation of water supply systems in 38 urban centres which includes all the district and subdivisional headquarters.
- (iii) Establishment of Public Health Engineering Institute and PHE Laboratories.
- (iv) Water pollution control activities.

With the completion of this programme almost all the urban centres of significance will be provided with the nucleus of a modern water supply system which in successive plan periods could be expanded into comprehensive systems for serving the needs of the total urban population in these centres. An allocation of Taka 1153.42 lakh with a FEC of Taka 424.40 lakh has been provided in the plan for this purpose. The total allocation for new programmes of DPHE amounts to Taka 4830.55 lakh which has a FEC of Taka 1542.57 lakh.

## 2. Dacca WASA

Revised Dacca Water Supply and Sewerage project is the only on-going schemes of Dacca WASA. This project is being implemented with credits from the IDA for the import of materials, equipments as well as for providing consulting services. Out of the estimated cost of Taka 3030.00 lakh (FEC 696.5 lakh), an amount of Taka 1603.6 lakh (FEC Taka 398.79) lakh has already been spent on the project. The rest of the amount needed for completion of the project has been provided in full which amounts to Taka 1426.40 lakh and has a FEC of Taka 259.20 lakh.



Among the new schemes of the Dacca Water Supply and Sewerage Authority that are included in the Plan, the following are the major ones:

- (i) Improvement of distribution system in Dacca City and extension of the system to Sher-e-Bangla Nagar and old Airport areas.
- (ii) Improvement of sewerage system in Dacca City and extension of the system to Sher-e-Bangla Nagar and adjacent areas.
- (iii) Extension of water supply and sewerage system to Mirpur Areas.

These new schemes seek to supply water as well as to extend sewerage network into those areas which have already become highly urbanised but are outside the territorial scope of the on-going IDA financed scheme. Even after implementation of those schemes there will remain many other areas within the city which suffer from lack of modern water supply system. Again, the rate at which the city is growing, inescapably points to the need of a much bigger programme for development of the water supply system in the coming years. The total demand for water would be of such a magnitude that indefinite reliance on ground water sources could prove unworkable. Because of this, alternative surface water sources must be developed. During this Plan period provision has been made for feasibility studies, planning, engineering designs, etc., in connection with construction of a surface water treatment Plant at Dacca.

The total allocation for the new schemes of Dacca WASA is Taka 844.30 lakh which has a foreign exchange component of Taka 336.30 lakh (Table XII-1).

### 3. Chittagong WASA

Chittagong Revised Water Supply Scheme is the Only on-going scheme of Chittagong WASA. As in the case of the on-going Dacca WASA project, this is a IDA credit financed scheme. The scheme envisages installation of a water supply network for the port city along with development of water sources including construction of a surface water treatment plant. Out of the estimated cost of Taka 1895.89 lakh (FEC Taka 588.54 lakh an amount of Taka 775.39 lakh (FEC Taka 176.72 lakh) has already been spent on the project. The rest of the amount will be utilised for completion of the supply network construction of elevated reservoirs and a surface water treatment plant at Mohra on the river Halda. The total estimated cost of the remaining works is Taka 1120.50 lakh (FEC Taka 369.19 lakh which has been fully provided for in the Plan.

Only two new schemes are to be taken up by Chittagong WASA during the Plan period. These are :

- (i) Chittagong Water Supply (II Phase).
- (ii) Chittagong Sewerage Scheme.

The city of Chittagong has far outgrown its original size for which the on-going Water Supply Scheme is under implementation. New industrial areas and urbanised zones have sprung up along the major highways necessitating extension of the existing networks as well as installation of new capacities. The Chittagong Water Supply Scheme (2nd Phase) envisages extension of the water supply to these areas and more intensive coverage within the city limits.



There is no sewerage system in Chittagong. A city of this size can hardly function without a modern sewerage system. Although the necessity for such a system is unquestionable but because of resources constraints, this cannot be taken up during this Plan period. However, preliminary works on feasibility surveys, engineering designs, etc., has been programmed so that from the beginning of the next plan actual work can commence. An allocation of Taka 500 lakh has been (Table XII-1) provided for these two new schemes during this Plan period.

#### 4. Fire Services

There are four on-going schemes under implementation by the Directorate of Fire Services. These schemes relate to construction of a National Headquarters organisation build up, improvement of fire fighting capabilities and extension of fire protection coverage to 44 urban areas and important business centres. An allocation of Taka 268.30 lakh has been made for achieving the above objectives.

There are five new schemes for the development and extension of Fire Services included in the Plan. The first one of these schemes relates to establishment of a Fire Station at Joypurhat which is fast becoming an important industrial centre and has already started functioning as a subdivisional headquarters. The second scheme provides for a land and river fire station at Patuakhali.

Establishment of 44 new Fire Stations in important urban and business centres and establishment of a Reserve Depot of fire equipments and appliances are the two major new schemes which together account for 80% of the total allocation for new schemes. Provision has also been made for construction of static tanks and acquisition of existing tanks in the urban areas to ensure supply of water at times of emergency. A total allocation of Taka 879.30 lakh (FEC Taka 469.07 lakh) (Table XII-1) has been made in the Plan for the above purposes.

#### E. Local Bodies

##### 1. Dacca Improvement Trust

There are 10 on-going schemes of Dacca Improvement Trust included in the First Five Year Plan. Of these 3 schemes relate to road construction in the metropolitan region which accounts for 40 per cent of the total allocation for the on-going schemes. The other schemes relate to commercial and industrial land development and construction and improvement of markets. The major road building projects are:

- (i) Construction of road over Dholai Khal.
- (ii) Widening and improvement of 12 major roads in Dacca and Narayanganj.
- (iii) Arterial North-South Road.

Construction of these roads is a part of the responsibility of DIT that has been assigned to it in connection with the implementation of the Master Plan.

The other schemes are mostly concerned with commercial and industrial development. Of the 7 schemes there are two schemes for market improvement and construction and the rest are for commercial and industrial land development. An allocation of Tk. 545.00 lakh (foreign exchange Tk. 96.33 lakh) has been made in the Plan for these purposes.



Only four closely inter-related schemes are to be taken up by the Dacca Improvement Trust during the Plan period. These are:

- (i) North-South Road from existing Railway Track upto river Buriganga.
- (ii) Development of Buckland Bund (Phase I).
- (iii) Construction of road from Shambazar to Postogola.
- (iv) Development of foreshore land along river Buriganga.

All these projects are located in the old parts of Dacca city. The schemes primarily envisage establishment of an efficient linkage between the old and new city and development of the River Front at Sadarghat with a view to develop and reorganise the principal supply point of the city for optimum functional efficiency. The other objectives are establishment of a road linkage between the developed Buckland Bund and Postogola and development of foreshore land as river side recreation space where the Tourism project of a Boat club is likely to be located. The total allocation for the new schemes of DIT amounts to Tk. 636.40 lakh (foreign exchange Tk. 81.99 lakh Table XII-1) for the First Plan period.

## 2. Chittagong Development Authority

There are twenty on-going schemes of Chittagong Development Authority included in the First Five Year Plan. Out of these 8 schemes relate to Master Plan road constructions and accounts for 42 per cent of the total allocation for the on-going schemes. The other schemes relate to commercial and industrial land development and market construction. All the road projects are in fairly advanced stages of construction. With the completion of these road schemes the acute traffic problem of the city will be eased. The other schemes are related to development of industrial estates for heavy, light and noxious industries in such locations as Kalurghat, Fouzdarhat, Sholoshahar, etc. The rest of the schemes are concerned with commercial land development and market constructions at different locations within the city.

The total allocation for the on-going schemes of Chittagong Development Authority is Taka 470.05 lakh which has a foreign exchange component of Taka 65.61 lakh.

The new schemes of the Chittagong Development Authority relate to construction and improvement of Master Plan Road and other city roads. The schemes are—

- (i) Link Road from Patengabazar to Airport.
- (ii) Construction of other major roads around the city and improvement of existing roads.

The link road project is in fact extension of the on-going Saltgolla-Patengabazar road. Completion of this new road will provide the essential alternative route from the city to the Airport. Implementation of this project will also provide easy connection with the large industrial units that are being established in the Patenga area and will facilitate development of the seashore areas for industrial and recreation purposes. The second scheme envisages construction of a few other Master Plan roads within the city region.



The city, for its balanced development, needs to be connected with the left bank by a permanent bridge over the river Karnafully. The link that was established for a very brief period through the floating bridge, clearly established the viability and need for such a link. Although due to resources constraint, it is not possible to take up construction of the bridge in this Plan period, the need for this is nevertheless recognised. An allocation of Taka 50·000 lakh (foreign exchange currency 30·00 lakh) has, therefore, been provided in the First Plan for the feasibility studies, planning and structural design during the Plan period so that construction works can be taken up right from the beginning of the Second Plan period.

The total allocation of Taka 501·90 lakh (foreign exchange Taka 111·00 lakh) has been made (Table XII-1) in the First Plan for the new schemes of Chittagong Development Authority.

### 3. Khulna Development Authority

Thirteen on-going schemes of Khulna Development Authority find place in the Plan. Out of these, six schemes relate to Master Plan road constructions and account for almost 60 per cent of the total allocation for the on-going schemes.

Other schemes relate to development of industrial and commercial areas as well as construction of markets. The major road construction projects that have been provided for are—

- (i) Outer By-pass Road.
- (ii) Majgunni Main Road.
- (iii) Daulatpur Outer By-pass Road.
- (iv) Boyra Main Road.

Among the schemes for industrial and commercial development the construction of a market at Daulatpur, commercial area around Jessore road and Daulatpur and establishment of an industrial area are of major importance.

The total allocation for the on-going schemes of Khulna Development Authority is Taka 318·02 lakh with a foreign exchange of Taka 32·45 lakh.

The new development programmes of KDA relate primarily to construction of major Master Plan roads in Khulna. The road schemes account for 65 per cent of the total allocation for the new schemes.

In addition to the road construction programme, KDA will implement a scheme for construction of hawkers markets in different locations of the city. This is needed to relocate the squatter shopkeepers to organized market places and to have the roadside lands vacated for further development purposes.

The total allocation for new schemes to be implemented by KDA is Taka 150·00 lakh which has a foreign exchange of Taka 15·50 lakh (Table XII-1).



### **F. New District Headquarters**

The Government's policies of reorganization of the present 19 districts into 58 new districts by way of converting the existing Sub-divisions into new districts, is likely to generate additional needs for physical infra-structure facilities for Administration in the new district headquarters. Depending on the reorganization and territorial redistribution, the necessity of creation of a few more entirely new district headquarters may also arise. In addition, some of the existing subdivisional headquarters, if converted into new district headquarters, may need some additional district level facilities.

For meeting the minimum needs arising out of these eventualities, a block allocation of Taka 1000-00 lakh with a foreign exchange of Taka 100-00 lakh has been kept in the First Plan for the above purposes (Table XII-1).

## **12.6 TOURISM**

### **A. Role of Tourism**

In the modern world tourism has assumed the dimensions of the largest single foreign exchange earner in the world trade. The Global tourist earnings jumped from 5 billion in 1968 to 17 billion in 1970 which accounted for 6 per cent of the total value of world trade.

The introduction of speedy and cheap air-transport systems, mass use of automobiles and development of other means of transport, are primarily responsible for the huge increase in tourist trade. This added growing affluence and increasing leisure available to the population of the developed countries caused the spectacular growth rate experienced in the sixties which still continues unabated.

Tourism today is not confined to a few countries of traditional tourist interest; more and more tourists are now avoiding the overcrowded beaten track and heading for new areas. This tourist behaviour was identified and exploited by many countries by developing their own tourism infra-structures. The economy of Bangladesh can also derive benefit in respect of considerable foreign exchange earning through the development of necessary infra-structures.

In the past studies have been made to determine the tourism potentials of the then East Pakistan. The Master Plan for the development of tourism and the report of the Battale Institute of Germany confirmed that development of Tourism was an economically profitable proposition for erstwhile East Pakistan. The emergence of the sovereign state of Bangladesh will have a much more favourable impact on the Tourism potential established by earlier studies.

The cost benefit analysis undertaken by some of the countries of South-East Asia show that the ratio stands at 1:5.8. The investment multiplier co-efficient of tourism in former Pakistan (1961) was estimated to be 3.3 compared to the national average of 2.9. In terms of 'value added' also, tourism compares favourably with many other sectors. For instance, gross added value from the tourism sector was estimated at 70 per cent of total production. Marginal value added of per rupee investment in former Pakistan during 1965-70 was 4.84 in tourism sector compared to 1.96 in the manufacturing sector. Moreover, the marginal value added generated by each full time worker in the tourist industry was estimated to be increasing per year @ 5.5 per cent whereas the rate was 1.7 per cent in Agriculture, 3 per cent in consumer goods industries, 4.2 per cent in construction industry and 3 per cent for the national economy as a whole. This implies that employment created in the tourist sector contributed to the increase in GNP more rapidly than employment created in many sectors of the country.



According to the study by M/S. SEMA, an economic Consultant Firm of Paris, Bangladesh will benefit in the following ways by developing her tourist industry:

- (i) Balance of payments will improve through tourism in larger measure considering the investment-contribution rates.
- (ii) The tax revenues will be several times higher than the investments.

A significant benefit in the post-liberation period will be the potential for developing the Chittagong Hill Tracts where the main emphasis will be placed for the tourism sector. This area which was sadly neglected under colonial rule has tremendous promise for tourism. Expansion of tourism will provide part of vital programme for generating income and employment for the inhabitants of this region.

### B. Review

According to the IUOTO (International Union of Official Trade Organisation), a body affiliated to the United Nations, the high points that attract tourism are:

- (i) Beaches
- (ii) Scenic beauty
- (iii) Tribal life
- (iv) Archaeological remains
- (v) Wild life
- (vi) Entertainment including souvenirs, shopping and night life.
- (vii) Religion
- (viii) Mountains
- (ix) Health

From the above it can be clearly seen that Bangladesh is endowed with most of the natural motivational factors for the growth of tourism. The attractions that are inadequate or non-existent in Bangladesh are, by and large, man-made and can be created with determination and effort at various levels of national life.

This country is already well known in the world because during the liberation war, Bangladesh received an unprecedented attention of the international press. This has created an enormous world interest in Bangladesh which will greatly help the tourism promotional campaigns in the international market.

The emergence of Bangladesh as a sovereign state has automatically increased the tourism potential of the country manifold. The foreign embassies, the various international organisations and commercial organisation that are already established and continue to grow in number will also make a great contribution to the total tourist traffic.

In addition, a large number of business tourists arrive everyday for short visits. In the absence of basic facilities such as accommodation, transportation and recreation the full benefit of this fraction of tourist traffic cannot be derived. Most of the people who are stationed here



tend to spend their free time in nearby countries where these facilities are offered to them. The business tourists, on the other hand, try to shorten their stay as much as possible for the same reason.

With adequate care and planning it will be possible to prolong the stay of these visitors which will provide a valuable opportunity to diversify and enhance foreign exchange earnings. Depending on our ability to provide adequate facilities, we will be able to attract a large number of foreign visitors from the international tourist flow from UK, USA, Germany, Canada, Australia, East and West European countries, Middle East, Africa and South East Asian regions. That the growth potentials of tourism in this country is no fantasy is proved by the rate of growth of tourism in the South-East Asian countries where Bangladesh is located; while tourist traffic in the European countries grown at the rate of 9 per cent per annum, the tourist traffic in the South-East Asian region grew by 14 per cent per annum.

It is estimated that by 1978 approximately 8,12,800 visitors will come to Bangladesh and thereby create demand for a total of 20,32,000 Hotel nights. If we assume that on an average every tourist will spend Taka 100-00 per night then the total projected tourist spendings by 1978 will be Taka 20 crores.

Achievement of this target will require careful planning, sufficient allocation of resources and optimum utilization of the allocated fund in accordance with a carefully worked out strategy.

### C. Strategy

Full development of the tourist potential of Bangladesh would require investments of a very high magnitude. Tourism being still in a nascent stage of development in the country and the necessary initial investments being comparatively higher, private sector investments in the tourist trade will only be marginal during the First Five-Year Plan. On the other hand the competitive demand for the Public Sector resources precludes the possibility of mobilisation of sufficient resources for the full development of the tourist trade in this Plan period. The investments will, therefore, have to be of a highly selective nature for ensuring optimum use of the available resources.

The main efforts are required to be directed towards the optimum development of acceptable tourist accommodations and tourist transports the two basic infra-structural components of the tourist trade. Acceptable standards of accommodation are to be made available in the three cities of Dacca, Chittagong and Khulna as well as in the tourist resorts.

The main development activities should be concentrated in the three touristically important areas of the country which are already attracting international tourism. These areas are the Cox's Bazar and Off-shore Islands Complex, the Kaptai-Rangmati Lake Region and the Khulna-Sundarbans Region.

Recreational facilities need also be provided in and around the metropolitan cities and in the areas likely to be frequented by the tourists. In keeping with our natural facilities, the main emphasis should be in the fields of water sports, water borne transportation and recreational arrangements including cultural shows, night life, etc.



Wild life sanctuaries and National Parks need also to be created to cater for international and domestic tourist interests. Possibilities of wild life observation and seasonal licensed shooting in selective areas will greatly enhance the interest of special groups of international tourists. This, however, will have to be taken up by the Ministry of Forest and Fisheries.

Development of domestic tourism is equally important as this constitutes a basic infra-structure for international tourism. Domestic tourism is doubly important in the sense that this sustains the tourist trade during the slack seasons of international tourism. Resource constraints compels diversion of resources to more urgent domestic needs so that domestic tourism must await subsequent plan periods for fuller development. For First Plan, only limited facilities in the form of accommodation in youth hostels, motels, cottages, camping sites and equipments and recreation will, therefore, be provided in the touristically important areas of the country.

Basically, however, the First Five-Year Plan period will be a period for making a modest start in development of the organisational infra-structure which will eventually lead to full-scale development of the tourist industry in the subsequent Plan periods. This implies that maximum effort should be made in the fields of market research, tourism promotion, training of necessary man-power research and preparation of feasibility studies and Master Plans for development of the different regions.

Some of the infra-structure for tourism such as communications, development of National Parks, services and utilities are the responsibilities of different Ministries. Successful implementation of tourism development programmes will necessitate inter-ministrial coordination. This may best be achieved by the Planning Commission through dovetailing the time schedule of the programmes of the different Ministries.

#### *D. Policies and Institutions*

International investments in tourism development is to be encouraged during this plan period especially in view of our limitation of resources as well as lack of experience in organising and managing related services and facilities. A favourable international investment climate needs to be created through policies of concessional tax rebates and liberal terms for repatriation of profits, etc.

The rigorous entry and exit formalities that are being followed now need to be relaxed in case of international tourists. This liberalisation may be effected either through bilateral agreements with the countries of tourist origin or as a blanket policy adopted unilaterally.

In matters of promotion of international tourist flow as well as in sharing in the growing tourist trade in the region, inter-regional co-operation agreements should be reached with neighbouring countries.

Investment in the tourism industry is almost a frontier activity for our private entrepreneurs. Special promotional policies are, therefore, needed to induce private sector involvement into this highly dynamic sector. These may be in the form of technical advice, extension services, tax rebates and exemption and liberal licencing policies for import of capital goods for the industry.

Public sector investment programmes in tourism should be so oriented that the cost of these facilities remain within the reach of the average tourists.



The policy for utilisation of the recreational facilities such as water transport and water sports shall be to reserve a major portion of these facilities exclusively for the international tourists during the tourist season.

In many countries a separate Ministry of Tourism have been created in order to formulate policies and execute programmes related to the industry. Eventually, in Bangladesh creation of such a Ministry will be necessary. However, the present organisation (Bangladesh Parjatan Corporation) should be so organised and developed that in course of time it can be elevated into a full-fledged Ministry.

There is an absolute lack of trained manpower for promotion, management and operation of tourist services and facilities in the country. An institute for Tourism should be immediately established initially with technical assistance from international sources.

Steps are to be taken to train up Bangladesh Parjatan Shangstha personnel in related fields abroad so that in a few years time the foreign technical assistance can be done away with.

#### *E. Tourism*

The programme envisages the construction of the following different categories to cater for the varying accommodation needs of the international as well as internal tourists:

| Serial No. | Types of accommodation,           | Dacca.    | Cox's Bazar. | Kaptai/Rangamati. | Khulna/Sundarban. | Rajshahi/North Bengal. | Others.   |
|------------|-----------------------------------|-----------|--------------|-------------------|-------------------|------------------------|-----------|
| 1          | 5-Star Hotels ..                  | 150 rooms | 100 rooms    | ..                | ..                | ..                     | ..        |
| 2          | 3-Star Hotels ..                  | 100 rooms | ..           | ..                | ..                | ..                     | ..        |
| 3          | Motels ..                         | ..        | 100 rooms    | 25 rooms          | ..                | 75 rooms               | 50 rooms. |
| 4          | 2-Rooms Cottages ..               | ..        | 20 Nos.      | 10 Nos.           | 3 Nos.            | ..                     | ..        |
| 5          | Holiday Houses for youth tourism. | ..        | 100 beds     | 100 beds          | ..                | 25 beds                | 25 beds.  |
| 6          | Hostel type accommodation         | ..        | ..           | 100 beds          | ..                | ..                     | ..        |

The total investment target for creation of all these facilities has been set at Taka 1030.00 lakh of which the foreign exchange component is Taka 308.75 lakh (Table XII-1).

A fleet of 111 cars, 13 air conditioned coaches, 10 jeeps, 34 minibuses, one paddle-steamer, 2 launches and 22 sea-cruisers will be procured during the plan period.

The cars thus acquired will be utilised to organise a rent-a-car facility, in different locations depending on the estimated tourist inflow and expected demand for these facilities. The air conditioned coaches, minibuses and the jeeps are to be utilized for guided tours, excursions, hunting trips, etc. The paddle steamer will ply between Dacca and Khulna/Sundarbans regions once every week following a picturesque route and shall have internationally acceptable standards of accommodation and cuisine offered to the international as well as domestic tourist in the form of a package tour. The launches and river cruisers will cater to the other identified travel needs of the tourists.



The distribution of these facilities in different locations will be as under:

| Serial No. | Types of facilities.          | Locations. |                             |                       |                       |                            | Others. |
|------------|-------------------------------|------------|-----------------------------|-----------------------|-----------------------|----------------------------|---------|
|            |                               | Dacca.     | Cox's Bazar/<br>Chittagong. | Kaptai/<br>Rangamati. | Khulna/<br>Sundarban. | Rajshahi/<br>North Bengal. |         |
|            |                               | Nos.       | Nos.                        | Nos.                  | Nos.                  | Nos.                       |         |
| 1          | Rent-a-Car .. ..              | 50         | 20                          | 15                    | 16                    | 18                         |         |
| 2          | Air Conditioned Coaches .. .. | 4          | 5                           | ..                    | 2                     | 2                          |         |
| 3          | Micro-buses .. ..             | 12         | 12                          | ..                    | 4                     | 2                          |         |
| 4          | Jeep .. ..                    | ..         | 5                           | 5                     | ..                    | ..                         |         |
| 5          | Paddle-Steamer .. ..          | 1          | ..                          | ..                    | ..                    | ..                         |         |
| 6          | Launches .. ..                | 2          | ..                          | ..                    | ..                    | ..                         |         |
| 7          | River-Cruisers .. ..          | 8          | ..                          | ..                    | ..                    | ..                         |         |

The investment target for this sector is Taka 300.00 lakh with a foreign exchange component of Taka 180.00 lakh.

Recreational facilities shall be limited to 2 boat clubs, one Boatel, 35 speed boats, 60 sail boats, 15 canoes, 15 rowing boats, 20 specially designed sampans, 20 water scooters, 10 house boats and mini-golf courses. The distribution of these facilities will be as under:

| Serial No. | Types of facilities.   | Locations. |                             |                       |                       |                            | Others. |
|------------|------------------------|------------|-----------------------------|-----------------------|-----------------------|----------------------------|---------|
|            |                        | Dacca.     | Cox's Bazar/<br>Chittagong. | Kaptai/<br>Rangamati. | Khulna/<br>Sundarban. | Rajshahi/<br>North Bengal. |         |
|            |                        | Nos.       | Nos.                        | Nos.                  | Nos.                  |                            |         |
| 1          | Boat-clubs .. ..       | 1          | ..                          | ..                    | 1                     | ..                         | ..      |
| 2          | Boatel .. ..           | ..         | ..                          | ..                    | 1                     | ..                         | ..      |
| 3          | Speed Boats .. ..      | 10         | ..                          | 20                    | 5                     | ..                         | ..      |
| 4          | Sail Boats .. ..       | 20         | 20                          | 20                    | ..                    | ..                         | ..      |
| 5          | Canoes .. ..           | 5          | ..                          | 10                    | ..                    | ..                         | ..      |
| 6          | Rowing Boats .. ..     | 5          | ..                          | 10                    | ..                    | ..                         | ..      |
| 7          | Sampan .. ..           | ..         | ..                          | 20                    | ..                    | ..                         | ..      |
| 8          | Water Scooter .. ..    | 10         | ..                          | 10                    | ..                    | ..                         | ..      |
| 9          | House Boats .. ..      | ..         | ..                          | 10                    | ..                    | ..                         | ..      |
| 10         | Mini-golf course .. .. | ..         | 1                           | 1                     | ..                    | ..                         | ..      |

The total investment envisaged for the above Taka 180.00 lakh with a foreign exchange component of Taka 50.00 lakh.

Special projects in the tourism sector include development of Sitakund as a health Spa, floating restaurant at Kaptai, development of Kaptai lake islands as Camping and picnic spots, 5 way-side restaurants at conveniently located places along the major Highways, duty



free shops at International Airports and establishment of travel agencies at Dacca, Chittagong, Khulna and Sylhet. An allocation of Taka 200.00 lakh with a foreign exchange component of Taka 62.00 lakh has been provided for this programme.

A publicity and promotion campaign involving publication and distribution of tourist literature, feature films, establishment of offices in foreign countries, promotional tours by travel-trade personnel, photography, advertisement, package tours, international co-ordinations, etc., is to be launched as an essential part of the overhead facilities that have been programmed for. An allocation of Taka 145.00 lakh with a FEC of Taka 65.00 lakh has been made in the first five year plan.

Establishment of a Tourism Institute for specialised training in the field of hotel management, management of tourist recreation and transportations facilities, group tours handling and tourism development planning has been programmed for in the First Five Year Plan. Foreign technical assistance for this purpose and also for feasibility surveys are envisaged and provided for. The total allocation on account of the above amounts to Taka 65.00 lakh of which the FEC is Taka 31.00 lakh. Public sector allocation for the entire tourism sub-sector amounts to Taka 1920.00 lakh with a foreign exchange component of Taka 696.75 lakh.

TABLE XII-1  
Abstract of First Five-Year Plan Allocations.

(Taka in lakh.)

| Sl. No.                              | Agency/Sub-Sector.   | Allocations. |         |        |        | Group/Agencywise Total. |         |
|--------------------------------------|--|--------------|---------|--------|--------|-------------------------|---------|
|                                      |  | On-going.    |         | New.   |        | Total.                  | F.E.C.  |
|                                      |  | Total.       | F.E.C.  | Total. | F.E.C. |                         |         |
| 1                                    | 2  | 3            | 4       | 5      | 6      | 7                       | 8       |
| <b>A. Institutional Development.</b> |  |              |         |        |        |                         |         |
| 1                                    | Physical Planning ..   | 140.00       | 85.00   | 210.00 | 60.00  | 350.00                  | 145.00  |
| 2                                    | Housing and Building Research.   | 150.00       | 50.00   | ..     | ..     | 150.00                  | 50.00   |
| 3                                    | Urban and Rural Housing Surveys.   | ..           | ..      | 20.00  | 2.00   | 20.00                   | 2.00    |
|                                      | Sub-Total ..   | 290.00       | 135.00  | 230.00 | 62.00  | 520.00                  | 197.00  |
| <b>B. Housing.</b>                   |  |              |         |        |        |                         |         |
| 1                                    | Development of Urban land and construction of low-cost public housing.   | 807.75       | 37.50   | ..     | ..     | 807.75                  | 37.50   |
| 2                                    | Low-income public Housing. Construction of 45,000 Apartments Shelters.   | 6500.00      | 1300.00 | ..     | ..     | 6500.00                 | 1300.00 |
| 3                                    | Additional land compensation   | ..           | ..      | 500.00 | ..     | 500.00                  | ..      |
| 4                                    | Pilot Scheme for introduction of pre-cast and pre-fabricated structures. | 75.00        | 25.00   | ..     | ..     | 75.00                   | 25.00   |
| 5                                    | Extension of the Housing Directorate Buildings.                          | ..           | ..      | 14.00  | 3.50   | 14.00                   | 3.50    |



TABLE XII-1—*Contd.*

(Taka in lakh.)

| Sl. No. | Agency/Sub-Sector.  | Allocations. |         |           |         | Group/Agencywise Total. |         |
|---------|---|--------------|---------|-----------|---------|-------------------------|---------|
|         |   | On-going.    |         | New.      |         | Total.                  | F.E.C.  |
|         |   | Total.       | F.E.C.  | Total.    | F.E.C.  |                         |         |
| 1       | 2   | 3            | 4       | 5         | 6       | 7                       | 8       |
| 6       | Public Servant's Housing:   |              |         |           |         |                         |         |
|         | a. Buildings Directorate  | 456.43       | 99.59   | 429.00    | 91.80   | 885.43                  | 191.39  |
|         | b. B.P.W.D. ..  | 119.94       | 42.07   | ..        | ..      | 119.94                  | 42.07   |
| 7       | Pilot Projects for Model Villages and rural service centres.            | ..           | ..      | 1125.00   | 110.00  | 1125.00                 | 110.00  |
| 8       | Temporary Urban Settlements   | ..           | ..      | 1000.00   | 100.00  | 1000.00                 | 100.00  |
| 9       | Residential Land Development Schemes of the Urban Development Agencies: |              |         |           |         |                         |         |
|         | a. Dacca Improvement Trust.   | 65.00        | 8.50    | ..        | ..      | 65.00                   | 8.50    |
|         | b. Chittagong Development Authority.                                    | 22.00        | ..      | ..        | ..      | 22.00                   | ..      |
|         | c. Khulna Development Authority.  | 42.41        | 6.00    | ..        | ..      | 42.41                   | 6.00    |
|         | Sub-Total ..  | 8088.53      | 1518.66 | 3068.00   | 305.30  | 1,1156.53               | 1823.96 |
|         | C. Government Offices and Institutional Buildings                       |              |         |           |         |                         |         |
| 1       | Buildings Directorate ..  | 1110.55      | 237.02  | 225.75    | 54.43   | 1336.30                 | 291.45  |
| 2       | B.P.W.D. ..   | 1592.83      | 552.90  | 668.23    | 42.00   | 2261.06                 | 594.90  |
|         | Sub-Total ..  | 2703.38      | 789.92  | 893.98    | 96.43   | 3597.36                 | 886.35  |
|         | D. Community Services and Utilities                                     |              |         |           |         |                         |         |
| 1       | Public Health Engineering:  |              |         |           |         |                         |         |
|         | a. Rural Water Supply and Sanitation.                                   | 711.80       | 343.00  | 3677.13   | 1118.17 | 4388.93                 | 1461.17 |
|         | b. Urban Water Supply and Sanitation.                                   | 371.89       | 139.26  | 1153.42   | 424.40  | 1525.31                 | 563.66  |
| 2       | Dacca WASA ..   | 1426.40      | 259.20  | 844.30    | 336.30  | 2270.70                 | 595.50  |
| 3       | Chittagong WASA ..  | 1120.50      | 369.19  | 500.00    | 200.00  | 1620.50                 | 569.19  |
| 4       | Fire Services ..  | 268.30       | 88.15   | 611.00    | 380.92  | 879.30                  | 469.07  |
|         | Sub-Total ..  | 3898.89      | 1198.80 | 6785.85   | 2459.79 | 1,0684.74               | 3658.59 |
|         | E. Urban Development Agencies.  |              |         |           |         |                         |         |
| 1       | Dacca Improvement Trust ..  | 545.00       | 96.33   | 636.40    | 81.99   | 1181.40                 | 178.32  |
| 2       | Chittagong Development Authority.                                       | 470.05       | 65.61   | 501.90    | 111.00  | 971.95                  | 176.61  |
| 3       | Khulna Development Authority.   | 318.02       | 32.45   | 150.00    | 16.50   | 468.02                  | 48.95   |
|         | Sub-Total ..  | 1333.07      | 194.39  | 1288.30   | 209.49  | 2621.37                 | 403.88  |
|         | F. New District Headquarters  | ..           | ..      | 1000.00   | 200.00  | 1000.00                 | 200.00  |
|         | G. Tourism ..   | ..           | ..      | 1920.00   | 696.75  | 1920.00                 | 696.75  |
|         | Grand Total ..  | 1,6303.87    | 3836.77 | 1,5196.13 | 4029.76 | 3,1500.00               | 7866.53 |



## CHAPTER XIII COMMUNICATION

### 13.1 BANGLADESH TELEGRAPH AND TELEPHONE DEPARTMENT

#### 13.1.1 Historical Development

In 1947 telecommunication services in Bangladesh consisted of only about a thousand telephones in the country. There were very few telegraph and telephone long distance circuits. Since then the growth of telecommunication services in the country had been unsatisfactory. All efforts by the local staff of the Department for the allocation of more funds for development were systematically being frustrated, and some projects could not be completed for years due to non availability of foreign exchange.

The projects were taken up haphazardly and piece-meal. The results were that in cases where projects were completed and made operative, the services were found to be unsatisfactory and inefficient. The growth of telephones in the past years had been very slow. Only about 50,000 telephones were installed within a span of 24 years, i.e., a little more than 2,000 lines per year. The development of domestic and international long distance telegraph and telephone services were so limited that the telephone subscribers had to wait hours together for maturing a telephone call. A telegram often takes more than a day to reach its destination. Poor growth of this vital sector of the economy is mainly due to low investment made by the erstwhile Pakistan Government for the last 24 years. Only about Taka 50—60 crores (book value) were invested during the last 24 years which means a meagre amount of 2 crores per year. Due to this low rate of investment coupled with improper piece-meal planning of the schemes, the present telecommunication system in the country is not able to provide satisfactory services. An effort has to be made to remove the anomaly and provide the means for adequate services during the First Plan Period.

#### 13.1.2 Present Position

The present position of Telecommunication facilities in the country can be summarised as under:

|                                       |    |              |
|---------------------------------------|----|--------------|
| Number of Telephones                  | .. | 66,000       |
| Number of Telephone Exchanges         |    |              |
| Automatic                             | .. | 22           |
| Manual                                | .. | 215          |
| Number of inland trunk circuits       | .. | 286          |
| Number of inland telegraph circuits   | .. | 99           |
| Number of overseas telegraph circuits | .. | 7            |
| Number of overseas trunk circuits     | .. | 10           |
| Number of overseas telex circuits     | .. | 6            |
| Subscriber trunk dialling             | .. | 9 places     |
| Number of telegraph offices           | .. | 568          |
| Number of public call offices         | .. | 700          |
| Total staff of T & T Department       | .. | about 10,000 |



The Telegraph and Telephone Department, under their control, have two factories which have started production and which will take about a year or so to reach full production.

**1. Telephone Industries Corporation:**

- |                     |  |
|---------------------|--|
| (a) Value of assets | .. Tk. 3.70 crores.  |
| (b) Capacity        | .. Production of 20,000 lines exchange equipment and assembly of 30,000 telephone instruments. |

**2. Cable Industries of Bangladesh:**

- |                     |  |
|---------------------|--|
| (a) Value of assets | .. Tk. 2.39 crores.  |
| (b) Capacity        | .. 225,000 conductor kilometer of telephone cables per year. |

Both these factories were established to enhance installation of telephone exchanges in the country and to save foreign exchange by local production.

As mentioned earlier, the services provided by the T & T Department are far from adequate. There are extreme congestions on the local telephone service. Recorded pending demand for telephones is about 20,000. In addition, there is a considerable hidden demand which will show up on provision of service. In Dacca and Chittagong alone, the number of new applicants for telephones are recorded at the rate of 1,270 per month. With the present number of 66,000 telephones in the country, the number per 1000 inhabitant comes to 0.9 which is one of the lowest in the world. For comparison, the number of telephones per 1000 inhabitants in India is about 2.1. Such inadequacy exists in all branches of telecommunication services in the country.

**13.1.3 Objectives and Programmes**

The basic object of the sector programmes is the availability of the means of communication and public services to the most desired locations and geographical areas which need the facilities. The telecommunication authorities have proposed to embark upon a modest programme during the next five years to improve the present situation. The important aspects of the programme consist of:

- Installation of 70,000 telephones, thereby increasing the number of telephones per 1000 inhabitants by the end of First Plan to 1.6. This includes opening of automatic telephone exchanges in about 50 more places and increasing the number of exchanges by about 400. The strategy will be to provide automatic exchanges in almost all the future District Headquarters, manual exchanges in most of the Thana Headquarters and public call offices in about a total of 500 Union Headquarters.
- Expansion of domestic long distance telephone and telegraph network. This means, high capacity microwave or coaxial cable network between major traffic centres, medium capacity Microwave or VHF network for connecting other important places and low capacity land line or single channel/3 channel VHF network up to Thana Headquarters and other business centres. Another aspect of this development is to provide reliable telecommunication facilities to the cyclone prone coastal areas in Bangladesh.



- Reliable overseas telephone, telegraph and telex network with UK, USSR, Japan, Hongkong, India, Burma, Nepal, Singapore, Switzerland, Germany, U.S.A. and other countries as per traffic requirement. This will materialise after installation and commissioning of the Satellite Earth Station in Chittagong as well as with the existing High Frequency equipment available in the country.

- Expansion and diversification of the existing two telecommunication factories particularly, the telephone factory so that most of the domestic demands of telephone exchanges and cables are produced within the country. The Telephone factory is at present manufacturing about 60 per cent of the various parts of exchange equipment and the rest 40 per cent being imported. At the end of the Plan period the factory will manufacture almost all the parts and components of the exchange as well as telephone instruments. For the Cable Factory after necessary balancing of the installation, efforts have to be made to look for export market since T & T alone will not be able to consume the full produce of the factory.

- Some of the major physical targets that will be achieved during the First Five-Year Plan are given below:

|   |    |                  |
|---|----|------------------|
| Number of telephones                                | .. | 70,000           |
| Number of Telephone Exchange                        |    |                  |
| Automatic   | .. | 50               |
| Manual  | .. | 400              |
| Number of inland trunk circuits                     | }  | .. 1,600 Approx. |
| Number of Inland telegraph circuits                 |    |                  |
| Number of overseas telegraph circuit                | }  | .. 25            |
| Number of overseas trunk circuit                    |    |                  |
| Subscriber trunk dialling (and Nationwide dialling) | .. | 40 places        |
| Number of telex subscribers                         | .. | 1,500            |
| Number of telegraph offices                         | .. | 700              |
| Number of Gentex                                    | .. | 150              |
| Number of public call offices                       | .. | 500              |
| Number of employees                                 | .. | 2,500            |



### 13.1.4 Organisation and Policy

#### A. Organisation

The Telegraph and Telephone Department is run on commercial lines, under the framework of Government rules and regulations. The Revenue and Capital budget of the Department are separate and no revenue is allowed to be reinvested. Moreover, though the Department is supposed to earn a substantial revenue in comparison to the investment, there is hardly any incentive or otherwise for good or bad performance by individuals, as in the case of industries, banks, etc. In most of the countries, Telecommunications (in some cases Post Office as well) are run under the management of an autonomous Board with wide powers and responsibilities. Even the World Bank loan, recently secured for the Department, envisages reorganisation of the Department. Successful implementation of the programme and provision of satisfactory public service will, therefore, depend to a great extent on early reorganisation.

It is, therefore, proposed that the T&T sector reorganise itself on the following principles:

- An autonomous T&T Board should be formed for the management of all T&T services, with wide administrative and financial authority.
- Separate Budget (Revenue and Development) should be prepared for T&T annually. With the approval of the Ministry this should be submitted for incorporation in the annual budget. Part of the revenue surplus be allowed to be reinvested for development work. The Agency should continue to pay a fixed return to Government on capital borrowing.
- Revenue budget should include as staff incentive both collective and individual as well as staff welfare and housing provisions.

#### B. Policy issues

Because of the size of the civil engineering works, it would be advantageous for the Agency to have its own Civil Engineering Cell. At present, all such works are carried out by the P.W.D. by charging 17½ per cent on the cost of work. Since PWD is the general construction agency of the Government, often this Department fails to complete the works according to programme. Same holds good for the Post Office Department. The T&T and P.O. Departments under the Ministry of PT&T have proposed a programme of more than 10 crores for the construction of various buildings, during the First Plan. With this volume of work the Ministry may like to have its own construction cell for timely implementation of its programmes, where the actual work will be carried out through Consulting Engineering Firms at a much lesser fees and greater pace in comparison to P.W.D.

### 13.1.5 Investment Programme

The Telegraph and Telephone Sector Development Programme envisages an investment of Taka 80.63 crores during the First Five-Year Plan with a foreign exchange component of Taka 31.73 crores. Besides these amounts a telephone factory and a cable factory, provided for in the industry plan, are an integral part of the programme for the development of the Communication Sector. These will cost a total of Taka 4.47 crores in the First Plan with a



foreign exchange component of Taka 1.44 crores. Table XIII-1 shows the summary of investment programme in the sector during the First Five-Year Plan. Table XIII-1.1 shows the investment of the sector included under Industry Plan.

TABLE XIII-1  
Investment Programme: Bangladesh Telegraph and Telephone

(Taka in crore.)

| Agency.                              | No. of Schemes. | Estimated Cost. |       | Estimated Expenditure up to June, 1973. |       | First Plan Allocation. |       | Carried over to Second Plan. |       |  |
|--------------------------------------|-----------------|-----------------|-------|---|-------|------------------------|-------|------------------------------|-------|--|
|                                      |                 | Total.          | F. E. | Total.                                  | F. E. | Total.                 | F. E. | Total.                       | F. E. |  |
| Bangladesh Telegraph and Telephone : |                 |                 |       |   |       |                        |       |                              |       |  |
| On-going ..                          | 23              | 66.34           | 27.84 | 9.06                                    | 2.56  | 53.94                  | 23.18 | 3.34                         | 2.10  |  |
| New ..                               | 21              | 60.45           | 20.96 | ..                                      | ..    | 25.59                  | 7.98  | 34.86                        | 12.98 |  |
| Reconstruction ..                    | ..              | 4.79            | 3.81  | 3.69                                    | 3.24  | 1.10                   | 0.57  | ..                           | ..    |  |
| Total ..                             | 44              | 131.58          | 52.61 | 12.75                                   | 5.80  | 80.63                  | 31.73 | 38.20                        | 15.08 |  |

TABLE XIII-1.1

Investment Programme: Telephone and Cable Industry (Included under Industry Plan.)

(Taka in crore.)

| Agency.                              | No. of Schemes. | Estimated Cost. |       | Estimated Expenditure up to June, 1973. |       | First Plan Allocation. |       | Carried over to Second Plan. |       |      |
|--------------------------------------|-----------------|-----------------|-------|---|-------|------------------------|-------|------------------------------|-------|------|
|                                      |                 | Total.          | F. E. | Total.                                  | F. E. | Total.                 | F. E. | Total.                       | F. E. |      |
| Bangladesh Telegraph and Telephone : |                 |                 |       |   |       |                        |       |                              |       |      |
| On-going                             | ..              | 2               | 4.74  | 1.20                                    | 4.02  | 1.01                   | 0.72  | 0.19                         | ..    | ..   |
| New                                  | ..              | 2               | 6.00  | 2.00                                    | ..    | ..                     | 3.75  | 1.25                         | 2.25  | 0.75 |
| Total                                | ..              | 4               | 10.74 | 3.20                                    | 4.02  | 1.01                   | 4.47  | 1.44                         | 2.25  | 0.75 |

## 13.2 POST OFFICE

### 13.2.1 Historical Development

The development of postal services in the country has been very limited. From 1947 till liberation, the number of post offices in Bangladesh rose from 2,932 to 6,592. The policy of the former British Government was apathetic towards the expansion of rural services because such services were to be run at a considerable loss. Later on the British Government and subsequently the erstwhile Pakistan Government in principle decided to open rural post offices incurring



losses. In India, however, this principle was executed as well. This is demonstrated by the fact that the increase in the number of post offices in rural areas from 1947 to 1968 in India was 500 per cent and in erstwhile Pakistan 200 per cent. The position of Bangladesh was however much worse.

### 13.2.2 Present Position

The present position in Bangladesh is that there are about 6,600 post offices in the country. This means about one post office for 12,000 people. Comparative figures for some other countries are:

| Country.       | Number of Post Office. |    | Population covered by one Post Office. |    |
|----------------|------------------------|----|--|----|
| India .. ..    | 1,25,000               | .. | 4,300                                  | .. |
| Pakistan .. .. | 8,600                  | .. | 5,820                                  | .. |
| U. K. .. ..    | 25,000                 | .. | 2,000                                  | .. |

The present value of assets of Post Office Department has been estimated to be about Tk. 8.00 crores with a staff of about 25,000 (including 11,000 part time employees).

### 13.2.3 Programme and Objective

The First Five-Year Development Programme envisages opening of about 3,725 new post offices—out of which 3,200 will be in the rural areas. This will mean one post office for 8,200 people by 1978. Simultaneously, it has been proposed to improve the delivery system and mail transportation system (partially) by the procurement of a suitable number of motor vehicles and scooters. Other items of importance is the mechanisation programme under which different types of machines are proposed to be obtained.

The objective of the Plan is to provide modern facilities in order to improve the efficiency as well as quality of various postal services. About 20 per cent of the existing Post Offices are proposed to be accommodated in departmental buildings. It has also been proposed to construct about 750 staff quarters for various categories of postal employees. The planned expansion of postal services in Bangladesh is expected to create between 12,000—15,000 jobs during the Plan period of which nearly 3,000 will be full time regular posts. It has been proposed to increase philatelic activities by opening new philatelic bureaus in important places. For providing adequate training to its staff, existing training centres have been proposed to be upgraded and new training centres opened. A number of staff welfare schemes are proposed to be materialised during the period. Total Investment Programme in this sector will be Taka 9.11 crores with a foreign exchange component of Taka 1.08 crores against the physical target of opening of 3,725 new post offices of which 3,200 will be in the rural areas. This programme will create additional job opportunity for 12,000 people during the Plan period. Breakdown of the investment in this sector during the First Five-Year Plan can be seen at Table XIII-2. On full implementation of the Plan, the revenue of the Department is expected to rise by Tk. 3.5 crores per annum. However, there will still be a net operating annual loss for the Department. This loss can be made up by increasing postal charges on items such as insurance, parcel, registration etc. and international postage, etc., which are not generally used by common people.



TABLE XIII-2

Investment Programme: Bangladesh Post Office.

(Taka in crore)

| Agency,                 | No. of Schemes, | Estimated Cost. |       | Estimated Expenditure up to June, 1973. |       | First Plan Allocation. |       | Carried over to Second Plan. |       |
|-------------------------|-----------------|-----------------|-------|---|-------|------------------------|-------|------------------------------|-------|
|                         |                 | Total.          | F. E. | Total.                                  | F. E. | Total.                 | F. E. | Total.                       | F. E. |
| Bangladesh Post Office: |                 |                 |       |   |       |                        |       |                              |       |
| On-going ..             | 11              | 1.22            | ..    | 0.68                                    | ..    | 0.54                   | ..    | ..                           | ..    |
| New ..                  | 16              | 16.83           | 1.22  | ..                                      | ..    | 8.47                   | 1.08  | 8.36                         | 0.14  |
| Reconstruction ..       | ..              | 0.29            | ..    | 0.19                                    | ..    | 0.10                   | ..    | ..                           | ..    |
| Total                   | 27              | 18.34           | 1.22  | 0.87                                    | ..    | 9.11                   | 1.08  | 8.36                         | 0.14  |

**13.2.4 Policy Issue**

No major policy issue is involved in the implementation of the programme. The programme has been prepared in line with the broad objectives of the Government to provide adequate and efficient postal services for the people in general and for the industries, trade and commerce and the Government in particular. In implementing the programme for opening 3,200 Rural Post Offices, the Department will incur an anticipated maximum operating loss of approximately Taka 0.66 crores in five years. In this connection it may be necessary for the Government to allow an increase in the loss per post office per year from Taka 600 to Taka 1,000. Another important point for consideration will be the pace of construction work. A considerable amount has been provided for the construction of buildings. The Department has to formulate a clear policy in consultation with the Ministry of Works regarding setting up of an efficient mechanism for rapid completion of building works.

**13.3 BANGLADESH TELEVISION****13.3.1 Historical Development**

Television in this region came in the year 1964, with the commissioning of a Pilot Station in an improvised studio at the DIT building. Subsequently, two major projects were undertaken for the development of TV in this region:

- (i) Dacca Television Bhavan at Rampura at an estimated cost of Tk. 4.7 crores for which equipment worth Tk. 1.02 crores was imported. Other work in this project includes two big studios and three small news booths, auditorium, studio for educational television, one film production unit and one staff training institute.
- (ii) The second project consists of four Satellite Stations for rebroadcast. For this work, equipment costing Tk. 0.62 crores was imported earlier but a part of the consignment was damaged during the Liberation War.

**13.3.2 Present Position**

Work on the first phase of Rampura Television Bhavan with two big studios and three small studios are in progress. The programmes are now being transmitted from the Rampura TV transmitters which were commissioned in 1968. A microwave link exists between DIT studio and the Rampura transmitter. The Television authorities have the required number of management, technical and programming personnel available to cater for their immediate need. The present assets of the TV are of the order of Tk. 1.8 crores with 320 staff employed.



### 13.3.3 Programmes and Objectives

The programmes proposed by the Television Authorities for the First Five-Year Plan assures availability of TV facilities to rural areas. The objective is not only to generate programmes for entertainment but also produce educational, health and agricultural programme for the benefit of the rural population. There are three aspects of the schemes: Firstly, to radiate programmes in such a way that a major part of the area of the country is covered; Secondly, proper people oriented programmes are produced for the real benefit of the country; Thirdly, proper arrangement for the reception of the programme is to be made in the rural areas. By the end of the Plan period the following targets are expected to be achieved:

- (i) About 8-10 hours of programmes per day.
- (ii) 80 per cent of the population will be brought under TV coverage.
- (iii) Infrastructure for the transmission of multichannel transmission.

### 13.3.4 Investment Programme

Total financial outlay in this sub-sector during the First Five-Year Plan will be Taka 4.56 crores with a foreign exchange component of Taka 2.89 crores. Details of this programme is exhibited at Table XIII-3. Major schemes that will be undertaken for implementation during the First Five-Year Plan are:

- (i) Completion of Dacca Television Bhavan including one modern auditorium, studio for Educational TV, one film production unit and a Staff Training Institute.
- (ii) In addition to the proposed 4 Satellite Stations for rebroadcast for which equipments are partially available, TV authorities have projected to start works of 5 more Satellite Stations within the Plan period.

TABLE XIII-3  
Investment Programme: Bangladesh Television.

(Taka in crore.)

| Agency.                | No. of Schemes. | Estimated Cost. |       | Estimated Expenditure up to June, 1973. |       | First Plan Allocation. |       | Carried over to Second Plan. |       |
|------------------------|-----------------|-----------------|-------|---|-------|------------------------|-------|------------------------------|-------|
|                        |                 | Total.          | F. E. | Total.                                  | F. E. | Total.                 | F. E. | Total.                       | F. E. |
| Bangladesh Television: |                 |                 |       |   |       |                        |       |                              |       |
| On-going .. ..         | 2               | 7.22            | 4.30  | 3.17                                    | 1.81  | 3.80                   | 2.29  | 0.25                         | 0.20  |
| New .. ..              | 1               | 1.65            | 1.30  | ..                                      | ..    | 0.76                   | 0.60  | 0.89                         | 0.70  |
| Total .. ..            | 3               | 8.87            | 5.60  | 3.17                                    | 1.81  | 4.56                   | 2.89  | 1.14                         | 0.90  |

### 13.3.5 Policy Issues

So far as Television is concerned implementation of the programmes will depend on some policy issues.

Firstly, it has to be decided as a matter of policy whether Television will be used extensively in the rural areas for educational, health and agricultural purposes. If the decision is in affirmative then details will have to be worked out regarding the production of such programmes in consultation with the relevant Ministries. This question of policy is already under the consideration of the Government and the Ministry of Information and Broadcasting are looking into the problem.



Secondly, development of mass TV implies mass distribution of TV sets down to the village level where transistorised TV has to be introduced. This will mean mass import/local production of TV sets. At present there is a ban on the import of TV sets. If the policy on TV is changed, it follows that both import and production policies should be changed.

### 13.4 RADIO BANGLADESH

#### 13.4.1 Past Development and Present Situation

Radio is the most widely used mass communication medium. The socio-economic value of Radio is enormous since various development-oriented programmes on education, health and agriculture can be cheaply disseminated to the masses which will indirectly effect the economy of the country. Moreover, with a simple and cheap radio receiver, the programmes can be heard at almost any place thus making the services versatile and ensuring efficient and effective mass communication.

The major Broadcasting Station in Dacca was started before 1947. However, the development since then has been very slow and inadequate. The station had to be worked with minimum facilities. Five more Radio Stations at Chittagong, Rajshahi, Sylhet, Khulna and Rangpur were also installed before liberation mainly for relaying the broadcast from Dacca. Among these Rajshahi and Chittagong had independent broadcasting facilities as well, though ill equipped.

At present Radio Bangladesh has approximate assets of Tk. 2.5 crores and a staff strength of 1,300. These assets are a broadcasting house at Dacca, a low power transmitter at Mirpur and a high power transmitting station at Savar. There are 5 Radio Stations at Chittagong, Rajshahi, Sylhet, Khulna and Rangpur. Rajshahi and Chittagong have a 10 KW transmitter each with an independent broadcasting house. Rangpur has one 10 KW transmitter with two emergency studios. Similar facilities existed at Khulna but these were damaged beyond repair by the Pakistan Army. Khulna is now functioning only as a relaying station with an emergency 1 KW transmitter. One 5 KW old transmitter at Mirpur, installed in 1938, needs immediate replacement. A High Power Station, Savar, one 100 KW medium wave transmitter and two 100 KW short wave transmitters are working. Broadcasting studio facilities as well as relaying facilities are also very meagre. Work is in progress for the installation of a 1000 KW medium wave transmitter at Nayarhat, received from USSR.

With the completion of installation of the 1000 KW transmitter at Nayarhat, the whole of Bangladesh will be covered by a single channel Dacca medium wave programme and it will be possible to broadcast in the External Services in the medium wave band for the neighbouring countries.

#### 13.4.2 Plan Programmes

A National Broadcasting House has been planned to be included in the First Plan. This will be a multistoried building and will contain 25 to 30 studios for home services, farm broadcast, educational broadcast, commercial broadcast, news and all external services to be started from the capital. Besides, this building will accommodate the office of the Director General.

Radio Bangladesh does not have facilities for external broadcast due to lack of high power transmitters and aerial system. This is an essential programme for an independent country and therefore provision has been made for four 250 KW short wave transmitter to be procured in



two phases. This will enable us to beam external broadcasts in 4 channels round the clock for various countries. High power short wave transmitters will override the problems of interference and jamming and will ensure reliability of service.

A single 100 KW medium wave transmitter for each at Chittagong, Khulna and Rajshahi has been included.

A 20 KW transmitter at Sylhet and replacement of the 5 KW transmitter at Dacca (channel B) are also programmed.

Full-fledged broadcasting houses for Khulna, Rangpur and Sylhet have been included in the Plan. Further, provision has been made for a training institute, communication equipment and mobile vans required to meet urgent demand of the stations.

### 13.4.3 Investment Programme

An investment of Taka 15.75 crores with a foreign exchange component of Taka 6.73 crores has been envisaged for the implementation of these programmes during the First Five-Year Plan. Table XIII-4 shows the detailed break-down of the investment programme in this sector.

TABLE XIII-4  
Investment Programme: Radio Bangladesh.

(Taka in crore)

| Agency.           | No. of Schemes. | Estimated Cost. |       | Estimated Expenditure up to June, 1973. |       | First Plan Allocation. |       | Carried over to Second Plan. |       |
|-------------------|-----------------|-----------------|-------|---|-------|------------------------|-------|------------------------------|-------|
|                   |                 | Total.          | F. E. | Total.                                  | F. E. | Total.                 | F. E. | Total.                       | F. E. |
| Radio Bangladesh: |                 |                 |       |   |       |                        |       |                              |       |
| On-going ..       | 13              | 15.51           | 6.91  | 1.98                                    | 0.43  | 9.76                   | 4.51  | 3.77                         | 1.97  |
| New ..            | 14              | 16.23           | 5.30  | ..                                      | ..    | 5.48                   | 2.17  | 10.75                        | 3.13  |
| Reconstruction .. | ..              | 0.87            | 0.34  | 0.36                                    | 0.29  | 0.51                   | 0.05  | ..                           | ..    |
| Total             | 27              | 32.61           | 12.55 | 2.34                                    | 0.72  | 15.75                  | 6.73  | 14.52                        | 5.10  |

## 13.5 METEOROLOGICAL DEPARTMENT

### 13.5.1 Present Position

The devastations caused to lives and properties by the tropical cyclones, tidal bores and Norwesters in Bangladesh in the past years are too well known to need recapitulation. The death toll of November 1970 cyclone alone was estimated to be about 10,00,000 in the coastal districts in addition to the damage to crop, cattle and other movable and immovable properties worth many crores of Taka. The Meteorological Department is responsible for issuing advance warnings of such calamities for the safety of lives and properties on land, air and sea. In addition, the



Meteorological Department is required to prepare and furnish climatological information about meteorological elements such as rain, wind, temperature, humidity, etc., which information is necessary for the planning, design and development of almost all types of projects. The importance of the proper functioning of this Department cannot be under-estimated since a timely warning can save many lives and perhaps properties and availability of necessary Meteorological data will ensure proper planning of projects.

As in the case of many other organisations, the Meteorological Department headquarters and most of the assets were not properly utilized for Bangladesh before liberation. Even though Bangladesh is subjected to frequent natural calamities and shortage of Meteorological data, little effort was made to organise and establish the department with the necessary equipment and installations. Studies of the problem were made by international experts after 1960 and necessary recommendations were made. But due importance was not then attached for obvious reasons and only a very small programme was taken in hand, which was quite inadequate.

At present, Meteorological Department has a modest organisation having its total assets of about Taka 0.6 crore, and a staff complement of 754 numbers. The main facilities consist of one Storm warning centre, two Radar Stations, 12 First Class Meteorological Observatories, 8 Pilot Balloon Observatories, 3 Rawinsonde Observatories, one Seismic Observatory and 4 Forecasting Centres along with some other installations.

These are extremely inadequate to meet the requirements in the country and therefore, should be enhanced quickly.

### **13.5.2 Plan Objectives**

The facilities requested for in this Plan will allow the Meteorologists to issue more accurate and precise forecasts for cyclone warning, route forecast for National and International air services, Long Range and Short Range forecasts for the promotion of agriculture.

Elaborate rainfall data and climatological information of various meteorological elements will allow the Government to assess agricultural conditions pertaining to food production.

In addition to meeting the requirements of the country, the Meteorological Department will have to fulfil some international obligations as well. These include transmission of meteorological data to other countries, serving international airlines with meteorological information, reception and transmission of such information from other countries.

### **13.5.3 Financial and Physical Programme**

An investment programme for the development of this sub-sector has been drawn up at a total cost of Taka 3.45 crores with a foreign exchange component of Taka 0.34 crore over



the Plan period. Details of this programme can be seen at Table XIII-5. Some of the major schemes that will be undertaken during this period are given below:

- (i) Development in the Network of Synoptic Meteorological Observatories.
- (ii) Improvement in the Network of Upper Air Observatories.
- (iii) Improvement of Aviation Meteorology.
- (iv) Improvement in the Telecommunication Service.
- (v) Establishment of Training Institute.

First Plan schemes consist in setting up of :

- (i) Opening of 39 surface Meteorological Observatories.
- (ii) Opening of 10 Observatories on board the ships.
- (iii) Rain-gauge station in 430 Thana.
- (iv) Establishment of 2 Seismic Observatories.
- (v) One Pilot Balloon Observatory.
- (vi) Two Rawinsonde Observatories.
- (vii) Two Weather Surveillance Radar.
- (viii) Strengthening of Main Meteorological Office.
- (ix) Procurement of Telecommunication Equipment.

TABLE XIII-5  
Investment Programme: Meteorological Department.

(Taka in crore)

| Agency.                    | No. of Schemes, | Estimated Cost. |       | Estimated Expenditure up to June, 1973. |       | First Plan Allocation. |       | Carried over to Second Plan. |       |
|----------------------------|-----------------|-----------------|-------|---|-------|------------------------|-------|------------------------------|-------|
|                            |                 | Total.          | F. E. | Total.                                  | F. E. | Total.                 | F. E. | Total.                       | F. E. |
| Meteorological Department: |                 |                 |       |   |       |                        |       |                              |       |
| On-going ..                | 20              | 1.96            | 0.26  | 0.70                                    | 0.18  | 1.26                   | 0.08  | ..                           | ..    |
| New ..                     | 9               | 2.19            | 0.26  | ..                                      | ..    | 2.19                   | 0.26  | ..                           | ..    |
| Total                      | 29              | 4.15            | 0.52  | 0.70                                    | 0.18  | 3.45                   | 0.34  | ..                           | ..    |



## CHAPTER XIV

### EDUCATION AND MANPOWER

#### 14.1 EDUCATION

##### 14.1.1 Historical Background

###### A. Introduction

The system of education prevalent in the subcontinent before 1947 was not geared to the needs of an independent nation or of a growing economy. Its purpose was primarily to produce a number of educated people who could assist the British colonial administration in the country. In fact, the small section of people who were educated under this system acquired a set of values which, on the one hand, alienated them from their own people, and on the other, developed in them a distaste for all forms of manual labour.

During the period 1947—55, the traditional system continued but with general deterioration resulting from mass scale exodus of qualified teachers. After 1955, attempts were made to rectify the situation by adoption of education expansion programmes. These programmes succeeded in raising the absolute numbers of educated people in different strata but failed to respond commensurately to the manpower requirements in various fields. The supply of trained manpower of some categories went up without being matched by that of other categories thus causing an imbalance between the demand for and supply of total trained manpower. The philosophy of education or its content was not appreciably changed to suit the requirements of a developing nation. Our educational system thus conspicuously failed to inculcate consciousness in the minds of the educated people of their obligations towards the less fortunate masses. The educated few in Bangladesh have remained oblivious of their debt to the society which has really borne the cost of their education.

As regards financing of education, there was a gradual increase of the amounts allocated to education in the public sector for development programmes of the erstwhile Government of Pakistan although private contributions to education were also substantial. But though Government expenditure on education went up in absolute terms, as a percentage of total allocation this remained more or less the same. This percentage varied between 5 and 6 in the successive five-year plans of Pakistan. The comparative neglect of the education sector failed to facilitate the development of requisite skills in the country. It also evoked serious discontent among the people. High priority to higher education rather than primary and teacher education led to educated unemployment, thus creating an imbalance in the education sector and generating considerable social tensions in the country.

###### B. Primary Education

In spite of the growing social demand for universal primary education, necessary steps to provide it were lacking. In fact, the percentage of illiteracy increased from 78.90 per cent to 82.39 per cent during 1951—61 even though enrolment in primary schools rose from 26 lakh to 60 lakh between 1947 and 1973. About 58 per cent (Table XIV-1) of the present primary age-group population are enrolled in schools. The apparent paradox of simultaneous increase in illiteracy and enrolment at primary level can be explained on the one hand, by the growth of school-going population as a result of the rapid growth of the country's population and on the other hand, by the high rate of drop-out of school-goers



specially girls before acquiring literacy. The number of primary schools declined from 29,633 in 1947-48 to 26,665 in 1960-61. During the sixties attempts were made to reverse this trend. The number of primary schools was 30,446 in 1972-73 (Table XIV-1). Since the mid-fifties efforts have been going on to reconstruct about 15,000 of the primary schools and to provide each of them with at least five teachers. The financial provision for instructional materials, text-books, qualified teachers and their training has been extremely inadequate all through.

### C. Secondary Education

In the sphere of secondary education, however, a considerable expansion took place in terms of both number of schools and enrolment during the decade 1960-70. Most of the junior schools were upgraded into high schools, and new secondary schools having classes VI—X were established which brought the number of high schools to 4,172 in 1972. Simultaneously, however, the number of junior schools (*i.e.*, covering classes VI to VIII) declined from 2,175 to 1,811. The total student enrolment in the secondary stage also increased appreciably during the same period. In spite of this expansion in secondary education only 17 per cent (Table XIV-1) of the age-group 11—15 are now enrolled in the secondary schools of the country. Secondary education was inordinately tilted towards humanities in the past, although some innovations in curricula, mode and method of teaching were introduced along with bilateral and multilateral streams within the system to create facilities for teaching science and other diversified subjects.

At present, 770 secondary schools offer mainly two options: humanities and science, and 221 secondary schools offer multilateral options which include, besides humanities and science, industrial arts, commerce, agriculture and home economics,

### D. Teacher Education

Teacher education has been a neglected sector in the past. Expansion of facilities for teacher training did not match the expansion of pupil enrolment. Opportunities to enter the teacher training institutions have also been inadequate in proportion to the rapid increase in the number of teachers although the absolute number of teacher training institutions have increased during the period. As a consequence, the number of untrained teachers has increased from 61,900 to 88,200 over the period 1947—72, resulting in the deterioration of the quality of instruction. In 1972, thirty-nine per cent of the primary teachers were untrained, and at the secondary level, the corresponding figure was seventy-two per cent.

Further, due to neglect of the teaching profession, the social image of teachers has been gradually eroded. It has now become extremely difficult to recruit young school leavers to the teaching profession. Young people do not feel sufficiently attracted to the profession due to the fact that income is low and social status is on the wane. Moreover, they do not relish the idea of living in the rural areas, where most of the schools are situated.



### *E. College Education*

College education expanded mainly in response to popular demand and the bulk of the expansion occurred during the sixties. Enrolment rose from 0.18 lakh in 1950-51 to 3.28 lakh in 1972. The number of colleges increased from 59 to nearly 500 (Table XIV-1). The expansion in college education, however, has been more pronounced in the case of institutions known as intermediate colleges offering higher secondary certificate courses. Formerly only 21 of such institutions existed in the country. The establishment of a large number of intermediate colleges in the rural areas of the country has facilitated the Secondary School Certificate holders to continue academic activities which are of negligible value from the point of view of national manpower requirements. Most of these colleges are privately managed but recognised by the Government. These again are crammed for space and starved of facilities. During the sixties grants were made by the Government to these institutions primarily to meet their development needs and also to improve the quality of instruction.

### *F. University Education*

University education has been elitist and formal. The number of general universities increased from one to four, while two universities of professional nature, one for agriculture and the other for engineering, were established. Physical development centred primarily round science and science-based fields and other related disciplines, strategically important to the economy. However, traditional disciplines also received attention. At present, all the universities, except Jahangirnagar and Chittagong, are capable of meeting both quantitatively and qualitatively the requirements of high level manpower envisaged under the Plan although point of concern will be the increasing cost of their maintenance. The universities have, over the years, succeeded in creating a basic infra-structure for research but this is yet to be utilised productively. Financial allocation to university education has been disproportionately high compared to the lower levels of education. Expenditures for construction of physical facilities at the universities were also rather exorbitant.

### *G. Technical Education*

Since 1960, technical and engineering education has been receiving greater attention. The existing engineering college at Dacca was upgraded into a university, and two new engineering colleges were established at Chittagong and Rajshahi. Construction of one more college at Khulna is nearing completion. Enrolment in these institutions now stands at 3,000 compared to 125 in 1947.

Technical education at the diploma level was also encouraged. Twenty polytechnic institutions were established with an enrolment capacity of 10,900. All the polytechnic institutes are now functioning and annually turning out 2,800 diploma holders.



Certificate level institutions were established to produce skilled workers, but their development has not kept pace with that of the diploma and degree level institutes. It is natural to expect that along with industrialisation the need for skilled workers would go up. Corresponding facilities are, therefore, required to impart skills to the industrial workers. But the facilities which have been created in the country during the last few years are not being utilized. Of the 3,400 places available in the country for certificate level courses, 1,700 in 22 vocational training institutions and another 1,700 in 13 polytechnic institutions (evening courses), no more than 1,500 students are completing training each year.

#### *H. Scholarships*

An elaborate scholarship programme covering all levels exists at the moment. With increased enrolment anticipated during the Plan, a re-examination of the scholarship programme is required to improve its administration and effectiveness.

Foreign training of teachers and other high-level manpower has provided a large number of trained personnel to the economy within a short time. However, a significant percentage of such trained manpower either did not return to the country or migrated abroad soon after their return. While training abroad is absolutely necessary to meet critical shortage of high level manpower, suitable measures must be adopted to check the brain-drain.

#### *I. Arts and Culture*

In every nation, culture has an important role to play in defining national identity and in establishing a rightful place for the nation in the comity of nations. Unfortunately, this aspect was not given due importance in the past programmes and plans resulting in a gradual decline of cultural levels and degeneration of cultural and ethical values.

Publication of books and their distribution through libraries were not encouraged. No serious attempt was made to make people aware of the heritage of the country through the development of galleries or museums. Our own arts and music were played down, and deliberate attempts were made to spread an alien culture in these fields. Facilities for physical education and sports were almost absent.

#### *J. Literacy and Adult Education*

Literacy and adult education were also given very little attention. In order to mobilise the people for large scale development activities it is essential that the masses are made conscious of their role in the development of the country. This can only be achieved through a massive programme of functional literacy.



TABLE XIV-1

Development of Education in Bangladesh from 1950-1972

| Level of Education<br>(with age-group) | Year    | Enrolment<br>(In lakh) | Percentage<br>increase/<br>decrease<br>over the<br>previous<br>period | Age-<br>group<br>popula-<br>tion<br>(In lakh) | Percentage<br>of age-<br>group<br>in<br>schools | Institu-<br>tions | Percentage<br>increase/<br>decrease<br>over the<br>period |
|--|---------|------------------------|---|---|---|-------------------|---|
| Primary (6-10)                         | 1950-51 | 24.49                  | —   | 60.17   | 41  | 26,352            | —   |
|  | 1960-61 | 33.30                  | 35.97   | 76.30   | 44  | 26,665            | 0.01  |
|  | 1972-73 | 60.00                  | 80.15   | 102.60  | 58  | 30,446            | 14.12   |
| Secondary (11-15)                      | 1950-51 | 5.14                   | —   | 46.10   | 11  | 3,507             | —   |
|  | 1960-61 | 5.33                   | 3.55  | 59.90   | 9   | 3,140             | (- )10.47   |
|  | 1972-73 | 17.00                  | 219.07  | 98.90   | 17  | 6,000             | 191.08  |
| College-Intermediate (16-17)           | 1950-51 | 0.13                   | —   | 18.40   | 0.69  | 23                | —   |
|  | 1960-61 | 0.37                   | 185   | 22.20   | 1.67  | 21                | (- )8.70  |
|  | 1972-73 | 2.30                   | 522   | 35.50   | 6.48  | 300               | 1328.57   |
| College-Degree (18-19)                 | 1950-51 | 0.05                   | —   | 14.80   | 0.34  | **36              | —   |
|  | 1960-61 | 0.14                   | 180   | 16.60   | 0.84  | **60              | 66.67   |
|  | 1972-73 | 0.98                   | 600   | 34.31   | 2.86  | 200               | 233.33  |

## 14.1.2 Objectives and Strategies

## A. Introduction

Socio-economic aspirations of a society can be realised only when the objectives and strategies in the education sector are made consistent with such aspirations. The following fundamental principles of State Policy have been incorporated in the Constitution of the People's Republic of Bangladesh:

"The State shall adopt effective measures for the purpose of:

—establishing a uniform mass-oriented and universal system of education and extending free and compulsory education to all children of such stage as may be determined by law;

—relating education to the needs of society and producing properly trained and motivated citizens to serve these needs; and

—removing illiteracy within such times as may be determined by law."

The Government have set up an Education Commission to examine the various problems of educational development of the country and also to prepare a comprehensive report on education reforms. The Commission will not only indicate the future structure of education and the curricula but also the manner in which education can be brought close

\*Enrolment shown includes the number of students attending the intermediate section in the degree colleges.

\*\*Includes intermediate section.



to the environment. Naturally, such an enormous task cannot be completed within a very short time. Government policy on education, however, can only be determined after the completion of the work of the Education Commission, and till now the Commission has only submitted an interim report to the government. While education must be responsive to social and economic needs, a socialist democracy like Bangladesh cannot allow creation of an elite class as in the past. Simultaneous attempts must, therefore, be made to change the values which a boy or a girl imbibes along with his or her training and education. In this context, the content of education assumes greater importance than the methods of education. The Education Commission will no doubt suggest measures for making our education system more efficient. They will also formulate proposals for making the 'content' consistent with the desired goals and values of the nation.

### B. Objectives

The educational programmes of the First Five Year Plan has been framed within the spirit of the following objectives:

- (i) Education must be responsive to the specific requirements of the nation. It must have relevance to future work and life, and must provide adequate preparation for productive employment.
- (ii) The system should produce, whether through formal or non-formal education, a cadre of skilled manpower required for development needs of the country. It must no longer turn out scores of 'educated' men who remain mostly unemployed or unemployable.
- (iii) All citizens should have an inherent right to a minimum level of education and be able to receive it at any age convenient to them. An 'open' educational system should, therefore, be developed which would widen the range of choices available to the learners and permit them to move both horizontally and vertically. All children must, however, be assured of basic formal education at least of the primary level.
- (iv) Educational facilities of a basic minimum standard will be made available to all seats of learning regardless of whether they are located in the rural areas or in the cities, and whether they are managed by the government or private individuals.
- (v) The educational system must do away with the strict compartmentalisation of primary, secondary and higher education and instead aim at reaching a 'spectrum of education' which would be open to all, through innovative measures. In other words, the educational system must be viewed as a totality and the goals of all the different layers must be one.
- (vi) Education, broadly viewed, must be able to enrich the cultural attainments of the people.



While adopting a strategy for attaining the objectives outlined above, the following considerations will have to be taken into account.

First, how far will it be feasible to expect a complete breakaway from the existing educational system within a very short time even if such an overhaul were considered desirable? An abrupt breakaway, instead of facilitating the growth of educated and skilled manpower may, in fact bring about a disruption of the system thus discrediting the innovative measures. This, however, should not prevent us from adopting measures which are urgently necessary for the educational development of the country.

Second, the social demand for education is so great that a strict application of the cost-benefit analysis, cost-effectiveness or rate of return approach, cannot be made while determining the direction and magnitude of educational development in the country.

Third, so long as earnings of high-school and college educated youths are higher than those with only primary education and so long as the opportunities for acquiring skills outside formal schooling remain limited and social status of skilled workmen remains lower than that of college graduates, children of poor families or with limited academic promise, will continue to flock to colleges for higher education.

Fourth, in the past, comparatively large sums were contributed by philanthropists for educational development. In a socialist society where there is neither a landed aristocracy nor industrial magnates with huge funds at their disposal such contribution must necessarily be small. The well-to-do persons in the rural areas can at most be persuaded to donate land on which to erect school buildings or provide local building materials and some labour. The magnitude of such contributions cannot but be modest.

Fifth, it is difficult to draw up educational and training programme strictly on the basis of manpower projections with inadequate knowledge about the exact requirements of skilled manpower in the various sectors of the economy and the precise nature of technological transformation which will inevitably take place in a growing economy.

Once these limitations are overcome, it will be possible to hasten structural changes in the educational system.

### *C. Strategies*

The following strategies will be adopted in the First Five Year Plan in pursuance of the aforesaid objectives :

- (i) Efforts will be made to improve the quality of education by making an optimum use of the available facilities and increasing the number of trained teachers, particularly at the primary and secondary levels. Facilities such as teachers and teaching materials, will be increasingly channelised to these institutions so that better education and larger enrolment can be secured simultaneously. Larger enrolment will be made possible through double shifts in most cases.



- (ii) Science education in both schools and colleges will be strengthened through the provision of well-equipped laboratories and more practical lessons.
- (iii) Vocational and technical training at different levels will be given greater emphasis with provision for enlarged on-the-job training. These training facilities will help to take care of the school drop-outs.
- (iv) The central laboratories and community workshops attached to schools and vocational training institutions will provide additional facilities to enable out-of-school people, irrespective of age, to receive training in various skills and trades.
- (v) Higher education will be made selective; only capable young men and women would be encouraged to go into universities. Highly trained people will be turned out by universities only in such numbers as would be required by the different sectors of the growing economy.
- (vi) Steps will be taken to spread effective adult literacy throughout the country. Use will be made of the secondary and college level student population in this regard as well as mass-media such as radio and television.
- (vii) Sports and cultural activities, will be encouraged in all educational institutions and outside.
- (viii) Female education will be given special attention particularly with the objective of turning out teachers for the primary and secondary schools.

TABLE XIV-2

## Education and Training

## Financial Allocation and Breakdown of Costs by Sub-Sectors.

(Taka in crore)

| Sub-Sectors  | Total  | Percentage of allocation. | Private subsistence investment. | Percentage of private investment as against allocation. |
|--|--------|---------------------------|---------------------------------|---|
| 1  | 2      | 3                         | 4                               | 5   |
| <b>1. Primary Education</b>                                    | 57.722 | 17.91                     | 4.021                           | 7.00  |
| (a) Construction and consolidation                             | 33.000 |                           |                                 |   |
| (b) Instructional materials                                    | 8.342  |                           |                                 |   |
| (c) Text-books   | 7.380  |                           |                                 |   |
| (d) Salaries of additional teachers for double shift programme | 9.000  |                           |                                 |   |
| <b>2. Secondary Education</b>                                  | 59.880 | 18.58                     | 3.407                           | 5.70  |
| (a) Construction, consolidation and upgrading                  | 24.950 |                           |                                 |   |
| (b) Teaching materials   | 0.210  |                           |                                 |   |
| (c) Text-books   | 5.720  |                           |                                 |   |
| (d) Diversification of the curricula                           | 9.000  |                           |                                 |   |
| (e) Central Laboratories                                       | 20.000 |                           |                                 |   |



| 1   | 2          | 3      | 4      | 5     |
|---|------------|--------|--------|-------|
| 3. College Education  | 24.700     | 7.66   | 2.717  | 11.00 |
| (a) Setting up of Intermediate Colleges                             | .. 2.000   |        |        |       |
| (b) Rationalisation of Intermediate Colleges                        | .. 6.000   |        |        |       |
| (c) Upgrading of Intermediate Colleges into Degree Colleges         | .. 2.400   |        |        |       |
| (d) Rationalisation of Degree Colleges                              | .. 4.000   |        |        |       |
| (e) Setting up of 'Science Wings'                                   | .. 8.000   |        |        |       |
| (f) Setting up of 'Home Management Wings'                           | .. 0.300   |        |        |       |
| (g) Upliftment of College Education                                 | .. 2.000   |        |        |       |
| 4. Teacher Education  | 16.000     | 4.97   | ...    | ...   |
| (a) Primary Teachers' Training Institutes                           | .. 10.500  |        |        |       |
| (i) New (15)  | .. 7.500   |        |        |       |
| (ii) Consolidation  | .. 3.000   |        |        |       |
| (b) Secondary Teachers' Training Institutes                         | .. 3.000   |        |        |       |
| (i) New (4)   | .. 2.000   |        |        |       |
| (ii) Consolidation  | .. 1.000   |        |        |       |
| (c) Education Extension Centre (New- 1)                             | .. 0.500   |        |        |       |
| (d) Institute for Diversified Curricula (1)                         | .. 0.500   |        |        |       |
| (e) In-service Training of Primary and Secondary Teachers           | .. 1.500   |        |        |       |
| 5. Technical Education  | 50.000     | 15.51  | 3.164  | 6.33  |
| (a) Degree  | .. 5.000   |        |        |       |
| (b) Technical   | .. 9.000   |        |        |       |
| (c) Commercial  | .. 2.000   |        |        |       |
| (d) Trade and Craft   | .. 17.000  |        |        |       |
| (e) Community Workshops (200)                                       | .. 11.000  |        |        |       |
| (f) Educational Equipment Bureau                                    | .. 0.500   |        |        |       |
| (g) Teacher Training  | .. 0.500   |        |        |       |
| (h) Scholarships  | .. 5.000   |        |        |       |
| 6. University Education   | .. 35.000  | 10.86  | ...    | ...   |
| (a) Post-Graduate Studies and a College of Agriculture at Dinajpur  | .. 3.500   |        |        |       |
| (b) Universities  | .. 31.500  |        |        |       |
| 7. Other Educational Activities                                     | .. 30.000  | 9.31   | ...    | ...   |
| (a) Sports and Physical Education                                   | .. 5.000   |        |        |       |
| (b) Special Schools   | .. 1.000   |        |        |       |
| (c) Scholarships  | .. 14.000  |        |        |       |
| (d) Archives & Museums  | .. 2.000   |        |        |       |
| (e) Cultural Activities   | .. 4.000   |        |        |       |
| (f) Libraries   | .. 2.500   |        |        |       |
| (g) Institute of Performing Arts                                    | .. 1.500   |        |        |       |
| 8. Non-formal Education including Adult Literacy and Mass Education | .. 40.000  | 12.41  | 20.000 | 50.00 |
| 9. Educational Radio and Television                                 | .. 1.000   | .31    | ...    | ...   |
| 10. Educational Planning & Management Academy                       | .. 2.000   | .62    | ...    | ...   |
| 11. Social Science Research Council                                 | .. 2.000   | .62    | ...    | ...   |
| 12. Bangladesh Institute of Development Economics                   | .. 2.500   | .78    | ...    | ...   |
| 13. Research and Planning   | .. 1.500   | .46    | ...    | ...   |
| Total (Education)   | .. 322.302 | 100.00 | 33.309 | ..    |
| 14. Labour Welfare and Training                                     | 27.698     | ...    | ...    | ...   |
| Total (Education and Manpower)                                      | .. 350.000 | ...    | 33.309 | ...   |



TABLE XIV-2.1

## Education and Training

## First Five Year Plan Targets

| Stage                         | Stock in June, 1972<br>(In lakh) | Additional enrolment<br>(In lakh) | Stock in July, 1978<br>(In lakh) | Percentage increase | Per cent of total student enrolment | Percentage of the age-group | Total investment (Taka in crore) |
|-------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------|-------------------------------------|-----------------------------|----------------------------------|
| Primary ... ..                | 60.00                            | 25.94                             | 85.94                            | 43                  | 72.4                                | 73                          | 57.722                           |
| Secondary ... ..              | 17.00                            | 9.62                              | 26.62                            | 57                  | 22.5                                | 23.5                        | 59.880                           |
| Lower Secondary (VI-VIII) ... | 11.73                            | 7.72                              | 19.45                            | 66                  |                                     |                             |                                  |
| Secondary (IX-X) ... ..       | 5.27                             | 1.90                              | 7.17                             | 36                  |                                     |                             |                                  |
| Teacher Education ... ..      | 0.10                             | 0.15                              | 0.25                             | 150                 | 0.2                                 | —                           | 16.000                           |
| College ... ..                | 3.28                             | 1.72                              | 5.00                             | 52                  | 4.2                                 | —                           | 24.700                           |
| Intermediate ... ..           | 2.30                             | 1.20                              | 3.50                             | 52                  |                                     |                             |                                  |
| Degree ... ..                 | 0.98                             | 0.52                              | 1.50                             | 53                  |                                     |                             |                                  |
| Technical Education ... ..    | 0.18                             | 0.31                              | 0.49                             | 172                 | 0.4                                 | —                           | 50.000                           |
| Universities ... ..           | 0.24                             | 0.15                              | 0.39                             | 63                  | 0.3                                 | —                           | 15.000                           |

## 14.1.3 Primary Education

## A. Introduction

The main objective of primary education is to teach three R's to a child for increasing his capacity to assimilate information and communicate with others. It also opens up for him the vast world which is outside his immediate experience. Depending on the course content he also learns the elements of personal hygiene, discipline and group behaviour; all of which make him a better worker and also a better citizen.

Provision of universal primary education, however, requires an enormous investment, mostly capital, for construction of permanent school buildings in abundance. The alternative is to have school buildings with local materials the costs of which are lower than those of pucca structures and to introduce measures that would increase the efficiency of the existing facilities. In many developing countries the school systems are now going for inexpensive but functional school construction programmes. To assist universal primary education, it is necessary that we go for such inexpensive semi-pucca construction by using the materials that are used by the local community for their own housing requirements.

One important economy measure in this level as well as for other levels is to operate the schools on a double shift basis. The measure would increase enrolment capacity, and would reduce *per capita* development and recurring costs. The Primary



schools should operate for 220 days in a year, and should be used for two shifts with teachers teaching in both the shifts. Each teacher would teach groups of 50 pupils, each shift receiving an average of three and a half hours of instruction per day.

Most of our primary schools are five-teacher institutions. To relieve pressure on them, they would be manned by seven teachers in schools which will introduce double shift during the Plan. New teachers would be preferably female.

TABLE XIV-3  
Primary Education: Projected Enrolment

(In lakh)

| Year    | Enrolment (I-V) |      |       |       | Age-group Population |      |       | Enrolment as % of age-group Population |      |       | Additional Enrolment |      |       |
|---------|-----------------|------|-------|-------|----------------------|------|-------|--|------|-------|----------------------|------|-------|
|         | Total           | Boys | Girls | Ratio | Total                | Boys | Girls | Total                                  | Boys | Girls | Total                | Boys | Girls |
| 1972-73 | 60.0            | 40.0 | 20.0  | 67:33 | 102.6                | 52.7 | 49.9  | 58                                     | 76   | 40    | —                    | —    | —     |
| 1973-74 | 66.3            | 44.4 | 21.9  | 67:33 | 105.8                | 54.0 | 51.8  | 63                                     | 82   | 42    | 6.3                  | 4.4  | 1.9   |
| 1974-75 | 72.0            | 47.5 | 24.5  | 66:34 | 108.8                | 55.5 | 53.3  | 66                                     | 86   | 46    | 5.7                  | 3.1  | 2.6   |
| 1975-76 | 77.2            | 50.2 | 27.0  | 65:35 | 111.7                | 57.0 | 54.7  | 69                                     | 88   | 49    | 5.2                  | 2.7  | 2.5   |
| 1976-77 | 81.9            | 52.4 | 29.5  | 64:36 | 114.6                | 58.5 | 56.1  | 71                                     | 90   | 52    | 4.7                  | 2.2  | 2.5   |
| 1977-78 | 85.9            | 54.1 | 31.8  | 63:37 | 117.5                | 59.9 | 57.6  | 73                                     | 90   | 55    | 4.0                  | 1.7  | 2.3   |

#### B. Objectives

The following objectives have been kept in view while formulating the programmes of this sub-sector (Tables XIV-3 and XIV-3.1):

- (i) The total enrolment will go up by about 26.0 lakh from a base of 60.0 lakh to 85.94 lakh.
- (ii) The percentage of primary age-group students attending schools will increase from 58 per cent to 73 per cent in 1978.
- (iii) Ninety per cent of the boys of primary age-group will be given access to primary education during the Plan, compared to 76 per cent now attending the schools.
- (iv) Participation of girls will be accelerated. At present, 40 per cent of the girls of primary age-group attend schools; this will be raised to 55 per cent during the Plan. This will lead to an increase in the actual enrolment of girls in the system by 11.8 lakh compared to 14.1 lakh for boys.
- (v) The curriculum at the primary level will be revised to make it more relevant to real life obtaining in the country.
- (vi) Text-books, writing and instructional materials will be supplied to all children free of cost or at subsidised rates.
- (vii) Drop-out rate will be reduced from 63 per cent to 52 per cent by undertaking supplementary and non-formal measures such as well-designed educational programmes through radio and television. Innovative measures such as provision of feeder schools, child feeding, female teachers, sports and



recreational facilities and synchronisation of holiday with crop seasons, will be introduced to reduce drop-out between Class I and Class II, where the problem is more acute;

(viii) Educated housewives will be encouraged to teach in primary schools.

### C. Programmes

The following are the programmes of primary education:

- (i) Double shift will be introduced in 5,000 primary schools, for which existing facilities will be expanded and developed. In doing so, schools which were not developed previously will be given preference. The schools will enrol a total of 20 lakh, of which 10 lakh will be additional enrolment.
- (ii) 5,000 new schools will be established to cater to the enrolment of 10 lakh pupils. Facilities for double shift programme will also be available in these schools, although immediately they may operate on a single shift basis due to non-availability of students within the vicinity of the schools.
- (iii) The programmes of the 15,000 primary schools which have already been developed will be consolidated to permit optimum enrolment (250). The remaining 10,500 schools will operate at the current level (175). The total enrolment in these schools will be 55.9 lakh including the additional enrolment of about 6.0 lakh.
- (iv) Of the 35,500 primary schools at the end of the Plan period, 71 per cent will be fully developed. The schools thus developed with full facilities for a double shift operation will provide a base to permit universal primary education during subsequent Plan periods.
- (v) All primary schools will receive necessary teaching materials to improve the quality of instruction.
- (vi) One transistor set would be made available to each primary school for receiving the instructional programmes of the Bangladesh Radio.
- (vii) Elementary courses on sanitation, health, nursing, population education and ethics will be introduced in the primary schools.
- (viii) The projected enrolment of additional 26 lakh can be ensured by increasing participation of girls. To achieve this end, a conducive climate of opinion will be created in the country by concerted social and political efforts and through non-formal activities.
- (ix) About 9 per cent of the students of primary schools are over-aged. This percentage will decrease with the increase in retention rates and intake of boys and girls in the school system at the age of six.

A sum of Tk. 57.722 crore which is about 18 per cent of the total allocation in the education sector has been earmarked for the development of primary education during Plan (Table XIV-2). Of this, Tk. 4.021 crore is expected to be contributed by the private sector in the form of land donated for schools. Ten per cent of the materials required for reconstruction of old schools and establishment of new schools are also expected to be donated by the villagers. They are also expected to contribute 25 per cent of the labour charges for such work.



TABLE XIV-3-1  
Primary Education : Class-wise Breakdown of Projected Enrolment

(In lakhs)

| Year    | Class-I |      | Class-II |       | Class-III |       | Class-IV |      | Class-V |       |      |       |     |
|---------|---------|------|----------|-------|-----------|-------|----------|------|---------|-------|------|-------|-----|
|         | Total   | Boys | Girls    | Total | Boys      | Girls | Total    | Boys | Girls   | Total | Boys | Girls |     |
| 1972-73 | 22.8    | 14.2 | 8.6      | 13.2  | 9.0       | 4.2   | 10.2     | 7.8  | 5.6     | 2.2   | 6.0  | 4.2   | 1.8 |
| 1973-74 | 23.9    | 15.1 | 8.8      | 15.1  | 10.1      | 5.0   | 11.6     | 8.9  | 6.3     | 2.6   | 6.8  | 4.9   | 1.9 |
| 1974-75 | 25.1    | 15.6 | 9.5      | 15.8  | 10.4      | 5.4   | 13.3     | 10.1 | 7.0     | 3.1   | 7.7  | 5.5   | 2.2 |
| 1975-76 | 26.4    | 16.0 | 10.4     | 16.6  | 10.8      | 5.8   | 13.9     | 11.5 | 8.0     | 3.5   | 8.8  | 6.1   | 2.7 |
| 1976-77 | 27.8    | 16.6 | 11.2     | 17.4  | 11.1      | 6.3   | 14.6     | 12.1 | 8.2     | 3.9   | 10.0 | 6.9   | 3.1 |
| 1977-78 | 29.1    | 17.2 | 11.9     | 18.3  | 11.5      | 6.8   | 15.3     | 12.7 | 8.4     | 4.3   | 10.5 | 7.1   | 3.4 |



#### 14.1.4 Secondary Education

##### A. Introduction

With the advancement of technology and economic development, secondary education no longer remains merely a preparatory stage for higher education. Since students vary widely in ambition and in abilities, many of them may not continue with their studies, due to lack of finance, motivation or facilities, and may like to enter the labour market directly or through a vocational training institution.

To meet this changing demand secondary education has to be diversified with provision of courses adapted to the needs of those who will terminate their formal education at this stage, and wish to acquire skills needed to earn their living. There should, therefore, be a special emphasis on science and vocation-oriented courses and training at this level. The secondary students should also be aware of the implications of a rapidly growing population on economic and social development. This can be done by providing, *inter-alia*, appropriate contents on population education, dynamics, and planning within the curriculum.

Secondary level education and the training, specially in science, technical and vocational subjects would be developed in keeping with the demand of the labour market. The programme would be flexible and responsive to the needs of industry, commerce and agriculture of the country. Most of the equipment and training materials required for practical work and on-the-job training would be organised through co-operation of the prospective employers. Laboratories and workshops would be adequately equipped to supplement the facilities already available with the employers and would be standardised to provide training.

Because of high density of population it is possible to economise in the use of laboratory equipment by setting up central laboratories and community workshops which will expedite the growth of diversified and vocational education in Bangladesh. Central laboratories established in rural and urban centres, will cater to the needs of science and diversified education. This is the only alternative to separate laboratories in each of the secondary schools offering diversified education. These laboratories will have teachers and teaching facilities for science, agriculture, home management, nursing and other allied subjects. Students of classes IX and X will go to a central laboratory once or twice a week, to attend practical classes, while theoretical instructions would be imparted in their own schools. The total instruction would also be supplemented by radio and television lessons wherever possible. The laboratory would be manned by qualified full time staff and will operate for 6 days a week for 8 to 10 hours a day.

Community workshop will primarily supplement lower secondary education (class-VIII) and would be available to those who would not go for higher education and to the out-of-school youths. The community workshops will cater to the needs of three groups of people:

- (i) Practical training for Industrial Arts group at secondary level;
- (ii) Vocational training to class VIII leavers in various trades and crafts; and
- (iii) Improving skills of out-of-school youths with little or no formal education. Participants would spend most of their time on job training and comparatively less time on classroom instruction.



Community workshops would not be a part of the formal school system but would be closely related to it. If necessary, school facilities would be available beyond regular school hours for theoretical instruction for the participants of the community workshops. Regular instructors and staff would be employed to maintain these workshops. The training programme may range from four months to one year depending on the need of individual groups and regions and will include programmes such as constructions, carpentry, electrification, masonry and power pump operation. This may also cover home management, health, cottage crafts and other vocational trades as per skill needs of the area.

Further innovations like change of basic instructional unit, individualised instruction in science and vocational education, and modification of the roles of students and teachers by encouraging the senior students to undertake some teaching will also be attempted on an experimental basis.

Some of the secondary schools have already adopted double shift system to meet the demand for increased enrolment. The double shift system economises the use of physical facilities but not in the use of teachers. To meet the existing acute shortage of science teachers, particularly in secondary schools, suitable non-conventional teaching methods may be adopted. In addition, attempts will be made to utilise the services of science graduates employed outside the school system to teach science on a part-time basis.

#### B. Objectives

The objectives of the secondary education programme are stated below :

- (i) to increase enrolment by 9.62 lakh. The total enrolment will increase by 56 per cent, i. e., from 17.0 lakh to 26.62 lakh (Tables XIV-4 & XIV-4.1);
- (ii) to raise the ratio of enrolment of the children in the secondary age-group from 17.2 per cent to about 23.5 per cent (Tables XIV-4 & XIV-4.1);
- (iii) to provide science and vocational education to 40 per cent of the students enrolled in classes IX and X, from the existing 30 per cent;
- (iv) to integrate vocational education with academic education ;
- (v) to establish central laboratories and community workshops in growth centres.

#### C. Programmes

During the next five years the number of new entrants in classes VI—VIII will be far larger than that in classes IX-X. Provision would be made for an additional enrolment of 7.72 lakh at the junior level, i. e. from 11.73 lakh in 1972 to 19.45 lakh in 1978 (Table XIV-4.2). This represents an increase of 66 per cent. The following measures would be adopted to absorb the additional enrolment :—

- (i) Establishment of 625 new junior high schools to create facilities for about 0.93 lakh students ;
- (ii) Double shifts in 50% of urban schools (600) and 19% of rural schools (935) to absorb 3.1 lakh students : (Table XIV-4.2) ;



- (iii) Introduction of classes VI—VIII instructions in 1530 primary schools in the afternoon where there would be no double shift for primary education to accommodate additional 2.3 lakh students (Table XIV-4.2);
- (iv) Consolidation of existing 4,000 junior and secondary schools to achieve an optimum class room size of 50, to accommodate an additional 2.0 lakh students.

In the upper level (classes IX-X), expansion would be relatively moderate. Compared to 66 per cent at the middle level only 36 per cent increase is envisaged at the upper level. An additional enrolment of 1.9 lakh will raise the enrolment level from 5.3 lakh to 7.2 lakh. The thrust would be on science and diversified education. Enrolment in science would increase by 70 per cent, agriculture by 355 per cent, home management/nursing by 275 per cent, industrial arts by 150 per cent and commerce by 36 per cent in the plan period (Table XIV-4.2).

During the Plan about 127,500 places will be created to meet the needs of science and diversified education. Of these, 64,000 will be for science, 19,500 for agriculture, 22,000 for home management/nursing, 3,000 for industrial arts and 19,000 for commerce. In order to meet the targets of enrolment, central laboratories (200) and community workshops (200) will be established in growth centres. Science teaching units will be provided in schools which does not have access to central laboratories. Wireless receiving sets will be supplied to all high schools of Bangladesh. Television will also be provided to schools with electricity.

A sum of Tk. 59.880 crore which constitutes about 18.58 per cent of the amount allocated to the Education Sector has been earmarked for the development of secondary education (Table XIV-2). The local communities are also expected to contribute to this development, the value of which has been estimated to be about 3.407 crore. Fifty per cent of all the lands required for building new schools are expected to be donated by the villagers themselves. As in the case of the primary schools, they are also expected to donate materials and labour for reconstruction of old schools and building of new schools.







TABLE XIV-4-2

## Secondary Education : Requirement of Additional Facilities (1973—78)

(In lakh)

| Classes                         |     |     |     |     | Stock in<br>June, 1973 | Stock in<br>July, 1978 | Additional<br>places<br>within Plan<br>period | Percentage<br>increase<br>over the<br>period |
|---------------------------------|-----|-----|-----|-----|------------------------|------------------------|---|--|
| VI—VIII                         | ... | ... | ... | ... | 11.730                 | 19.450                 | 7.720   | 66   |
| IX & X                          | ... | ... | ... | ... | 5.275                  | 7.170                  | 1.895   | 36   |
| (a) Humanities                  | ... | ... | ... | ... | 3.680                  | 4.300                  | 0.620   | 17   |
| (b) Commerce                    | ... | ... | ... | ... | 0.530                  | 0.720                  | 0.190   | 36   |
| (c) Science                     | ... | ... | ... | ... | 0.910                  | 1.350                  | 0.640   | 70   |
| (d) Agriculture                 | ... | ... | ... | ... | 0.055                  | 0.250                  | 0.195   | 355  |
| (e) Industrial Arts             | ... | ... | ... | ... | 0.020                  | 0.050                  | 0.030   | 150  |
| (f) Home Management and Nursing | ... | ... | ... | ... | 0.080                  | 0.300                  | 0.220   | 275  |

Note 1. Additional places will be created by—

- (a) consolidation of existing High and Junior Schools (4,000)
- (b) Double shifts in 50% urban schools (600) and 19% of rural schools (935).
- (c) Initiation of classes VI—VIII in 1,530 Primary Schools where there will be no double shifts.
- (d) Establishment of 625 new Junior High Schools.

2. Additional places in diversified education would be created by establishing central laboratories, teaching units and community workshops.



## 14.1.5 Teacher Education

### A. Introduction

Next to students, teachers are the most important and the most expensive factor of an educational system, and teacher training is the heart of any educational plan. The efficiency and performance of the educational system entirely depend on the quality of instruction imparted, which in turn, rests on the quality of teachers. Standard of education can be raised more easily and with much lower cost through effective teacher training than any other activity. But, in the past we paid inadequate attention and funds to teacher training. The programme for the supply, training, recruitment and utilisation of teachers, was not given desired priority nor were measures taken to build up the under-privileged and low status teaching profession. In the Plan it is proposed to correct the previous gaps and to provide utmost attention to teacher education.

Schools face difficulties in recruiting qualified teachers in science and in technical subjects, due to their limited availability and higher demand elsewhere in the economy. In order to ease the situation, the concept of non-conventional teaching would be brought within the formal system. This would be attained :

- by allowing technicians and skilled workers to offer practical instructions in schools, in central laboratories and in community workshops as part-time instructors ;
- by inviting and by creating a pool of talent available in the school community as parents, guardians, patrons, in respect of science, agriculture, veterinary, health and related disciplines and to make them a regular component of the school teaching programme ; and
- by utilising the services of the retired but experienced officials, teachers, etc. who are prepared to teach for the pleasure of it.

For the purpose, part-time posts would be created and funds would be allocated in the development budget.

At the primary level the percentage of women teachers is only three, while at the secondary level it is eight. Most of these women teachers are teaching in schools located in the urban areas. Some sample surveys indicate that at the primary level, the female teachers are mostly fresh entrants and are still unmarried, while at the secondary level many of the teachers are housewives. There seems to be a direct correlation between the employment of women teachers and enrolment and attendance of girls in schools. In order to attract the girls to schools, women teachers, specially housewives, will be encouraged to return to schools. If necessary, academic qualifications will be relaxed to attract more of them. Further, they would be absorbed only in schools which are not far from their homes.

Many of the trained teachers are obliged to carry on duties in schools which have no direct bearing on teaching. These vary from administrative matters to some routine work which can be performed by non-trained teachers. It would be desirable to relieve the trained teachers of these non-academic duties and use them exclusively for teaching.



Teachers are usually low paid and even then the teaching profession has always attracted some bright people. Proper incentives are necessary to retain them in the teaching profession. Some of the proposed measures are :

- The salary of a teacher should be fixed on the basis of his qualifications and not on the post alone. If necessary, special posts may be created for particularly able teachers to enable them to get adequate remuneration.
- The dependents of the teachers should be allowed to enjoy free studentship.
- The teachers should be provided with opportunities to improve their qualifications and get promoted to higher positions.

Many of the primary school teachers enter the profession because of their inability to go for higher studies due to financial difficulties. The possibility of vertical movement within the profession would serve as a great incentive for them. Trained teachers from the Primary Training Institutes with about 3 to 5 years of teaching experience should be allowed to go for higher education, to improve their employment opportunities.

With increased enrolment of about 85.94 lakh, the number of primary teachers would increase from 1.24 lakh to 1.87 lakh. (Table XIV-5), an increase of about 51 per cent over the Plan period. In absolute terms, it would be an addition of only 63,500 but the number of new recruits will be about 93,000; the additional 29,500 teachers are required to replace those who will retire or leave the profession. At present, about 66 per cent of the teachers numbering about 82,000 are trained. Of this, at least 16,000 trained teachers would be affected by the normal turnover during the Plan. The 48 primary training institutions with existing capacity can produce about 40,000 trained teachers. Therefore, the total number of trained teachers will be not more than 1,06,000 which is only about 56 per cent of the proposed total teaching force. It is, therefore, necessary to increase substantially the primary teacher training facilities in the country, even to maintain the present rate of trained teachers.

The situation is similar with secondary teachers. Requirement for secondary will go up by about 50 per cent *i. e.* from 60,500 to 90,600 by 1978 (Table XIV-5.1). In addition, 14,000 will be required to meet the replacement demand. Only 29 per cent of the existing teachers numbering about 18,000 are trained. The current training capacity of the 12 Teachers' Training Colleges is 2,500 annually (Table-XIV-5.3) which, together with the existing number of trained teachers, will comprise 34 per cent of the teaching force. This means that with the existing training facilities alone, the percentage of trained teachers will rise only slightly (5%) during the next five years. Raising the percentage of trained teachers from 29 to 43 constitutes a foremost objective of the Plan.

A large portion of the new entrants in classes IX & X will join science, commerce and vocational groups. The requirement for specialised teachers will be about 4,250 of whom 2,133 will be for science, 650 for agriculture, 734 for home management and nursing, 100 for industrial arts and 633 for commerce.



In spite of large requirement of trained teachers, the outturn of the Primary Training Institutes and the Teachers' Training Colleges have to remain idle for months before entry into the teaching profession, mainly due to the inefficiency of the recruitment procedure. In this process of waiting some of them get absorbed elsewhere resulting in their loss to teaching profession altogether. In order to avoid this wastage, the possibility of offering them advance employment or guarantee for re-employment, even before they have completed their training, should be carefully considered.

### B. Objectives

The following objectives have been kept in view in formulating programmes of teacher education.

- (i) To increase the number of primary and secondary teachers by 5 per cent *i. e.* from 1,84,500 teachers to 2,78,000 teachers within the plan period.
- (ii) To accelerate recruitment of female teachers and to increase their number by 289 per cent *i. e.* from 9,500 to 37,000 teachers.
- (iii) To raise the number and proportion of trained teachers, by establishing new training institutions and by adopting suitable measures for the maximum use of the existing facilities.
- (iv) To increase the number of graduate science teachers from 1,200 to 5,000. At present there are about 3,200 teachers teaching science, subjects of whom only 1,200 are science graduates. During the Plan only science graduates will be employed to teach science in all Schools.
- (v) To provide in-service training of various forms and durations during vacations or other appropriate times in existing schools and colleges, to the teachers for improving their instructional ability.
- (vi) To provide facilities for long term training of science and diversified teachers.
- (vii) To provide instructions over radio and television to supplement the teaching in schools which will also upgrade the teachers' own knowledge.

### C. Programmes

The following are the programmes of teacher education :

- (i) To establish additional 15 primary training institutions with about 6,000 pupil places of which 3 would be exclusively for female teachers (Table XIV-5-2).
- (ii) To establish 4 new teachers' training colleges with a training capacity of 2,000 of which one would be exclusively for training of science teachers (Table XIV-5-3).
- (iii) To establish one new institute to train teachers in agriculture, commerce, home management and industrial arts.
- (iv) To establish a new Education Extension Centre preferably in North Bengal to cater to the need of that region, special short term and long term courses would be instituted for the teacher training at the PTI's and TTC's and research experimentation on the curriculum would be encouraged.
- (v) To provide residential facilities for about 50 per cent of the primary and secondary teachers undergoing training. Semi-permanent structures using local materials will be constructed for such residential accommodation.



TABLE XIV-5

## Teacher Education : Requirement of Primary Teachers

| Item   |   | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 |
|--|---|---------|---------|---------|---------|---------|
| Stock at the beginning of the year             | T | 124,146 | 134,246 | 145,546 | 158,546 | 173,246 |
|  | M | 120,146 | 127,026 | 134,706 | 143,586 | 153,666 |
|  | F | 4,000   | 7,220   | 10,840  | 14,960  | 19,580  |
| Wastage @ 4%<br>(death, retirement, migration) | T | 4,966   | 5,370   | 5,822   | 6,342   | 6,930   |
|  | M | 4,806   | 5,081   | 5,388   | 5,744   | 6,147   |
|  | F | 160     | 289     | 434     | 598     | 783     |
| Net Stock                                      | T | 119,180 | 128,876 | 139,724 | 152,204 | 166,316 |
|  | M | 115,340 | 121,945 | 129,318 | 137,842 | 147,519 |
|  | F | 3,840   | 6,931   | 10,406  | 14,362  | 18,797  |
| Fresh Entry                                    | T | 15,066  | 16,670  | 18,822  | 21,042  | 21,330  |
|  | M | 11,686  | 12,761  | 14,268  | 15,824  | 15,527  |
|  | F | 3,380   | 3,909   | 4,554   | 5,218   | 5,803   |
| Total Stock at the end of the year             | T | 134,246 | 145,546 | 158,546 | 173,246 | 187,646 |
|  | M | 127,026 | 134,706 | 143,586 | 153,666 | 163,046 |
|  | F | 7,220   | 10,840  | 14,960  | 19,580  | 24,600  |

TABLE XIV-5.1

## Teacher Education : Requirement of Secondary Teachers

| Item  |   | Bench<br>Mark<br>June, 1972 | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 |
|---|---|-----------------------------|---------|---------|---------|---------|---------|
| Stock at the beginning of the year                    | T | 60,500                      | 63,000  | 65,600  | 69,600  | 74,700  | 81,700  |
|   | M | 55,000                      | 57,000  | 59,000  | 62,364  | 66,253  | 71,589  |
|   | F | 5,500                       | 6,000   | 6,600   | 7,236   | 8,447   | 10,111  |
| Wastage @ 4 per cent<br>(death retirement, migration) | T | 2,200                       | 2,500   | 2,624   | 2,784   | 2,988   | 3,268   |
|   | M | 2,000                       | 2,250   | 2,360   | 2,495   | 2,652   | 2,864   |
|   | F | 200                         | 250     | 264     | 289     | 336     | 404     |
| Net Stock   |   | 58,300                      | 60,500  | 62,976  | 66,816  | 71,712  | 78,432  |
| Science Teacher                                       | T | 1,200                       | 1,300   | 2,400   | 3,000   | 4,000   | 5,000   |
|   | M | 900                         | 975     | 2,097   | 2,600   | 3,150   | 4,000   |
|   | F | 300                         | 325     | 303     | 400     | 850     | 1,000   |
| Stock at the end of the year                          | T | 63,000                      | 65,600  | 69,600  | 74,700  | 81,700  | 90,600  |
|   | M | 57,000                      | 59,000  | 62,364  | 66,253  | 71,589  | 78,216  |
|   | F | 6,000                       | 6,600   | 7,236   | 8,447   | 10,111  | 12,384  |



TABLE XIV-5-2

## Teacher Education : Projected Supply of Trained Teachers for Primary Level

(all figures are cumulative)

| Year    | Supply From     |                              |                         | Stock of Trained Teachers excluding wastage | Total Teacher requirement | Percentage of Trained Teacher |
|---------|-----------------|------------------------------|-------------------------|---|---------------------------|-------------------------------|
|         | Existing source | Introduction of double shift | New P.T.I.'s under Plan |   |                           |                               |
| 1972-73 | ...             | ...                          | ...                     | 82,000                                      | 124,146                   | 66                            |
| 1973-74 | 8,000           | ...                          | ...                     | 88,770                                      | 156,746                   | 56                            |
| 1974-75 | 16,000          | 1,400                        | ...                     | 96,151                                      | 162,046                   | 59                            |
| 1975-76 | 24,000          | 4,200                        | ...                     | 104,983                                     | 169,046                   | 62                            |
| 1976-77 | 32,000          | 8,600                        | 2,000                   | 117,464                                     | 177,746                   | 66                            |
| 1977-78 | 40,000          | 14,600                       | 6,000                   | 133,593                                     | 187,646                   | 71                            |

TABLE XIV-5-3

## Teacher Education : Projected Supply of Trained Teachers for Secondary Level

(all figures are cumulative)

| Year    | Supply From     |                              |                         | Stock of Trained Teachers excluding wastage | Total Teacher requirement | Percentage of Trained Teacher |
|---------|-----------------|------------------------------|-------------------------|---|---------------------------|-------------------------------|
|         | Existing Source | Introduction of double shift | New T.T.C.'s under Plan |   |                           |                               |
| 1972-73 | ...             | ...                          | ...                     | 18,000                                      | 60,500                    | 29.7                          |
| 1973-74 | 2,500           | ...                          | ...                     | 20,050                                      | 62,600                    | 30.6                          |
| 1974-75 | 5,000           | 800                          | ...                     | 22,912                                      | 69,600                    | 33.0                          |
| 1975-76 | 7,500           | 2,400                        | ...                     | 26,585                                      | 74,700                    | 35.6                          |
| 1976-77 | 10,000          | 4,800                        | 1,600                   | 32,668                                      | 81,700                    | 40.0                          |
| 1977-78 | 12,500          | 7,200                        | 3,600                   | 39,162                                      | 90,600                    | 43.2                          |



- (vi) To introduce double shift instruction in all the 48 primary training institutes on a phased programme.
- (vii) To consolidate the programmes and facilities of the existing 12 teachers' training colleges. Double shift teaching at teachers' training college will be synchronised with double shift classes of adjoining secondary schools for increasing the output of teachers from the existing teachers' training colleges. For example, while one group will attend classes in the morning shift and will have practical teaching in the afternoon, the other group will undertake practice teaching in the morning and receive instructions in the afternoon from the teachers' training colleges. Implementation of this programme will be phased over the Plan period.
- (viii) To organise short term in-service training programmes for primary and secondary teachers. A corps of teacher trainers will be recruited and trained for this purpose. In such courses, female teachers would be given preference.
- (ix) To decentralize the activities of the Education Extension Centre by organising courses at thanas and sub-divisional headquarters. The centre will pay greater attention to in-service training programmes for the science and diversified teachers.
- (x) To organize special courses for appropriate teachers on class-room use of the instructions provided by the educational broadcasts.

A sum of Tk. 16.00 crore comprising 5% of the Plan allocation to education sector has been earmarked for teachers' education (Table XIV-2).

#### 14.1.6 College Education

##### A. Introduction

The number of institutions imparting higher secondary and college education has increased phenomenally during the last two decades. There are now about 500 colleges in Bangladesh of which as many as 300 teach only up to higher secondary level. Many of these colleges do not possess the minimum necessary facilities to function properly. The mushroom growth of these institutions took place particularly during the sixties. The absence of sufficient avenues of employment coupled with the unwillingness to enter family occupations like farming, on the part of the secondary and higher secondary certificate holders created a tremendous demand for college education. The unemployed degree holders sometimes took initiative in starting such colleges in the rural areas both in the hope of finding employment and with the ideal of rendering some service to the local community. But the major initiative came from the local philanthropists and other elite as well as Government administrators who wanted to accelerate development in small communities through the establishment of colleges.



In the Plan it is hoped to divert the bulk of the school leavers to institutions where they can receive job-oriented training instead of spending several years on education which is of little worth to their prospective employers. Such a diversion will not be easy to achieve as long as the job opportunities and training facilities for school leavers are limited. Unless public opinion is mobilised, standards of admission tests are raised, and people with inadequate qualifications are prevented from becoming college teachers, the growth in the number of colleges and students cannot be restricted. It will be our endeavour to rationalise and consolidate the existing facilities of the colleges rather than expanding them or adding to their number. Only 10 new intermediate colleges are proposed to be established in Bangladesh during the Plan. No encouragement to unplanned expansion of college education will be given but equal opportunity for higher education will be assured to those who have the merit and the potential for academic excellence. Our aim will be to maximise utilisation of the existing resources and facilities.

In the past, there has been a tendency to upgrade secondary schools into colleges although material facilities for such upgrading and financing were not available. This practice would be discouraged. Of the 500 colleges, not more than 300 offer science courses at intermediate level and enrol only 220 science students per college. The colleges are without sufficient space and lack adequate laboratory facilities. About 100 offer science at the degree level, but their facilities are also totally inadequate. During the Plan, the aim would be to improve standards, especially in science, so that they become an effective base for producing graduates with a solid science bias.

At present, about 3.28 lakh students are on the roll of different colleges in Bangladesh and this is likely to go up to 5.00 lakh during the Plan period. Of this, 3.50 lakh would be for intermediate level and 1.50 lakh for degree level. The increased flow will be channelled to science, commerce and home management education. At intermediate level, academic facilities for science would be increased by 80 per cent, for commerce by 72 per cent and for home management by 483 per cent while for humanities it would be only 22 per cent (Table XIV-6). At the intermediate level, the additional requirements would be about 1,20,000 places; of that 53,100 places would be in science, 22,600 in humanities, 38,500 in commerce and 5,800 in home management education (Table XIV-6). Terminal year requirements of teachers for intermediate and degree level of education are 7,777 and 5,000 respectively (Tables XIV-6.1 and XIV-6.2).

At the degree level, attention would be given to places for science and home management with 111 per cent and 541 per cent increase respectively. Out of 52,000 new places, 20,480 would be for science, 19,782 for commerce, 10,472 for humanities, and 1,266 for home management (Table XIV-6).

At present, 4 Cadet Colleges altogether admit only about 300 students at higher secondary level. Students residing in their own homes would be admitted wherever possible to ensure proper and maximum utilisation of the facilities in these colleges. With proper rationalisation of the facilities, the Cadet Colleges would be able to accommodate about 1,000 day students at this level.

#### B. Objectives

The following objectives will be kept in view while drawing up the development programmes for the colleges :

- (i) To allow 52 per cent expansion in enrolment at the intermediate and degree levels;
- (ii) To restrict the expansion to science, commerce and home management education;



- (iii) To raise the percentage of enrolment of girl students from 8.5 to 14.0 ;
- (iv) To improve the standard of science teaching by providing better laboratory and staff facilities ;
- (v) To modify the programmes of "home economics" education by relating it to rural homes and home management needs.

### C. Programmes

The programmes for this sub-sector are as follows :

#### Intermediate Level

- (i) Ten new intermediate colleges would be established at district level each with 1,000 places to cater exclusively to science, commerce and home management education. Of that, half would be for science teaching (500) and the remaining would be shared by home management (200) and commerce education (300).
- (ii) A "science wing" comprising a complex of laboratories and class-rooms would be annexed to 100 existing intermediate colleges to accommodate 20,000 science students.
- (iii) Enrolment in science courses in the existing 200 intermediate colleges would be raised to 320 per college from the present number of 220 to accommodate 20,000 additional students. Rationalisation of the facilities will be achieved, and where required, laboratory, library and other ancillary facilities will be provided.
- (iv) "Home management wing" each with 120 places would be annexed to about 30 colleges to cover both the intermediate and degree level students.
- (v) Double shifts would be introduced in 100 selected colleges for 250 students in each for commerce and other courses.
- (vi) The facilities in the existing colleges would be consolidated and where possible, double shifts would be introduced to provide enrolment of additional 21,000 students in humanities, 13,000 in commerce and 10,000 in science.

#### Degree Level

- (vii) 100 degree colleges which now offer science instruction on an average of 180 students would be consolidated to attain economies of scale. The most economic size for a science wing appears to be 320 students. The programme will thus accommodate 14,000 additional students.
- (viii) Separate shifts would be introduced in the above 100 degree colleges, with 200 students in each shift to accommodate 20,000 commerce students.



- (ix) 40 intermediate colleges having science courses would be upgraded to accommodate 160 students each for 6,400 degree students.
- (x) The facilities at the existing degree colleges would be consolidated to accommodate the remaining students including those studying humanities.

A sum of Taka 24.7 crore which is about 7.60 per cent of the allocation to the education sector has been earmarked for development of college education during the First Five Year Plan (Table XIV-2). The private sector is expected to contribute Taka 2.717 crore in the form of land, materials and labour charges.



TABLE XIV-6  
College Education : Projected Enrolment

| Level and Discipline | ENROLMENT |                         |          |                         | Additional enrolment over the Plan period. | ENROLMENT |  |         |                         |         |                         |         |                         |         |                         |
|----------------------|-----------|-------------------------|----------|-------------------------|--|-----------|--|---------|-------------------------|---------|-------------------------|---------|-------------------------|---------|-------------------------|
|                      | 1972-73   |                         | 1977-78  |                         |  | Number    | Percentage increase over the Plan period | 1973-74 | Percentage distribution | 1974-75 | Percentage distribution | 1975-76 | Percentage distribution | 1976-77 | Percentage distribution |
|                      | Number    | Percentage distribution | Number   | Percentage distribution |  |           |  |         |                         |         |                         |         |                         |         |                         |
|                      |           |                         |          |                         |  |           |  |         |                         |         |                         |         |                         |         |                         |
| 1                    | 2         | 3                       | 4        | 5                       | 6  | 7         | 8  | 9       | 10                      | 11      | 12                      | 13      | 14                      | 15      |                         |
| Intermediate ...     | 2,30,000  | 100                     | 3,50,000 | 100                     | 1,20,000                                   | 52        | 2,48,000                                 | 100     | 2,69,000                | 100     | 2,93,000                | 100     | 3,20,000                | 100     |                         |
| Humanities ...       | 1,05,400  | 45.8                    | 1,28,000 | 36.6                    | 22,600                                     | 22        | 1,08,180                                 | 43.6    | 1,13,190                | 42.1    | 1,16,080                | 39.6    | 1,21,860                | 38.1    |                         |
| Science ...          | 65,900    | 28.7                    | 1,19,000 | 34.0                    | 53,100                                     | 80        | 74,058                                   | 29.9    | 82,875                  | 30.8    | 94,530                  | 32.3    | 1,06,379                | 33.2    |                         |
| Commerce ...         | 57,500    | 25.0                    | 96,000   | 27.4                    | 38,500                                     | 72        | 63,778                                   | 25.7    | 70,100                  | 26.1    | 78,288                  | 26.7    | 86,174                  | 26.9    |                         |
| Home Management ...  | 1,200     | 0.5                     | 7,000    | 2.0                     | 5,800                                      | 483       | 1,984                                    | 0.8     | 2,835                   | 1.0     | 4,102                   | 1.4     | 5,587                   | 1.8     |                         |
| Degree Pass          | 98,000    | 100                     | 1,50,000 | 100                     | 52,000                                     | 53        | 1,05,000                                 | 100     | 1,14,000                | 100     | 1,25,000                | 100     | 1,37,000                | 100     |                         |
| Humanities ...       | 49,528    | 50.6                    | 60,000   | 40.0                    | 10,472                                     | 20        | 50,490                                   | 48.1    | 51,920                  | 45.5    | 54,605                  | 43.7    | 56,910                  | 41.5    |                         |
| Science ...          | 17,830    | 18.2                    | 38,310   | 25.5                    | 20,480                                     | 111       | 20,772                                   | 19.8    | 24,303                  | 21.3    | 28,465                  | 22.8    | 33,509                  | 24.5    |                         |
| Commerce ...         | 30,408    | 31.0                    | 50,190   | 33.5                    | 19,782                                     | 67        | 33,270                                   | 31.7    | 37,124                  | 32.6    | 41,055                  | 32.8    | 45,322                  | 33.1    |                         |
| Home Management      | 234       | 0.2                     | 1,500    | 1.0                     | 1,266                                      | 541       | 468                                      | 0.4     | 653                     | 0.6     | 875                     | 0.7     | 1,259                   | 0.9     |                         |



TABLE XIV-6.1

## College Education : Requirement of Teachers for Intermediate Level

| Item  | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 |
|---|---------|---------|---------|---------|---------|
| Stock at the beginning of the year ... ..         | 5,111   | 5,511   | 5,977   | 6,511   | 7,111   |
| Wastage @ 2% due to death, retirement & migration | 102     | 110     | 120     | 130     | 142     |
| Net stock ... ..                                  | 5,009   | 5,401   | 5,857   | 6,381   | 6,969   |
| Fresh entry ... ..                                | 502     | 576     | 654     | 730     | 808     |
| Total stock at the end of the year ... ..         | 5,511   | 5,977   | 6,511   | 7,111   | 7,777   |

TABLE XIV-6.2

## College Education : Requirement of Teachers for Degree Level

| Item  | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 |
|---|---------|---------|---------|---------|---------|
| Stock at the beginning of the year ... ..         | 3,266   | 3,500   | 3,800   | 4,166   | 4,566   |
| Wastage @ 2% due to death, retirement & migration | 65      | 70      | 76      | 83      | 91      |
| Net stock ... ..                                  | 3,201   | 3,430   | 3,724   | 4,083   | 4,475   |
| Fresh entry ... ..                                | 299     | 370     | 442     | 483     | 525     |
| Total stock at the end of the year ... ..         | 3,500   | 3,800   | 4,166   | 4,566   | 5,000   |

## 14.1.7 Technical and Vocational Education

## A. Introduction

Technical and vocational education facilitates economic development by providing required skills to the new entrants and to the current labour force. The effectiveness of the training is reflected through the trainees' capacity to use their required skill and also in their ability to adopt innovations that foster productivity and growth. Therefore, technical education should be fully co-ordinated with the development programmes and related with the demands generated by broadened access to primary and secondary education.

The limited capacity of the formal training system has resulted in a shortage of intermediate level technicians and craftsmen. As a consequence many school leavers regardless of their training or subject specialisation, were absorbed in technical jobs. Further, due to inefficiencies in labour recruitment, imbalances in the supply of and demand for various kinds of technical personnel have occurred. But the demand for technicians and skilled workers continues to be high. The requirements of technicians, skilled workers, artisans and craftsmen during the Plan have been estimated to be about 75,000. Most of them will be for the agriculture and water sector as pump drivers, tractor drivers and mechanics. Transport, construction, telecommunications and waterways would also need many trained workers.



Evidence of unemployment among technicians has been observed for some time. There are various reasons for such unemployment. Apparently they do not find the salary sufficiently attractive or the work conditions commensurate with their level of training. The employers, on the other hand, do not consider them properly qualified to handle practical problems.

For producing intermediate level technicians and skilled workers, the programmes of technical education, administered by the Directorate of Technical Education, would be co-ordinated fully with the training programme of the Directorate of Public Instruction and the Directorate of Labour. Such co-ordination will help reduce the costs of training. Instruction on double shifts wherever possible, specially in Polytechnic and Monotechnic Institutes, will increase the output of these institutions.

For the acceleration of science and technical education, production of scientific and technical materials within the country will have to be encouraged. The Educational Equipment Development Bureau now functioning under the Directorate of Technical Education has been producing laboratory materials for science and technological education which can be multiplied in great numbers within the country. The Educational Equipment Bureau would be strengthened and made autonomous, and their programmes would be rationalised in consultation with the related industries to meet the new needs.

In many countries, the responsibility of technical training in the form of on-the-job training and apprenticeship is entrusted to the industries in preference to the technical institutions mainly on the argument that the training in the technical institutions is not often geared to the specific needs of the industries. Bangladesh is peculiarly disadvantaged in this regard. Our industries are so few in number, limited in size and inadequate in facilities that it would not be possible for them to undertake this responsibility. Nor would the existing training institutions, despite their updatedness in equipment and in teaching materials, be able to keep pace with the rapid change of technology in the operative industries.

The obvious way to meet the situation would be to organize technical training on a co-operative basis between the operative industries and the training institutions. While the training institutions can take care of the major component of the curricula, the industries can impart at least a part of the practical training. In order to be successful, this arrangement has to be planned and formulated in respect of each institution and for each level of training. To achieve such an objective, the Planning Commission proposes formation of a high powered committee consisting of representatives from the Planning Commission and the Ministries of Education, Labour and Industries, as well as representatives of employers, who would devise the necessary functional mechanism. These representatives must be senior persons with experience in actual training and production management. This Committee would also suggest a mechanism for co-ordinating the training programmes of the various ministries referred to earlier.

#### B. Objectives

The following objectives will be kept in view while adopting development programmes in the field of technical education :

- (i) Technical education will be geared to the skill requirements of the country. Efforts will be made to attain self-sufficiency in essential skills required for industry, commerce and modern agriculture within 10 years;



- (ii) The annual output of graduate engineers will be increased by about 300 per cent so as to satisfy the requirements of engineers for the plan period.
- (iii) The facilities for the production of intermediate level technologists will be expanded by 38 per cent, and those of accountants and secretaries by 113 per cent.
- (iv) The facilities for the production of skilled workers will be expanded on a mass scale *i.e.* by about 1,860 per cent, to satisfy the immediate needs of the economy.
- (v) An optimum use of all instructional facilities will be effected.
- (vi) Student enrolment at the degree level will be raised by 125 per cent, at the diploma level (technical) by 35 per cent, at the diploma level (commerce) by 105 per cent and at the vocational level (skilled workers) by 710 per cent (Table XIV-7). The annual output at the end of the plan period will be 560 graduates at the degree level, 3,862 technicians at the diploma (technical) level, 2,200 technicians at the diploma (commerce) level and about 30,000 skilled workers at the certificate level.
- (vii) To facilitate the proposed expansion, the requirement of new teachers will increase by 89 per cent at the degree level, 19 per cent at the diploma (technical) level, 105 per cent at the diploma (commerce) level and by about 333 per cent at the certificate level. Teachers' training programmes will accordingly be strengthened.

### C. Programmes

The development programmes in the field of technical education are detailed below :

#### 1. Degree Level Engineers

- (i) All development and expansion work of the three Engineering Colleges at Rajshahi, Chittagong and Khulna will be completed.
- (ii) Residential accommodation will be created for 1,216 additional places to accommodate 80 per cent of the student population.

#### 2. Diploma Level Technicians

- (i) Four new Polytechnic Institutes with 1,500 student places will be established.
- (ii) Six existing Technical Institutes will be upgraded into Polytechnic Institutes.
- (iii) Fourteen existing Polytechnic Institutes will be consolidated and completed.
- (iv) Residential accommodation will be created for additional 3,080 places to cover 80 per cent of the enrolment; the total facility will be for 11,800 students.

#### 3. Diploma Level Commerce

- (i) Ten new Commercial Institutes will be established in major commercial areas and will enrol 2,000 additional students by 1978.
- (ii) Existing 16 Commercial Institutes will be consolidated and completed.
- (iii) The existing 16 Commercial Institutes will gradually introduce courses in Bengali Shorthand and Typewriting, while 10 new institutes will offer courses exclusively in Bengali Shorthand and Typewriting.

#### 4. Certificate Level Skilled Workers

- (i) One hundred and twelve Vocational Training Institutes with 22,400 total places will be established in areas where the need for skilled workers is evident.
- (ii) Twelve of these institutes will be set aside for disabled freedom fighters, and special programmes will be devised for their rehabilitation.



- (iii) The new institutes will be so coordinated with the secondary schools that the facilities available at these institutes can also be used by students enrolled in the secondary schools. The new institutes will also be developed in close coordination with the community workshops, so that there can be common instructional facilities wherever possible.
- (iv) Existing 22 Vocational Institutes will be consolidated and completed.
- (v) Thirteen Vocational Institutes already under construction will be completed.
- (vi) Three existing Monotechnics functioning under Directorate of Technical Education in glass and ceramics, textiles and leather technology will be expanded.

#### 5. Training of Technical Teachers.

- (i) Programmes for the training of teachers will be initiated in keeping with the needs of increased enrolment and of the newly established vocational institutes.
- (ii) In-service training programmes now provided by the Institute of Advancement of Science and Technology teaching will be strengthened.

TABLE XIV-7

#### Technical Education : Targets and Requirement of Additional Facilities

| Level                        | Position in<br>June, 1973 |        | Position in<br>June, 1978 |        | Addi-<br>tional<br>Places | Percentage<br>increase |        |     |      |
|------------------------------|---------------------------|--------|---------------------------|--------|---------------------------|------------------------|--------|-----|------|
|                              | Capa-<br>city             | Output | Capa-<br>city             | Output |                           | Enrol-<br>ment         | Output |     |      |
| <b>Degree :</b>              |                           |        |                           |        |                           |                        |        |     |      |
| Engineers                    | ...                       | ...    | 1,220                     | 140    | 2,740                     | 560                    | 1,520  | 125 | 300  |
| Student accommodation        |                           |        | 976                       |        | 2,192                     |                        | 1,216  | 125 |      |
| Teachers                     | ...                       | ...    | 95                        |        | 180                       |                        | 85     | 89  |      |
| <b>Diploma :</b>             |                           |        |                           |        |                           |                        |        |     |      |
| Technicians                  | ...                       | ...    | 10,900                    | 2,796  | 14,740                    | 3,862                  | 3,840  | 35  | 38   |
| Student accommodation        |                           |        | 8,720                     |        | 11,800                    |                        | 3,080  | 35  |      |
| Teachers                     | ...                       | ...    | 827                       |        | 985                       |                        | 158    | 19  |      |
| <b>Commercial :</b>          |                           |        |                           |        |                           |                        |        |     |      |
| Accountants and Secretariats |                           |        | 2,550                     | 1,030  | 5,230                     | 2,200                  | 2,680  | 105 | 113  |
| Teachers                     | ...                       | ...    | 127                       |        | 261                       |                        |        | 105 |      |
| <b>Vocational :</b>          |                           |        |                           |        |                           |                        |        |     |      |
| Skilled workers              | ...                       |        | 3,700                     | 1,530  | 30,000                    | 30,000                 | 26,300 | 710 | 1860 |
| Teachers                     | ...                       | ...    | 300                       |        | 1,300                     |                        | 1,000  | 333 |      |



TABLE XIV-7.1  
Technical Education : Teacher Requirement

| Year & Level         | Stock at the beginning of the year | Wastage @4% due to death, migrations, etc. | Net stock | Fresh Entry | Stock at the end of the year |
|----------------------|------------------------------------|--|-----------|-------------|------------------------------|
| <b>1973-74</b>       |                                    |  |           |             |                              |
| Degree               | 95                                 | 4  | 91        | 5           | 96                           |
| Diploma (Technician) | 827                                | 33   | 794       | 33          | 827                          |
| Commercial           | 127                                | 5  | 122       | 30          | 152                          |
| Vocational           | 300                                | 12   | 288       | 212         | 500                          |
| <b>1974-75</b>       |                                    |  |           |             |                              |
| Degree               | 96                                 | 4  | 92        | 20          | 112                          |
| Diploma (Technician) | 827                                | 33   | 794       | 33          | 827                          |
| Commercial           | 152                                | 6  | 146       | 31          | 177                          |
| Vocational           | 500                                | 20   | 480       | 220         | 700                          |
| <b>1975-76</b>       |                                    |  |           |             |                              |
| Degree               | 112                                | 4  | 108       | 24          | 132                          |
| Diploma (Technician) | 827                                | 33   | 794       | 76          | 870                          |
| Commercial           | 177                                | 7  | 170       | 35          | 205                          |
| Vocational           | 700                                | 28   | 672       | 228         | 900                          |
| <b>1976-77</b>       |                                    |  |           |             |                              |
| Degree               | 132                                | 5  | 127       | 29          | 156                          |
| Diploma (Technician) | 870                                | 35   | 835       | 88          | 923                          |
| Commercial           | 205                                | 8  | 197       | 35          | 232                          |
| Vocational           | 900                                | 36   | 864       | 236         | 1,100                        |
| <b>1977-78</b>       |                                    |  |           |             |                              |
| Degree               | 156                                | 6  | 150       | 33          | 183                          |
| Diploma (Technician) | 923                                | 37   | 886       | 99          | 985                          |
| Commercial           | 232                                | 9  | 223       | 38          | 261                          |
| Vocational           | 1,100                              | 44   | 1,056     | 244         | 1,300                        |

A sum of Tk. 50.00 crore constituting 15.5 per cent of the total allocation of the Education Sector has been earmarked for technical education during the First Five Year Plan. Private sector will be expected to donate land and also some labour and materials for reconstruction of community workshops and vocational institutes. The value of this contribution is expected to be Tk. 3.164 crore.

#### 14.1.8. University Education

##### A. Introduction

While fostering the growth of university education in the country, no conscious attempts were made in the past to co-ordinate their activities in determining the courses of studies and student enrolment in terms of high level manpower requirements. Notwithstanding the allocation of comparatively large sums of money during the last decade, the universities had not succeeded in significantly raising the standards of education and research. Several factors were responsible for this. First, even during the period of British colonial rule, the universities and other institutions of higher learning were centres of protest against



foreign domination and oppression. During the last decade the university students and teachers were held in distrust by the ruling circles of Pakistan because of their undisguised opposition to anti-democratic, authoritarian and illiberal policies followed in the country. The universities were continuously subjected to all kinds of pressures to prohibit free thinking and discussion of the relevant issues of the day. The various attempts at denying academic freedom to these institutions slowly led to a situation where these could no more hope to grow as centres of excellence.

Second, the tremendous pressure of admission into the universities generated by a large number of college leavers with High School Certificates and B. A. & B. Sc. (Pass) degrees with no other opportunities of acquiring a useful skill or employment, made it impossible on the part of the university authorities to limit the number of the university entrants. Many of these students did not have sufficient interest in the subjects they were supposed to study nor did they possess sufficiently high academic background to follow a rigorous course of studies. Their presence in the class-rooms and the laboratories prevented both teachers and the brighter students from making full use of the facilities. Moreover, expansion of student population took place at such a rapid pace that it was not often possible for the universities to recruit highly qualified teachers in adequate numbers or make enough provisions for advanced training for university teachers as a result of which courses had to be given by teachers who did not possess any research experience or advanced training in any field. Teachers were left with very little time for any research because of heavy teaching load.

Third, the teacher-student ratio also fell below 1 : 20 and in many arts subjects it went beyond 1 : 40 or so. This made it impossible for the teachers to organise tutorial classes or pay adequate attention to their students' problems in lecture rooms and laboratories. They could establish very little personal contact with their students outside class-rooms. Lack of any opportunity to enter into serious discussions on the academic problems prevented the students from developing a genuine interest in their subjects. It also did not help the teachers to keep alive their own interests through seminars, discussions, or research activities.

Fourth, the development programmes of the universities in the past primarily related to building modern structures with expensive building materials. The construction programmes for aesthetically satisfying structures have not always led to economising on materials and space. Consequently, larger portion of development expenditure went on bricks and mortars rather than larger faculty, advanced training facilities for faculty members or research. In several disciplines such as physics, chemistry and economics an insufficient number of able scholars was available in the country to establish post-graduate schools exclusively for imparting advanced training up to doctorate level. Necessary facilities were not created because neither the universities nor the Government showed sufficient interest in such ventures.

Development of University education in Bangladesh should not be confined within the limits of well defined campuses. We should throw open the doors of higher education to all those who wish to broaden their intellectual horizon without having to go through the traditional routine of lectures, tutorials at certain fixed hours of the day and also in certain months of the year. Lectures over radio and television by recognised authorities,



correspondence courses and tutorials by groups of teachers specially appointed for these purposes should be provided. These will help the universities to distinguish those who join the university to get a degree in the hope that such a degree, whatever their preference or performance may be, will open the doors of employment which are otherwise closed to them, from those who come to acquire specialised knowledge. If higher education is not to remain as a preserve of those who have the necessary funds and time to throng the corridors of the university, the innovative measures suggested above will have to be considered.

An urgent need in the field of higher education is the strengthening of post-graduate studies and research and channelling the limited resources effectively for this purpose. The University Grants Commission will draw up schemes in consultation with universities to establish Institutes/Advanced Centres for training and research in certain selected fields. The schemes should aim at encouraging the pursuit of excellence and team work in studies and research and achieve realization of international standards in specific fields. With these objectives in view, it is proposed to make separate allocation of funds for development of Institutes/Advanced Centres in the universities and put it at the disposal of the University Grants Commission.

The allocation for university education is Taka 35.00 crore including Taka 3.5 crore for post-graduate studies and research and a College of Agriculture at Dinajpur attached to Rajshahi University (Table XIV-2). The allocation represents 11 per cent of the sectoral allocation. The universities at present have about 0.30 per cent of the total student enrolment and as the relatively high allocation reflects the attention paid to the sub-sector for continuance of opportunities and maintenance of standards of higher education. The magnitude of expansion of university education in Bangladesh has to be determined within the context of availability of resources for the current Plan. Within such constraints, attempts will be made to reach economies of scale but not at the sacrifice of standards.

#### **B. Objectives**

The following objectives have been kept in mind while formulating the pattern of development of university education in the country during the First Plan:

- (i) To allow growth in enrolment in the older universities which can admit students without embarking on a large scale building programme for providing residential accommodation to the staff and students.
- (ii) To facilitate development of the new universities so as to enable them to reach the desired size within the First Plan.
- (iii) To encourage the technical universities to develop their full potential so that they can meet the high level technological manpower needs of the country.
- (iv) To set up new affiliating universities which will prepare syllabi, courses of studies and conduct examinations of the colleges under them. This is necessary to help the existing universities to grow as centres of excellence through revision of syllabi and courses of studies, introduction of new teaching methods and admission of only such students who can cope with high standards of education in the universities.



- (v) To increase enrolment by about 13 per cent per annum. The total increases would be 64 per cent over the Plan period. In absolute terms, it would mean an increase from a base of 23,726 to 39,000 (Table XIV-8).
- (vi) To follow 3 basic principles while expanding enrolment in various disciplines:
  - accelerated expansion of under-graduate and post-graduate levels in science and technological fields ;
  - normal growth in disciplines where manpower demands are relatively moderate;
  - maintenance of existing enrolment levels in disciplines where surpluses are evident.
- (vii) To narrow the gap between science and arts students by raising the ratio of student population to 37 : 63 from existing 32 : 68 by the end of the Plan period.
- (viii) To meet the existing critical shortage of science and science based manpower. The under-graduate programmes of the universities (and in colleges where such courses are offered) would pay attention to these requirements as expeditiously as possible. A major share of the financial allocation for the universities would be directed to this end. With the expansion programme now envisaged, it would be possible to meet the demand for science-graduates by 1985.

### C. Programmes

The Plan target for university education is detailed below :

- (i) In four general universities enrolment will be increased by 71 per cent from 19,300 in 1972 to 33,000 in 1978 (Table XIV-8).
- (ii) Of the additional 13,700 student places, at least 43 per cent *i.e.* 5,900 places will be created for science subjects in order to reach a ratio of 37:63 between science and humanities by 1978, compared to 32:68 of 1972.
- (iii) Enrolment in science will increase by about 94 per cent while that in humanities will be increased by 60 per cent.
- (iv) For Engineering University, the projected increase in enrolment is 28 per cent *i.e.* from 1,944 to 2,500 ; this excludes enrolment in the Engineering Colleges.
- (v) Engineering University will devote greater attention to post-graduate studies and research.
- (vi) In the Agricultural University, enrolment will be increased by 40 per cent *i.e.* from 2,500 to 3,500. Of the additional enrolment, 50 per cent will be for agricultural extension and rural programmes.
- (vii) The number of university teachers will increase by 75 per cent and would reach the target of 2,453 in 1978 from 1,403 in 1972.



(viii) Three hundred fellowships will be arranged for advanced training of the faculty members.

(ix) The ratio of resident and non-resident students will be raised from the existing 40:60 to 50:50. Preference will be given to students taking science and technological courses in allotting residential accommodation.

New schools for post-graduate studies and research have been proposed by various universities. The following are considered to be of special significance for Bangladesh :

|                          |   |
|--------------------------|---|
| Dacca University         | : Institute of Social Science, and Institute of Natural Science |
| Chittagong University    | : Institute of Atmospheric Studies and Oceanography             |
| Rajshahi University      | : Institute of Bangladesh Studies                               |
| Jahangirnagar University | : Institute of Rural Studies                                    |
| Engineering University   | : Institute of Flood Control                                    |

As mentioned earlier, the University Grants Commission will consider these proposals and schemes will be formulated in consultation with the Universities. The proposal to create a College of Agriculture at Dinajpur attached to the University of Rajshahi will also be examined by the University Grants Commission. A separate allocation of Taka 50.00 lakh has been made for the purpose.



TABLE XIV-8  
University Education : Projected Enrolment and Requirement of Teachers

| Universities             | Enrolment : 1972-73 |         |               | Enrolment : 1977-78 |         |               | Percentage increase |                          | No. of teachers 1972-73 |                          | No. of teachers 1977-78 |                          | Percentage increase |                          |       |     |     |     |
|--------------------------|---------------------|---------|---------------|---------------------|---------|---------------|---------------------|--------------------------|-------------------------|--------------------------|-------------------------|--------------------------|---------------------|--------------------------|-------|-----|-----|-----|
|                          | Total               | Science | Arts & others | Total               | Science | Arts & others | Total               | Sci. Arts & encc. others | Total                   | Sci. Arts & encc. others | Total                   | Sci. Arts & encc. others | Total               | Sci. Arts & encc. others |       |     |     |     |
| Dacca University         | 10,084              | 2,925   | 7,159         | 15,000              | 5,000   | 10,000        | 49                  | 71                       | 40                      | 454                      | 210                     | 244                      | 833                 | 333                      | 500   | 83  | 59  | 105 |
| Rajshahi University      | 6,624               | 2,568   | 4,056         | 10,000              | 4,000   | 6,000         | 51                  | 56                       | 48                      | 280                      | 126                     | 154                      | 567                 | 267                      | 300   | 102 | 112 | 95  |
| Chittagong University... | 2,174               | 501     | 1,673         | 5,000               | 2,000   | 3,000         | 130                 | 299                      | 79                      | 160                      | 46                      | 114                      | 283                 | 133                      | 150   | 77  | 189 | 32  |
| Jahangirnagar University | 405                 | 283     | 122           | 3,000               | 1,200   | 1,800         | 641                 | 324                      | 1,375                   | 44                       | 30                      | 14                       | 170                 | 80                       | 90    | 286 | 166 | 543 |
| Sub-Total                | 19,287              | 6,277   | 13,010        | 33,000              | 12,200  | 20,800        | 71                  | 94                       | 60                      | 938                      | 412                     | 526                      | 1,853               | 813                      | 1,040 | 98  | 97  | 98  |
| Engineering University   | 1,944               | ...     | ...           | 2,500               | ...     | ...           | 28                  | ...                      | ...                     | 197                      | ...                     | ...                      | 250                 | ...                      | ...   | 27  | ... | ... |
| Agricultural University  | 2,495               | ...     | ...           | 3,500               | ...     | ...           | 40                  | ...                      | ...                     | 268                      | ...                     | ...                      | 350                 | ...                      | ...   | 31  | ... | ... |
| Total                    | 23,726              | ...     | ...           | 39,000              | ...     | ...           | 64                  | ...                      | ...                     | 1,403                    | ...                     | ...                      | 2,433               | ...                      | ...   | 75  | ... | ... |



#### 14.1.9 Female Education

Investment in the education of women provides a wide range of private and social benefits. Their contribution towards rearing of children and management of household economy is significant. The level of schooling of women determines the efficiency of household management. Educated women pay greater attention to nutrition, health and childcare than the uneducated one. Further higher schooling of women offers substantial social benefits in respect of (a) the quality of educational and social preparation provided to the children, (b) the willingness as well as the necessity to raise the age of marriage of girls<sup>1</sup> (c) the ability of women to comprehend and accept family planning techniques, (d) the upliftment of the status of women, and (e) the competence of women to perform productive functions outside their homes. An effective participation of women in the development of the country can be ensured only by putting them to suitable productive work. Women of our society must acquire a sense of equality with men which can be promoted by providing equal opportunities, including that of education to men and women alike.

While the women in our country constitute half the nation's total population, the incidence of their illiteracy is much higher than that of the male population. The percentage of female students in the total student population is extremely low (28.5) at different levels and stages of education. At the primary stage, out of 60.00 lakh students, only 20.00 lakh (33 per cent) are girls. At the secondary level, the number of girl students is only 2.72 lakh (16 per cent) out of a total of 17.00 lakh. At the higher education level the percentage of female students is not more than 8. Social motivation for participation of girls in education is extremely poor and the rate of drop-out is alarmingly high. No programme for universal primary education during the First Five Year Plan and lower secondary education by the Second Five Year Plan will be possible unless the retention of girls in the educational institutions is increased substantially through incentives and motivations. In the First Five Year Plan, maximum priority has been accorded to female education at all levels.

The following measures are suggested to encourage increased participation of women in education :

- (i) All the primary schools will be gradually staffed with female teachers with requisite qualifications and training. Initially, however, female teachers with lower educational qualifications may be appointed to teach in the lower classes.
- (ii) Educated village women will be persuaded and induced to teach on a part-time basis those girls who would not go for formal education in schools. Instructions in such informal classes will mainly be on the three R's and the common house-

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*Note 1 :* In the rural areas of Bangladesh the peasants want to marry off their daughters soon after they attain puberty. This can be discouraged if the girls attend schools and thereby keep themselves engaged for some length of time even after attaining puberty. This will automatically shorten their effective reproductive age and thus curtail the number of births, having a direct impact on the growth of population.



hold skills, such as sewing, embroidery, cooking, food preservation, etc. Syllabi for such instructions will be framed by a committee under the aegis of the Bangladesh Academy for Rural Development (BARD). Management of this education will be the responsibility of the local government bodies.

(iii) Women should not necessarily confine themselves within home management subjects; they will also be welcome in science, commerce, vocational and technical subjects. Their active participation in these fields will definitely add to the economy of the country.

(iv) Co-operation of women's organisations, urban and rural community development organisations and other social humanitarian workers would be sought to accelerate female education in the country.

#### 14.1.10 Non-Formal Education

##### A. Introduction

Non-formal education refers to any organised learning activity outside the graded, age-specific and certificate-oriented formal system. A non-formal programme offers a diversity of learning activity prepared to meet a diverse clientele with different objectives and at all ages. It may take various forms such as literacy programme for adults and youths, health education, nutrition and family planning programmes, occupational skill training for youths and adults, youth clubs with sustained educational activities. It is designed to complement, follow up and/or substitute the formal instructional programme. Another feature is that it is usually inexpensive and based on local initiative.

Interest in non-formal education has been generated mainly from the recognition that the formal educational system, however strong and adequately financed, would be eventually incapable of meeting the total demands for education and would cover a limited part of the learning system, while non-formal education will be intensified to meet the gap in the education process as a whole. Despite lack of coherent and well organised programme, non-formal education is attracting increasing attention of the developing countries. Non-conventional educational programmes are being organised mostly for farmers' training, agricultural extension, training of entrepreneurs, rural artisans and craftsmen. These include multi-purpose programmes for out-of-school youths and educational activities for family and community lives.

There are various modes of non-formal education. Two essential components of non-formal education are (i) the programme has been planned to fit the unique need, characteristic and interest of the locality, and (ii) the programme has been planned by local people in contrast to the formal system where the responsibility of planning and execution rests primarily on the central authority. Adaptability, variety and creativity are the main criteria of non-formal education. Non-formal education may be supported by various ministries and departments. In addition, grants from local bodies, private organisations, volunteer agencies, individuals and earning from services and products produced by trainees, etc. can be used for supporting non-formal education.



In Bangladesh, non-formal education is now in its infancy but can play a bigger role in view of the inadequacy of the existing institutions and the high costs of running a conventional school system. During the Plan we envisage that 73 per cent of the children of the primary age-group, 24 per cent of the secondary age-group and about 0.1 per cent of the adults will be undertaking instruction in the formal system. If the remaining are to receive any education or training at all this can only be imparted through a well-organised non-formal system.

Non-formal education in order to be successful should be planned at the local level and the steps involved in such planning are to : (i) diagnose the socio-economic context, (ii) identify priorities, (iii) define objectives for each programme, (iv) determine the impact, advantages, cost and disadvantages of such training programme, (v) identify the clientele, and the training group, (vi) design the training in relation to the existing educational and developmental activities and (vii) use in most cases the training facilities available in the locality. To assist such local level planning, a committee for non-formal education comprising representatives from the Ministries of Planning, Education, Rural Development and Co-operatives and Local Government will be set up under the auspices of the Bangladesh Academy for Rural Development. This committee will identify priorities at regional level and will determine the mechanism for such education. The Integrated Rural Development Programme (IRDP) would be the vehicle of non-formal education.

The thrust for non-formal educational activities would be in three directions:

- (i) Provision of skills to out-of-school youths and adults; this has been elaborated in connection with the programmes of secondary and vocational education;
- (ii) Spread of mass education and functional literacy; and
- (iii) Education related to development needs through the extensive use of educational technology.

#### *B. Functional Literacy*

The major component of an adult literacy programme is functional literacy which should be consistent with our priorities and production needs. Although contribution of functional literacy to production and growth has been proven, yet no uniform method, structure or technique to educate the masses has been evolved. Different countries are experimenting with different methods and even within a single country various methods are being tried. In Bangladesh several experimental projects are being carried on in the districts of Sylhet, Comilla, Chittagong and Rajshahi. In fact, a successful programme of mass education requires diverse form and content to suit the needs of different age-groups, sex, interest, employment and region.

Techniques for implementing mass education programmes vary. Teaching methods require adaptation to meet the psychology and habits of the adults accustomed to different ways of life and employment. Techniques for creating motivation are dependent on qualified teachers, volunteers, non-conventional means of communication and use of educational technologies like radio, television and newspapers. Local participation and generation of local leadership are dependent on the existence and functioning of the local government institutions, co-operatives, trade unions, local societies, industrial firms, youth workers, women organisations, religious



associations, voluntary agencies and local education authorities. The focus also varies with the need and availability of finance. Usually, priorities are adjusted in favour of an age-group that is engaged or about to be engaged in production.

The organisation of functional literacy for attaining mass education is a stupendous task. Most of the developing countries which have undertaken such programmes have not always succeeded in translating the objectives into meaningful operational programmes. Many of them have tried to teach the adults in the same manner as the children, which is obviously unworkable. The task requires imaginative planning, coordination and participation by all development agencies functioning at the grass-root level. In most of the countries such programmes are undertaken by the Ministry of Education in cooperation with other agencies, while in some countries Ministries dealing with rural institutions carry on such programmes. In our country, such programmes, to be successful, should be developed jointly by the Ministries of Education and Rural Development. Utmost attention will be paid to the spread of mass education during the Plan and necessary funds will be provided to achieve the targets.

### C. *Educational Technology*

Educational technology is a systematic process to use personnel, materials and equipment to disseminate knowledge. In Bangladesh, the concept so far has been limited to the provision and use of audio-visual aids, films, charts and text books. The use of educational technology in a wider sense, with radio, television and newspaper, has not been successfully explored.

The communication media specially radio and television while used as an integral part of the education and training system, is most effective in introduction of new curricula, improvement of the teaching ability of teachers and in most efficient use of the limited stock of able teachers. The concept can be more meaningfully applied in Bangladesh where trained and educated teachers are short in supply, curricula are ill-adapted to life, equipment is lacking, teaching aids are rare, contemporary teaching methods are unknown, most of the adults are illiterate, drop-out rate is high, quality of instruction is poor and teacher-pupil ratio is low. It is difficult to increase teacher training facilities due to lack of required manpower and financial resources. Further retraining of the entire teaching force is costly, it dislocates normal functioning of the schools and offers no guarantee that newly acquired knowledge would be applied during teaching. To meet such constraints instructional television and radio offer the best possible advantage. However, it is necessary that the best teachers are used for such instruction, maximum students are reached and teachers are retrained simultaneously with the education of students.

Television is usually expensive but in our country, the density of population offers a rare opportunity for the use of television for instructional purposes. Since plans are being made to cover the whole of Bangladesh by the television network, the instructional television requires extra funding only for preparation of educational programmes and for distribution of television sets. The cost of such a programme would be less than five paise per-pupil-day now and would be even less than 0.20 per cent of the total development expenditure on education, when the entire net-work is completed. It will also enhance the efficiency of the instructional system and economize on the cost of training of teachers and production of text books.

The communication media would also provide extensive programmes for population education, family planning, health, sanitation and agricultural extension.



#### D. Programmes

The following programmes will be undertaken during the Plan for non-formal education :

- (i) "People's Schools" would operate in each district during vacations and slack seasons to impart useful skills to the youths and adults of the rural areas of Bangladesh. Physical facilities already exist in some rural areas, e. g. in sugar mills, Government farms, experimental research centres, ADC farms and workshops, etc., which are not utilised throughout the year. These facilities will be used during slack periods for imparting training in crop technology, accounting, farm mechanics and processing of farms products, etc. The training content and the mechanism of training will be determined in consultation with local governments and the relevant agencies. The same committee on non-formal education referred to earlier will be responsible for organising the programmes.
- (ii) "Youth Camps" will be organised in the rural areas in appropriate seasons for the students and other young people to enable them to take part in the local development efforts through manual work.
- (iii) "Literacy Schools" will be established, and these will be attached to the 500 colleges now functioning within Bangladesh. The "schools" will be the centres of community service to be rendered by the college students, and teaching in such schools will form a regular component of their academic programme.
- (iv) "Women's Education Centres" will be set up for imparting education in family planning, farm and home management and other related matters to the rural women.
- (v) The existing "Youth and Cultural Centres" will be given increasing support.
- (vi) "Feeder Schools" will be established and given due encouragement.
- (vii) "Non-formal Vocational Training Centres" will be established by the industries. Some industries in Bangladesh have already adopted the programme, while some others have expressed considerable interest in it. The training effort will be concentrated in major industrial regions and in rural areas covered by IRDP. They will provide training to the workers and technicians for the textiles, agro-business, electrical, mechanical, building, automobile and oil industries, and the trainees will be drawn mostly from out-of-school-youth.
- (viii) "Workers' Schools" will be organised by the mills, the factories, and the industries.
- (ix) Radio and television broadcasting will be adopted as a basic teaching tool, and in co-ordination with text books and printed materials it will be widely used to impart knowledge through both formal and non-formal system.

A sum of Taka 40.60 crore comprising 10.42 per cent of the Plan allocation has been earmarked for meeting the expenditures under non-formal programmes (Table XIV-2). Since non-formal education is expected to be organised and implemented mostly by the local authorities and the private sector, the contribution from the participating community has been estimated at 50 per cent of the costs.



#### 14.1.11 Other Educational Activities

##### *A. Physical Education and Sports*

Physical education is an essential element for the development of health, team spirit and leadership qualities of an individual. Facilities for such programmes in our educational system are not properly organised and need strengthening. During the Plan, emphasis would be given on the development of indigenous and traditional sports and games. Coaching centres will also be created for national games and sports.

A sum of Taka 5.00 crore has been earmarked (Table XIV-2) for development of sports, recreation and physical education in the country and to strengthen the activities of the National Sports Control Board for men and women.

##### *B. Library*

Development of library facilities will form an important component of our education programmes. Efficient library service will be designed to supplement all stages and levels of education. Library facilities are at present grossly inadequate and ill organised. The reading habits among the members of the public including students are declining due to the non-availability of books and periodicals in sufficient numbers. New programmes will ensure reorganisation and remodelling of the existing libraries and setting up of new ones in areas where such facilities are needed. School and college libraries will be improved. Mobile libraries will be introduced on an experimental basis. A sum of Taka 2.50 crore has been allocated for development of libraries and library education. (Table XIV-2).

##### *C. Culture and Heritage*

To preserve and develop our culture and heritage, institutions like Bangla Academy, Museums, Art Galleries, etc. would be developed. Private efforts for the promotion of arts and culture would also be supported to supplement Government efforts in these fields. A National Institute of Performing Arts will be established to sustain, foster, and develop our traditional culture and heritage specially in fine arts, music and dance. The programme of the College of Fine Arts also will be strengthened.

A sum of Taka 7.50 crore has been provided (Table XIV-2) for cultural activities including an allocation of Taka 1.50 crore for the Institute of Performing Arts.

#### 14.1.12 Scholarships

A comprehensive and properly organised system of scholarships is likely to go a long way towards identifying talents and channelling them towards most desired fields. It is imperative to see that the real talents are not denied opportunities for further education only because they are not able to pay for it. So long as the State is unable to provide free or inexpensive education for all, it should try to bear necessary educational expenditure for those who are most deserving of it and who will be able to contribute most to the development of the nation. It is through such a system of scholarships that we can make the most meaningful equalization of educational opportunities.



The programme for award of scholarships will be based on merit and will be expanded to meet the increasing demand for science and technology needed for the country's future development. Efforts will be made to evolve a more reliable criteria and technique for identifying genuine talents through the reform of the examination and evaluation system. The rates and coverage of the awards would be appraised. Due emphasis would be given for scholarships on research at higher level of education. To provide additional incentives to female education, certain number of scholarships would be reserved for them. A programme for training abroad of the teachers, instructors, administrators and planners will also be accommodated within the Plan provision.

A programme of loan-scholarship particularly at the higher level of education may also be experimented. The main features of the programme would be as follows:

- (i) The system will be supplementary to outright scholarships. This is likely to lessen the financial burden of talented students during their study and it would also economise the state contribution. The repayment of the loan would begin after the incumbents get into jobs and begin earning.
- (ii) In the initial stage the programme will be kept confined to the students of science and professional courses where the chances of employment and levels of earnings are comparatively better.

The programme is expected to prevent wasteful expenditure on the part of the students and it would help build up character and sense of responsibility in them.

The scholarship programme will cover about 2,50,000 students from all stages, levels and forms of education during the Plan. A sum of Taka 19.00 crore has been allocated in the Plan for this purpose (Table XIV-2).

#### 14.1.13 Educational Planning and Management

In our country planning and management within the educational institutions is weak. As a consequence unplanned educational expenditures intensify the strain on the limited financial resources. Efficiency in the management of the institutions is extremely poor, mainly due to lack of training of the administrators (principals, headmasters, development officers) in financial management and institutional planning. Unless a concerted effort is made to increase the efficiency of the administrators in this regard, an enormous wastage in financial and manpower resources will take place during the First Five Year Plan and thereafter.

At present, Bangladesh has 40,000 educational institutions including about 6,000 secondary schools, 500 colleges and 70 technical and vocational institutions, catering to 80,00,000 students. Around 85 per cent of these institutions are privately managed, although about 25 per cent of their expenditures are borne by the Government in the form of grants. While expenditures on these institutions consume a great portion of the resources available to the Government, the poor efficiency of the institutions coupled with large student enrolment and inadequate utilisation of the available physical facilities will be a handicap to future development efforts.

The Government is at present considering decentralisation of the administration by transferring a major segment of the governmental responsibilities to the regional authorities. Education is also expected to be decentralised under this programme. Therefore, the educational



administration and planning which are now centralised in order to be effective should move to the administrative zones. To assist the concept of grass-root planning a large number of able educational administrators and planners will be required. To build these personnel, effective steps are imperative.

During the Plan, an Academy for Planning and Management of Education would be established, attached to the Ministry of Planning with an allocation of Tk. 2.00 crore. The Academy will convey to the administrators concepts of management and planning in relation to their particular institutions through in-service course which will effect qualitative improvement of the institutions and will increase their efficiency. The proposed Academy would also train officers connected with education development at various levels and would arrange seminars for senior educationists and officials of the Ministry of Education and of the Universities. Since the institution would be training a large number of people of various levels, it should be manned by competent and senior personnel and headed either by a university professor or by a government official not below the rank of a Secretary. To assist this programme, International Planning Bodies like UNESCO, and International Institute for Educational Planning may offer capital and technical assistance.

The Plan envisages a number of ways and mechanisms to ensure effective utilisation of existing physical facilities and to increase the efficiency of the system. The measures would reduce the cost of construction and would divert the savings for qualitative improvement. The innovative programmes such as (a) organisation of in-service teacher training programme during vacations at secondary schools and colleges, (b) use of primary school facilities for middle level education, (c) use of facilities of the technical and vocational institutes for diversified education imparted at secondary level, (d) provision of central laboratories and community workshops, would require grass-root planning and effective co-ordination among the various ministries, directorates and institutions. To ensure optimum utilisation of all educational facilities available within the region, a co-ordination authority for education may be created to work out such method of co-ordination in consultation with the regional education authorities.

In a developing country like ours, the chief components of any educational development programme comprise buildings and equipment *i. e.* investment on bricks, mortars and machineries. Materials required for such programme are usually expensive and mostly imported. Nearly, two-thirds of the development budget are accounted for this. However, a well planned programme for efficient construction provides substantial contribution towards congenial atmosphere and functional utility of the educational institutions.

In some educational system, special cells have been created to prepare and execute programme for planned adoption of uniform designs, norms and scheduling of premises in respect of class-rooms, laboratories and workshops. The task of the School Building Cell comprising of architects, engineers, economists and educationists, is to prepare an investment frame to provide an adequate but planned programme for net investment in school buildings. The cell examines various aspects of the construction programme,

- (a) to effect the most optimum and functional use of the existing space;
- (b) to determine more intensive use of class-rooms and laboratories for technical and scientific instructions;



- (c) to identify the unused capacity of the existing stock of space; and
- (d) to predict the technical change or measures which may increase the efficiency of the resources now being used.

Dependent on such analysis, the cell advises the educational authorities on siting and physical planning of the schools, procurement of land, labour, school size, location, costing, and equipment. They also prepare appropriate design for the institutions.

The School Building Cell where functional, has achieved substantial savings on investment costs which has been diverted for qualitative improvement of instructions in the educational system. It is proposed that such a policy and planning cell for school building should be functional in our country during the Plan. The Directorate of Public Instructions has already a small wing to advise on engineering and reconstruction programme. It is proposed that the scope of the wing be broadened and strengthened so that it may undertake the responsibility and functions mentioned in preceding paragraphs.

#### 14.1.14 Social Science Research Council (S.S.R.C.)

##### A. Introduction

Bangladesh is passing through a phase of rapid socio-economic change. There are challenging socio-economic problems like population explosion, unemployment, poverty and exploitation, rural development, labour participation in the management of enterprises, and many others which call for long range studies requiring a multi-disciplinary approach. Research into the social and economic problems is needed for formulation of appropriate and effective strategies for social action, and for development plans to be realistic, scientific and capable of full realisation.

Unfortunately, the present state of research activities in the socio-economic problems of Bangladesh is very unsatisfactory. There are very few institutions or individual scholars engaged in research programmes. The universities emphasize teaching and the little research done therein is, generally, discipline-based. Problem-oriented research is even more neglected. Communication between researchers and the 'users' of research results is very loose. One reason for this state of affairs is that there is no central institution to promote social research, to provide channels for communication between researchers and 'users', and to give financial and technical support to research institutions and individual research workers.

It is important that social scientists deal with real issues and get involved in problem-solving works. Significant research contributions have to go beyond the boundaries established by individual disciplines. Inter-disciplinary research is difficult to organise by *ad-hoc* committees or institutions specialised in a particular area. Often research on relevant social, economic and political problems is not undertaken because there does not exist an infra-structure to encourage such research. It is felt that a social science research council will help to meet this need for such infra-structure.

##### B. Objectives

The objectives of SSRC of Bangladesh will be :

- (i) to promote research in social sciences, particularly in problem-oriented and action-oriented fields;



- (ii) to facilitate utilization of research in formulating plans, policies and programmes of national, regional and community development;
- (iii) to promote better understanding between social scientists and decision-makers; and
- (iv) to promote communication and co-ordination between different social scientists in different institutions.

### C. Functions

The functions of the Council (which will be incorporated in its Memorandum of Association) will be:

- (i) to review the progress of social science research, and to identify gaps and priority areas;
- (ii) to sponsor social science research programmes and projects, administer grants to institutions, centres and individuals, to give financial support to professional associations and to encourage publication of professional journals;
- (iii) to provide help in designing multi-disciplinary projects;
- (iv) to arrange for training in research methodology;
- (v) to develop a documentation and dissemination centre;
- (vi) to administer fellowships in Bangladesh, foreign fellowships and international relations in connection with social sciences; and
- (vii) to advise the government, as requested, on any matter related to promotion of social science research and its utilisation.

The following social sciences will be recognised for the purpose of research grants and fellowships:

- (i) Economics, including Agricultural Economics;
- (ii) Management, including Commerce, Business Administration and Public Administration;
- (iii) Political Science, including International Relations;
- (iv) Sociology, including Rural Sociology, Social Work and Communication;
- (v) Anthropology;
- (vi) Psychology, including Social Psychology;
- (vii) Geography, including Human, Political and Economic Geography; and
- (viii) Demography.

### D. Organisation

The SSRC will be an autonomous organisation attached to the Ministry of Education. The autonomy of the Council is of profound significance. This involves freedom from political and bureaucratic pressures. It is, therefore, suggested that the SSRC should enjoy the same kind of autonomy as the universities.

There will be a Board of Governors of SSRC consisting of 8—10 members. About two-thirds of the members will be social scientists, and the rest from government and other 'user' agencies. The members of Board of Governors and the chairman will be appointed by the Government.



The SSRC will nominate outstanding social science researchers as honorary fellows. The chairman and the social scientist members of the Board will be selected from honorary fellows of the SSRC. The SSRC will have a full-time Member-Secretary as the Chief Executive and three Directors in-charge of three divisions performing the following functions :

- (i) administer the research grants, fellowships, organise surveys and identify priorities through committees which are discipline based as well as multi-disciplinary ;
- (ii) develop and maintain a documentation and dissemination centre ; publish reports and news-letters ; and
- (iii) Initiate and manage inter-disciplinary projects ; provide necessary help and monitor progress of such projects ; organise or help organising seminars, workshops, methodological training courses, etc.

#### **F. Finance**

The SSRC will be financed from a government grant amounting to Tk. 2.00 crore for five years (1973-74 to 1977-78) provided under the First Five Year Plan.

#### **14.1.15. Bangladesh Institute of Development Economics**

The Bangladesh Institute of Development Economics (BIDE) is an autonomous research-cum-training organisation with the functions of conducting empirical policy-oriented research on problems of Bangladesh development and providing specialised training in applied economics. It is the only organisation of its kind in Bangladesh. Much research and thinking will be needed for designing effective socio-economic policies in order to fulfil the new nation's objective of planned development. The BIDE with its experience in research on economic policies should serve as the focal point of high level professional work on development problems and provide the basic research and thinking behind planning in the country with an autonomous status.

There are considerable needs for training in economics for many officials in various Government Ministries and agencies to improve their understanding of socio-economic planning problems and their capacity of formulation and appraisal of projects so that role of planning and the importance of efficient management, co-ordinated implementation and evaluation are fully appreciated at various levels of employment. The BIDE has the necessary potential and is eminently suited to perform this specialised training function through problem-oriented and inter-disciplinary courses.

The Institute, therefore, requires expansion of facilities in research and training, with high priority to studies on agriculture, population and employment. Application of several disciplines is required for satisfactory study and analysis of the multi-dimensional problems of development. Its expansion will include creation of special facilities for development of population research and staff training with the capability of providing technical advice to the development agencies.

To enable the BIDE to perform these expanded activities, it will be reorganised as a statutory organisation, and be provided with a grant of Taka 2.50 crore for the First Plan period.

#### **14.1.16. Development of the Statistical System**

The need for accurate and reliable statistics can hardly be over-emphasised. There is almost universal complaint that available statistics of the country are poor and inadequate for planning, research and decision-making. The Bangladesh Bureau of Statistics (BBS) or the Bureau



of Agricultural Statistics (BAS) cannot cater for all the statistical needs of a sovereign developing nation without a major reorganisation of the statistical system of Bangladesh where as many as 18 agencies collect and compile data in a highly decentralised and uncoordinated manner. Statistics are now poor because the present weak statistical services are engaged in the collection of statistics which are often compilations of whatever reports can be obtained, rather than being the product of research and estimation of totals and averages. Most of these agencies are not properly staffed and equipped to produce adequate and quality statistics. The meagre resources are also spread thinly because of the high degree of decentralisation.

The Government is determined to improve the statistical system and bring it to the required efficiency. It aims at developing various statistical series following the priorities as determined by the needs of planning and policy making, and creating an organisational structure capable of undertaking these functions. Higher priorities would be given to the development of macro-aggregates such as national income accounts and employment. Also substantial improvement will be made to the statistics on prices, foreign trade, agricultural and industrial production, and selected demographic and social statistics. Simultaneously, sample survey operations, computerized statistical information and reproduction activities shall be greatly strengthened.

To perform all these satisfactorily and with due authority, the level of the proposed national statistical organisation is proposed to be raised to that of a Division of the Government, and the major statistical agencies now functioning in the various Ministries are also proposed to be transferred and integrated to this reorganised national statistical organisation. Positions for a few high level professionals will have to be established in the reorganised statistical organisation to discharge its functions efficiently. In addition, to train up the existing and newly recruited personnel technical assistance from various foreign sources is being tapped.

A high powered National Statistical Council headed by the Deputy Chairman, Planning Commission is required to be set up to co-ordinate the collection of statistics and lay down broad guidelines for the statistical system. High level representatives of the economic ministries, other users and producing agencies and professional bodies will be associated with it. Furthermore, suitable and comprehensive legislation will be proposed in due course ensuring compliance with the request for statistical information and safeguarding the respondents from any abuse of the information supplied by them.

An amount of Taka 3.00 crore has been earmarked for this programme which will be drawn from the allocation of the Government sector during the Plan.

#### **14.1.17. Development of Public Administration**

The quality of administration and management in the country is directly related to and dependent on the efficiency of the administrative personnel. The skills and motivation of the civil servants should, therefore, be improved through introduction of functional and fully co-ordinated training programmes that would meet the overall training needs of all person-



nel of various sectors at appropriate stages of their career covering all grades. The Government has recently set up a Civil Servants' Training Academy to co-ordinate the existing training facilities for the civil servants.

Problems connected with the recruitment and training of civil servants have been duly considered by the Services Reorganisation Committee. Appropriate policies will be formulated by the Government on the basis of their recommendations. It is highly desirable that a civil servant should receive training at least in three phases of his career, at pre-entry, mid-career and policy levels. The transformation of the country to a socialist pattern can be hastened by a band of dedicated and motivated civil servants. A series of crash training programmes can be organised as interim arrangements for all the existing civil servants and for all senior employees of the nationalised industries. The proposed training programme of the civil servants should be intensive and take various forms like seminars, syndicates, courses, discussions, tours and so on.

Since liberation, the Government has been trying to re-define the role of the civil servants with a view to achieving efficient administration. Many in-service training facilities have also been created. Satisfactory set-up for imparting training at the pre-entry level, however, have yet to be organised. The existing Gazetted Officers' Training Academy (GOTA) used to impart training to the former East Pakistan Civil Service probationers, but its facilities have been inadequate to meet the requirements on national basis. Since 1961, the National Institute of Public Administration (NIPA) has been carrying on mid-career in-service training. Its present capacity in terms of man-days of training is only about 5,000. There is no institution for training the senior administrators and management personnel. The staff Training Institute for the secretarial-workers has come into existence only recently. It has no permanent facility in terms of personnel, building and equipment. The BARD has been providing training and orientation courses to officers in some areas to meet specific needs. Its facilities for training are also not adequate. The existing facilities for public administration training at different levels in Bangladesh may be stretched to a maximum of 15,000 man-days of training which compared to total requirement of administrative training in the country appear to be far inadequate.

In the absence of realistic data, it is difficult to estimate the actual quantum of training required for the civil servants in Bangladesh over the next 15 years. It is proposed that a national training council should be instituted which will be able to provide a machinery to undertake a realistic and systematic assessment of the total training needs of the country and prepare annual and five year manpower budgets. However, one rough exercise indicates that about 91 per cent of the civil servants have not undergone any training either within the country or abroad.

If all the three phases of training envisaged earlier are implemented, then the quantitative dimension of total training needs in public administration would be more than 250,000 man-days within the Plan period. Obviously, organisation of such a large scale programme within the Plan period will be difficult for various reasons. It is proposed that during the Plan about 70,000 man-days of formal training would be offered covering the various categories of officials and employees,



The following programmes will be undertaken during the Plan under the public administration sub-sector :

- (i) A national training council at the highest level would be instituted. The Council will (a) lay down policies on training, (b) design, coordinate and implement a comprehensive training programme, (c) prepare the annual and five-year manpower budgets, (d) determine the training needs within the country and abroad over the time horizon, (e) determine training contents and the curriculum, (f) evaluate and coordinate the activities of all training institutions and design their training load, and (g) follow up the efficiency and performance of the participants. The Council would also take care of research in public administration and education and would suggest measures for providing consultancy services to the institutions ;
- (ii) Crash programmes would be designed for the orientation of the senior officials ;
- (iii) An Academy for Administration would be set up to impart training at the pre-entry level ; the duration of the training will not be less than 18 months and would be supplemented by BIDE, BARD and the Universities ;
- (iv) An Administrative Staff College would be instituted to offer advanced training to the senior officials covering policy issues and matters of administration ;
- (v) The programme of the newly instituted Civil Servants' Training Academy would be related to the programme of NIPA, GOTA and STI by adequate administrative arrangements ; and
- (vi) The NIPA would be equipped with sufficient facilities to offer mid-career training. The existing Staff Training Institute would be reasonably strengthened. Some peripatetic centres would be introduced to support the staff development programme of the Government.

An amount of Taka 7.00 crore has been provided for development of public administration, training and education under the on-going programmes. The funds have been indicated under the allocation of the Government Sector.

#### 14.1.18. Educational Films

The functional dimension of the existing film unit would be widened to meet the aspirations of an emerging nation. The unit, besides producing publicity film, will prepare films for educational uses. These would be shown in the schools and colleges, in the cinema houses and at times over television, in an effort to minimise the deficiencies in our educational standards, and to widen the doors of perception of the young. The educational film unit will assist the programme for adult literacy, mass education and non-formal education. A sum of Taka 50.00 lakh has been earmarked for the film unit during the Plan period which would be drawn from the allocation of the Government Sector.



## 14. 2. LABOUR WELFARE AND TRAINING

*A. Introduction*

Labour welfare is a form of social investment with high return in terms of social and economic benefits. Prior to liberation, little importance was attached to labour welfare in this country. Only about Taka 6.00 crore was spent for labour welfare during the last 25 years and only the following facilities were created :

- (a) 5 Technical Training Centres with an annual enrolment capacity of 1,400 students ;
- (b) 1 Industrial Relations Institute with an annual enrolment capacity of 90 ;
- (c) 18 Labour Welfare Centres with inadequate medical and recreational facilities ;
- (d) 5 Employment Exchanges ;
- (e) 4 Vocational Guidance and Youth Employment Units which are professionally ill-equipped to perform the job ; and
- (f) 1 Planning and Statistical Cell which is completely inadequate in size and strength.

At present, 5 Employment Exchanges are functioning. They are supposed to render free and impartial services to the unemployed, underemployed and the employers. But the impact of the Employment Exchanges on the labour market has not so far been encouraging. Neither the registration system in the Employment Exchanges nor the responses from the employers for employing the registered unemployed were satisfactory. It is necessary to reappraise the role of the existing employment exchanges in terms of new realities of Bangladesh. This should also allow us a realistic evaluation of the utility and viability of these institutions under a socialist pattern of economy. In the light of the reappraisal, the function of the employment exchanges should be redesigned and these should be given necessary support if required for staff training and ancillary facilities. Further, the question of entrusting the employment exchanges with the tasks of recruitment in the public sectors that are now outside the jurisdiction of the two Public Service Commissions should be examined.

The responsibility of training of skilled workers lies with two Ministries of the Government, i. e., Ministry of Education and Ministry of Labour. However, it is observed that the standards of training and the course contents among the ministries and among the institutes within the ministries vary considerably. They are not often tuned to the requirements of the industry. Further, in the absence of proper coordination mechanism between the two Ministries, sometimes the same courses under two Ministries are called differently and same nomenclature is used for different courses. Most of the trainees undertake jobs that have no relevance to their training. The Government has entrusted the Board of Technical Education with the responsibilities to ensure uniformity in standards of teaching, management and examination in all stages of technical education. But they have no jurisdiction over the training institutions that are now under the control of the Ministry of Labour. In order to attain uniformity in standards, all the technical training institutions and centres in Bangladesh should be brought under the purview and control of the Board of Technical Education.

Most of the industrial workers have migrated from a rural environment and their concentration in unfamiliar industrial zones has given rise to various social and economic problems and maladjustments. The problems are mostly related to housing, sanitation and health. The housing facilities provided by the industrial concerns have proved inadequate to the actual needs and are often not satisfactory for congenial living. Health facilities have



also been meagre. During the plan period extensive workers' welfare measures would be undertaken to remedy and rectify the shortcomings.

### **B. Objectives**

The objectives of the First Five Year Plan will be as follows :

- (a) Extension of facilities for skill development both through formal training institutes and regular apprenticeship training programme ;
- (b) Educating the workers, leaders and management about their respective rights and obligations ;
- (c) Expanding labour welfare measures through better housing, sanitation, medical and recreational facilities ; and
- (d) Improvement of facilities for research and statistics.

### **C. Programmes**

The Programmes for labour administration and welfare are as follows :

- (1) Workers' Hospitals will be established in 5 industrial zones ;
- (2) Low-cost housing would be provided for two industrial zones on an experimental basis ;
- (3) Twenty Labour Welfare Centres would be introduced in major industrial establishments to provide health and recreational facilities and to encourage "consumers' cooperatives" ;
- (4) Six technical training centres, now under construction, would be completed ;
- (5) Efficiency of the existing apprenticeship training programme would be improved and on-the-job training would supplement the training programme envisaged by the technical training institutions ;
- (6) The "community workshops" and the vocational institutions would arrange periodically courses to upgrade and strengthen the skills of the self-employed artisans ;
- (7) "Workers School" would be supported in each industrial unit which should be organised on a voluntary basis ;
- (8) Sports and recreational facilities would be made available in all industrial establishments ;
- (9) Industrial Relations Institutes would be established in major industrial towns ( Chittagong, Khulna and Rajshahi ) to assist, organise and strengthen the trade unions ;
- (10) A statistics and planning cell would be created in the Ministry of Labour ;
- (11) The programme of the Management Development Centre would be coordinated and adjusted to the overall programme of the proposed Civil Servants' Training Academy and would be geared to the needs of socialist management ;
- (12) As a step towards comprehensive social security measures, provision for "Accident insurance while on duty" would be made on a restricted basis in some industrial areas ;
- (13) The programme of the 5 Employment Exchanges would be consolidated.

Development of Labour Welfare and Training has been sufficiently stressed during the First Plan period and an amount of about Taka 27.70 crores has been allocated for the same. The provision will take care of both on-going and new approved schemes.



(In Luktz Taka)

| Sub-Sectors                               | Total           | Percentage of Allocation |
|---|-----------------|--------------------------|
| 1. Workers' Hospitals (5)                 | 10,00.00        | 36.10                    |
| Construction                              | 5,00.00         |                          |
| Equipment                                 | 5,00.00         |                          |
| 2. Housing (in 2 Industrial zones)        | 5,00.00         | 18.05                    |
| 3. Technical Training Centres (11)        | 3,80.00         | 13.72                    |
| Construction                              | 2,00.00         |                          |
| Equipment                                 | 1,50.00         |                          |
| Books                                     | 30.00           |                          |
| 4. Labour Welfare Centres (20)            | 2,00.00         | 7.22                     |
| Construction                              | 1,20.00         |                          |
| Equipment and books                       | 80.00           |                          |
| 5. Management Education                   | 60.00           | 2.17                     |
| 6. Conciliation Machinery                 | 25.50           | 0.90                     |
| 7. Industrial Relations Institutes (3)    | 1,50.00         | 5.41                     |
| Construction                              | 1,00.00         |                          |
| Books & Equipment                         | 50.00           |                          |
| 8. Research                               | 50.00           | 1.81                     |
| 9. Provision for Accidental Insurance     | 1,54.30         | 5.57                     |
| 10. Consolidation of Employment Exchanges | 50.00           | 1.81                     |
| 11. Self-employment (Grants)              | 50.00           | 1.81                     |
| 12. Workers' Schools                      | 50.00           | 1.81                     |
| 13. Sports and Recreational facilities    | 50.00           | 1.81                     |
| 14. Upgrading of self-employed artisans   | 50.00           | 1.81                     |
| <b>Total</b>                              | <b>27,69.80</b> | <b>100.00</b>            |



## CHAPTER XV

## HEALTH AND SOCIAL WELFARE

## 15.1 HEALTH

## 15.1.1 Introduction

The existing health facilities in Bangladesh are inadequate both in quality and quantity. To make the situation worse whatever little we have is so badly distributed that the services are enjoyed by only a privileged few. This is contrary to all concepts of social justice and must be corrected. The health facilities and services in Bangladesh should be provided in such a way that the benefits of existing facilities and future development programmes reach the common man. Since the vast majority of the population in our country lives in the rural areas, we should strive to build our Health Services throughout the country, so that in the not too distant future, it becomes possible to provide reasonable health care to all.

We are handicapped due to lack of both resources and manpower. In the beginning, therefore, we must adopt a strategy of action which would involve comparatively small expenditure of resources and less demand on highly trained personnel to build up a health service which will cut down preventable morbidity to the minimum and provide moderately satisfactory medical care to the sick. Since most of the morbidity and mortality in our country is due to preventable diseases our health programme has to be preventive-biased. This bias is all the more necessary for economic reasons because per capita expenditure for effective preventive programmes is much less than that for curative programmes specially in case of most of the communicable diseases which are the major causes of morbidity and mortality in our country, particularly in rural areas. Moreover, prevention of morbidity in the population has a definite economic gain, because it enhances quality and quantity of the work of the labour force. This, however, does not underestimate the necessity of curative programme as it deals with the care of the sick.

No Health programme can be completely successful in the absence of simultaneous and co-ordinated effort in the allied sectors, e.g., environmental sanitation including potable water supply and hygienic night-soil disposal, food and agriculture, transport and communication, engineering and industry, education and social welfare, etc. If environmental sanitation is neglected all efforts to control the intestinal diseases will end in failure. A rural health centre, without transport and communication facilities can not fully serve its purpose. A population without adequate food supply will continue to suffer from diseases due to malnutrition. Without planned development of pharmaceutical industry, dearth of drugs will hamper the treatment of the sick. It is, therefore, imperative that inter-sectoral co-ordination and co-operation must be given due importance.

## 15.1.2 Present Situation in the Health Sector

Unfortunately, statistical data for assessing the health conditions in the country are not readily obtainable due to absence of any organized system of collection of health data. However, whatever information is available from different sources (including some of the surveys) a broad picture of the health conditions can be depicted as follows:

It has been variously estimated that the crude birth rate is 47 per thousand while the death rate is 17 per thousand giving one of the highest growth rates of population in the world. In 1961, the infant death rate was estimated to be 160 per thousand live births with



a maternal mortality rate of 30 per thousand births. Recent estimates, however, indicate that the infant mortality rate has come down to 140 per thousand live births which is still extremely high compared to developed countries where it varies from 20-40 per thousand. The nutritional intake of our population is extremely poor. A recent UNROB survey shows that about 3.8 million children under 10 years of age are affected by moderate to severe malnutrition. According to various estimates more than 50 per cent of the population is suffering from protein-caloric malnutrition, the most severe type occurring in the pre-school age children and child-bearing women. The diet is specifically lacking in vitamin A, and riboflavin throughout the country. In addition about one-third of the population is suffering from anaemia associated with worms infestation and by dietary deficiency. Over 64 per cent of the children suffer from intestinal infestation due to worms. The average haemoglobin contents is two-thirds that of Europe. This state of malnutrition makes the population easily vulnerable to infectious diseases.

*Infectious disease* is yet the most important reason for high morbidity and mortality. Malaria, Tuberculosis, Small-pox, Cholera and other diarrhoeal diseases, children diseases like Diphtheria, Tetanus neonatorum, Whooping cough, Measles, etc., are still taking large toll of life. There are about 1,00,000 deaths due to pulmonary tuberculosis annually. Prevalence of tuberculosis ranges from 2.6 per cent to 4.5 per cent in industrial workers according to a number of surveys. Contrary to popular view T.B. infection is more common in rural than in urban population. As for small-pox, from the middle of 1970 to the end of 1971 no case of small-pox was reported but since the eradication programme completely broke-down during the war of liberation fresh out-break of small-pox has been reported from almost all over the country. Several thousand cases were reported in the first 17 weeks after independence and the occurrence of small-pox still persists. Cholera is still endemic in the country. Although a very successful regimen for treatment of cholera has been discovered in the Cholera Research Laboratory at Dacca, dependable immunising agent is not yet available. The permanent measures for eradication are safe water supply and hygienic disposal of human excreta. This strongly indicates the need for vigorous action by the public health engineering unit of the Works Ministry. Malaria eradication programme so far has done a good job. Incidence of malaria has been reduced to a minimum level except in the border zones where collaborative activities on malaria eradication are being worked out with neighbouring countries to prevent import of infection.

The high death rate of 260 per 1,000 in children under 5 years of age is mostly due to diarrhoea, diphtheria, whooping cough, measles and other bacterial and viral infections superimposed on malnutrition.

The high maternal mortality rate of 30 per 1,000 births is due to virtual absence of maternity and child health services specially in rural areas. Puerperal infection due to unhygienic conditions after the delivery of babies superimposed on malnutrition is one of the major causes of this high rate of maternal mortality.

Health care so far has been urban-oriented and curative-biased. All physical facilities for health care were established in the urban areas neglecting the vast majority of the population in the rural areas. More recently a half-hearted attempt was made to extend health



care to rural population by creating 150 rural health centres. But these also were not properly manned or equipped to serve the rural people satisfactorily. Curative-biased health care is not suitable in Bangladesh at this point where the major health problem is nutritional and communicable diseases. At present there are 12,311 hospital beds of all categories (Table XV-1) of which 10,449 are in the public sector and 1,862 hospital beds are available in the private sector.

TABLE XV-1

Total Hospital Beds of all categories in Bangladesh as on June, 1973.

| Category of Hospital Beds. | NUMBER OF BEDS. |        |        |                 |        |        | Grand Total |
|----------------------------|-----------------|--------|--------|-----------------|--------|--------|-------------|
|                            | Public Sector.  |        |        | Private Sector. |        |        |             |
|                            | Urban.          | Rural. | Total. | Urban.          | Rural. | Total. |             |
| 1                          | 2               | 3      | 4      | 5               | 6      | 7      | 8           |

|                                 |       |       |        |     |       |       |        |
|---------------------------------|-------|-------|--------|-----|-------|-------|--------|
| 1. General Beds:                |       |       |        |     |       |       |        |
| District Hospital ..            | 1,118 | ..    | 1,118  | 398 | 1,178 | 1,576 | 3,780  |
| Subdivisional Hospital ..       | 1,086 | ..    | 1,086  | ..  | ..    | ..    |        |
| 2. Teaching Hospital ..         | 3,670 | ..    | 3,670  | ..  | ..    | ..    | 3,670  |
| 3. Specialized Hospital :       |       |       |        |     |       |       |        |
| Tuberculosis and Chest Diseases | 966   | ..    | 966    | ..  | ..    | ..    | 1,606  |
| Leprosy ..                      | 60    | ..    | 60     |     |       |       |        |
| Infectious Diseases ..          | 180   | ..    | 180    |     |       |       |        |
| Mental ..                       | 400   | ..    | 400    |     |       |       |        |
| 4. Maternity ..                 | 235   | 900   | 1,135  | 286 | ..    | 286   | 1,421  |
| 5. Jail Hospital ..             | 860   | ..    | 860    | ..  | ..    | ..    | 860    |
| 6. Police Hospital ..           | 652   | ..    | 652    | ..  | ..    | ..    | 652    |
| 7. Railway Hospital ..          | 137   | 185   | 322    | ..  | ..    | ..    | 322    |
| Total ..                        | 9,364 | 1,085 | 10,449 | 684 | 1,178 | 1,862 | 12,311 |

All public sector beds are in urban areas except 900 maternity beds attached to the rural health centres and 185 beds in railway hospitals. General hospital beds available to rural people have been provided by the private sector. As for specialized hospital beds, there are only 966 beds for tuberculosis, 60 beds for leprosy, 180 beds for infectious diseases and 400 beds for mental diseases throughout the country. The hospital bed population ratio is 1 bed per 6,250 population as compared to 1:100 in UK. It is also clear that hospital bed facilities have to be immediately created in the rural areas where practically no hospital facilities exist at present.



In spite of the fact that infant mortality rate is 140 per 1,000 live births and maternal mortality rate is 30 per 1,000 we have a very rudimentary maternity and child health service existing at present.

TABLE XV-2  
Maternity and Child Health Centres (1972-73).

| Location            | Government      |       | Private         |       | Total           |       |
|---------------------|-----------------|-------|-----------------|-------|-----------------|-------|
|                     | No. of Centres. | Beds. | No. of Centres. | Beds. | No. of Centres. | Beds. |
| Dacca Division      | 8               | 24    | 15              | 82    | 23              | 106   |
| Rajshahi Division   | 9               | 46    | 14              | 99    | 23              | 145   |
| Khulna Division     | 7               | 12    | 15              | 53    | 22              | 65    |
| Chittagong Division | 14              | 40    | 11              | 52    | 25              | 92    |
| Total               | 38              | 122   | 55              | 286   | 93              | 408   |

As shown in Table XV-2 there are 93 Maternity and Child Health Centres (MCH) with a total of 408 beds in the country. In addition to this there are 6 beds in each of the 150 Rural Health Centres and 113 beds in the three Lady Health Visitors' training centres. Thus there are 1,421 beds in total. The MCH centres are severely handicapped by the dearth of doctors and trained para-medical personnel.

There is no organized Industrial Health Services in the country at present. Industry has grown in and around large cities where several million of labourers are employed. Health care provided to these labourers either by Government or by the employers to protect them from the hazards of their occupation is inadequate. Although they can avail of the services provided by the general health services, they need special occupational health care to be arranged by developing Industrial Health Services. However, this aspect of the health services has remained neglected.

One of the major defects in our health sector programme is the lack of any data collecting system to assess the health situation existing at any one time, to evaluate the impact of a given programme on the health situation or even to plan action to prevent, treat or eradicate a health problem. A well planned epidemiological service with dependable system of collection of vital morbidity and mortality statistics backed by a laboratory service is necessary for the purpose. But although we have created a good base for the type of work needed in the Institute of Public Health, this has to be vigorously developed. There is a good microbiological laboratory with trained staff which can be easily developed into a central public health laboratory. There is also a nucleus of an epidemiological unit. It is now necessary to develop them so that an epidemiological service supported by a public health laboratory service can function.

The problem of providing adequate manpower even for the existing health programmes is a formidable one. Total number of doctors at present is approximately 7,000 giving doctor population ratio of 1:10,714,—one of the worst in the world. Moreover, a great majority of



these doctors (over 75 per cent) are working in urban areas causing almost a complete vacuum in the rural areas. Medical graduates are normally reluctant to join the health services on the present terms and conditions of posts in health services which are not considered attractive. Added to this is the lack of amenities in the rural areas which prevents them from going to villages. Thus quite a good proportion of posts in the urban health services and almost all of the rural posts are yet to be provided with doctors. As for specialists the situation is still worse. There are only about 259 specialists available in the country. Only 247 posts of specialists could be filled up so far. At present, 178 doctors are undergoing post-graduate training in the country and abroad. We still need 719 more doctors to be trained in various specialities to man the existing programmes (Table XV-3).

We have only about 700 Nurses, 250 Midwives and 275 Lady Health Visitors in the Health Services. The gross inadequacy of nursing services is obvious from the fact that the doctor nurse ratio is 10:1, whereas normally it should be 2.5 nurses to 1 doctor. The situation is nearly as bad for para-medical and auxiliary personnel. In the health services there are about 980 sanitary inspectors, less than 1000 compounders, 170 laboratory technicians, 11 radiotherapy technicians and 20 physiotherapy technicians. The two unipurpose programmes, viz., the Malaria eradication and Small-pox eradication projects, have about 12,000 field auxiliaries. It is clear that a large scale training programme to increase the manpower is urgently needed particularly in nursing and para-medical fields.

TABLE XV-3

Requirement of personnel with Post-Graduate qualification for existing programmes.

| Serial No. | Name of Subject.      | Total requirement. | Available Trained. | Under Training. | To be Trained. |
|------------|-----------------------|--------------------|--------------------|-----------------|----------------|
| 1.         | Anatomy .. .. .       | 47                 | 9                  | 3               | 35             |
| 2.         | Physiology .. .. .    | 31                 | 12                 | 3               | 16             |
| 3.         | Bio-Chemistry .. .. . | 23                 | 4                  | 1               | 18             |
| 4.         | Pharmacology .. .. .  | 30                 | 13                 | 3               | 14             |
| 5.         | Pathology .. .. .     | 114                | 20                 | 9               | 85             |
| 6.         | Microbiology .. .. .  | 26                 | 8                  | 3               | 15             |
| 7.         | Virology .. .. .      | 7                  | ..                 | ..              | 7              |
| 8.         | Parasitology .. .. .  | 4                  | ..                 | 1               | 3              |
| 9.         | Medicine .. .. .      | 137                | 32                 | 38              | 67             |
| 10.        | Surgery .. .. .       | 131                | 39                 | 14              | 78             |
| 11.        | Gynaecology .. .. .   | 85                 | 21                 | 11              | 53             |
| 12.        | Paediatric .. .. .    | 40                 | 8                  | 14              | 18             |



TABLE XV-3—Contd.

| Serial No.  | Name of Subject.          | Total requirement. | Available Trained. (in Service) | Under Training. | To be Trained. |
|-------------|---------------------------|--------------------|---------------------------------|-----------------|----------------|
| 13.         | Ophthalmology .. ..       | 46                 | 21                              | 6               | 19             |
| 14.         | Ear, Nose & Throat .. ..  | 30                 | 7                               | 4               | 19             |
| 15.         | Orthopaedic Surgery .. .. | 10                 | 1                               | 4               | 5              |
| 16.         | Anaesthesia .. ..         | 85                 | 6                               | 19              | 60             |
| 17.         | Blood transfusion.. ..    | 29                 | 5                               | 7               | 17             |
| 18.         | Radiology .. ..           | 84                 | 20                              | 9               | 55             |
| 19.         | Radiotherapy .. ..        | 30                 | 10                              | 7               | 13             |
| 20.         | Physiotherapy .. ..       | 8                  | 2                               | ..              | 6              |
| 21.         | Radio-Isotope .. ..       | 8                  | 1                               | 2               | 5              |
| 22.         | Dermatology .. ..         | 9                  | 2                               | 7               | ..             |
| 23.         | Dentistry.. ..            | 32                 | ..                              | 4               | 28             |
| 24.         | Psychiatry .. ..          | 17                 | 5                               | 8               | 4              |
| 25.         | Neuro-Surgery .. ..       | 8                  | ..                              | ..              | 8              |
| 26.         | Neuro-medicine .. ..      | 8                  | ..                              | ..              | 8              |
| 27.         | Neuro-Radiology .. ..     | 8                  | ..                              | ..              | 8              |
| 28.         | Neuro-Anaesthesia .. ..   | 8                  | ..                              | ..              | 8              |
| 29.         | Cardiac Surgery .. ..     | 8                  | ..                              | ..              | 8              |
| 30.         | Cardiac Medicine .. ..    | 8                  | ..                              | ..              | 8              |
| 31.         | Cardiac Physiology .. ..  | 8                  | ..                              | ..              | 8              |
| 32.         | Cardiac Anaesthesia .. .. | 8                  | ..                              | ..              | 8              |
| 33.         | Urology .. ..             | 8                  | 1                               | ..              | 7              |
| 34.         | Haematology .. ..         | 1                  | ..                              | ..              | 1              |
| 35.         | Blood Diseases .. ..      | 2                  | ..                              | ..              | 2              |
| 36.         | Gastro-Enterology .. ..   | 2                  | ..                              | ..              | 2              |
| 37.         | Entomology .. ..          | 2                  | ..                              | ..              | 2              |
| 38.         | Epidemiology .. ..        | 2                  | ..                              | 1               | 1              |
| Total .. .. |                           | 1,144              | 247                             | 178             | 719            |



The institutions for training manpower in the health sector have so far emphasized the production of doctors. Thus there are 8 Medical Colleges with intake capacity of 1,400 students, and only 5 Nurses' Training Centres, 3 Lady Health Visitors' Training Centres and only 1 Training Institute for Para-medical personnel, as shown in Table XV-4.

TABLE XV-4  
Institutions for Training of Nurses and Para-medical personnel.

| Institutions.                                  | Number. | Annual intake capacity for training. |
|--|---------|--------------------------------------|
| Nurses' Training Centres .. .. .               | 5       | 325                                  |
| Lady Health Visitors' Training Centres .. .. . | 3       | 115                                  |
| Para-medical Training Institute .. .. .        | 1       | ..                                   |
| (a) Laboratory Technicians .. .. .             | ..      | 50                                   |
| (b) Dental Technicians .. .. .                 | ..      | 20                                   |
| (c) Sanitary Inspectors .. .. .                | ..      | 40                                   |
| (d) Radiographers .. .. .                      | ..      | 10                                   |
| (e) Physiotherapy Technicians .. .. .          | ..      | 10                                   |
| (f) Pharmacists .. .. .                        | ..      | 50                                   |
| (g) Blood Bank Technicians .. .. .             | ..      | 10                                   |

More recently (1972) due to acute paucity of nurses a crash programme for training of nurses was launched with an initial intake of 450.

Difficulties are being faced in finding teaching staff both for Medical Colleges and Training Institutions for nurses and para-medical personnel. The Institute of Post-Graduate Medicine and the Institute of Chest Diseases can at present take 40 and 12 doctors respectively for post-graduate training. A post-basic College of Nursing which was started on make-shift basis could not serve its purpose for want of fund and personnel. This must be revived without delay. A second para-medical training school has been built at Rajsbahi, but is yet to start functioning.

While the lack of physical facilities and manpower had remained a persistent problem, the existing situation about drugs, medicine and other essential supplies for the health services have added to the inefficiency of the health system. Our Pharmaceutical Industries are not able to meet the internal demand for drugs and medicines. There is little co-ordination between production and priority requirement. Import of drugs and chemicals for the



pharmaceutical industry appears arbitrary. The system of quality control is rudimentary. As a result there is an acute shortage of drugs and medicines. Whatever is available is often of sub-standard quality. In addition, the distribution system is inefficient. The Health Service has its own central medical stores at Dacca and a few sub-depots at the periphery, but supplies particularly at the periphery are often irregular and inadequate.

The administrative machinery to plan and implement health programmes is rather insufficient. Because of inadequate follow-up and evaluation most of the development programmes have fallen short of targets. Too much centralization of authority has made implementation difficult. Co-ordination needs to be strengthened between the different sections of the Ministry and the Directorate and with other Ministries. There are frequent delays in release of funds, completion of construction works and import of equipments, etc. The entire process has, therefore, to be streamlined.

### 15.1.3 Objectives

(i) To create a health infra-structure in the rural areas for providing integrated and comprehensive health services through Thana Health Complexes and Union Sub-Centres.

(ii) To ensure integration between the Family Planning and the Health Programmes at the grass root level under the leadership of Thana Health Administrator to attain the maximum possible prevention of births in rural areas.

(iii) To provide well-organized health care programme to infants, children and mothers by strengthening MCH services with a view to reducing infant mortality and maternal mortality rates.

(iv) To ensure effective control/eradication of communicable diseases and to organize epidemiological services supported by well-equipped public health laboratories for meaningful execution of communicable disease control programmes.

(v) To establish well-organized industrial health services for the industrial workers, to provide protection against industrial health hazards, to create a healthy environment at their place of work and to provide medical care to the workers and their families.

(vi) To improve the quality of the existing hospital facilities and to create new hospital beds with major emphasis on the establishment of at least one 25-bed hospital in each Rural Thana and to reach a target of one hospital bed for every 3,500 persons by the end of the Plan period.

(vii) To provide specialized hospital facilities for treatment and rehabilitation of Mukti-Bahini personnel who were injured in the war of liberation and to create additional hospital beds for specialized treatment of Tuberculosis, Leprosy, Cancer, Children and Mental diseases.

(viii) To create adequate under-graduate and post-graduate teaching and training facilities for the medical, para-medical and nursing personnel and to ensure proper service conditions for optimum utilization of the personnel.

(ix) To ensure availability of life saving drugs for treatment of the sick and immunizing agents for prevention or control of communicable diseases.



(x) To ensure inter-sectoral co-operation and co-ordination for achieving improvement of the environmental sanitation, housing facilities, potable water supply, etc., at the place of living and of work for every citizen.

#### 15.1.4 Strategy

(i) The basic strategy of the First Five-Year Plan in the Health Sector will be to shift the emphasis from curative to preventive health care to bring a balance between the two and develop a delivery system that will provide integrated and comprehensive health care to our rural population. Comprehensive health care, by integrating the full range of preventive and curative services, will be delivered at community level in the rural areas by a re-organization of health care disciplines, so that the specialists, doctors, nurses, medical auxiliaries and para-medical personnel can work in a co-ordinated manner. Accordingly services would include community and environmental action, home and family care, out-patient service and screening, general and specialized in-patient care, and physical and social rehabilitation. The instrument to achieve this would be a Rural Health Complex (comprising a rural health centre and a 25 bed hospital) with satellite sub-centres established at each thana. Referral services will be provided to the Rural health complex through the Subdivisional and District Hospitals (which will be upgraded) and other teaching and specialized hospitals. Thus a broad-based infra-structure for health services will be established in the rural areas with a balanced super-structure at the urban level with a view to ensuring equitable distribution of health care facilities throughout Bangladesh.

(ii) The emphasis in the delivery system of health care will be shifted from individual to community whose basic unit will be the family. The health system will endeavour to protect and promote the general health of the family while providing as far as possible appropriate medical care and treatment of the sick members of the family.

(iii) Since the focus of the professional attention will be shifted from individual to community, understanding of the total community ecology and the development process as it affects education, agriculture, and economic progress will be necessary in deciding priorities and planning appropriate action. Development and utilization of vital statistics, epidemiological service and Public Health Laboratory for planning meaningful public health action will be an integral part of the strategy.

(iv) Since the health service and its delivery system will be based on integrated and comprehensive health care at community level a new pattern of education for medical and auxiliary personnel has to be developed. The students of all institutions producing health manpower must be oriented towards community medicine by reframing the syllabi which should include training in community medicine and comprehensive health care through actual field work.

(v) Although a number of new teaching institutions will be established for training doctors in curative medicine and public health both at under-graduate and post-graduate levels, the problem of shortage of doctors will continue to persist during the plan period. Hence para-medical personnel and health auxiliaries must be made responsible for as much of both preventive and curative work as quality standard permits making it possible for the doctors to



concentrate his time where his specialized skill is most needed. Since auxiliaries can be trained and supported with considerably less expenditure of time and money than doctors, a new cadre of medical assistants will be created. The medical assistants will be utilized under doctor's supervision to screen out the really sick patients for doctor's attention. Those requiring only routine and simple medical care will be attended to by auxiliaries adequately trained for the purpose.

(vi) Supplies of adequate quantity of drugs and medicines have to be ensured through imports and by encouraging domestic manufacture as far as practicable on the basis of actual requirements. The existing system of imports and manufacture will, therefore, be reviewed and reformulated. Bottlenecks created by an over-centralized system of supplies of drugs and medicines will be removed by establishing supply depots and sub-depots throughout the country.

### 15.1.5 Rural Health

#### A. *Integration of Unipurpose Programmes*

In the past there had been a tendency to launch unipurpose programmes to solve individual public health problems. All such programmes have the following inherent drawbacks:

- (i) They are self-annihilating in the sense that as soon as the goal is achieved the programme is to be disbanded or kept in a skeleton form. Hence it is difficult to attract good quality, dedicated workers to these programmes which lack secure career prospect.
- (ii) There is duplication of efforts, expenditure and trained personnel in different programmes.
- (iii) Some of the projects, as they are now, have top heavy personnel structure leading to concentration of technical and supervisory personnel at the centre. Since these programmes are mainly concerned with rural population it is necessary that major effort and supervisory activities be decentralised at the periphery in the rural areas.
- (iv) Financial allocations in different unipurpose projects are grossly disproportionate if we consider the actual need. While there are liberal allocations in some programmes, leading to non-utilization of allocated funds or wastage the other programmes cannot be made operational because they are short of funds.

To remove these drawbacks, it will be necessary to integrate all unipurpose projects concerned with communicable diseases (including Malaria, Tuberculosis, Leprosy, Small-pox and Cholera) with provision for strong supervision of all activities in the fields. The services so integrated with the General Health Services will have their base at Rural Health Centres at thana and union levels. However, integration will be a phased operation. It will take into account the results achieved by the Malaria Eradication Programme and will reflect the need for concentrated attack against small-pox in districts where the disease has reached epidemic proportion.



To support Malaria Eradication Programme (MEP) which has been found very useful, Taka 18.233 crore and Taka 1.00 crore have been allocated for the Plan period against the on-going and new schemes respectively.

**Allocation for Health Services including M. E. P. in the Plan Period (1973—78)**

(Taka in crore)

| Status of Scheme | M. E. P | Health   | Total    |
|------------------|---------|----------|----------|
| On-going .. ..   | 18.2332 | 152.3553 | 170.5885 |
| New .. ..        | 1.0000  | 28.4115  | 29.4115  |
| Total .. ..      | 19.2332 | 180.7668 | 200.0000 |

As a first step towards integration, preventive and curative health care in all the districts are to be brought under overall supervision of the Directorate of Health Services. At present, there is a dual system in a number of districts where curative health care is under the Directorate of Health Services while preventive care is the responsibility of the District Council. This dual system of control will be abandoned in order to achieve effective co-ordination, etc., of preventive and curative health. The management of the health services will be shared by the national Government and the Zilla Parishads.

**B. Rural Health Complex**

Rural Health Complex has been visualized as the Unit Organization for providing integrated and comprehensive health and family planning services to the rural population. Each rural health complex will have two components:

- (i) Rural Health Centres at Thana level and Sub-centres at Union level.
- (ii) 25-bedded Hospital at Thana level.

**C. Rural Health Centre**

One Rural Health Centre (RHC) will be created preferably in each rural thana headquarters with sub-centre at union level. There are at present 356 rural thanas and 3,698 rural unions. The intention is to provide one RHC in each rural thana and one sub-centre in each rural union. Each union sub-centre will give coverage to a population of approximately 12—15 thousands. The establishment of these health centres and sub-centres will have to be spread over a period of several years depending on resources and manpower available.

The integrated health services as outlined above will be executed at village level by well-trained multipurpose workers (Basic Health workers) under supervision of several tiers of supervisory personnel.



These basic health workers will be matriculates and will be given special training. Each basic health worker will remain in charge of a population of not more than 4,000 (this has been found to be the critical ratio in a number of projects run under the guidance of World Health Organisation). Each basic health worker will go for regular home visits according to planned schedule within his or her area so that each family is visited at least once a month.

During their home-visits they will perform the following functions:

1. *Immunization:* Primary and revaccination against Small-pox, Cholera and Typhoid as well as BCG vaccination.
2. *Education:* In respect of environmental sanitation, water purification, family health including family planning.
3. Collect blood sample of suspected malaria cases and sputum sample of suspected T.B. cases and pass these samples on to the Rural Health Centre Laboratory.
4. Supply anti-malarial, anti-tuberculosis and anti-leprosy drugs to the confirmed cases for domiciliary treatment.
5. Take part in anti-malaria activities and other anti-epidemic programmes.
6. Maintain family health and family planning cards through which vital statistics and other health and family planning data will be collected.

These basic health workers will work under the supervision of one Assistant Health Inspector (AHI) who will remain in-charge of 4 Basic Health Workers at union level and will be directly supervised by the Medical Officer or the medical assistant in charge of the sub-centre.

In addition, every sub-centre at union level will have a MCH clinic under a Lady Health Visitor who will provide MCH care including Family Planning.

The Medical Officer or Assistant will work as the team leader and will remain responsible for the integrated health care for the entire union. Wherever necessary, he will refer cases to and seek help and guidance from the Thana Health Administrator, who will be his supervisor. At thana level the Rural Health Centre will be the headquarter for the integrated health services provided in the entire thana through its union sub-centres. In addition to serving the union in which the Thana Health Centre is situated, it will provide leadership and referral service to all the sub-centres.

The Thana Rural Health Centre will have a clinical diagnostic laboratory, a MCH clinic supported by six maternity beds, a well-equipped outdoor dispensary and a central store for supplies to cater to the requirements of the sub-centres within its control. It will have two full-time Medical Officers, one of them female. However, at the initial stage it may be necessary to substitute the Medical Officers by experienced and trained Medical Assistants.



The RHC will remain under the overall supervisory control of the Thana Health Administrator who will be an experienced medical man, preferably with public health training.

The thana rural health centre will receive the referral services at the 25-bed hospital of the Rural Health Complex, whenever required.

It is estimated that about 16,000 Basic Health workers will be needed for the entire programme. Since the programme will be phased over a longer period, approximately 10,000 Basic Health Workers will be required during the First Five-Year Plan period. At present about 4,000 Health Assistants and Vaccinators and approximately 5,000 Malaria Supervisors are working in a number of unipurpose projects and regular Health Services. With integration, therefore, about 9,000 workers will be readily available for being absorbed as Basic Health workers after a short course of training to familiarize them with their wider work responsibilities. Additional basic health workers will be recruited and given formal training at the Para-Medical Institutes and field training at the Thana Health Complexes.

#### *D. Hospitals at Rural Thana Level*

While the personnel of the RHC at thana level and the sub-centre at union level will provide the preventive health services and family planning facilities in the field as well as at the Clinics of the RHC and Union Health Centre, the curative health services will have to be extended to rural areas by establishing hospitals at thana level for the treatment of both outdoor and indoor patients. These Thana Hospitals will also open up opportunity for extending post-partum Family Planning Programme to the rural areas and will ensure the provision of physical facilities required.

Initially, each thana health complex will be provided with a 25-bed hospital, but these will have provision for later extension to 50-bed hospitals. Thus, 8,900 hospital beds will be created during the First Five-Year Plan period. The upgrading of these hospitals to 50-bed hospitals will have to be taken up during subsequent plan periods.

The estimated cost of establishing each 25-bed hospital is Tk. 0.064 crore making a total Plan expenditure for the 356 rural thanas combined of nearly Tk. 23.00 crore.

These hospitals need not be equipped or manned for highly specialized treatment since such cases can be referred to sub-divisional/district/Medical College hospitals. However, there must be arrangement for treatment of all common diseases now prevailing in the rural areas of our country.

Thus the two components of the Rural Health Complex, namely the RHC with sub-centres and the 25-bed hospital will bring about a better balance between preventive and curative health services; this will also provide a well-supervised frame-work for extending Family Planning Services as required in the homes, in clinics and hospitals.



The present position and programme regarding the establishment of Rural Health Centres, Union Sub-Centres and Thana Hospitals are shown in Table XV-5.

TABLE XV-5

Establishment of Rural Health Centres, Sub-Centres and 25-Bed Hospitals in Rural Areas during the Plan period (1973-78).

(Taka in crore)

| Description.                            | Number as of June, 1973. | Increase during Plan period. | Total number at the end of Plan period. | Number of hospital beds at the end of Plan period. | Estimated cost during Plan period. |
|---|--------------------------|------------------------------|---|--|------------------------------------|
| 1                                       | 2                        | 3                            | 4                                       | 5  | 6                                  |
| 1. Rural Health Centres at Thana level. | 160                      | 196                          | 356                                     | ..   | 20.20                              |
| 2. Sub-Centre at Union level            | Nil                      | 1,068                        | 1,068                                   | ..   | 22.30                              |
| 3. 25-bed Hospital ..                   | Nil                      | 356                          | 356                                     | 8,900  | 22.90                              |
| Total ..                                |                          |                              |   |  | 65.40                              |

Once this infra-structure for health services at grass-root level is established and start functioning, the goal of providing satisfactory and comprehensive health care including adequate family planning services to rural population will begin to be realised.

#### E. Hospital Beds

The total number of hospital beds of all categories stands at 12,300 of which 10,450 are in the public sector, including beds in District and Sub-divisional Hospitals, teaching and specialised hospitals. The overall hospital bed population ratio now stands at one for 6,350 persons. Particularly in the rural areas there is an acute shortage, since almost all hospital beds in the public sector are in the urban areas.

The Plan provides for the development of 356 thana hospitals as described above and further development of hospital facilities at district and sub-divisional levels and teaching and specialised hospital.

Even a very conservative estimate of requirement in the urban areas calls for a 250-bed hospital at district and sub-divisional levels. These hospitals will also serve as referral hospital for Rural Health Complexes. These must be manned and equipped properly so that major specialist services can be made available. During the First Five-Year Plan period all district and sub-divisional hospitals will be upgraded to provide at least 100 beds in each (vide Tables XV-5A and XV-6).



During the Plan period one Post-Graduate Institute of Medicine and at least one new Medical College will be established and existing Medical Colleges will be strengthened. Existing teaching institutions are not adequate to produce sufficient number of Medical Graduates and Medical Specialists to cope even with present requirements. It is imperative, therefore, that new Medical Colleges and Post-Graduate Institutions are created as rapidly as possible. This will at the same time add to the number of available hospital beds in teaching institutions, which now stands at 3,900 (including 430 beds in the Institute of Chest Diseases). During the Plan period 1,530 additional beds will be created in these Institutions (*vide* Table XV-7).

TABLE XV-5A.

## Hospital Beds at District level

| Name of Hospital.                    | Number of beds.    |                 | Expected increase during Plan period. |
|--------------------------------------|--------------------|-----------------|---------------------------------------|
|                                      | 1972-73 Benchmark. | 1977-78 Target. |                                       |
| 1                                    | 2                  | 3               | 4                                     |
| 1. Chittagong General Hospital .. .. | 225                | 225             | --                                    |
| 2. Rangamati Sadar Hospital .. ..    | 25                 | 100             | 75                                    |
| 3. Noakhali Sadar Hospital .. ..     | 100                | 100             | --                                    |
| 4. Comilla Sadar Hospital .. ..      | 110                | 110             | --                                    |
| 5. Faridpur Sadar Hospital .. ..     | 80                 | 100             | 20                                    |
| 6. Tangail Sadar Hospital .. ..      | 22                 | 100             | 78                                    |
| 7. Dinajpur Sadar Hospital .. ..     | 76                 | 100             | 24                                    |
| 8. Bogra Sadar Hospital .. ..        | 100                | 100             | --                                    |
| 9. Pabna Sadar Hospital .. ..        | 100                | 100             | --                                    |
| 10. Khulna Sadar Hospital .. ..      | 130                | 130             | --                                    |
| 11. Jessore Sadar Hospital .. ..     | 77                 | 100             | 23                                    |
| 12. Kushtia Sadar Hospital .. ..     | 50                 | 100             | 50                                    |
| 13. Patuakhali Sadar Hospital .. ..  | 23                 | 100             | 77                                    |
| Total .. ..                          | 1,118              | 1,465           | 347                                   |



TABLE XV-6

## Hospital Beds at Sub-Divisional level

| Name of the Sub-division.     | Number of hospital beds. |         | Expected increase during Plan period. |
|-------------------------------|--------------------------|---------|---------------------------------------|
|                               | Existing.                | Target. |                                       |
| 1                             | 2                        | 3       | 4                                     |
| 1. Narayanganj .. .. .        | 65                       | 100     | 35                                    |
| 2. Munshiganj .. .. .         | 20                       | 100     | 80                                    |
| 3. Manikganj .. .. .          | 20                       | 100     | 80                                    |
| 4. Kishoreganj .. .. .        | 25                       | 100     | 75                                    |
| 5. Jamalpur .. .. .           | 25                       | 100     | 75                                    |
| 6. Netrokona .. .. .          | 26                       | 100     | 74                                    |
| 7. Madaripur .. .. .          | 22                       | 100     | 78                                    |
| 8. Gopalganj .. .. .          | 50                       | 100     | 50                                    |
| 9. Goalundo (Rajbari) .. .. . | 25                       | 100     | 75                                    |
| 10. Cox's Bazar .. .. .       | 32                       | 100     | 68                                    |
| 11. Ramgarh .. .. .           | 10                       | 100     | 90                                    |
| 12. Brahmanbaria .. .. .      | 26                       | 100     | 74                                    |
| 13. Bandarban .. .. .         | 10                       | 100     | 90                                    |
| 14. Feni .. .. .              | 20                       | 100     | 80                                    |
| 15. Chandpur .. .. .          | 50                       | 100     | 50                                    |
| 16. Habiganj .. .. .          | 34                       | 100     | 66                                    |
| 17. Moulvi Bazar .. .. .      | 22                       | 100     | 78                                    |
| 18. Sunamganj .. .. .         | 20                       | 100     | 80                                    |
| 19. Nawabganj .. .. .         | 25                       | 100     | 75                                    |
| 20. Natore .. .. .            | 30                       | 100     | 70                                    |
| 21. Naogaon .. .. .           | 50                       | 100     | 50                                    |
| 22. Thakurgaon .. .. .        | 25                       | 100     | 75                                    |
| 23. Kurigram .. .. .          | 50                       | 100     | 50                                    |
| 24. Nilphamari .. .. .        | 25                       | 100     | 75                                    |
| 25. Gaibandha .. .. .         | 13                       | 100     | 87                                    |
| 26. Jaipurhat .. .. .         | Nil                      | 100     | 100                                   |
| 27. Sirajganj .. .. .         | 50                       | 100     | 50                                    |
| 28. Bagerhat .. .. .          | 50                       | 100     | 50                                    |
| 29. Satkhira .. .. .          | 23                       | 100     | 77                                    |
| 30. Pirojpur .. .. .          | 24                       | 100     | 76                                    |
| 31. Bhola .. .. .             | 30                       | 100     | 70                                    |
| 32. Jhalakati .. .. .         | Nil                      | 100     | 100                                   |
| 33. Barguna .. .. .           | Nil                      | 100     | 100                                   |
| 34. Magura .. .. .            | 50                       | 100     | 50                                    |
| 35. Narail .. .. .            | 14                       | 100     | 86                                    |
| 36. Jhenaidah .. .. .         | 50                       | 100     | 50                                    |
| 37. Chuadanga .. .. .         | 50                       | 100     | 50                                    |
| 38. Meherpur .. .. .          | 25                       | 100     | 75                                    |
| Total .. .. .                 | 1,086                    | 3,800   | 2,714                                 |



TABLE XV-7

## Number of Hospital Beds in Teaching Institutions.

| General Beds attached to Teaching Institutions. |    |    |    |    | Number of Beds.        |                    |                       |
|---|----|----|----|----|------------------------|--------------------|-----------------------|
|   |    |    |    |    | 1972-73<br>(Existing). | 1977-78<br>Target. | Expected<br>increase. |
| 1. Dacca Medical College Hospital               | .. | .. | .. | .. | 900                    | 900                | ..                    |
| 2. Sir Salimullah Medical College Hospital      | .. | .. | .. | .. | 420                    | 500                | 80                    |
| 3. Chittagong Medical College Hospital          | .. | .. | .. | .. | 500                    | 500                | ..                    |
| 4. Rajshahi Medical College Hospital            | .. | .. | .. | .. | 500                    | 500                | ..                    |
| 5. Mymensingh Medical College Hospital          | .. | .. | .. | .. | 500                    | 500                | ..                    |
| 6. Sylhet Medical College Hospital              | .. | .. | .. | .. | 200                    | 500                | 300                   |
| 7. Barisal Medical College Hospital             | .. | .. | .. | .. | 250                    | 500                | 250                   |
| 8. Rangpur Medical College Hospital             | .. | .. | .. | .. | 100                    | 300                | 200                   |
| 9. Institute of Post-Graduate Medicine          | .. | .. | .. | .. | 100                    | 500                | 400                   |
| 10. Khulna Medical College Hospital             | .. | .. | .. | .. | ..                     | 300                | 300                   |
| Total   | .. | .. | .. | .. | 3,470                  | 5,000              | 1,530                 |

Some patients need specialized hospital services due to the peculiar nature of the disease, such as Tuberculosis, Leprosy, Infectious diseases, Children's diseases, Mental diseases, Cancer and Casualty patients.

The aim for the foreseeable future is to provide each of the present four divisions of the country with at least 600 beds for Tuberculosis, 500 beds for Infectious diseases, 400 beds for Children's diseases, 400 beds for Mental diseases, 100 beds for Cancer and 100 beds for Casualty. The creation of these beds will have to be phased over several Plan periods. During the First Plan period the expansion of the number of specialized beds will be limited to a little over 1,400 giving a total of 3,070 specialized Hospital beds by 1978. The majority of the new beds will be for Tuberculosis, Infectious diseases and Children's diseases (*vide* Table XV-8).

TABLE XV-8

## Beds in Specialized Hospitals.

| Speciality          |    |    |    |    | Number of Beds.      |                    |  |
|---------------------|----|----|----|----|----------------------|--------------------|--|
|                     |    |    |    |    | Existing<br>1972-73. | Target<br>1977-78. | Increase<br>during the<br>Plan period. |
| Tuberculosis        | .. | .. | .. | .. | 966                  | 1,200              | 234                                    |
| Leprosy             | .. | .. | .. | .. | 60                   | 120                | 60                                     |
| Infectious Diseases | .. | .. | .. | .. | 180                  | 500                | 320                                    |
| Children Diseases   | .. | .. | .. | .. | Nil                  | 400                | 400                                    |
| Mental Diseases     | .. | .. | .. | .. | 400                  | 600                | 200                                    |
| Cancer              | .. | .. | .. | .. | Nil                  | 100                | 100                                    |
| Casualty            | .. | .. | .. | .. | Nil                  | 150                | 150                                    |
| Total               | .. | .. | .. | .. | 1,606                | 3,070              | 1,464                                  |



### 15.1.6 Urban Health Care

Majority of the District and Sub-divisional hospitals are lacking in sufficient number of beds to cope with the pressing requirement of the treatment of the sick. Moreover, lack of adequate staff and equipments and irregular flow of supply of drugs and medicines have increasingly become a problem. The situation will improve with the upgrading of these hospitals to the status of referral hospitals and the increase in the number of technical staff which will uplift the standard of treatment. Raising of number of beds in these hospitals (*vide* Table XV-5 & 6) will also help to improve the situation. In addition to this the services of the specialized hospitals and those attached to teaching institutions will be readily available to the urban population.

Maternity and Child Health Care in urban areas will be streamlined by establishing Maternity and Child Health Centres attached to each Sub-divisional and District hospitals.

Industrial workers in the urban areas will be given health care through industrial health programme.

In addition to Governmental effort in the urban health programme the municipal authorities in the respective areas will continue their own health programme under the guidance of and in collaboration with the government as usual.

### 15.1.7 Maternity and Child Health Services

The need for greater emphasis on Maternity and Child Health (MCH) Programme in Bangladesh will be obvious from the fact that one in six infants die at birth or within the first year of life and the maternal mortality rate is as high as 30 per 1,000. It is vital, therefore, that specific programme to uplift the status of existing MCH services is included in the Health Plan. In addition to reducing maternal and infant mortality rates, organized MCH Centres will provide very effective basis for launching Family Planning Programme both clinical and non-clinical under the supervision of trained personnel.

There are at present only 93 MCH Centres of which 38 centres are under Government and 55 are run by private efforts. Only 40 of these centres are situated in rural areas. Moreover, the staff strength of these centres is grossly inadequate. Without any Medical Officer on the staff, these centres have to gain the confidence of their prospective clients.

Further, the L.H.Vs. who are in charge of these Centres cannot cope with regular home-visit.

Each of the 150 Rural Health Centres that have been established so far, contains a MCH Unit. However, quite a number of them are not functioning properly due to want of staff and/or equipment. Nevertheless, since the RHC as an organisation is better known to the villagers due to its general health programme and better professional reputation, MCH Units of Rural Health Centres, even though under-equipped, may have given better services and attracted larger number of mothers and children than have the isolated MCH centres. The Plan, therefore, provides for MCH Services in rural areas to be expanded through MCH Unit of the Rural Health Complexes and their Sub-Centres. By the end of the Second Five-Year Plan period all the rural thanas and rural unions will be covered



with Health Complexes and Sub-Centres respectively and thus a net work of MCH Units will be available throughout the rural areas of the country. As the Rural Health Complexes will have well-equipped hospitals referral services will also be available to these MCH Units.

Existing MCH Centres run by the Government will be brought under the supervisory control of Thana Health Administrator in rural areas and SDMOH in the urban areas. Referral services will be made available to these centres at R H Complex or at Sub-divisional or District Hospitals.

As for Urban areas MCH centres will be attached to each of the District and Sub-divisional Hospitals with adequate staff and equipment.

Four new LHV Training Centres will be established in four large towns, including Chittagong and Khulna, for producing sufficient number of LHVs for the health programmes. These training centres will also provide MCH services. The MCH programme in these populous areas will thus be strengthened further to give better coverage.

#### **15.1.8 Industrial Health**

Already several lakhs of workers are engaged in mills and factories and within the foreseeable future the size of industrial labour force will increase manifold. The majority of industrial enterprises have so far failed to provide organized health services for their workers; also there has been no serious effort by the Government to provide such services.

Industrial workers are liable to be exposed to additional risks of health hazards because of their occupation and occupational environment. They need, therefore, care from specialist in Industrial Medicine and Health. While general Health Services may take care of the other health problems prevailing in the population in general, a special Industrial Health Programme is required.

Moreover, in Bangladesh, in the early stages of industrialization most of the industrial workers are drawn from the rural areas, who retain contact with their home villages. While the workers themselves live and work in a more and more congested and comparatively unhealthy environment, the maintenance of contact between the industrial workers and their relatives in the rural areas has increased the spread of infectious diseases (e.g. tuberculosis, etc.) to the general population. An organized Industrial Health Programme will be designed to control this situation by proper supervision of the environmental conditions of work and by periodical physical check up of individual workers. Thereby industrial and environmental health hazards for the industrial labour force can be minimised and communicable diseases, if any, may be detected at an early stage and referred for appropriate control and treatment under the general health services. A close co-ordination between industrial health programme and general services will be required to achieve this objective. During the First Five-Year Plan period a well-planned Industrial Health Programme will be introduced. The programme will be organized with adequate well-trained manpower supported by a full-fledged Industrial Health Laboratory specially equipped and manned for the purpose.

The Industrial Health Services will be established to serve directly a two-fold purpose, namely (i) to minimize the detrimental effects associated with the hazardous occupations and



(ii) to promote measures designed to create healthy working conditions. However, provisions of preventive and curative health care outside the place of work and health services for ailments which may arise without reference to occupation, will continue to be the responsibility of the General Health Services.

For successful implementation of the programme in the field, close co-operation and co-ordination between Health Ministry and other Ministries involved (*viz.*, Industries, Labour and Law) will be required.

It is envisaged that during the First Five-Year Plan period an amount of Tk. 0.30 crore will be spent for organizing Industrial Health Programme including establishment of an Industrial Health Laboratory.

### **15.1.9 Public Health Laboratory Services**

#### ***A. Diagnostic and Epidemiological Services***

The major health problem in Bangladesh is high prevalence of communicable diseases. Hence communicable disease control and eradication have been given high priority in the preventive health programmes. Any such programme, however, requires extensive laboratory investigation both for individual cases and large scale outbreaks. Hence there is a need for establishing a full-fledged epidemiological organization supported by Public Health Laboratory Service. The existing facilities are rudimentary. The Microbiological Laboratory of Public Health Institute at Dacca, which has an epidemiological unit in name only, is now working in this field. Both the laboratory and the epidemiology unit are ill-equipped and understaffed and cannot function effectively. Moreover, the laboratory diagnostic service in District or Sub-divisional level is non-existent.

During the First Five-Year Plan, schemes for developing the Public Health Laboratory Services and Epidemiological Services will be introduced. These will ultimately be developed into full-fledged Public Health Laboratory Services and Epidemiological organization in future plan periods through expansion of the programmes gradually.

#### ***B. Production of Anti-Sera and Toxoids***

Some of the major preventive health programmes for control of communicable diseases are dependent on immunizing agents, *e.g.*, Toxoids, Sera and Vaccines. Moreover, in case of some of these communicable diseases specific anti-sera are the only reliable means of curative treatment. In Bangladesh the Institute of Public Health is the only organization which has the capability in terms of expertise and physical facility to produce these agents. At present only two bacterial and two viral vaccines are being produced here of which freeze-dried small-pox vaccine has earned reputation throughout the world for its potency and stability.

During the First Five-Year Plan period a unit will be developed in the Institute of Public Health for the production of anti-sera and Toxoids, including the important anti-sera, *viz.*, anti-tetanus, anti-diphtheria and anti-rabies sera, and the triple vaccine (D.P.T). This will not only save the country's foreign exchange but with adequate local supply of these sera it will also be possible to strengthen the programmes for treatment and prevention of these common but preventable communicable diseases.



### **C. Production of Infusion Fluids**

Diarrhoeal diseases including cholera are the most common communicable diseases in Bangladesh. The fundamental basis of their treatment lies in infusion of suitable salts and fluids to bring back fluid and ionic balance in the human body. However, the inadequate supply of infusion fluid of proper type is a chronic problem and has been the cause of large number of avoidable deaths. Moreover, the general hospitals require huge quantity of infusion fluids in the surgical and medical wards for treatment of shock and other diseases. The purchase of infusion fluids from abroad is costly in general and in terms of foreign exchange in particular.

The Institute of Public Health has taken preliminary steps towards producing infusion fluids with the help of aid-giving agencies, in particular UNICEF. A full-fledged programme has been introduced in the First Five-Year Plan period to establish a unit for production of infusion fluids of different types in adequate quantity to meet the demand of the entire country.

#### **15.1.10 Institute of Nutrition**

The Institute of Public Health has at present a very small Laboratory for Nutrition with nominal facilities and manpower. The nutritional aspect of the health problem has so far been neglected although several surveys have indicated that nutritional deficiency is quite common in our population specially in pre-school children and pregnant mothers. A thorough investigation to clearly delineate the problem and intensive research to find solution for such problems appear to be imperative. In view of this a scheme to establish an Institute of Nutrition will be introduced in the First Five-Year Plan.

#### **15.1.11 Medical Research**

Medical research has not been given its due importance in the past. Although a number of good quality research works were carried out in Bangladesh in some of the fields of Medicine and Public Health, the medical research efforts have been totally inadequate. The reasons are many, including shortage of staff and trained technicians, non-availability of equipments, apparatus and laboratory animals and the non-availability of reference books and scientific journals. There is no separate allocation of research grant to medical institutions. High Standard of research ability is no longer an essential requirement for academic recruitment even for professorial chairs. Thus there is lack of both the means and the incentives for research work.

To encourage research the aforesaid barriers are to be removed and medical institutions having potentialities for undertaking research should be provided with reasonable research grants to be spent at the discretion of the Head of the Institution. The research grants will be allocated through the National Medical Research Council, who will receive a total allocation of Tk. 0.10 crore for the Plan period.



Since medical research in basic and clinical subjects can be located in existing institutions it may not be necessary at the initial stage to establish independent research institutes. Major health problems like control and eradication of communicable diseases should receive priority in research. An on-going scheme for epidemiological research and a new scheme for research in clinical tuberculosis have been included in the First Five Year Plan.

### **15.1.12 Development of Man-power**

Effective implementation of Health Programmes in the past has been hindered more often by non-availability of Medical and Para-Medical personnel than by lack of funds or physical facilities. It is comparatively easy to define the requirements for construction of buildings and purchase of required equipments; the difficulties of planning and implementation are more pronounced and persistent when it comes to the development of medical and para-medical man-power.

#### **A. Medical Man-power**

##### **1. Medical Graduates**

Medical education is one of the most time-consuming processes. It takes 6 to 7 years to produce doctors with minimum training and still many more years to produce teachers and specialists.

Total number of qualified doctors, including teachers and specialists, does not exceed 7,000 at present. This gives a doctor population ratio of about 1:10,000. If we consider the loss of doctors due to death, retirement, and migration and take into account the additional requirement of doctors due to population increase we shall have to produce at least 600 doctors annually even to maintain this poor ratio. The rate of production of doctors in the past was not very satisfactory; on the average only about 240 doctors came out of Medical Colleges annually during 1964-68. Recently the production rate has improved but the number remains only moderate.

During the First Five-Year Plan period a determined effort to produce doctors will be initiated. The on-going schemes will be completed at a faster rate, one Medical College will be expanded and one more new Medical College will be established during the plan period. Policies will be designed to ensure that all medical graduates can be absorbed at home and there is no further brain drain. Positive measures will be adopted regarding doctors' service conditions and emoluments so as to make them comparable to those of other professionals, considering the time and effort required to qualify as a medical doctor.

In view of the Government's declared policy of extending health facilities in large scale to rural areas it is all the more necessary to formulate and implement effective measures to attract doctors to villages providing incentives for rural jobs. So far doctors have mostly chosen to work only in urban centres.



TABLE XV-9

Expected Production of Doctors during the Plan Period from the Medical Colleges.

| Medical College.           | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 | Total. |
|----------------------------|---------|---------|---------|---------|---------|--------|
| Dacca .. ..                | 100     | 100     | 140     | 140     | 140     | 620    |
| Chittagong .. ..           | 72      | 72      | 105     | 105     | 140     | 494    |
| Rajshahi .. ..             | 72      | 72      | 105     | 105     | 140     | 494    |
| Sylhet .. ..               | 52      | 52      | 70      | 70      | 112     | 356    |
| Mymensingh .. ..           | 52      | 52      | 70      | 70      | 112     | 356    |
| Rangpur .. ..              | ..      | ..      | 35      | 52      | 112     | 199    |
| Barisal .. ..              | 35      | 35      | 52      | 70      | 112     | 304    |
| S.S. Medical College .. .. | 105     | 105     | 140     | 140     | 210     | 700    |
| Total .. ..                | 488     | 488     | 717     | 752     | 1,078   | 3,523  |

The existing eight medical colleges have an intake capacity of 1,405 students annually. One more medical college will be established at Khulna during the Plan period increasing the annual intake capacity to 1,500. Admission of students into the medical colleges will be rationalized during the plan period. A conservative estimate for the Plan period for production of medical graduates gives a gross addition to the current number of 7,000 doctors of little over 3,500 doctors (*vide* table XV-9). Allowing for normal retirement and death of doctors, the doctor population ratio of 1:10,000 to day may be increased to around 1:9,000.

## 2. Doctors with Post-Graduate training in Curative Medicine

At present more than 50 per cent of the posts for teachers and specialists are vacant. There is, therefore, an urgent need for greatly accelerated production of doctors of these categories through an intensive post-graduate training programme initiated during the First Five-Year Plan period. High priority will be given to cover this gap by developing well-equipped and adequately staffed post-graduate institutions. The present acute shortage of teachers in the basic subjects threatens to lower the standard of doctors. Without a sound knowledge in basic subjects students often fail to grasp the intricacies of clinical theories and practices. It is imperative, therefore, that facilities for training in basic subjects in the Post-Graduate Institutes be strengthened.

## 3. Doctors with training in Preventive Medicine and Public Health

Since there is an acute shortage of doctors specially trained in public health, most of the preventive health programmes have so far been supervised by medical personnel without preventive medicine and public health qualifications. During the plan period Post-Graduate training of Doctors in Public Health and Preventive Medicine will be supported by the establishment of a Post-Graduate School of Preventive Medicine and Public Health.



#### 4. Curricula in Medical Colleges and Post-Graduate Institutes

Present Curricula followed in Medical Colleges and Post-Graduate Institute do not give due emphasis on the special health problems of Bangladesh. The common communicable, nutritional and other diseases as well as preventive and community medicines should form the major portion of the syllabus. There must be a full-fledged Department of Preventive Medicine under qualified professors in these subjects in each medical college. Each medical college would have a demonstration area for field work for the provision of comprehensive health care through active participation of teachers, students, nurses and other staff.

##### *B. Need for Creating a Cadre of Medical Assistants*

With only one doctor for a population of 9 to 10 thousand on an average it is not possible to deliver medical care to more than a small proportion of the people. For the rural population the problem is aggravated by the concentration of doctors in the big cities and towns. It is impossible to fill the gap within one or two decades. The solution must for a long time be found by creating a cadre of medical assistants.

At least seven developing countries in Africa and one in South West Pacific region have adopted system of medical assistants with very good results. China's peasant doctors are also well-known for the revolutionary improvement achieved by their services in delivering medical care. Even in developed countries like US, UK and USSR a cadre of auxiliary medical workers known as medical assistant or feldsher has been introduced to strengthen the system of delivery of medical care.

Creation of such a corps of medical assistants can help to solve the problem of dearth of doctors in Bangladesh. These auxiliary personnel may play a number of roles starting from physician's assistants as in USA, to the feldsher of USSR, who functioned at one time as a doctor's substitute. Medical assistants may support the doctor by taking the more routine work of the doctor's hands and also by performing some more complex tasks under the guidance and supervision of the doctors. Where the services of doctors are not available they can be called upon even to replace the doctors. Thus their roles are differentiated by the degree of responsibility.

A medical assistant may be suitably trained to work in rural health centre as the head of a team of health workers under the supervision of the Thana Health Administrator or he can remain in-charge of a sub-centre as a substitute of a doctor. His services may also be conveniently utilized in out-patient departments of the Sub-divisional and District or outlying Hospitals where a shortage of doctors prevails. He would apply the preventive measures prescribed by the higher health authorities and meet the needs of the population under his care for simple treatment. He should be able to attend to the more common complaints, treat the simpler cases and refer the more complicated ones to the nearest doctors.

Creation of a cadre of medical assistants to improve the medical and health care situation in the country does not mean relinquishing the efforts for training more doctors. The doctor is indispensable, but he must accept assistance which will allow him to devote his



energies to act as the leader of a team performing tasks that call for his superior skills, leaving the medical assistants to handle the simpler tasks.

Training of medical assistants will be arranged by developing a training centre around each of the modernized sadar hospitals (8-10 in number). Each centre may admit about 80 students to start with. The National Medical Institute at Dacca and Mirjapur hospital of Tangail may also be utilized as such as training centres. Thus in ten or more centres at least 800 students can be trained in each batch. With a course designed for two years approximately 750 medical assistants will be produced each year with effect from 1975-76.

Minimum academic qualification for recruiting students for training as medical assistants should be HSC in Science with Biology, Physics and Chemistry (*i.e.* Pre-medical Group of subjects). The two-year courses would comprise six months' pre-clinical and one year clinical bed side medicine, followed by six months' internship in district/rural hospitals. The syllabus should be relatively simple with emphasis on preventive medicine and patient care.

Qualified medical assistants who have completed at least three years' services in the rural areas under any national health programme should be eligible for admission into medical colleges for MBBS Course. The selection of candidates would be made on the basis of performance during the three years' service as medical assistant as well as the fulfilment of usual requirements for admission into the medical colleges. However, all the relevant issues including this course of studies and the duration thereof will be determined by a committee to be set up by the Government for the purpose. The selected candidates for MBBS course will be given deputation terms during their stay in the Medical College and be treated as on duty with full pay. Such an avenue for upgrading medical assistants to doctors will act as an incentive for attracting better quality candidates to training as medical assistant.

To make the career of a medical assistant attractive he will be given appropriate status with commensurate pay scale. There will be provision for career prospects through promotion on the basis of merit within the cadre (*e.g.* junior medical assistant to senior medical assistant) so as to attract trainees of better calibre and provide incentive for improvement in the quality of work.

When a medical assistant has been trained he must be expected to be absorbed in a suitable position in the country's medical system and must be allowed to exercise the functions for which he has been trained. This implies creation of positions in the administrative structure, definition of career prospects, of a chain of command, and relationship with other members of the health team. His professional responsibilities and his right to exercise them with a reasonable degree of independence need to be clearly laid down.

In view of the acute shortage of doctors the programme for training Medical Assistants will be given high priority during the First Five-Year Plan period. It is estimated that the cost of the programme during the Plan period will be Taka 3.00 crore with a foreign exchange component which is one-third of the total.



### *C. Training of Nurses*

#### **Basic Nurses.**

The Nursing Services of the country is extremely weak. At present there are only about 700 trained nurses distributed throughout the country. With 7,000 doctors this gives a Doctor/Nurse ratio of 10 : 1, compared to 2-5 nurses to 1 doctor in any developed country.

The reasons for this acute shortage of trained nurses are many. Firstly, there is a socio-cultural barrier to our women's taking up nursing as a profession. Secondly, there has been absence of initiative in attaching priority to developing well-organized training facilities for Nursing. Thirdly, there is want of real effort to make the nursing profession attractive to the potential trainees. The few existing nurses' training centres suffer from want of adequate residential facilities, training equipment, library facilities and even teaching staff. The status of nurses in the hospitals and other institutions is ill-defined, often leaving the nursing personnel without pride in their profession commensurate with their responsibility for and contribution to the care of the sick.

During the Plan period nurses' training programmes will be developed on a priority basis. Permanent Nurses' Training Centres (NTC) will be established with sufficient residential accommodation, adequate staff and teaching facilities in all the Medical Colleges where a NTC does not now exist at the moment.

In addition, existing training centres will be improved and expanded. This will also improve the nursing services of the medical colleges hospitals, as the trainee nurses while taking their hospital training, will supplement the present grossly inadequate nursing staff.

The status and salaries for the different cadre of Nursing Services will be enhanced. In the hospitals nurses will be given their due position and respect as equal partner of the "Doctor-Nurse Team" in the treatment of patients. When the nurses are placed in a position of esteem within the hospital (which is lacking now) they will soon be given the same respect by people outside the hospital.

In consultation with the National Nursing Council a "Condensed Course" training programme will be arranged to convert the matriculate "Nursing attendants", who have already served for at least four years, to basic nurses.

The on-going scheme of "Crash Programme for Training of Nurses" shall be implemented with all seriousness to produce as many basic nurses as possible. Some of the training centres organised under this programme, which will be found to be satisfactory on the basis of performance, will be developed as permanent training centres in due course.



During the year 1972-73 the total intake capacity of Nurses' (Basic) Training Institutions, including the Crash Programme is 775 as shown in Table XV-10.

TABLE XV-10

## Regular Training Facilities for Basic Nursing (1972-73).

| Nurses (Basic).                   |                         | Lady Health Visitors. |                         | Midwives.       |                         |
|-----------------------------------|-------------------------|-----------------------|-------------------------|-----------------|-------------------------|
| Institution.                      | No. of intake annually. | Institution.          | No. of intake annually. | Institution.    | No. of intake annually. |
| NTC, DMCH ..                      | 150                     | LHVTC, Azimpur        | 50                      | Crash Programme | 170                     |
| NTC, RMCH ..                      | 50                      | LHVTC, Rajshahi       | 20                      |                 |                         |
| NTC, CMCH ..                      | 50                      | LHVTC, Barisal        | 45                      |                 |                         |
| NTC, MMCH ..                      | 50                      |                       |                         |                 |                         |
| NTC, Mitford ..                   | 25                      |                       |                         |                 |                         |
| 16 Centres under Crash Programme. | 450                     |                       |                         |                 |                         |
| Total ..                          | 775                     |                       | 115                     |                 | 170                     |

Expansion of the training programme by opening Nurses' Training Centres in the remaining four Colleges during the plan period will help increase the intake of students. Since, however, the facilities will have to be created gradually and since the course is for four years, the increase in actual output of nurses will be available only in the next Plan period. The position during the Plan period regarding the intake and production of qualified Basic Nurses is given in Table XV-11.

TABLE XV-11

## Expected intake of Students for Training in Basic Nursing and output of Basic Nurses (1973-78)

| Year.   |    | Intake capacity<br>(expected). | Output of Nurses (Basic). |                   |
|---------|----|--------------------------------|---------------------------|-------------------|
|         |    |                                | Actual Number.            | Cumulative Total. |
| 1973-74 | .. | 775                            | 215                       | 215               |
| 1974-75 | .. | 900                            | 157                       | 372               |
| 1975-76 | .. | 1000                           | 64                        | 436               |
| 1976-77 | .. | 1200                           | 620                       | 1056              |
| 1977-78 | .. | 1200                           | 620                       | 1676              |

\*Calculated as 80 per cent. of actual intake; loss due to drop-outs and failures being 20 per cent.



Thus it is estimated that during the plan period a little over 1600 basic nurses will be produced with an appreciable increase of training facilities for Nurses' training programme. The main effect of the increased facilities however, will come during the next Plan period.

To produce teachers for the NTCs. and LHV Training centres, the existing post-basic college for nurses which is being run on make-shift basis has to be fully developed as a permanent full-fledged institution as quickly as possible. The teaching staff, students' hostels, equipment and apparatus, library and other physical facilities will have to be provided in well-planned buildings to ensure effective training.

#### *D. Training of Para-medical Personnel*

The shortage of all categories of para-medical personnel is also acute. In fact, the total number of para-medical personnel is less than that of qualified doctors. In developed countries each doctor on the average works with 6 to 10 para-medical workers. During the Plan period a priority programme will, therefore, be undertaken for producing a large number of Para-Medical Personnel to improve the effectiveness of the health services.

The intake of students in different disciplines of all para-medical training schools will be flexible and guided by actual requirement in the health services. The syllabus of the various courses will be recast completely and will be biased towards practical and field work rather than theory. After a core course in each discipline, the trainees will be distributed to relevant institutions to learn their "trade" on the job.

In the present system, there is uncertainty about employment and promotion opportunities. This adversely affects both recruitment to the para-medical institutes and increases the drop-out rate. Efforts will now be made to attract students with better educational background, making each category of para-medical personnel an attractive cadre with prospects for promotion depending on qualifications and performance.

At present, the only functioning para-medical training institute is at Dacca. One more Para-medical Training Institute has been constructed at Rajshahi and is in the process of being manned and equipped. It is expected that the Institute at Rajshahi will start functioning in the year 1973-74. During the Plan period a third Institute will be established.

As for training of Lady Health Visitors (LHV), four new Lady Health Visitors Training Centres (LHVTC) will be established during the Plan period in addition to strengthening and expansion of the existing three LHVTCs with a view to meeting the requirement. Moreover, due to integration of Family Planning with Health Services the existing four Training cum-Research Institutes of the Family Planning programme can be conveniently used for training LHVs.

A number of crash programmes will also be introduced during the Plan period to tackle the problem of shortage of different categories of para-medical personnel. The situation regarding para-medical personnel has been shown in table XV-12.



TABLE XV-12

Estimated output of Para-Medical personnel during the Plan period (1973-78)

| Category of personnel. |  |     |     | Existing,<br>1972-73. | Estimated<br>output du-<br>ring the Plan<br>period. | Target<br>1977-78. |
|------------------------|--|-----|-----|-----------------------|---|--------------------|
| 1.                     | Sanitary Inspector                       | ... | ... | 980                   | 1,240   | 2,220              |
| 2.                     | Compounder/Pharmacist                    | ... | ... | 1,500                 | 2,000   | 3,500              |
| 3.                     | Laboratory Technician                    | ... | ... | 270                   | 1,500   | 1,770              |
| 4.                     | Radiographer/X-Ray Technician            | ... | ... | 130                   | 370   | 500                |
| 5.                     | Blood Bank Technician                    | ... | ... | 20                    | 250   | 270                |
| 6.                     | Radiotherapy Technician                  | ... | ... | 10                    | 250   | 260                |
| 7.                     | Physiotherapy Technician                 | ... | ... | 20                    | 250   | 270                |
| 8.                     | Dental Technician                        | ... | ... | 20                    | 250   | 270                |
| 9.                     | Lady Health Visitor                      | ... | ... | 800                   | 3,200   | 4,000              |
| 10.                    | Midwife                                  | ... | ... | 250                   | 500   | 750                |
| 11.                    | Multipurpose Basic Family Welfare Worker | ... | ... | Nil                   | 25,000  | 25,000             |

**15.1.13 Utilization of Manpower**

(i) Production of manpower will be planned on the basis of the fullest possible utilization of all available medical, nursing and para-medical personnel. This will be ensured by well-planned production of manpower and the timely creation of suitable job opportunities. Effective use of available manpower will be facilitated by prescribing appropriate emolument, status, housing facilities and other privileges.

(ii) Development of high level medical specialities must reflect the requirement of the national health programmes and not only the doctors' individual preferences to this end. A flexible system of subject-wise quota for post-graduate training of doctors will be instituted strictly on the basis of actual requirement and priority.

(iii) All doctors, medical assistants, nurses and para-medical personnel after qualifying from the respective National Training Institutions will be compulsorily required to serve for, at least, two years in the national health programmes, of which at least one year must be in the rural areas. One year's service in rural areas will be a required condition for crossing efficiency bar, for promotion and for post-graduate studies within the country or abroad. Posting of personnel in rural areas will be made, as far as practicable, early in the career and suitable residential accommodation will be provided.



### 15.1.14 Pharmaceutical Industry and Quality Control of Drugs

The Pharmaceutical Industry has grown in unplanned way without proper attention to the need to make the country self-sufficient in essential drugs. Many so-called manufacturers are engaged in bottling drugs imported in bulk, acting indirectly as the sales agents of foreign firms. Basic pharmaceuticals are produced by very few manufacturers. Quality control of drugs is inefficient and spurious drugs are quite common. This situation will be improved through adoption of the following measures:

- (i) Licences and financial incentives for manufacture will be given only for manufacture of basic and essential pharmaceuticals and only to those manufacturers who can provide both the financial and technical resources to operate such an industry.
- (ii) The requirement of each basic and essential pharmaceuticals will be assessed prior to the issue of licences and extension of financial and other incentives to qualified manufacturers. The aim would be to achieve self-sufficiency in the basic and essential pharmaceuticals on priority basis.
- (iii) Initially the Pharmaceutical Industries will be required to manufacture only those Pharmaceutical products including basic chemicals which are required to meet the internal demand in the country. Once self-sufficiency is achieved, manufacture of pharmaceutical and chemicals may be geared up for exports.
- (iv) An effective mechanism will be developed to check and recheck for quality of all pharmaceuticals and chemicals produced by the industry. Each industrial concern will be required to have a quality control laboratory with adequate equipment and staff for examining their own products. They will be required to maintain records of such examination for verification whenever necessary. Manufacturers cannot release any substandard product for distribution under any circumstances.
- (v) The present machinery for quality control will be re-organized as follows:
  - (a) The licence giving authority will be separated from the authority concerned with quality control.
  - (b) Quality control of pharmaceuticals will be enforced by regular collection of random samples at different points (*viz.*, from the firms, distributor and drug stores) for testing at the drug control laboratory of the Government.
  - (c) Appropriate action will be taken if the results of tests significantly differ from those maintained in the records of the manufacturer, by fixing responsibility at the relevant point.
  - (d) The existing Government Drug Control Laboratory will be expanded and strengthened with physical facilities, supplies and trained scientific and technical staff to cope with the large number of tests to be performed.
- (vi) Drug Licensing and Drug Control Acts will be reviewed and amended.



### 15.1.15 Mobilization of Resources

Health care is a basic right of every citizen, funds allocated for the health programme are in no sense "non-productive". Government is committed to arranging health care for all. Free health care must be provided to the poor and needy, who cannot pay the cost, but where possible and practicable the cost for providing health care will be recovered directly from those who can afford to pay.

#### A. Health Insurance Scheme with Contributions by Employers

A comprehensive health insurance scheme will be implemented in which the Government and the employer will be at the paying end and the employees mainly at the receiving end. The scheme will have to be implemented in a phased manner, starting with specific categories of employees and gradually extending to give 100 per cent coverage. Private employers will have to be included in the scheme and made to pay their contribution, if necessary, by enactment of appropriate laws.

Until the Health Insurance scheme is organized expenditure on medical allowances to employees may be reorganized in a more rational way to ensure that they really obtain all that they need. The present system of disbursing full medical allowances at a flat rate of say 15 taka per month to each employees of certain categories most often leads to the money being spent for purposes other than health care.

If every Government, industrial or private employer were to contribute at a flat rate of 15 taka per month per employee for providing health care, an amount of Taka 4.5 crores would be accumulated per month, generating Taka 50-60 crore annually. This is more than double the total expenditure incurred at present by the Government under revenue and development heads combined. Such a financial resource could provide a solid base for development and maintenance of a permanent, well-planned, comprehensive and free health care facility for all the employees and their families replacing the patchy and incomplete health care which they now enjoy. In addition, a surplus would be available for implementation of other programmes in the Health Sector.

#### B. Paid Service Through Poly-Clinics

Paid and free services must be separated. All paid services will be abolished from Government Medical Institutions in order that all patients will receive equal care and attention in each Public Institution. But those who can afford to pay, will have to bear the full cost of services. This can be achieved gradually by setting up Poly-Clinics to provide paid services.

Initially such a scheme will be introduced in the urban areas. The Government will provide buildings and equipment for each such clinic. They will remain the property of the State but will be managed by Boards formed by the Government on a self-supporting basis. The Board of each clinic will appoint its own Doctors, Nurses, Consultants and other staff and pay them from the income of the clinics. Funds for subsequent improvement and expansion must be provided from the surplus income of the clinic. Surplus income may also be



utilized for setting up new clinics or for other health programmes. Thus these clinics will involve only capital investment out of public funds, without any recurrent expenditure from the Government. In due course they may generate funds for expansion and improvement of health facilities.

#### 15.1.16 Administration

The existing administrative system needs to be reviewed with a view to making it more effective:

- (a) There is a strong need for decentralization of both administrative and financial powers and responsibilities, both in order to facilitate implementation of the development programmes and to improve routine work.
- (b) Existing procedures for release of funds to the agencies concerned for development work have to be streamlined.
- (c) The Planning Cell of the Ministry of Health will be reorganized, and staffed with experienced officers and supporting personnel for planning and implementation of development projects.
- (d) The Government will consider the establishment of a National Health Council with representatives from Government, National Medical and Public Health Associations and other representatives under the Chairmanship of the Health Minister. Such a National Health Council would be responsible for recommending major health policies and programmes. One objective of such a Council would be to ensure that a people-oriented health programme is formulated.

#### 15.1.17 Financial Allocation and Priority

In the past, financial allocations for development of the health sector have been woefully inadequate. The situation was further aggravated by failure to release even the funds allocated. Moreover, whenever general financial constraints were imposed, they affected Health more than any other sector.

The allocation in the First Five-Year Plan for the health sector has been set at Tk. 200.00 crore (excluding the Family Planning Programme). While it is a major improvement on past allocations, it allows for only a modest programme.

A major portion of the plan allocation (Tk. 170.00 crore) will be required to complete most of the on-going schemes. However, funds are also available (Taka 30.00 crore) for implementing new programmes.

In drawing up the plan financial priority has been given to:—

1. Rural Thana Health Complexes including 25 bed hospitals in each Rural Thana.
2. Provision for raising the number of hospital beds and improvement of hospital facilities.



3. Improvement of man-power by providing training and teaching facilities (both at under-graduate and post-graduate levels) for doctors, nurses, medical assistants, and para-medical personnel.
4. Vastly improved programme for M.C.H. both in rural and urban areas.
5. Eradication/Control of infectious diseases including tuberculosis and improvement of production of immunizing agents.
6. Introduction of health programmes for industrial workers.
7. Improvement of drug control, drug research and drug distribution.

## 15.2 SOCIAL WELFARE

### 15.2.1 Introduction

In the past the Social Welfare Sector was neglected. The welfare programmes were in operation mainly in the urban areas. A limited amount of assistance was given to the physically handicapped children needing protection and some voluntary organizations involved in social welfare work. The war of liberation has aggravated the social problems by creating thousands of dishonoured and destitute women, orphan children, disabled men and women. The normal social life of millions of families has been affected adversely in one way or another. Thus on top of the already existing numerous social problems we have to cope with those created by the War of Liberation.

### 15.2.2 Programmes in the Pre-Liberation Period

During the period 1955-60 only 34 thousand taka were allocated to Social Welfare Sector in Bangladesh. In the subsequent periods the allocations were gradually increased. However, the funds allocated always fell far short of actual requirements and whatever allocations were made were seldom fully utilized. The allocations and utilization of funds for the period from 1960-70 are given below:

(Taka in crore.)

| Period  |    |    | Programme<br>Allocation | Budget<br>Allocation | Amount<br>utilized |
|---------|----|----|-------------------------|----------------------|--------------------|
| 1960-68 | .. | .. | 2.856                   | 2.130                | 1.600              |
| 1965-70 | .. | .. | 6.000                   | 2.104                | 1.495              |

The above table shows that although there was steady rise in the allocations for the programme in succeeding periods there was virtually no rise in actual allocations. Only Taka 0.25 crores were allocated for this sector for the period June 1970 to December 1971.

In addition to shortage of funds the programmes suffered and fell far short of targets due to slow utilization of whatever meagre funds were allocated. In fact only 74 per cent of the



actual allocation was used during the entire period under review. Rate of utilization was adversely affected due to the following reasons :

- (a) Absence of a Planning Machinery in the Ministry of Social Welfare and the consequent lack of sufficient number of viable projects.
- (b) Delay in release of funds due to administrative bottlenecks.
- (c) Lack of sufficient authority on the part of the implementing agencies to acquire necessary physical facilities in time.

### 15.2.3 Need for a Policy

It is necessary to adopt social welfare programmes for the benefit of those sections of the community who are unable to find a place for themselves in the society unaided by the government, voluntary organizations or philanthropists. Unless appropriate measures are taken a social misfit is not only a burden to the society but may turn out to be a threat to the social fabric. Thus social welfare has two important facets. First, the positive aspect, that is, to improve the existing social environment. Second, the negative aspect, that is, to protect the existing social order from the threat of disruption or from being burdened by those members of the society who cannot satisfy the social needs on their own.

While the first aspect of social welfare involves almost the entire efforts of the state machinery, viz., law and order, food, health, education, housing, communication, industry, etc., for the benefit of the vast majority of the people in the country, the second aspect of social welfare has often been pushed behind and lost sight of since it involves minority groups. But the unfortunate minority who cannot attain the social norm and does not fulfil the social needs either temporarily or permanently, is also an integral part of the society. For the benefit of the society itself, if not for anything else, this minority group must be taken care of.

In view of this there is a need for formulating a clear-cut policy of Social Welfare in the socio-economic Plan of the country. It is due to the lack of specific policy that this sector has been so poorly treated in matters of national planning. Since the First Five-Year Plan is being prepared in the background of socio-economic disruptions caused during the war of liberation and since social justice has been set as a goal in the Constitution of the country the need for an appropriate policy in this sector has become all the more urgent.

### 15.2.4 Objective

- (i) To help the communities to meet their basic social needs.
- (ii) To help all physically, mentally and economically handicapped members of the society to overcome their handicaps and become useful citizens.
- (iii) To arrange rehabilitation of the victims of Pakistan Army of occupation and other natural disasters like cyclone, tornado and land erosion, etc.
- (iv) To organise child care programme for the development of "Children without care".



- (v) To provide opportunities to the youth of the country to be of service to the society.
- (vi) To help individuals with specific socio-psychological problems like drug-addicts, frustrated and withdrawn who without such help cannot make positive contribution to the society.

### 15.2.5 Strategies

(i) Social Welfare programmes so far introduced in the country is urban biased. Steps will be taken to change this trend and programmes of this sector will be reorganized to extend the services to the rural areas to create dynamic rural communities by infusing the concept of self-help. This will require collaborative efforts of social welfare sector and other socio-economic sectors like Health, Education, Housing, Communication, Employment, Population Control and Rural Development. It is visualized that by such coordination efforts a new healthy social order will emerge in rural communities. This will also help to prevent migration of rural population to urban areas.

(ii) Urban Communities in spite of the on-going urban social welfare programmes are still continuing to suffer from various social maladies. This indicates that the urban social welfare programmes are to be revitalized, strengthened and speeded up.

(iii) The strength and weaknesses of the social welfare programmes will be evaluated to determine the manner in which the programmes could be made more effective.

(iv) Private social workers and organisations will be encouraged to participate, in a co-ordinated manner, in social welfare programmes as envisaged in the plan.

(v) Financial grants by the government to the private social welfare organizations will be restricted to the minimum and will be allowed only where actual performance and real need justify. This restriction will be imposed to curb the growth of mushroom organizations, to create the concept of self-help in the community and to generate the willingness and real sense of social service in the workers and the organizations.

(vi) The destitute women and children need urgent and massive help for their Social and Economic rehabilitation. Social Welfare measures in this sphere have already been taken up and will be strengthened and speeded up.

(vii) The services for physically handicapped children, men and women, like blind, deaf and dumb, etc., need further augmentation to give wider coverage. Efforts will be strengthened in this field by improving the existing service facilities and creating new institutions.

(viii) Adequate programmes will be formulated to enable the youth to take part in socially constructive activities.

(ix) Necessary training facilities for the man-power required to support the Social Welfare Programmes will be provided and the administrative facilities for executing the programmes will be improved.



## 15.2.6 Physical Targets

Physical targets for social welfare sector for the first Five-Year Plan (1973-78) are given in the Table XV-13.

TABLE XV-13.

## Benchmark and Physical Targets for the First Five-Year Plan

| Sl. No. | Programme.  | Benchmark 1972-73. | Expected increase during the Plan period. | Physical Targets for the First Plan (1977-78). |
|---------|---|--------------------|---|--|
|         |   | Units.             | Units.                                    | Units.   |
| 1       | Community Development and Rural Social Services .. .. .                       | Nil                | 466                                       | 466  |
| 2       | Social Welfare Services for the victims of war of liberation .. .. .          | 40                 | 22  | 62   |
| 3       | Medical Social Work .. .. .   | Nil                | 42  | 42   |
| 4       | Social Welfare Administration and Policy                                      | Nil                | 24  | 24   |
| 5       | Social Welfare Services for Children ..                                       | 11                 | 27  | 38   |
| 6       | Social Services for the Physically handicapped                                | 11                 | 10  | 21   |
| 7       | Social Welfare Services for Youth ..  | 7                  | 13  | 20   |
| 8       | Social Welfare Services for the Delinquents and Criminals .. .. .             | Nil                | 8   | 8  |
| 9       | Professional and Financial Assistance to Voluntary Social Welfare Agencies .. | ..                 | ..  | ..   |
| 10      | Social Welfare Training .. .. .   | Nil                | 1   | 1  |
| 11      | Social Welfare Research and Publication ..                                    | Nil                | 1   | 1  |
| 12      | Social Welfare Services for the Vagrants and Destitutes .. .. .               | Nil                | 8   | 8  |
| 13      | Social Welfare Services for Old and Infirm ..                                 | Nil                | 2   | 2  |

## 15.2.7 Major Programmes

## A. Rehabilitation of War Affected Destitute Women and Children

A number of social welfare agencies including the social welfare department of the Government of Bangladesh initiated programmes to rehabilitate the unfortunate and helpless women and children after the war of liberation. The on-going Government Programme for Care, Protection, Education, Training and Rehabilitation of Orphans and Destitute Women which was started during 1972-73 will continue during the Plan period. Altogether 62 units of the



programme will be established all over the country at a total cost of Tk. 25.4736 crores. An amount of Tk. 0.9454 crores has already been spent and it is envisaged that during the Plan period a sum of Tk. 13.9802 crores will be utilized leaving Tk. 10.5480 crores for the next plan period. Of the proposed total plan out-lay of Tk. 20.0000 crores for both on-going and new programmes in the Social Welfare Sector during the plan period the expenditure of Tk. 13.9802 crores for this programme shows the importance which the Government attaches to the problem of destitute women and children.

Jatiya Nari Punarbasan Board, an autonomous organization, and several voluntary organizations are also working in this field. Attempts will be made to co-ordinate the activities of all the agencies for maximizing national benefit.

#### *B. Social Welfare for Children*

(i) *Care of the orphans:* Inspite of best efforts to rehabilitate children there will always be some orphans who will need total care in an institution. This will need services rendered through orphanages. Hence the on-going programmes in this field will continue during the Plan period. However, the services in this respect will be strengthened to increase the coverage.

It is envisaged that the remaining work for the on-going schemes will be completed during the Plan period involving an expenditure of Tk. 15.75 lakhs. In addition, improvement and development of the orphanages both under the government and private agencies will be taken up at a total cost of Tk. 1.4179 crores during the Plan period.

(ii) One of the social problems that have so far been left unattended in the social welfare sector is the care of abandoned children. The problem has been identified now and needs immediate attention. Otherwise these children, mostly under the age of five, will either meet premature death or be forced to become beggars. Quite often they grow up to become law and order problem. As an initial exploratory measure work for starting two baby homes to take care of the abandoned children will begin during the Plan period at a total cost of Tk. 15.40 lakhs.

(iii) Establishment of one Day Care Centre will be started during the Plan period at a cost of Tk. 10.00 lakhs. This scheme will be taken up with a view to helping the potential working mothers who are unable to join the work force unless some arrangements are made to take care of their children during the working hours.

#### *C. Social Welfare for Youth*

In addition to on-going programmes which will involve an amount of Tk. 2.00 lakhs ten youth hostels and youth welfare centres will be improved in the Plan period at a cost of Tk. 10.00 lakhs to harness the youth energy for development of the country.

#### *D. Social Welfare for Physically Handicapped*

That physically handicapped people like blind, deaf and dumb of our country can become useful members of the society inspite of their handicap has been amply proved by the results obtained by providing teaching and training facilities to these people through existing



schools and training and rehabilitation centres. Hence the on-going programmes which include four educational and rehabilitational schemes will be completed during the Plan period at a cost of Tk. 27.49 lakh. In addition one school for Deaf and Dumb and one school for the Blind will be established at a cost of Tk. 100.18 lakh during the Plan period.

#### *E. Social Welfare for Beggars*

Beggary destroys the sense of human dignity. The number of beggars in the country seems to be growing fast. The solution of the problem is not easy. The problem has to be tackled by a two-pronged attack. First, by rehabilitating the beggars with necessary training in useful trades so that they can earn their living and secondly, by eradicating the causes that lead these people to accept such a degrading profession. The first measure although palliative has produced good results as has been found from the existing training and rehabilitation centres in spite of inadequate facilities. Hence two vagrant and beggar homes will be developed further to improve the quality and quantity of services rendered through them at a total cost of Tk. 25.00 lakh during the Plan period.

#### *F. Social Welfare for Delinquents*

A programme for probation and after care services which had been started before this plan period will be completed.

#### *G. Social Welfare for Old and Infirm*

One home for the old and the infirm will be started during the plan period at a cost of Tk. 10.00 lakh as an initial effort in this field.

#### *H. Medical Social Work*

While medical social work is an integral part of Health and Social Welfare Services in all developed countries, in Bangladesh only 18 centres are functioning with restricted facilities. To improve the situation the existing centres will be further developed and 24 new centres will be created to strengthen the services in the Plan period at a total cost of Tk. 14.56 lakh.

#### *I. Professional and Financial Assistance to the Voluntary Social Welfare Agencies*

Performance of all the agencies which are now receiving assistance from the Government and which will request for assistance in future will be evaluated before any new assistance is given. This is necessary to achieve optimum results. A sum of Tk. 15.00 lakh has been kept in the Plan as assistance to the Diabetic Rehabilitation Centre, Dacca.

#### *J. Social Welfare Administration*

Some of the drawbacks of the existing Governmental organization for administering social welfare services are due to lack of adequate personnel, office accommodation and other supplies. The organisation needs reviewing for streamlining and the physical facilities are to be strengthened. Schemes for this purpose will be introduced in the Plan period at an estimated cost of Taka 30.00 lakh.



### K. Social Welfare Training for creation of Man-power

The on-going schemes of College of Social Welfare and Research Centre will be completed during the Plan period.

### L. Community Development Programme

Rural development programmes have been taken up by the Government. Highest priority has been attached to the rural development programme in all sectors for increasing social welfare of rural people through community development works. In the social welfare sector a scheme entitled "Pilot project for extended rural social upliftment" will be introduced at a cost of Tk. 90.00 lakh during the Plan period to further this aim.

In urban areas, however, community development efforts will be supplemented by a special programme under the social welfare sector and 16 new Urban Community Development Centres will be started during the Plan period at a cost of Tk. 17.00 lakh.

### 15.2.8 Administrative Organisation of Social Welfare

The existing Social Welfare Organization which was set up in the sixties needs reviewing. The responsibilities of the organization have grown manifold by now due to establishment of many new Institutions to provide services. But even after more than 10 years almost the same set-up is being continued. The existing organization is not, therefore, able to cope with the ever-increasing responsibilities. Whenever attempt was made in the past to strengthen the set up it was dropped on the ground of financial constraint by the then colonial rule. This has not only prevented the existing institutions from giving their best but at the same time also given rise to a feeling that this is an unimportant sector.

Social Welfare Administration of the Government often fails or becomes only partly successful in implementing some of the Social Welfare measures due to lack of support by necessary legal provisions. In view of this collaborative efforts between the Social Welfare and Law Ministries are called for immediately to make such legal provisions as are essential for the success of National Social Welfare Programmes.

### 15.2.9 Financial Requirements

Financial implication of the programmes has been summarized in the Table XV-14.

TABLE XV-14.

Financial Requirements for First-Five Year Plan in Social Welfare Sector.

(Taka in crore)

| Status of Schemes | Total Cost | F. F. C. | Expenditure up to 1972-73 | First Plan allocation |          |
|-------------------|------------|----------|---------------------------|-----------------------|----------|
|                   |            |          |                           | Total                 | F. E. C. |
| On-going .. ..    | 28.0583    | 0.0355   | 2.6020                    | 15.0286               | 0.0215   |
| New .. ..         | 9.6829     | 0.1460   | ..                        | 4.9714                | 0.1460   |
| Total .. ..       | 37.7412    | 0.1815   | 2.6020                    | 20.0000               | 0.1675   |



Total allocation of Taka 20·00 crores for development efforts in Social Welfare Sector for the Plan period is not very large. The allocation for this sector has been kept at this level in view of limitation of funds and large demands of directly productive sectors and not because of lack of appreciation of the needs of this sector. An expenditure of Taka 20·000 crores will, however, mean a 1,400 per cent increase in outlay compared to that in 1965-70. The experience gained during the First Plan period will help to adopt an accelerated programme during the subsequent Plan periods.



## CHAPTER XVI

### POPULATION PLANNING PROGRAMME

#### 16.1 PRESENT DEMOGRAPHIC PICTURE IN BANGLADESH

The population of Bangladesh, according to 1961 census, was 5.28 crores. It has been growing at a very fast rate and the estimated population in January 1973 was 7.40 crores. The present estimated rate of natural increase is as high as 3.0 per cent with birth and death rate of 47 and 17 per thousand respectively. Growing at this constant rate the population will double in 23 years and by 1996 the population density would be 2680 persons per square mile. At present nearly half the population is under 15 years. With the present high rate of population growth the percentage of dependent population will further increase aggravating the already unfavourable population structure. Such a high dependency ratio is not conducive to the growth of the economy as it will neutralize much of the gains obtained due to development efforts.

The present high rate of growth of population is likely to continue unless radical preventive steps are taken. There are about 1.40 crore women of child-bearing age, 70 per cent of whom are fertile and exposed to the risk of pregnancy, and 20 per cent of them are pregnant at any given time of the year. At the end of the plan period the number of women of child-bearing age will be well over 20 per cent of the total population. About 65 per cent of these women will be under 30 years of age with many reproductive years ahead.

This growth rate and the age-characteristic of our population, specially that of women of child-bearing age, suggests that we must critically review our past programmes for population control and formulate a set of bold and, if necessary, drastic policies for vigorous action with a view to reducing this high rate of population growth within a reasonable time. Failure in this critical area would frustrate all our development efforts. Therefore, the programme for population planning is given a place of high priority in the development plan.

#### 16.2 ACHIEVEMENTS AND WEAKNESSES OF THE PAST PROGRAMME

##### A. *Achievements*

- (i) The major impact of the programme is the awareness (regarding Family Planning Programme and availability of modern contraceptive methods) that has been created in about 85 per cent of the target population (couple with wife 15-44 years of age) despite the high rate of illiteracy and high degree of conservatism amongst the people.
- (ii) An extensive organisational structure has been built up which can be utilized to launch an improved programme based on newer strategies.
- (iii) An environment conducive to fertility control programmes has been created as a base so that, in addition to a family planning programme, a number of non-family planning measures can be gradually introduced in an attempt to control population growth.

##### B. *Weaknesses*

Although the awareness was created in 85 per cent of the target population only about 5-8 per cent of them became adopters. This large gap between awareness and acceptance points to the weaknesses of the programme which can be summarised as follows:

- (i) Unrealistic targets in the absence of intensive supervision led to fictitious reporting and abuse of incentives which were given in cash. Case-wise on-the-spot incentive payment both to the clients as well as to the family planning workers led to monetary corruption distorting the programme perspective.



- (ii) Programme strategy was limited mainly to clinical methods, viz., IUD and Vasectomy without a mechanism of follow-up, and non-clinical contraceptives like pills and condoms were almost completely neglected.
- (iii) Lack of a well-defined population policy could not give the programme a solid base to widen the programme perspective in respect of non-family planning strategies for population control and kept it restricted to birth limitation efforts instead of making it an endeavour for all-round family welfare.
- (iv) There were a number of drawbacks in the organisational structure. First, the field motivators were part-time, illiterate and untrained. Second, there was a conflict between supervising staff (e.g., District Family Planning Officer and Technical Officer) due to lack of defined responsibility and authority. Third, a number of independent directorates at the centre were creating problems of coordination leading to ineffectiveness of the action programme.

### 16.3 THE POPULATION PROBLEM

Even if Bangladesh were able to achieve a zero population growth rate in 30 years requiring a drastic reduction in fertility, which no other country has been able to achieve in such a short period of time, the population will double to over 15.0 crores by the turn of the century. If, however, there is no reduction in fertility, the population will grow to 21.0 crores by the year 2000.

Demographic projections based on four different rates of reductions by the year 2003 indicate the necessity of immediate adoption of drastic steps to slow down the population growth rate. Under the assumption of drastic reduction in fertility the population of Bangladesh is projected to reach 15.5 crores, while with no reduction it will reach 22.9 crores. Under the assumption of substantial reduction and moderate reduction the population is projected to be 16.9 and 18.9 crores respectively.

The man-land ratio in Bangladesh is already one of the highest in the world. The present 3 per cent growth rate of its population will double it in 23 years and treble it by the beginning of the next century. Even a doubling of population on the limited land space of Bangladesh is a disturbing prospect. A trebling of the population is simply frightful to visualise.

As population grows on a more or less constant land space, a number of competing demands on land are registered with increasing intensity. More land is needed to grow more food, to accommodate new factories for greater industrial production and to provide more industrial employment to the growing labour force, to provide more houses, more roads, more schools, more hospitals, more recreation space, and so on. Even without a growth in population the demand for land goes on increasing to accommodate greater production activity on various fronts and to provide for the supporting physical infrastructure. All this taken into account, it is difficult to visualise the present land space of Bangladesh comfortably supporting anything near twice its present population.

### 16.4 APPROACHES TO POPULATION POLICY

No civilized measure would be too drastic to keep the population of Bangladesh on the smaller side of 15 crores for sheer ecological viability of the nation. For this the nation has to be mobilised, and early. The more this mobilization is delayed, the more will the possibility



of attaining the above objective by currently acceptable means recede. The first requisite is the realization of the gravity of the population problem at all levels of political leadership and the total commitment to its solution.

The first task is, therefore, to launch a major educational and motivational campaign to bring the seriousness of the population problem into public focus, and to set in motion group discussions on this problem at all conceivable levels in village panchayats, factories, schools and colleges. Simultaneously, campaigns to motivate people to adopt at least the currently acceptable measures like pills and condoms and simpler clinical methods should also be launched and group responsibilities to supervise implementation of such schemes initiated.

All political leaders, educationists, social workers and intellectuals must voice their concern strongly over the high population growth rate and encourage people to adopt measures for fertility control. This will be the most effective motivating factor.

All Ministries and particularly those which maintain regular public contact, viz., Ministries of Rural Development, Agriculture, Education, Labour and Social Welfare, and Information and Broadcasting should be required to undertake family planning education and motivation programmes of their own. Their actual role in population control is described below. All voluntary organizations involved in family planning programmes or social work must be given adequate encouragement and support to strengthen their programmes for educational and motivational work for family planning.

The various students' organizations are potentially strong agents for social change. They should be encouraged by political as well as social leaders to undertake family planning education and motivation work as part of their social service programme. This will have the dual advantage of motivation of the students themselves together with the education of masses who have been observed to follow the leadership of the students.

Historically speaking, in all successful family planning programmes abortion played a central role. While keeping in mind the question of social acceptability all efforts must be made to allow this method to play its proper role in controlling the growth of population in Bangladesh.

We must consider the imposition of progressively increasing punitive measures against additional children after the second child on all couples. Once the programme gets well under way it may be worthwhile, for example, (i) to restrict ration cards in statutory and modified rationing areas to a maximum of two children, (ii) to debar couples from enjoying the benefit of fair price shops for more than two children per family. All couples should be required by law to register with family planning organization.

The first phase of launching a major educational and motivational drive, if successful, should, at least, create a climate where the possibility of more drastic measures, such as, compulsory sterilization of either husband or wife after the second child, legalization of abortion and establishment of abortion clinics for performing abortion free of cost, social measures to bring about women's emancipation etc. may be considered.

In areas where progressive leadership exists or emerges, early group resolution towards adopting the drastic measures may be forthcoming with some concentration of Government effort and support in these areas. Gradually, a climate may be created for wider adoption of such methods.



This is what we must strive for in order to survive as an ecologically viable nation. Unfortunately, the result of efforts in this direction cannot be easily quantified in advance. The best that can be done is to make periodic reviews of programmes, and, if the review warrants, to intensify efforts to reach the target of a stationary population on the smaller side of 15.0 crores in the next 25 to 30 years.

In view of the difficulty of estimating the quantitative result of the above qualitative thrusts towards population control, the various sector programmes have used a conservative estimate of the population for the First Five-year Plan terminal year (8.54 crores). This is merely to provide cushion for the per capita targets in the various sectors, and in no way constitutes any commitment for population control where an all-out social thrust must be launched.

## 16.5 OBJECTIVES

The plan objective is to reduce the rate of population growth, now estimated to be 3 per cent, by at least 0.2 per cent at the end of the plan period.

## 16.6 STRATEGIES

(i) To bring to every eligible couple the message of small family norm and family planning methods and to motivate them to become adopters through personal contacts and regular home visits by a team consisting of a male and a female trained and matriculate family health workers.

(ii) To make available adequate and timely supply of non-clinical contraceptives through programme personnel and commercial sources; to provide prompt and adequate clinical services for family planning at the clinics/hospitals with ensured follow-up.

(iii) To include non-family planning measures within the scope of the programme with a view to broadening its perspective and aim towards population planning thereby making it an integral component of the total development effort.

(iv) To maintain close collaboration and co-operation with other agencies and sectoral development programmes with a view to enhancing the effectiveness of the population planning programme.

(v) To establish an organisation with powerful leadership consistent with high national priority in respect of population control thus allowing development of truly comprehensive population planning programme and its implementation.

## 16.7 POPULATION PROGRAMME

### A. The goal of the Programme

The following table presents the population estimates under two assumptions: (i) without population planning programme and (ii) with population planning programme. It has been envisaged that at the end of the plan period the crude birth rate shall come down to 43 from the present 47 per thousand population with linear decline of crude death rate from the present 17 to 15 per thousand population.



TABLE XVI-1

Estimated Population with and without Family Planning Programme, 1973-78

| Year.   |       |   | Population Characteristics with Family Planning. |                   |                           |   |
|---------|-------|---|--|-------------------|---------------------------|---|
|         |       |   | Crude Birth Rate.                                | Crude Death Rate. | Rate of Natural Increase. | Population with Family Planning (in crore). |
| 1       |       | Population without Family Planning (in crore).<br>2 | 3  | 4                 | 5                         | 6   |
| 1973-74 | .. .. | 7.62  | 47   | 17.0              | .0300                     | 7.62  |
| 1974-75 | .. .. | 7.85  | 46   | 16.5              | .0295                     | 7.85  |
| 1975-76 | .. .. | 8.09  | 45   | 16.0              | .0290                     | 8.09  |
| 1976-77 | .. .. | 8.33  | 44   | 15.5              | .0285                     | 8.31  |
| 1977-78 | .. .. | 8.58  | 43   | 15.0              | .0280                     | 8.54  |

### B. Information, Education and Motivation

Keeping in view that motivation by part-time illiterate female *dais* and male motivators under the past family planning programmes was not successful, it has been decided that strategy of motivational efforts will be revised and strengthened by involving all relevant Ministries.

(i) Ministry of Health and Family Planning : Continuous motivation and supply of family planning materials and services will be maintained through couple registration by health and family welfare multi-purpose field workers. A team consisting of one male and one female worker who will be matriculate and trained for the job will be employed as regular government employees under the programme of Integrated Thana Health and Family Planning Complex for health and family planning education and motivation for each 8000 population. The family planning programme would be integrated with Health Services for face to face motivation, delivery of services and follow-up.

(ii) Ministry of Rural Development will develop women cooperatives for increasing their employment potential by functional literacy and education including family planning.

(iii) Ministry of Education will introduce population education in curricula of educational institutions at all levels and in the programme of adult education.

(iv) Ministry of Agriculture will incorporate family planning and nutrition education in agriculture extension programmes.



(v) Ministry of Information and Broadcasting will have programmes for dissemination of information regarding population problem and family planning through all mass media including Radio, T.V., Newspapers, Posters, Pamphlets, etc.

(vi) Ministry of Labour and Social Welfare will take up education, information and motivation on population and family planning through relevant social work programmes.

Funds will be allocated to each Ministry against specific schemes by the Planning Commission. The concerned Ministries will be responsible for implementing their schemes under respective administrative control within the limits of scheme-wise fund allocations. However, all population programmes will be coordinated by the Population Planning Division to be set up under an appropriate ministry.

### C. Target Population

Although all eligible fertile couples will be the target population for continuous motivation programme, major emphasis will be given to couples where the wife is under 30 years of age. About 65 per cent of all fertile women belong to age group 15—30 years contributing about 82 per cent of all births. These women, in general, are highly fertile and are yet to complete their family size. Real impact on the growth rate of population can be produced only if these women become acceptors of family planning methods. Specific efforts will, therefore, be applied to motivate these couples so that they plan their family size to a limit of 2 children by spacing pregnancy initially through adoption of contraceptive methods of their choice followed by adoption of a more permanent method to stop any further pregnancy when they have 2 children.

It is known that women who are over 30 years of age, married for longer period of time, with 3 or more children are more likely to be motivated to become acceptors as they are under social, economic, medical and psychological pressure due to too many children. It is, therefore, logical that these women would be the second target group for the programme. Their importance lies in the following facts:

- (i) Due to their susceptibility to motivational efforts the *initial decline* in the fertility of the population may be achieved quicker due to their quicker conversion as adopters.
- (ii) In our society, specially in rural areas where vast majority of our population live, younger women are under powerful influence of older women in their personal and social behaviour. Therefore, if women of this age group become acceptors the younger women will be provided with the much needed social support and encouragement for adopting family planning methods.

### D. Supply and Service

Once a person is motivated to accept family planning methods he/she must be promptly supplied with contraceptives or clinical services according to his/her choice to ensure continued practice of family planning methods. Hence, supplies and services will be ensured as follows:

#### (i) Non-clinical supplies

Supplies for non-clinical methods will be provided through family health workers, sale agents and commercial sources.



## (ii) Clinical Services

Clinic based programme for family planning will be arranged in all hospitals including Medical College Hospitals, District and Subdivisional Hospitals, Rural Health Complexes and Mission and Red Cross Hospitals. In addition, all the Maternity and Child Health Centres and Lady Health Visitors' Training Centres will provide clinical services and will supply conventional contraceptives to acceptors.

## (iii) Follow-Up

All clients accepting family planning methods will have follow-up services to promptly institute treatment for complication, if any.

Since the family planning programme is based on voluntary acceptance of contraceptive methods by the eligible couples and since the motivated acceptor will have the option to choose according to his/her need, convenience and liking, it will be the responsibility of the programme to explain the merits and demerits of all the available methods to help the acceptors to choose the most suitable methods. The methods to be offered are:

### (a) Contraceptive Pills

Recent observations indicate that oral contraceptives have rapidly gained popularity in Bangladesh. In view of this the contraceptive pills will be one of the important methods in the programme. However, pills will need more active and continuous participation by clients as they will have to take pills according to a rigid schedule. Hence, frequent contacts by field workers with the clients will be required to ensure the desired participation by clients and to maintain regular supply of pills.

### (b) Condoms

The use of condoms, which were neglected in the past programmes, will be given due importance in view of the fact that the recently introduced lubricated condoms have gained rapid rate of acceptance due to convenience in its use and better reliability than older type of condoms.

### (c) Intra-uterine Device (IUD)

IUD as a contraceptive method has been widely used in Bangladesh. A cadre of Lady Family Planning Visitors (LFPV) has already been created and trained to insert IUD. However, in the past follow-up of IUD-inserted cases was virtually absent. As a result this useful method, which has been proved to be quite successful in many countries, did not produce the expected result in Bangladesh. To popularize the method and to produce desired results, regular follow-up of IUD-inserted cases will be required. All family planning clinics will provide facilities for IUD insertion to willing clients with ensured follow-up and treatment of side effects, if any.

### (d) Sterilization

Vasectomy as a method for male sterilization and tubal ligation for females will be provided at the family planning clinics and hospitals. These methods will mainly be recommended for couples with two or more children and together should account for between a quarter and a third of total births prevented.



Based on the recent performance of the methods the estimated percentage of births expected to be prevented by different contraceptive methods is as follows:

| Method              | Percentage of births prevented |
|---------------------|--------------------------------|
| Contraceptive Pills | 20-25                          |
| Condom              | 25-30                          |
| Vasectomy           | 20-25                          |
| IUD                 | 20-25                          |
| Tubal Ligation      | 10-12                          |
| Liquid foam         |                                |
| Others              |                                |

While fixing the targets for the various methods the following criteria have been taken into consideration:

- (i) A very high percentage of the fertile couples is under 30 years of age. Many of these couples are yet to complete their desired family size and so terminal methods like vasectomy or tubal ligation will not be popular with them. To these groups pills, condoms and IUD will be the preferred methods.
- (ii) Those people who are in higher age groups and/or have two or more children are likely to accept terminal methods more easily.

It is planned that along with the implementation concurrent evaluation of the programme will be carried out periodically to decide whether a shift in emphasis in favour of some method is warranted or not.

#### E. Incentive

The past system of case-wise on-the-spot payment of cash incentive for accepting a certain technique of family planning, both to the acceptor and to the family planning worker, led to corruption and inflated reporting of acceptance of various methods. Besides, this system kept the supervisory field officers deskbound in keeping accounts and making incentive disbursement. Thus the perspective of the programme was distorted and the demographic impact of the programme efforts was low. Hence a new system of incentives based on demographic impact rather than on mere acceptance will be designed for sustained and continuous adoption of family planning methods. Such incentives will include:

##### (i) For Clients

For vasectomy, ligation and abortion: Compensation allowance will be given for actual conveyance charge subject to a maximum reasonable amount. Services and post-acceptance treatment at hospital clinics, if required, will be ensured free of cost.



## (ii) For Community

Award on zonal basis at community level, e.g., priority in providing community and public facility.

## (iii) For Family Planning Workers

(a) Pride of Performance certificate, (b) additional increment and (c) preference during promotion and higher training.

F. *Social and Legislative Measures*

- (i) Introduction of concept of small family and courses on population problem in schools, colleges and universities.

The programme outlined above is directly oriented towards the eligible couples to limit the size of family. There will also be programmes which will be oriented towards the great mass of younger people to inculcate the ideal of small family size. One feasible and convenient measure would be to introduce the concept of small family in the syllabi of schools, colleges and universities. In colleges and universities the subject may be introduced as courses on reproductive biology, family planning, demography, etc., while in the schools syllabi would have to be developed to include the economic and social benefits of small family. Action in the educational institutions will be initiated during the plan period in co-operation with the relevant Ministries.

## (ii) Raising of legal age of marriage

In the attempt to check high growth rate of population necessary steps to promulgate a law raising the legal age of marriage will be taken during the plan period in collaboration with the relevant Ministries.

## (iii) Legalization of abortion

Legalization of abortion has been known as probably the best and most effective method for control of population growth. It should be seriously considered how this method can be adopted to control population growth in Bangladesh.

G. *Research*1. *Population Study Centre*

There is need for population studies and research in the context of our own social and cultural setting. A Population Study Centre will, therefore, be established as a unit of Bangladesh Institute of Development Economics. This centre will undertake population studies: (a) in relation to the entire development efforts of the country involving all the sectors and (b) in relation to population control programme.

The main objectives of the centre will be:

- (i) To provide information for assisting in policy formulation, programme planning, training, evaluation and data processing, communication media and material development.
- (ii) To undertake basic and applied research.
- (iii) To develop evaluation and measurement techniques.



- (iv) To meet training needs for high level expertise so as to eliminate dependence on foreign personnel and institutions.

Relevant existing institutions including universities in Bangladesh having required expertise and research facilities will be offered funds through grant-in-aid to conduct research and training in the field of population. The Population Study Centre, however, will be the co-ordinating authority of all population research programmes.

## 2. Laboratory Area and Field-Trial Area

Since the family planning programme is a field oriented programme and since there are many aspects of the techniques and strategies which have not been tested under field conditions in our country it is necessary to develop a comparatively small laboratory area to initially test the techniques and subsequently put the relevant techniques to field-trial over a larger area for evaluation purposes. Therefore, one laboratory area and one field-trial area should be developed during the plan period.

## H. Evaluation

In the past, least importance was given to actual evaluation of the family planning action programme. Under the proposed schemes, a built-in evaluation mechanism shall be provided so that assessment of both programme strategies and personnel performance is simultaneously possible. This will involve a feed-back of information by internal evaluation through service statistics, regular reporting and inspection by supervisory personnel. Also population activities of all Ministries involved in the programme will be subjected to periodic external evaluation. The Population Planning Division which will be created under appropriate Ministry will be responsible for evaluation and will devise appropriate methods and techniques for the purpose.

## 1. Coordination of Population Planning Programme

Since it has been envisaged that several Ministries and voluntary agencies will be involved in the population control programmes it will be imperative to establish a mechanism for coordination of all population programme activities in the country. While each Ministry or each voluntary organization will have its own scheme approved by the Planning Commission it is visualized that there must be a central administrative machinery to co-ordinate all these efforts so as to avoid conflicts and confusions, and ensure smooth implementation of each programme within the stipulated time to achieve the targets. This function of coordination will be the responsibility of the Population Planning Division which will be guided in its action by a Central Coordination Committee. The District and Thana Coordination Committees, however, will meet regularly to sort out the problems of coordination at their own level and, if necessary, refer the more intricate issues to the Population Planning Division for solution. The detailed mechanism for coordination, however, will be drawn up by the Population Planning Division in consultation with the central coordination committee.

## I. Training

With the introduction of the couple registration scheme there is need of a large number of new personnel for whom training facilities must be provided for during the First Five Year Plan. Previously the four Training Institutes set up at the four divisional headquarters provided training to the Lady Family Planning Visitors, but there was no systematic and planned training facilities or training materials for the action programme personnel. Whenever there was a need in the action programme for new trained



personnel training programmes were improvised. That these improvised training programmes were inadequate is obvious from the low level of basic understanding of the problem by the action programme personnel and their poor performance in the field.

The proposed Regional Training Centres, redesignated from the old Training-cum-Research Institutes at the four divisional headquarters will meet all the training needs of the action programme within the administrative division. These centres shall be so equipped as to be able to impart regular and refresher training courses for all categories of personnel. With the fulfilment of the initial target of training of LFPV's the centres should now be available for such a programme of training.

#### K. Organization

It is recognized that a successful population planning programme will have to be based on reduction in maternal and child mortality and morbidity as well as better nutrition on the one hand and increase in knowledge and proper education to change attitude towards family size norms on the other. Therefore, while the Ministry of Health has to play a central role in the family planning programme the success of population planning in a broader sense would depend on the co-operative efforts of the concerned Ministries. Each of these concerned Ministries will have to strengthen their capabilities for discharging their respective responsibilities in the total population programme. However, the efforts of the various Ministries and agencies involved in population programme must be effectively co-ordinated.

##### (i) National Population Council

A high-powered National Population Council will be formed to function as a Policy-making Body for the Population Planning Programmes. The council will be as follows:

|   |    |    |    |    |                |
|---|----|----|----|----|----------------|
| The Prime Minister  | .. | .. | .. | .. | Chairman.      |
| Minister of Health and Family Planning  | .. | .. | .. | .. | Vice-Chairman. |
| Minister of Rural Development   | .. | .. | .. | .. | Member.        |
| Minister of Agriculture   | .. | .. | .. | .. | Do.            |
| Minister of Education   | .. | .. | .. | .. | Do.            |
| Minister of Information and Broadcasting  | .. | .. | .. | .. | Do.            |
| Minister of Labour and Social Welfare   | .. | .. | .. | .. | Do.            |
| Deputy Chairman, Planning Commission  | .. | .. | .. | .. | Do.            |
| Member-in-charge, Population Planning, Planning Commission                                    | .. | .. | .. | .. | Do.            |
| One representative from Opposition Benches of Parliament (Nominated by the Speaker).          |    |    |    |    | Do.            |
| One representative from the Press (Nominated by the Bangladesh Federal Union of Journalists). |    |    |    |    | Do.            |

The Secretary, Population Planning Division, which will be created under an appropriate Ministry will act as the Secretary of the Council.



## (ii) Co-ordination and Evaluation of Population Planning Activities

Co-ordination and independent evaluation of all population planning activities including the Family Planning Programme in Bangladesh can be best achieved by creating the Population Planning Division under an appropriate Ministry. While the Ministry of Health and Family Planning will remain in charge of conventional Family Planning Programme integrated with Health Services, the newly created Division of Population Planning will be responsible for co-ordination and evaluation of all the programmes relating to population planning launched by various ministries.

## (iii) Co-ordination Committees

Co-ordination committees at the Headquarters and District and Thana level will be as follows:

### (a) Central Co-ordination Committee

|   |                   |
|---|-------------------|
| Minister of Health and Family Planning .. .. .                    | Chairman.         |
| Secretary, Population Planning Division, .. .. .                  | Member-Secretary. |
| Secretary, Ministry of Health and Family Planning, .. .. .        | Member.           |
| Secretary, Rural Development .. .. .                              | Do.               |
| Secretary, Education .. .. .                                      | Do.               |
| Secretary, Agriculture .. .. .                                    | Do.               |
| Secretary, Information and Broadcasting .. .. .                   | Do.               |
| Secretary, Labour and Social Welfare .. .. .                      | Do.               |
| Director of Bangladesh Institute of Development Economics .. .. . | Do.               |
| Chief, Population Planning Section, Planning Commission .. .. .   | Do.               |

### (b) District Co-ordination Committee

|   |                   |
|---|-------------------|
| Chairman, District Board .. .. .                      | Chairman.         |
| Chief Medical Officer of Health/Civil Surgeon .. .. . | Vice-Chairman.    |
| District Education Officer .. .. .                    | Member.           |
| Project Director, IRDP .. .. .                        | Do.               |
| District Agriculture Extension Officer .. .. .        | Do.               |
| Health Education Officer .. .. .                      | Do.               |
| Social Welfare Organiser .. .. .                      | Do.               |
| District Public Relations Officer .. .. .             | Do.               |
| District Family Planning Officer .. .. .              | Member-Secretary. |



(c) *Thana Co-ordination Committee*

|                               |    |    |    |                   |
|-------------------------------|----|----|----|-------------------|
| Chairman, Thana Board         | .. | .. | .. | Chairman.         |
| Thana Health Administrator    | .. | .. | .. | Vice-Chairman.    |
| Thana Education Officer       | .. | .. | .. | Member.           |
| Project Officer, IRDP         | .. | .. | .. | Do.               |
| Agriculture Extension Officer | .. | .. | .. | Do.               |
| Circle Officer (Development)  | .. | .. | .. | Do.               |
| Thana Family Planning Officer | .. | .. | .. | Member-Secretary. |

## 16.8 FINANCIAL ALLOCATIONS

The total requirement for Population Planning Programme during the First Five-Year Plan period (1973-78) has been estimated to be Taka 70 crores with a foreign exchange component of Taka 13.4 crores.

The annual estimated cost of the programme during the plan period is given in Table XVI-2.

TABLE XVI-2

## Annual Financial Requirement for Population Planning Programme, 1973-78.

(Taka in crore)

| Year    |    |    |    |    | Estimated Financial Requirement |                  |
|---------|----|----|----|----|---------------------------------|------------------|
|         |    |    |    |    | Total                           | Foreign Exchange |
| 1973-74 | .. | .. | .. | .. | 7.0000                          | 1.1184           |
| 1974-75 | .. | .. | .. | .. | 13.0600                         | 1.3000           |
| 1975-76 | .. | .. | .. | .. | 14.5700                         | 2.0500           |
| 1976-77 | .. | .. | .. | .. | 16.5850                         | 4.0000           |
| 1977-78 | .. | .. | .. | .. | 18.7850                         | 4.9316           |
| Total   |    |    |    | .. | 70.0000                         | 13.4000          |