EDUCATION SECTOR STRATEGY AND ACTIONS FOR IMPLEMENTATION OF THE 7TH FIVE YEAR PLAN (FY2016-20)

General Economics Division
Planning Commission
Ministry of Planning
Government of the People's Republic of Bangladesh
December, 2017

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General Economics Division
(Making Growth Work for the Poor)
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AHM Mustafa Kamal, FCA, M.P.
Minister
Ministry of Planning

Message

Progression of a nation is largely dependent on the availability of educated, knowledgeable and skillful citizen/workforce. This is the biggest asset a country to have and key for sustaining development. A densely populated country with limited land space like ours requires large pool of educated and healthy workforce to achieve the development aspiration of becoming a middle income country by 2021 and earn develop country status by 2041. This is the development dream of our visionary leader Sheikh Hasina inspiring us for to take Bangladesh to a new trajectory of development path by accelerating growth and converting large human resource pool into assets through promoting education and adoption of new technologies.

The 7th Five Year Plan (FY 16 -20) of Bangladesh has quite rightly identified "Education and Technology" as one of the cardinal sector for investment. The 7th FYP of Bangladesh has laid out pragmatic strategies and targets in accordance to the Government priorities for the education and technology sector. Given that the 7th FYP is a strategic and indicative plan, preparation of sector action has been strongly emphasized to assist the sector divisions as well as the line ministries to identify appropriate projects/programme in order to achieve the objectives of the plan.

It is in this context, the preparation of sector strategy/action plan on "Education and Technology" is a laudable attempt for attaining 7th FYP goals and targets. As Bangladesh is also committed to achieve the SDGs and the global goals are integrated into our medium term plan; achieving the objectives of the 7th FYP will help us to achieve the Goal 4 of the Sustainable Development Goals (SDGs) for Bangladesh.

I take this opportunity to appreciate the effort of the General Economies Division of the Ministry of Planning in bringing out this publication. I acknowledge that this is the first attempt of the Planning Commission to prepare any sector strategic plan. Therefore, Dr. Shamsul alam and his team deserve special appreciation. I also like to offer my thanks to UNDP/UNPEI for providing technical and financial support for preparation of this sector action plan.

I hope that the contents of this publication will fulfill the needs of sector policy makers, development partners, NGOs, academics, other practitioners, researchers and students for tracking the challenges of the "Education and Technology" sector.

(AHM Mustafa Kamal, FCA, M.P.)

M. A. Mannan, MP
Minister of State
Ministry of Finance and
Ministry of Planning

Message

I would like to congratulate the General Economics Division (GED), Planning Commission; Ministry of Planning for publishing "Education Sector Strategy and Actions for Implementation of the 7th Five Year Plan (FY2016-20)" – a road map for attaining the goals and targets of the country Seventh Five Plan (7th FYP) - 2016 -2020. I believe this Sector study will be a good guideline and strategic in nature; and an integrated approach for identification of projects/programme for the concerned Sector Division of the Planning Commission from a holistic lens. It will also support to achieving the twin objectives of attaining the goals and targets set for the sector in the 7th FYP and Goal 4 of the Sustainable Development Goals (SDGs) on Education.

Education and the Technology Sector are central to the human development. The Government of the Bangladesh led by Hon'ble Sheikh Hasina has taken many steps for improving the sector. Under her leadership, Bangladesh has achieved commendable successes towards achieving universal primary education, secondary education, expanding TVET education, promoting adult literacy rate and laid maximum emphasis on expansion of the science and technology sector with particular focus of women's education. The World Community has acknowledged Bangladesh impressive performances in the education and the technology sector.

I believe this knowledge product will create scope for improving efficiency in public investment and help in scaling up investment in the niche areas through identification of appropriate projects/programme. The publication will also be a conduit for using the public investment programme (ADP) and the budget as a tool for achieving the goals and target of the education and technology sector. It can be used for discussion and dialogue with the development partners to reshape their strategy of partnership for creating more knowledgeable society to propel our growth by supplying demand driven workforce.

Let me take this opportunity to thank Professor Dr. Shamsul Alam, Member (Senior Secretary), General Economics Division, Planning Commission for his leadership in publishing first ever "A study on Sector Strategy" in the Planning history of Bangladesh. My thanks also go out to GED officials and the UNDP-UNPEI officials for their hard work in bringing out this publication. I would also like to offer my thanks to various Ministries/Divisions/Departments/Organizations for providing their inputs on the very important publication.

I hope the publication will serve as a reference book for all stakeholders including policy-makers, academics, researchers and students, dealing with education and technical sector.

(M. A. Mannan, MP)

Shamsul Alam
Ph.D. (Newcastle), M.A. Econs. (Thammasat)
Member (Senior Secretary)
General Economics Division
Planning Commission

Preface

Bangladesh Education and Technical Sector Study is the first attempt in the planning history of Bangladesh to bring out a short of sector plan document for attainment of the Goals and targets of the 7th Five Year Plan (7th FYP) and the Sustainable Development Goals (SDGs). It is an important milestone work that the General Economics Division (GED), Planning Commission has completed with sector focus.

Beside preparation of the long, medium and short term plans and the public investment programme (ADP), preparation of sector action plan (SAP) by the Sector Divisions, is also a mandate of the Planning Commission of the Ministry of Planning. This was however over looked for more than four decades. The demand for preparation of SAP became even more pressing in the backdrop of strategic shift in policy of Government for preparation of the FYP document from investment nature of document to strategic and indicative planning process from the 6th FYP (FY 2010 -2015). This strategical change became necessary to make the planning process conducive to private investment, as it is the private sector that plays bigger role in the economy and growth process. Therefore, it was a demand of the time to reorient the public investment strategy of the Government to create necessary infrastructures and human capital for increased private sector investment to accelerate growth in order to achieve the development vision of the Government by 2021 and beyond.

Retaining the pro-poor, inclusive, gender sensitive and environment caring characteristic, the private sector led growth strategy remained the overarching goal of the 7th FYP (FY16 -20) document. But it invoked deeper reform by rationalizing the inconsistencies in sectoral divide by the budget preparation entities. Three types of sectoral division (6th FYP = 10; Programming Division = 17 and Finance Division = 13 Sectoral Division sans military spending) existed in the same domain of the Government of Bangladesh in budgeting and planning preparation. In order to correct this misalignment, the Government approved a proposal initiated at the behest of the GED for unification of the sectoral divide into 13 uniform development sectors in preparation of Five Year Plan, ADP and Budget by the Finance Division for improving efficiency in public resource allocation and implementation of projects and programmes.

Accordingly, the 7th FYP was classified based on agreed 13 sectors. The Plan emphasised that an action plan for each sector be prepared based on the Plan document. It is specified in the Plan document that “In line with the 7th FYP, the Government intends to prepare Sector Strategy Plan for each of these 13 sectors”. In accordance with the provision in the 7th FYP, the process of preparing the specific Sector Action Plan has to be initiated within the first year of implementation for linking budget/ADP as a tool for attaining five year Plan objectives.

GED with the assistance of the UNDP funded Support to Sustainable Planning (SSIP) project are conducting 2 (two) Sector Action Plans (SAP) – one on “Education and Technology” and the other on “Economic Governance”. The SAP on “Education and Technology” is the first of the series of SAP to follow.

It is learnt that almost all the other Sector Divisions of the Planning Commission are taking programme for preparation of their respective SAP as working document.

Line Ministries are sometimes found to be bewildered about strategy and type of the projects they should formulate in order to achieve the national plan objectives or duplicative. That resulted in mushrooming and often proliferation of unnecessary projects in the ADP that have little or few contribution towards achieving Plan objectives. I hope preparation of SAP by the Sector Divisions of the Planning Commission will guide the line Ministries/Divisions to identify appropriate projects consistent with the objectives of the current FYP.

The "Education and Technology" sector is a vital sector of the economy and its contribution for pushing economic growth process up through creating knowledge based society and skillful labour force cannot be over emphasised. Boosting education and technological proficiency is also a conduit for eradication of poverty and reducing inequalities in society through creating employment opportunities. Therefore, the strategy/action plan prepared for the sector will be a guiding source for the Ministries/Divisions and the Planning Commission to prepare their own operational action plan. The GED carefully and methodically completed this analytical document. The Sustainable Development Goals (SDGs) adopted by the global community is considered as a bedrock of a new development agenda that can set the world on a new course of action to end poverty, transform lives and protect the planet. The 2030 Development Agenda is quite ambitious and transformational. This SAP document will also help the Government achieve SDG Goals 4, which is embedded in our 7th FYP document.

At the end, I on behalf of GED thank our Hon'ble Planning Minister Mr A. H. M. Mustafa Kamal, FCA, MP and the Hon'ble State Minister Mr M. A. Mannan, Ministry of Finance and Ministry of Planning, for their guidance, encouragement and support in bringing out this document. Thanks are also due to my GED colleagues, SEI Division and the SSIP experts for the dedication with which they have worked hand in hand with GED to complete this innovative work. Let me conclude by thanking the UNDP/UNPEI for financing this study document, having a new planning outlook indicating actions.

(Shamsul Alam)

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Abbreviations

A2I	:Access to Information
ADB	:Asian Development Bank
ADP	:Annual Development Programme
AECD	:Atomic Energy Centre, Dhaka
AERE	:Atomic Energy Research Establishment
BAEC	:Bangladesh Atomic Energy Commission
BCSIR	:Bangladesh Council of Scientific and Industrial Research
BOU	:Bangladesh Open University
Bren	:Bangladesh Research Network
BSDS	:Bangladesh Skills Development System
B-SEP	:Bangladesh-Skills for Employment and Productivity
BTEB	:Bangladesh Technical Education Board
CBT&A	:Competency based training and assessment
CPD	:Continuous Professional Development
DEMO	:District Employment and Manpower Offices
DRF	:Development Results Framework
DSHE	:Directorate of Secondary and Higher Education
DTE	:Directorate of Technical Education
EED	:Education Engineering Department
EFA	:Education for All
ERD	:Economic Relations Division
ETS	:Education and Technology Sector
FSPD	:Female Stipend Project for Degree
GDP	:Gross Domestic Product
GED	:General Economics Division
GER	:Gross enrolment rate
GRIs	:Government Research Institutions
HEQEP	:Higher Education Quality Enhancement Project
ICT	:Information and communications technology
IDA	:International Development Association
IFPRI	:International Food Policy Research Institute
IMED	:Implementation, Monitoring and Evaluation Department
IMTs	:Institutes of Marine Technology
INMAS	:Institute of Nuclear Medicine and Allied Sciences
INMP	:Institute of Nuclear Medical Physics
INSEAD	:Institut Européen d'Administration des Affaires

ITC	:International Trade Commission
KE	:Knowledge Economy
KEI	:Knowledge Economy Index
M&E	:Monitoring and Evaluation
MDG	:Millennium Development Goals
MEWOE	:Ministry of Expatriates' Welfare & Overseas Employment
MIS	:Management information system
MOE	:Ministry of Education
MOPME	:Ministry of Primary and Mass Education
MoST	:Ministry of Science and Technology
MPO	:Monthly Pay-Order
MTBF	:Medium-Term Budgetary Framework
MTS	:Medium Term Strategy
MTSBP	:Medium-Term Strategic Business Plan
MTSBPs	:Medium Term Strategic Business Plan
NDC	:National Defence College
NEP	:National Education Policy
NFE	:Non Formal Education
NGO	:Non-Government Organisation
NSDP	:National Skill Development Policy
NTRCA	:National Teacher Recruitment and Certification Authority
NTVQF	:National Technical & Vocational Qualifications Framework
PEDP	:Primary Education Development Project
PET-CT	:Positron Emission Tomography–Computed Tomography
R&D	:Research and Development
ROSC	:Reaching out of school children
ROSC	:Reaching Out-of-school Children
RPL	:Recognition of Prior Learning
S&T	:Science and Technology
SAPET	:Sector Action Plan for Education and Technology
SDC	:Swiss Agency for Development and Cooperation
SDG	:Sustainable Development Goals
SEIP	:Secondary education investment program
SESIP	:Secondary Education Sector Investment Program
SESP-2	:Secondary Education stipends project (2nd Stage)
SIAQEP	:Secondary Education Quality and Access Enhancement Project
ST&E	:Science, Technology and Engineering
STEP	:Skill & Training Enhancement Project

SWAP	:Sector-Wide Approach
SWAP	:Sub-Sector Programme Approach
TFP	:Total Factor Productivity
TLM	:Teaching Learning Material
TQI-2	:Teaching Quality Improvement-2
TTC	:Technical Training Centres
TTCs	:Technical Training Centres
TVET	:Technical and Vocational Education Training
UGC	:University Grants Commission
UITRCE	:Upazila ICT Training & Resource Center, for Education
UNIDO	:United Nations Industrial Development Organization
VAT	:Value Added Tax
VTE	:Vocational and Technical Education
WARPO	:Water Resources Planning Organization
WIPO	:World Intellectual Property Organization

Chapter 01
Development Context

1.1. Progress with Economic Development under the 6th FYP

Rising from the ashes of a war-ravaged economy and social infrastructure, Bangladesh has made rapid progress in securing high GDP growth and poverty reduction (Ahmed, 2015). Progress was particularly striking during the Sixth Five Year Plan (Government of Bangladesh, 2015). The average rate of GDP growth exceeded 6% and the incidence of moderate poverty fell to 24.7%. Extreme poverty fell even faster than moderate poverty, declining to 12.9%. Importantly, Bangladesh crossed over the World Bank's threshold for low middle income in 2015.

Economic transformation progressed significantly, as the share of manufacturing and organized services increased while the share of agriculture and informal services declined. Rapid GDP growth along with structural transformation created some 9.2 million jobs domestically. Along with an additional 1.2 million jobs from external migration, the total jobs significantly exceeded the increase in labor force. This caused a tightening of the labor market, thereby contributing to increases in labor productivity and wages in all sectors of the economy (Ahmed, 2015). The ongoing rural transformation along with the creation of non-farm rural jobs and the spread of ICT is creating new basis and prospects for sustained rapid growth in Bangladesh.

Progress with human development was similarly noteworthy. Demographic, health and education indicators along with indicators of gender empowerment all show remarkable improvements, making Bangladesh a positive outlier when compared with social achievements of countries at similar per capita income. The demographic dividend is still underway along with greater participation of the female workforce. The environment is right for further growth acceleration.

1.2. Development Targets of the 7th FYP

The solid progress with development in the 6th Plan laid strong foundations for further growth acceleration and poverty reduction during the 7th Plan. Accordingly, the 7th Plan seeks to increase the growth rate to reach 8% by the end of the 7th Plan in FY2020. The average GDP growth rate is targeted to reach 7.4%, which is 1.1% higher than the average rate of 6.3% achieved under the 6th Plan. Along with growth acceleration, the 7th Plan hopes to reduce poverty further to 18.6%. The 7th Plan targets in turn are consistent with the long-term development objectives of achieving upper middle income status and eliminate extreme poverty by FY2031.

The 7th Plan seeks to push further the ongoing structural transformation in Bangladesh. Accordingly, the manufacturing sector is targeted to achieve double digit growth while organized service sector is expected to further mature. GDP acceleration will be fuelled by increasing investment, rising from 29% in FY2015 to 34% by FY2020, and manufactured exports. Rural economy is projected to continue to undergo transformation as more non-farm activities emerge and the spread of ICT technology fosters knowledge and reduces the transaction costs. These structural changes along with GDP growth acceleration will continue to create more higher- income jobs that will not only be able to absorb the new entrants to the labor force but also reduce the employment share of agriculture. Higher productivity economy wide will contribute to higher real wages.

1.3. SDG Commitments

Following the global success with the implementation of the millennium development goals (MDGs) ending in 2015, especially in their income and poverty dimensions, more ambitious development targets have been set at the global level to measure the global development progress for 2030. The development indicators have also been substantially broadened with emphasis on the sustainability dimension, especially in view of the risks and threats presented by climate change. The new Sustainable Development Goals (SDGs) have been endorsed by the government of Bangladesh. Looking at the income and poverty dimensions, the SDG goals are very much in line with the income and poverty targets set by Bangladesh for FY2031 discussed about.

1.4. Implications for Education, Science and Technology Sector

It is universally accepted that the human resources of a country plays a pivotal role in its development effort. The quality of its labor force in terms of general education, scientific and technical skills is the most crucial factor for increasing productivity, improving competitiveness and securing sustainable gains in employment, income and poverty reduction. For a developing country like Bangladesh, with a scarcity of land and dearth of capital, the proper use of its abundant supply of labor is a key driver of GDP growth. Accordingly, in both the 6th Five Year Plan (6th FYP) as well as in the 7th Five Year Plan (7th FYP), human development has been accorded the topmost priority for achieving the goals of high economic growth and alleviation of poverty. In particular, in order to attain the goal of 8 percent growth rate per annum by the end of the 7th FYP, education and skill development of Bangladesh's growing labor force will play a critical role.

In addition to human development, there is now a growing recognition that knowledge economy is a critical factor for productivity improvements and competitiveness. At the economy level, knowledge is transforming ways that new technology is developed and adopted to enhance productivity and reduce cost. At the individual level, the speed and ease by which an economic agent acquires and absorbs relevant knowledge to inform the underlying economic decision conveys a huge competitive edge. Knowledge is also transforming people's welfare by facilitating advances in medical sciences that is contributing to increased life expectancy and health quality through preventive, diagnostic and curative measures. Accordingly, the focus on strengthening the Knowledge Economy (KE) is becoming an integral part of any development strategy.

Indeed, to accelerate the GDP growth, the role of Science and Technology in increasing the total factor productivity (TFP) should be fully exploited. In general, TFP can be taken as a measure of an economy's long-term technological change or technological dynamism. Notwithstanding the fact that TFP's contribution to GDP growth has been increasing following the introduction of broad-based economic reforms since 1990, Bangladesh's position in relevant global S&T indices is low.

The 7th plan strategy for the Education and Technology Sector (ETS) needs to be updated in light of the specific commitments relating to this sector under the SDGs. In this context, it is particularly important to look at SDG Goal 4 for education and its 7 targets plus 3 means of implementation, as well as other SDG goals and targets with implications for education, science and technology.

The Proposed Actions following the Strategies in 7th FYP for Education and Technology Sector (ETS)

The objective of this paper is to develop an Action Plan for Education and Technology Sector based on the 7th Plan strategy for the sector and in relation to the sector SDGs. Against the backdrop of the development context for the Action Plan discussed above, the remainder of the paper is organized as follows: Chapter 2, focuses on past progress with education, S&T and ICT; emerging issues and challenges in all these areas; and implications for future strategy for education and technology. For education it covers developments/challenges in the areas of primary, secondary, tertiary, madrasa, skills training and non-formal education. Gaps and challenges in the education and technology sector are identified in Chapter 3. Since this Sector Study must be aligned with the 7th FYP, the targets for all sub-sectors under the education and for the S&T and ICT as specified under the 7th FYP are recapitulated in Chapter 4. Alignment of 7th FYP targets with the SDGs for education, S&T, and ICT are also illustrated in this chapter. Chapter 5 outlines the strategy for education and technology for achieving the 7th FYP targets and lays the ground for SDG4. Financing strategy for education and technology is discussed in the following chapter 6. Suggested actions to implement the proposed strategy, covering all associated subsectors, is provided in Chapter 7. Suggested actions for each sub-sector consists of policies, regulations, governance, institutions and financing. The implications of the Action Programme for the Public Investment Programme (PIP) are discussed in Chapter 8. It provides a broad assessment of the projects that are being implemented in the education, S&T and ICT sectors, and also indicates for strengthening the PIP in terms of strategic focus, adoption of a programmatic approach and areas for new projects. Finally, Chapter 9 suggests the monitoring and evaluation process based on education and technology sector development results framework.

Chapter 02

Past Progress with Education and Technology

2.1. Review of Progress with Formal Education

Primary and secondary education: Participation in education has expanded remarkably in Bangladesh since the 1990. Close to universal initial enrolment in primary education has been achieved. Gender equality in enrolment at the primary and secondary levels is another accomplishment of the last two decades. Progress also has been made in reducing dropout and improving completion. This progress continued during the 6th Plan (Table 2.1). However, over one-fifth of students do not complete the five year primary cycle due to dropout and grade repetition, which leaves almost 4 million of the primary-age group children out-of-school or with incomplete primary education. The Sixth Plan's ambitious targets of extending compulsory primary education to grade 8 and eliminating adult illiteracy were also not achieved.

Indicators	Sub-indicators	2010 (unless stated otherwise)	2014 (unless stated otherwise)
Indicators of Participation	a) Primary Gross Enrolment Rate	107.7%	108.4%
	b) Primary Net Enrolment Rate	94.8%	97.7%
	c) Secondary Gross Enrolment Rate	47.34%	55.84%
	d) Secondary Net Enrolment Rate	43%	50.21%
Indicators of Internal Efficiency	a) Primary Repetition Rate	12.6%	6.4%
	b) Primary Dropout Rate	39.8%	20.9%
	c) Primary Survival Rate	67.3%	81%
	d) Primary Student Absenteeism	16%	13.3%
Indicators of Quality	a) Primary Student Teacher Ratio	1:48 (2009)	1:42 (2013)
	b) Secondary Student Teacher Ratio	1:35 (2009)	1:37 (2013)

Source: Bangladesh Education Statistics-2014, BANBEIS; World Development Indicators

Good policy progress was achieved in several areas. A new education policy was adopted in 2010 that reinforced the government's commitment to spread literacy and build the nation's human capital. The Sixth Five-Year National Development Plan (2011-16) and a perspective plan for ten years up to 2021 were formulated in order to begin implementation of the vision for development including the new education policy. A National Skill Development Policy was adopted in 2011 recognising the importance of skills and capacity building related to employment and livelihood in fighting poverty. These different articulations of policies and priorities called for looking critically at what have been achieved and what may be foreseen in education and human development. As against these positive developments, very little progress was achieved in implementing the strategic priority to empower local government "as the engine of delivering services and carrying out development activities". No qualitative change in development budgets and activities reflecting this strategy can be noted in the development budgets and activities during the Sixth Plan period.

Madrasa Education: Madrasas provides an alternative stream of education besides the Bangla and English medium schools and higher education. These schools focus on religious education in addition to the traditional subjects of the national curriculum. Madrasa education has grown more rapidly than general secondary education since the 1990s. ***Between 1995 and 2012, enrolment in madrasas at the secondary level institutions has increased by 2.2 times (excluding the quomi institutions), whereas enrolment in secular institutions has increased by 1.7 times in the same period.*** Increase in girls' enrolment in Madrasas has kept pace with growth in girls' entry to general secondary schools; in both cases, girls surpassed boys in secondary school enrolments. However, the proportion of female teachers in madrasas remains far behind that in the general stream.

A particular challenge for the ETS is to better link the Madrasa education with the broader Bangladesh

development framework. Madrasas are presently supported by public funds as a parallel stream of education from primary to university, and its apparent faster growth at the secondary level raises policy and strategy question regarding what proportions of students, institutions and public resources should be used for the madrasa system and whether and how it serves the national objectives of human resource, capability and skills development.

Emerging issues and challenges in education: Notwithstanding the greater emphasis on education, Bangladesh continues to face a number of challenges, pertaining to both quantity and quality. From a quantitative point of view, the issue of access and drop out, particularly at secondary and tertiary levels, are major challenges. Even at the primary level, the dropout rate was 21.4% in 2013. As for higher education, the issues of inadequate funding and the lack of infrastructure and capacity (both physical as well as other infrastructural) are very important, which have limited the higher education enrolment rate to only 12%. At all stages of education, quality is a critical area of concern, which is particularly acute at the primary education level that then spills over to the next stages of education.

The issue of quality in terms of cognitive skill and innovative and analytical capacity has become a matter of concern as the students are often found to lack basic technical and literary skills even after completion of tertiary level of education. Owing to this, university/college graduates often find it difficult to compete in the job market. Additionally, lower student participation and low level of capacity at technical and vocational education along with lesser focus on science and technology have also contributed to a skill gap in the employment market. The skills demanded at the work place are not always provided by the education and training system. Resolving this skills gap will require careful and timely intervention.

One of the underlying reasons behind the quantitative as well as qualitative challenges is the low budgetary allocation for the education sector, falling to below 2% of GDP in recent years. There is now a programmed recovery to 2.5% of GDP in FY17, although full implementation of this higher allocation is uncertain. The low budget allocation is often considered as the most important constraint limiting the successful implementation of the education and training strategies and policies.

There are also concerns about the equity of education spending and the remaining gender gaps. From an equity point of view, the gross enrolment rate (GER) for the poor at the secondary level is only 45%, which is significantly lower than that of non-poor (76%). On the gender front, although there has been substantial progress in closing the gender gap at the primary and secondary levels, the picture is quite different when it comes to tertiary education. One of the reasons for the low participation of females in the labor market of Bangladesh (33.5% according to the 2013 Labor Force Survey) and high concentration on low paying, low productive jobs is the low level of participation of females at tertiary level of education (Mahmud and Bidisha, 2016). ***Female students at public and private universities account for only around 26% of university students (Government of Bangladesh, 2015).***

There are other issues, especially about teachers, governance, assessment of student learning and examinations, curriculum and textbooks, distribution and adequacy of facilities etc., discussed further, especially in part C for gaps and challenges.

2.2. Review of Progress with Adult Literacy and Non-formal Education

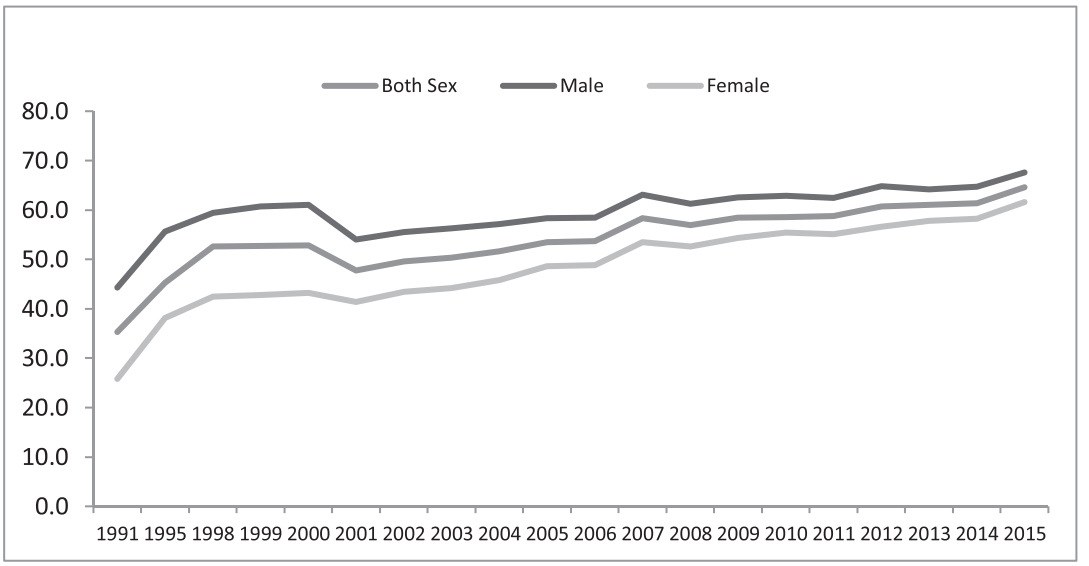
Literacy is a basic tool for all individuals, regardless of age, should possess. It is an effective instrument of social change that empowers individuals with the essential skills of numeracy, communication and problem solving. Non-Formal Education (NFE) especially literacy and continuing education for adults and youths including life skills & livelihood skills development, is considered as the process of empowerment that contributes to human resource development and poverty reduction.

The Government has been implementing Literacy/NFE programmes in various forms since its Independence in 1971. The commitment to battling adult illiteracy prompted the Government to launch a major non formal education Programme in the 1990s, focusing on basic literacy. The government has adopted NFE Policy in

2006 aimed at reducing the number of illiterates, offering need-based continuing education, promotion of equivalency between formal and non-formal education, ensuring community ownership and sustainability of NFE programmes.

Figure 2.1 shows the progress made in addressing adult illiteracy. There has been a slow but steady progress with increasing the adult literacy rates for both male and female. The gap between male and female literacy rates has also been reduced. The progress was maintained under the 6th Plan.

Figure 2.1: Progress with Adult Literacy



Source: Bangladesh Bureau of Statistics.

Basic education for working children and youth, engaged in paid work to supplement their families' income or for their own subsistence, calls for a different approach than the prevailing "second chance" non-formal primary education. Basic education opportunities for them need to be combined with social support, counselling, and employment-related skill training, which is beyond the capacity of a regular primary education institution. To address the complex problem of child labor and their deprivation from education, a basic education project for "hard-to-reach urban children" has been undertaken with UNICEF support. The administrative home of this project appropriately lies with the Bureau of Non-Formal Education. A second phase of the Hard-to-Reach project has been underway since 2003. A project to serve 500,000 out-of-school children in rural areas to be implemented with the help of NGOs and funded by IDA and SDC called Reaching Out-of-school Children (ROSC) project was launched in 2005. This is designed after NGO-operated NFPE projects and represents a first government initiative to undertake a complementary non-formal primary education project for rural out of school children.

A comprehensive program for non- formal education as a major component of the effort to build a learning society does not exist, although a policy framework adopted in 2006 to guide action anticipated such a program. The Bureau of Non-formal Education (BoNFE) was established in 2005 with the responsibility to put into operation the policy framework. A national task force on NFE and a working group under it worked for almost three years resulting in the adoption of a forward-looking policy framework for non-formal education in 2006. The task force agreed that NFE has a critical role in offering learning opportunities, building skills and capacities and broadening life options for the poor, if the education programs are designed and implemented effectively. It recognized that NFE must have an important place in a pro-poor education and human development strategy. The policy framework provided guidance regarding:

- Objectives and scope of NFE in the context of lifelong learning and making every community a learning community.

- Organization and management structures including issues of decentralization of and definition of responsibilities at different levels and of different actors, partnership-building, technical and professional support mechanism, and professionalization of management.
- Establishing quality standards and measures and assuring quality in programs - Sustainability and community ownership.

The age for enrolling in non-formal education is regarded to be 8 to 14 years. Primary education curriculum will be the basis for preparing learning materials for non-formal education. A new organization known as Bangladesh Continuing Education and Skill Development Authority (BCESDA) is proposed to be established, which will combine the functions of the Directorate of Primary Education and the Bureau of Non-formal Education. A Non Formal Education Act (NFEA) has been adopted in 2014 to provide a legal framework for fulfilling the obligation regarding adult and non-formal education, but it is still to be given effect – an indication of capacity problem in the Bureau and weakness in policy support for non-formal and adult education.

Emerging issues and challenges: Notwithstanding this progress, there is still a substantial unfinished agenda. Some 39% adult female and 32% adult male remain illiterate. There is a substantial rural-urban gap, with the average rural literacy rate at only 58%. Rural adult women are particularly deprived of basic literacy; some 45% of women are illiterate. Additionally, there are concerns about the limited scope of the literacy achieved, especially in terms of numerical skills (UNESCO, 2015).

Looking at it only as raising the adult literacy rate, with a conventionally narrow definition of literacy, is not relevant because it is now well-recognised that it makes little difference in the quality of life of people or the contribution they can make to society and economy. This is why the concept of lifelong learning has been included in the SDG education goal and targets. It is necessary now to connect literacy, basic skills development and lifelong learning opportunities and envisage learning provisions, facilities, and resources complementing and supplementing the formal education system. Widespread use of ICT resources for organised lifelong learning, e.g., through a nationwide network of community learning centers, and expanding self-learning opportunities, have to be key features of non-formal education and lifelong learning. Literacy level of the population, non-formal and informal livelihood and life skills development, and ICT-based access to information and self-learning tools and resources must be supported and promoted in a coordinated way through a lifelong learning strategy.

At the institutional level, the BoNFE has been established as an office under the Ministry of Primary and Mass Education, staffed by seconded officials, rather than as an autonomous body with a core permanent staff of professional personnel and an appropriate remuneration structure to attract high level professionals, as recommended by the national working group. The Bureau lacks the capacity to operationalize the broad vision of the NFE policy framework. The proposed new institution BCESDA is yet to be established and made functional. The NFEA is similarly not fully operational This situation probably explains the persistence of a narrow vision of NFE, concentrating on a literacy campaign approach based on a traditional and limited definition of literacy.

2.3. Review of Progress with Labor Training and Skills Development

Strengthening of TVET: The main strategy during the Sixth Plan was to strengthen the system of technical and vocational education and training (TVET). Formal TVET consists of SSC, HSC, and Diploma courses. The Directorate of Technical Education (DTE) and the Bangladesh Technical Education Board (BTEB) oversee vocational and technical education (VTE) provided by both public and private institutions. The programmes include time-bound, institution-based, and graded training with formal certification. The courses are offered by vocational training institutes, polytechnics, commercial institutes, technical training centres and specialized institutes. The number of private sector institutions is increasing, especially in the IT sector and in response to opportunity for work abroad as skilled and semi-skilled workers in various trades.

Progress with programmes and policies: The Government expressed its commitment to improving the TVET system through the implementation of the National Education policy-2010 and the National Skills Development Policy-2011. These policies envisaged the expansion, diversification, extension and development of technical

and vocational education programmes for the elevating of socio-economic condition of the people of the country. It emphasized greater importance in imparting TVET and brings more secondary school enrolment into the fold of technical and vocational education & training. Accordingly, enhancement of enrolment in diversified TVET system has been envisaged and suggested in terms of Projects. Under the National Skills Development Policy, National Technical and Vocational Qualifications Framework (NTVQF) has been designed to improve the quality and consistency of nationally recognized qualifications. It will also provide a new benchmark for the international recognition of the skills and knowledge of Bangladeshi workers. The Skills and Training Enhancement Project (STEP) has been implemented to improve the quality of training and employability of trainees.

The TVET Reform Project was initiated in January 2008 and is expected to continue till December 2015. The NSDP lays out the strategic plan to improve VTE. Some 21 Polytechnic Institutes are being established in 21 districts, along with 389 technical school and colleges at the upazila level. 100 technical schools are being established through a project for imparting appropriate and rural based technologies/trades in SSC Vocational courses at the upazila level. This will foster entrepreneurship attitudes and generate self-employment (having acquired appropriate and local-based skill) among the rural masses. This will also keep migration to urban areas in check.

Another significant initiative is the Skills for Employment Investment Program (SEIP) under the Ministry of Finance (funded by ADB and the government) which has partnered with a number of industry associations such as BASIS, BTMA, BGMEA, AEOSIB and others to impart vocational training with globally recognized skills certifications where appropriate.

Emerging issues and challenges: Despite multiple efforts, the unavailability of trained labour continues to plague the economy. The unsatisfactory performance of the TVET sector is mainly caused by deficiencies in quality. A recent study points out that certifications from formal institution are not among the major criteria defining the skill level of workers. Duration of overall work experience and on the job training are among the criteria having more weight. Most employers find the training received by workers to be inadequate, and in some cases, irrelevant to their needs. A little less than a half of those who graduate from the training system are unable to find jobs. Extensive lack of infrastructures/labs/ necessary equipment in most of the non-government technical institutions along with the lack of infrastructure and manpower of Bangladesh Technical Education Board are additional challenges.

The TVET sub-sector conspicuously lacks organised skills development for the informal economy, where over 80% of the work force is employed. Formal and informal apprenticeship, a principal means of worker preparation and skills upgrading, that are responsive to specific market demand, are also largely lacking.

2.4. Review of Progress with Science and Technology

There are three elements of a knowledge economy: economic incentives and institutions to create and use knowledge for productivity gains; a body of skilled professionals in science and technology that can lead the research and innovation and adapt knowledge to the local circumstances; and an effective Information Communications Technology (ICT) infrastructure to transfer knowledge and facilitate transactions.

In the area of technical education, the main focus of the government has been to expand technical universities at the district level, spread the outreach of the information communications technology (ICT) and support the adoption of agriculture technology. There is a separate ministry of Science and Technology that is dedicated to strengthen scientific progress and development of technology. Given the importance of ICT's role in development and governance the ICT functions have been carved out of the Science & Technology Ministry and put under a newly formed ICT Ministry.

The spread of ICT revolution has received particular emphasis based on the personal attention provided by the Honorable Prime Minister under her Digital Bangladesh Initiative. Digital Bangladesh is an integral part of the government's Vision 2021. The Digital Bangladesh initiative consisting of four key priorities:

• Developing human resources ready for the 21st century.
• Connecting citizens in ways most meaningful to them.
• Taking services to citizens' doorsteps.
• Making the private sector and market more productive and competitive through the use of digital technology.

Bangladesh made important strides during the Sixth Plan in utilizing technology to bring in tangible transformation in all four areas. Progress made in bringing government services to the doorsteps of citizen is probably the area where Bangladesh registered most significant progress. Vertical (with government ministries and agencies) and horizontal (i.e., with citizens) policy advocacy and development interventions have resulted in a number of citizen-centric e-initiatives and services such as multimedia classroom and teacher-led education content development in public schools, mobile phone based health service from Upazila Health Complex, agricultural and other livelihood information and services (e-Tathyakosh) online through grassroots outlets. These are at an early stage of implementation but they constitute a concerted effort to bring government closer to the people through use of technology.

A number of acts, policies and guidelines are in place to guide the nation towards the realization of Digital Bangladesh. The ICT Policy 2009 and the 'Strategic Priorities for Digital Bangladesh 2011' also contain elaborate work plans. Because of the cross-cutting nature of the vision, these work plans encompass priorities in almost all development sectors. These policies and regulations have provided a first round enabling environment for the implementation of the Digital Bangladesh enterprise. The ICT Policy 2009 has now been updated to ICT Policy 2015.

In terms of ICT-based education, under the 'Secondary and Higher Secondary ICT based Education Project' 20,000 multimedia computers (MMCs) in educational institutes have been set up, with each MMC having one internet connectivity, one laptop and one multimedia projector. Computer labs have also been set at 192 educational institutes with the provision of training to both the teachers as well as students.

Emerging issues and challenges: Nevertheless progress in nurturing the knowledge economy is slow. As a young economy Bangladesh is still a long way to catching up to the standards of the global KE. The latest available ranking of the Knowledge Economy Index (KEI) prepared by the World Bank puts Bangladesh at the low end of 137 out of 146 countries (Table 2.2). Other South Asian countries and competitors, like Vietnam and China, are ranked higher. Bangladesh has made important strides in ICT over the past several years. Even so, in the global context, the ICT performance is also considerably behind. Importantly, there is a huge gap in the areas of science, technology, engineering and mathematics (STEM) compared to global standards that will require substantial long-term effort.

Table 2.2: Global Knowledge Economy Rankings

Countries	Score	Rankings
Sweden	9.43	1
Singapore	8.26	23
Korea	7.97	29
China	4.37	84
Sri Lanka	3.63	101
Vietnam	3.4	104
India	3.06	110
Pakistan	2.45	117
Nepal	1.58	135
Bangladesh	1.49	137
Myanmar	0.96	145

Source: World Bank (2012)

Similarly, in the Global Innovation 2015, prepared by Cornell University, INSEAD and WIPO, Bangladesh has been placed at 129 position among 141 countries. In a recent report to assess the country competitiveness with respect to the exploitation of Role of Technology and Innovation in Inclusive and Sustainable Industrial

Development, UNIDO has placed Bangladesh at the 77th position among 141 countries. Bangladesh's relative performance in intellectually property is also quite low. For example, in 2015, only 112 patents have been filed in Bangladesh. On the other hand, Vietnam and India filed 679 and 23,844 patents respectively in 2015. Certainly, such numbers are quite insignificant to the whopping number of patents filed by China in 2015, which is: 1,010,406. Such weak position of Bangladesh in global knowledge, innovation and sustainability indices indicates that Bangladesh has large untapped opportunity to derive added contribution from Science and Technology to TFP leading to higher as well as sustainable and inclusive economic growth.

The Access to Information (A2I) project in the Prime Minister's office has been at work to encourage all government Ministries, agencies and local government bodies to develop and implement plans to apply ICT in their respective spheres with the aim of improving services to citizens and enhancing accountability and transparency of governance. The logistics and operational aspects of connectivity, maintenance, availability of skilled people, and training of people and incentives for performance are major challenges in implementing the commendable initiatives.

The numbers cited for multimedia classrooms, to take one example, do not tell the whole story. Multimedia classrooms very often do not function or produce the expected benefits in learning outcomes, because electricity is lacking or erratic, teachers have not been adequately prepared, few schools can afford regular internet access, and provisions for maintenance of equipment and services have not been made. Most importantly, computer-based teaching aids are mostly absent.

2.5. Implications for Future Strategy for Education and Technology

From a policy point of view, the government designs its long-term goals and developmental objectives primarily on the basis of the Perspective Plan and the Five Year Plans. A major gap in policy making results from the absence of a sound education and technology strategy. The allocation of resources through the annual budget is therefore not often strategic as they cannot be cross-checked against a sector strategy. To partly overcome this gap recently both the Ministry of Education (MOE) and the Ministry of Primary and Mass Education (MOPME) have prepared Medium Term Strategic Business Plan (MTSBP) to align their 7th FYP objectives with the medium-term budget process (MOPME, 2016; MOE, 2016). These MTSBP documents basically offer the broad outlines of the underlying business strategies of these two ministries to achieve specific annual and medium term targets and offer a justification for their claims on budget resources. While they are intended to be strategic in the context of the 7th FYP, these are much more ministry centric-largely reflecting current priorities and management/organisational structure and there is inadequate coverage of strategic issues relating to human development for securing the growth, employment, inequality, social development and poverty reduction targets of the 7th FYP. As such, the policy issues relating to public-private roles, education financing, equity issues, gender, service delivery and inter-sectoral linkages get scant attention.

Accordingly, the Sector Action Plan for Education and Technology (SAPET) must address the implementation aspects of the human development strategy of the 7th Plan as it relates to education, training and technology, while considering how and in what respects the planned activities fall within a longer term view of the sector and lays the ground for longer term changes. It must therefore be embedded in proper sector strategy and seek to develop specific action plans for implementing this strategy. It cannot simply be a business plan based on current project activities of the Ministries and focussed on budgetary spending for these but must be embedded as an action plan to secure the 2020 targets of the 7th plan relating to education, training and technology and looking beyond to the related Sustainable Development Targets (SDGs) for 2030. As such, the SAPET cannot simply be a list of public investment programmes for concerned line ministries.

For example, to enable the achievement of the 7th Plan targets for education and technology, the magnitude of public spending and the priority for this spending will depend upon a whole host of factors such as the specific gaps in equity and gender; the mismatch of demand and supply for skills; education, skills and technology related enabling and regulatory policies; cost recovery policies in higher education; and institutional arrangements for delivery of education and training, as well as magnitude and possibility of private spending in certain education services. A proper analysis and reference to these factors will enable

a sound determination of how much and what public investment programmes are needed. Thus, areas where private sector is strong will not be a priority area for public spending; districts where poverty incidence is high and education supply is relatively scant will require additional public investment; if female enrolments in tertiary education are lagging, special policies and/.or programmes in the public sector may be needed; public training resources will need to concentrate in areas where the demand-supply gap is particularly large; special programmes will be needed to spread the ICT education and outreach in remote and poverty stricken areas where necessary infrastructure and private sector efforts may be lacking. An important consideration in the education sector is that the state has obligations in respect of citizens' right to basic education and that the public good character of education has implications for how public-private partnership and complementarity should be promoted and regulated.

Against the backdrop of the above summary of the current situation in education and technology, the remainder of the Report develops an approach to formulating the Sector Action Plan for Education and Technology (SAPET) that is embedded in proper analysis of past progress, remaining gaps, targets and objectives of the 7th Plan, and an outline of a proper sector strategy, taking a forward-looking view up to 2030. .

Bangladesh committed itself to align and adapt national plans and objectives in appropriate ways within the framework of the global goals (SDGs). This is necessary in any case to place the 5-year medium term plan within a longer time horizon in line with the national aspiration of progressing to a middle income country status. SDG 2030 and Education 2030, therefore, provide the elements of an appropriate longer term perspective for development by which the 7th Plan strategy and objectives should be constructed and judged.

Steps have been taken to develop an overall action framework for SDG implementation with assignment of responsibilities of Ministries and agencies playing respectively lead, supporting and associate roles for advancing the implementation of SDG goals and targets. It is important to ensure that the 7th Plan sector strategies and the sector action plans are linked to and placed within the SDG action framework. The 2030 time horizon of SDG creates the opportunity and poses the challenge of laying the groundwork for fulfilling the national 2030 development agenda.

Chapter 03

Gaps and Challenges in the Education and Technology Sector

Despite considerable progress, there are important gaps in many areas of education, science and technology that will need to be addressed to meet the human capital and technology needs of the 7th Plan. Some of these gaps are specific to the sub-sector; but there are some that are cross-cutting in nature and require national level interventions.

A. Sub-sectoral Issues

3.1. Gaps and Challenges in General Formal Education

Pre-primary and primary education: Despite commendable achievements, various primary education programmes including PEDP3 (2011-17) call for more concerted efforts to address the challenges, particularly in quality improvements and enhancing equity in opportunities. A recent review of quality of primary education conducted by the Ministry of Primary and Mass Education (MoPME) illustrates the quality challenge facing primary education (Table 3.1). The evidence shows that while good progress was made with a number of indicators, the quality challenge remains substantial.

Table 3.1: Indicators of Primary Education Quality

Sl.	PSQL Indicators	2010	2013	2014
#1	Percentage of schools which received all new textbooks by January 31	33	99	99
#2	Percentage of teachers with professional qualification	83	90	84
#3	Percentage of teachers who receive continuous professional development (subject-based training)	85	62	61
#4	Percentage of teachers who receive continuous professional development (sub-cluster training)	88	89	74
#5	Percentage of schools with pre-primary classes	43	95	97
#6	Number of enrolled children with disabilities	83,023	82,708	76,522
#7	Percentage of schools with at least one functioning toilet	96	83	83
#8	Percentage of schools with separate functioning toilets for girls	31	64	65
#9	Percentage of schools have safe water sources: functioning tube wells and other sources	83	83	69
#10	Percentage of schools that meet the SCR standard of 40	21	21	28
#11	Percentage of standard-size classrooms and larger constructed	43	38	71
#12	Percentage of schools which receive SLIP grants	64	62	76
#13	Percentage of head teachers who received training on leadership	71	65	26
#14	Percentage of schools that meet the STR standard of 46	44	51	62

Source: MoPME 2016

The PSQL indicators are defined in numerical terms and are about inputs; as such, they do not indicate what results are achieved in learning outcomes form these inputs. Nevertheless, they are important inputs to achieve schooling quality improvements. Deficiencies are particularly large in terms of some key indicators of quality. For example, the average pupil-teacher ratio remains short of the PEDP3 target of 46:1. Moreover, 80 percent of the schools are run on double shift with learning time in a school year less than half of the international average of a thousand hours. The large class size and small learning time combine to limit effective contact hours. The percentage of teachers with professional qualification has fallen. Very few teachers have received leadership training (only 26% in 2014) and the percentage of teachers who undergo regular professional training has fallen substantially. More efforts are needed to instil competency-based assessment of learning.

Ensuring better learning outcomes is not merely a matter of pursuing current strategies and plans. Substantial rethinking is in order regarding priorities for action in the immediate future and beyond. Review and assessment in current programs, such as PEDP3, implementation of skill development strategies, and designing actions regarding the comprehensive ECD policy offer new opportunities.

Secondary education: Since 1980, enrolment in secondary education has more than tripled, as has the number of secondary education institutions, with girls accounting for 54% of secondary enrolment, a major accomplishment in combating gender disparity, but perhaps creating a new issue of male disadvantage (See BANBEIS, 2014).

The Secondary Education Sector Investment Program (SESIP) has been designed by the government, with Asian Development Bank (ADB) as the main development partner, to implement key reforms in secondary education envisaged in the Education Policy. A multi tranche financing facility (MFF for 2013-2022) is planned to be used in a phased manner. SESIP intends to adopt a Sector-Wide Approach (SWAP) that supports the government to lead a common secondary education program framework with the enhanced harmonization of ADB and other development partners' assistance.

Despite impressive achievements in enrolment, completion rates and gender parity, secondary education does not equip students with the knowledge or skills the economy needs. Constraints on the provision of high-quality secondary education are: (i) an acute shortage of trained secondary school teachers, especially in certain subjects, such as, science, math, English and computer science; (ii) issues of articulation, consistency and content burden in curricula across primary and secondary education; (iii) an inadequate teacher management system for recruitment, registration, and performance evaluation; (iv) the lack of teaching standards; and (v) shortages of teaching-learning materials and equipment (GPE, 2014)

The high dropout rate is a major challenge in secondary education. Less than half of students complete the 5-year cycle of secondary education, reflecting a huge waste of financial resources and an inefficient education system. A gender gap shows 51% of boys completing the 5-year cycle but only 43% of girls. Multiple challenges related to gender and poverty cause the high dropout rate for girls. One factor is traditional values that favour early marriage for girls.

Critical issues affecting access and retention at the secondary stage are as follows (GPE 2015):

- The introduction of participatory teaching learning methods and "creative questions" in examinations, secondary education aims to equip students with the analytical skills or creative thinking the economy needs. However, professional preparation and skills of teacher have undermined the purposes of the "creative questions." Weaknesses in the public examination question setting, marking and management have raised issues about validity, reliability of the public examinations.

- Enrolment in science in grade 10 fell from 48% in 1980 to 20% in 2011. This is caused by (i) a shortage of qualified teachers, (ii) teaching that emphasizes theory, (iii) a lack of science laboratories and equipment, and (iv) business studies attracting more students. English is seen as an essential skill but is poorly taught in secondary school (GPE, ibid.)

- Classrooms are overcrowded and many school buildings unsafe and inadequate. In underserved areas, there are shortages of schools and classrooms. As efforts to improve the quality of primary education bear fruit, the number of students who complete primary education is expected to increase, requiring more classrooms in secondary schools and madrasahs.

- Segments of the population—including the poor, ethnic minorities, residents of urban slums, and those living along coastal and vulnerable lowlands—face financial or social barriers to attending and completing school.

- Bangladesh has no established system that allows students to transfer credits among secondary schools, madrasahs, and vocational schools. Once a student enters a stream at grade 9 or about age 15, it is very difficult, if not impossible, to move to a different stream. Offering various pathways of learning would stimulate horizontal movement and/or re-entry, for those who drop out for various reasons.

Gaps in sub-sector management: The capacity of the Ministry of Education and the Directorate of Secondary and Higher Education (DSHE) to supervise and monitor the secondary education sector has not kept pace with the rapid increase in the number of secondary schools and madrasahs. The secondary education system has weak organizational and supervisory competence. Improving the quality and relevance of secondary education would require good sector management. Key challenges are as follows:

i. As part of on-going education reform, the DSHE has gradually decentralized some responsibility for education management, including academic supervision in schools, to local education offices. However, limited capacity of these remains a great concern.

ii. A number of organizations, including teacher training colleges, higher secondary teacher training institutes, and the Bangladesh Madrasah Teacher Training Institute, provide teacher training in secondary education in different aspects (e.g., planning, implementation, and administration). However, coordination and institutional linkages among them need to be further improved. In addition, the rapid growth of nongovernment teacher training colleges, which operate commercially without the government's proper quality control, has further undermined the quality of training.

iii. About 98% of all schools are nongovernment, their administration overseen by school management committees. These nongovernment schools and madrasah receive substantial government subsidies to pay the salaries of teachers of selected subjects (through a system of enrolling teachers in a "monthly pay-order" (MPO) roll, as well as block grants for construction and maintenance of school buildings. Given the enormous growth in nongovernment schools, it has been difficult to apply and enforce their performance and accountability requirements. Government administrative and supervision capacity is not up to the task.

iv. Teachers in government schools are recruited by the DSHE, while teachers in nongovernment schools are recruited directly by schools in accordance with the government's set regulations and procedures. However, instances of corruption and nepotism have clouded the transparency of the system, especially regarding teacher recruitment and salaries in nongovernment secondary schools funded by the government. A National Teacher Recruitment and Certification Authority (NTRCA) has been established to address this problem. This is seen as a helpful measure. However, this itself does not solve the problem of the poor quality and academic capabilities of the pool of people who opt for school teaching as a career. Furthermore, rural schools face hurdles recruiting teachers, as many candidates prefer to live in Dhaka and other large cities.

v. Projects funded by the government and development partners have been major drivers of secondary education development. Capacity development provided by projects is often lost when projects end, with minimal institutionalization and long-term strategic planning for the continued professional development of personnel. For example, monitoring and evaluation is generally a project-supported activity and not institutionalized, leaving the system reliant on self-reporting without adequate verification. Evidence-based forward planning is rare. Sector planning needs to be strengthened with projection of future needs and demand. There is a need of improvement of current education management and information system and planning practices.

vi. An issue of particular relevance is how the National Education Policy recommendation of extending free and compulsory education up to grade 8 (by 2018, as mentioned in the policy) will be implemented. It appears to be seen as just a matter of shifting grades 6 to 8 to the administrative jurisdiction of Primary Education authorities. More complex issues concern provisions for teaching personnel, physical facilities, curricular continuity, and ensuring quality taking into account existing provisions and recognising that teaching learning at this level is qualitatively different from lower grades of primary education. Working out a transitional process and strategy with the two concerned Ministries (the Ministry of Primary and Mass Education and the Ministry of Education) collaborating closely through a taskforce could be a sensible approach to deal with the challenge.

3.2. Gaps and Challenges in Non-formal Education

The commitment to battling the high adult illiteracy rate in Bangladesh prompted the Government to launch a major non-formal education program in the 1990s, focusing on basic literacy. Priority was given to achieving

universal coverage of youth and young adults in the age range of 11 to 45 years. The literacy efforts as well as the expansion of primary education raised the level of literacy of the population, though the estimates of the literacy rates actually achieved remain a matter of debate. Despite this increase in literacy, in the light of past experience in literacy programs, such as the Total Literacy Movement, there is concern among education researchers and other stakeholders that a mass campaign approach may not enable participants to acquire functionally useful and sustainable literacy skills that would prevent learners from relapsing into illiteracy. International experience and lessons suggest that simplistic quantitative targets (leading to declaring districts as "free of illiteracy") are not very useful.

The Education for All (EFA) Global Monitoring Report (UNESCO, 2015), for example, recommends that literacy programs should be designed as an integral part of systematic continuing learning opportunities within the framework of a lifelong learning approach. Recognizing the need for post-literacy and continuing education programs in order to help learners consolidate basic skills and use these in improving their lives, projects on post-literacy and continuing education have been under implementation by the Bureau of Non-formal Education of the Ministry of Primary and Mass Education, targeting some 3 million adults. These donor-supported projects have been implemented through contractual arrangements with NGOs, with indifferent outcomes regarding skills actually acquired and applied in a meaningful way. Moreover, there was little contribution from these to building a sustainable institutional structure for lifelong learning.

A degree of diversity in non-formal education serving diverse learning needs of the population, especially the poor unable to participate in formal education has been maintained through NGO initiatives. Non-formal primary education on a substantial scale, offering a second chance to children and youth for basic education, has been carried out by NGOs. Other activities by NGOs include basic education combined with skill training for adolescents and youth who have dropped out from school or have never enrolled as well as early childhood education activities. These, other than non-formal primary education, have been on a small scale compared to the potential demand.

The history of literacy programs initiated by the government including the mass literacy campaign in the 1980s and TLM and its predecessors in the 1990s shows that poor quality adult literacy programs discourage sustained participation of adults in literacy and ongoing adult education programs. Adult educators are typically low paid and poorly trained. Limited staff development opportunities and low compensation provide no incentives for sustained, quality teaching. Cost-per-learner assumptions are often extremely low, dependent on 'volunteers' and community contributions and on the logic that non-formal systems, particularly for adults, do not require infrastructure such as the buildings and other equipment and materials considered necessary for formal schooling. Literacy and post-literacy education curricula are often irrelevant to the highly diverse realities and contexts of learners, the contents are dull and the production quality is often very poor.

While the value of lifelong learning gained momentum, especially in the developed countries, very few countries in the global South picked up this broader view of literacy integrated with continuing education. The Sixth World Conference on Adult Education aims at placing adult learning and literacy at the center of lifelong learning, which is now reflected prominently in SDG4. This attempt at breaking down insular compartmentalization among literacy, numeracy, life skills and non-formal education leading to a holistic understanding of adult education is still to be taken as the framework for program design in many developing countries, especially in South Asia. In fact, the concept and scope of literacy efforts in Bangladesh suggest that these are still tied to the 50's and 60's understanding of literacy – with the symbolism of "reading a sentence" and "signing one's name" given prominence and taken as an acceptable definition of literacy. This reductionist view of literacy seems to be reflected in the Education Policy (2010). The target of eliminating illiteracy by 2020 needs to be conceptualized and defined in terms of achieving functional and meaningful skills and as the first step for lifelong learning and for engaging in a process of enhancing one's life prospects.

3.3. Gaps and Challenges in Labor Training and Skills Development

Dominance of informal employment and low skills of workforce: Despite overall growth of education, a major challenge in building human capital is the lack of educational attainment of the labour force which predominantly consists of workers with little or no education. Of the 58.1 million workers, some 21 percent

have no education, while 29 percent have up to a primary education (BBS, 2013). Although there is not much disparity in these numbers across gender, there is a considerable difference between urban and rural areas. In urban areas, 5.6 percent of workers have no education. The figure jumps to 27.4 percent in rural areas.

According to Bangladesh Labor Force Survey 2013, most workers still work in the informal sector, with agriculture as the major sector of employment, absorbing 45% of the work force, though the sector's GDP share has come down to 16%. The informal sector is estimated to account for 87% of the 58 million people employed in the economy; and 78% of workers employed outside agriculture, forestry and fisheries. Overseas migrant workers is an important source of employment. The outflow of migrant workers has been steadily increasing and it grew to 684 thousands in FY2015-16. Unemployment rates in the labour force are low, at about 4.3 per cent, but it is considerably higher for urban youths (10.4%). Importantly, although real wages of workers have been rising, they are still low by international standards. A major factor for low wages is low average productivity, which is in turn caused by low levels of education and training of the labor force.

The greatest deficiency in educational attainment is illustrated by a significantly low share of workers with vocational education. The low attainment of education among the workforce translates to low productivity and deficient human capital, accentuating the employment challenge.

Demographic dividend: Nevertheless, growing GDP along with ongoing economic transformation including in rural areas has led to a progressive tightening of the labor market in Bangladesh, reflected in rising real wages (Ahmed 2015). However, the outlook for the supply side of the labor force remains positive from the development perspective. Bangladesh is passing through a demographic transition as there has been an increase in the proportion of working age population (15-64 years) in total population--from 54.7% in 1999 to 68.4% in 2011 (BBS, 2013). The continued dominance of the 15-64 age structure of the population and the still low but growing female labor force participation rate suggests that this positive demographic transition would likely continue for at least another 25 years or so. To realize the growth impetus from the demographic dividend, this growing working age population would need to be transformed into a more dynamic labor force with significantly higher productivity. In this respect, effective investments in education and skills training will be essential, which coupled with higher savings and investment in other growth enhancing activities, can lead the country towards higher growth trajectory (Khondker and Rahman 2016; Bidisha et al. 2016). However, it is often argued that the ability to confront the challenges of a changed demographic composition depends on the appropriateness of institutions and policies and flexibility of the markets (Bloom et al. 2011). It is therefore of paramount importance to prioritize and specify the sectoral policies institutions in the context of a well-defined sector strategy and associated goals of education and skills development.

Technical and vocational education: Public provisions in formal technical/vocational education has shown a growth spurt since 1995, mainly because of the introduction of a vocational and technical stream in secondary and higher secondary education. Having substantially higher numbers and proportions of students in vocational and technical training courses at the post-primary level is the conventional policy prescription. Whether the model of vocationalisation of secondary education followed in Bangladesh meet the demand for employment market and respond to other skills development needs remain a matter of debate.

There is, nonetheless, a shortage of people with vocational/technical skills – another indication of non-responsive training programmes. A calculation of the educational composition of the work force shows that for every single person in the labor force with a technical/vocational qualification there are more than 104 others who have completed Secondary School Certificate (SSC) or Higher Secondary School Certificate (HSC); and 34 others who have gone onto a university degree or higher. Given the situation, major reforms have to be undertaken to improve the market relevance of vocational education and training. There are significant issues in management, quality and relevance of vocational (World Bank, 2013).

The variety of skills required in the production process is expected to be met by the technical and vocational education provisions. The rising trend of the migration of workers as remittance remains a big source of foreign currency for the economy. To improve the skill of the workers the National Skill Development Council and the National Skill Development Policy (NSDP 2011) were introduced by the Ministry of Education along with the Non-formal Education Policy framework (2006) to improve the skills of the workers. The sound implementation of these policies is a major challenge.

3.4. Gaps and Challenges in Science, Technology and ICT

Science and technology: Aligning the development of plan of Bangladesh along with the objective of meeting sustainable development goals is a challenge as well as opportunity for Bangladesh. In a recent report, UNESCO (2016) stresses the role of Science and Technology leading to innovation. It has been reported that significant investments in science, technology and innovation (STI) and commitments from governments are crucial to reach the full potential of STI for achieving the Sustainable Development Goals (SDGs). For example, to meet the growing demand of food with decreasing arable land, Bangladesh needs to increase productivity in agriculture. Different studies indicate that existing production methods are not scalable, as the country is already reaching the limit of consumption of farm inputs like pesticides, water and fertilizers. There is a growing opportunity of integrating technology and innovations in farming to reduce the wastage of farming inputs and increase both quality as well as quantity of food supply.

In order to build solid knowledge base in Science, Technology, and Innovation to address sustainable development goals, Bangladesh needs to increase capacity in higher education. According to the UNESCO (2016), Bangladesh's budgetary allocation for higher education is less than 0.5 percent of GDP, which is far lower than many LDCs.

With respect to the competitiveness of the industry, it's imperative that Bangladesh focuses on the acquisition of Science and Technology and to adapt them to improve TFP, so that diverse economic actors can produce better quality products at lower cost, while causing less harm to the environment.

Regarding gender equity in S&T, in the Human Development Report 2015 of UNDP, it has been observed that women are traditionally underrepresented in science and technology in many countries, including Bangladesh. In the Woman in Science and Technology in Asia, it has been reported that only 14 percent of science researchers in Bangladesh are women. Similarly, enrollment of female students in Science and Engineering education is low. For example, in 2010 only 19.2% of students in Bangladesh University of Engineering and Technology and 35.6% in Bangladesh Agricultural University were women.

In reviewing the progress of the 6th Five-year plan (FYP), it has been reported that labor productivity has increased at a rate of 3.5 percent per year in Bangladesh. Importantly, average labor productivity in agriculture is also estimated to have increased by 3.6 percent per year during the implementation period of the 6th FYP: 2010-2015. Such productivity growth could be partially attributed to higher integration of Science and Technology in production processes leading to growth of TFP. But such productivity growth appears to be far less than what China has experienced. During the period of 1995-2015, on an average, China experienced productivity growth of 8.6 annually, reaching to the peak 14 percent in 2007. Per person labor productivity grows primarily due to two major factors: increase in capital; and improved efficiency. Science and Technology is a key factor to increase the efficiency of already deployed labor and capital, contributing to total factor productivity.

With respect to Bangladesh's poor ranking in global knowledge and innovation indices, it could be reasoned that Bangladesh's past labor productivity growth is primarily attributed to higher accumulation of capital per employee. Such observation could be substantiated with the statistics that total number of patents filed in Bangladesh is extremely negligible. Total number just increased by 43 during 2010-2015, on contrary to the growth of patents filed by China during the same period of time is almost 700,000.

Due to the lack of data, assessment of Bangladesh R&D investment growth faces difficulty. Even relatively well funded Agricultural Research capacity shows very slow progress in R&D capacity development. For example, during 2006-2009, agricultural R&D financing grew just above 2 percent, in contrary to India's 9 percent growth—according to IFPRI facilitated agricultural Science and Technology indicators. In the recent past, although Bangladesh has implemented a number of S&T projects like setting up of planetarium, but their contributions to TFP appears to be very weakly correlated.

Information communications technology (ICT): The strong progress with the implementation of the Digital Bangladesh Initiative during the Sixth Plan provides a solid foundation on which the Seventh Plan can build forward. Notwithstanding past progress, the road ahead is immense. This is illustrated in the ICT progress

indicators in Bangladesh in relation to countries (Table 3.2)[1] . As a late starter Bangladesh has done well. Progress with expansion of mobile connections is particularly noteworthy. Nevertheless, the bandwidth connectivity is low compared to the demand. Wider usage of the bandwidth should receive immediate priority. The development role of knowledge economy through ICT has just started and the returns are already being felt. The future potential is immense and the Seventh Plan will adopt strategies and policies to take this forward. A special challenge will be to expand the bandwidth connectivity through investments in fixed infrastructure as well as lower access cost through tax reductions in ICT goods and services. A larger subscription volume will both benefit service expansion and total tax revenues from ICT.

Table 3.2: Indicators of ICT Progress (%)

Country/Region	Mobile Subscriptions		Internet Users		Fixed Bandwidth Subscription	
	2005	2013	2005	2013	2005	2013
Bangladesh	6.29	74.43	0.24	5.75	0.0	0.97
India	8.0	70.78	2.39	12.58	0.12	1.16
China	29.84	88.71	8.52	42.3	2.83	13.63
Sri Lanka	16.85	95.5	1.79	18.29	0.11	1.99
Vietnam	11.29	130.89	12.74	39.49	0.25	5.62
Developed	82.1	120.8	50.9	78.3	12.3	27.5
Developing	22.9	90.2	7.8	32.4	1.3	6.1
World	33.9	92.5	15.8	40.4	3.4	9.8

Source: ITU Website, ICT Facts and Figures 2014

B. Cross Cutting Issues

3.5. Sector Planning and Management Issues

The SAPET provides an opportunity to broaden the sector planning and related management horizon beyond the narrow confines of the end date of the 7th Plan and articulate goals and objectives for education and skills development in the light of Education Policy, National Skills Development Policy, aspirations for a middle income country and the global development SDG 2030 and Education 2030 agenda. The SAPET seeks to identify structural and operational constraints for education and skills development and indicate what should be done to overcome these obstacles. The structural weaknesses will require a sustained and longer term effort, yet they must be pursued with a sense of urgency. More immediate steps need to be taken on operational issues, but still designed within a framework of structural reforms.

Structural Issues: Major structural issues which, on the basis of academic and public discourse as well as recent studies and policy advocacy of education researchers and stakeholders, have come to the fore, include:

- Resource adequacy. Very low level of public resources for education by international comparison, lack of criteria and benchmarks for resource allocation (and proportional reduction of education allocations as share of GDP and total government budget) in recent years;
- Decentralised and effective governance. Extremely centralised governance and management structures for the large educational system of the country; decentralization with accountability in educational management at all level need priority attention;

1. The data used for international comparability is based on latest information published by ITU. Latest available data for Bangladesh show further progress with ICT adoption and use after 2013, especially for tele-density and internet use.

- New thinking about teachers. Insufficient numbers of teachers of required quality standards and inability of system to attract and retain capable people in the teaching profession;
- Effective skills development. Supply-driven skills development with low quality and relevance, and minimal attention to apprenticeship and needs of the informal economy (though it accounts for over 80% of employment);
- Quality in higher education including degree colleges. Unacceptably low quality of degree colleges under the National University (with three quarters of tertiary enrolment in these colleges, which also are the suppliers of primary and secondary teachers -- creating a vicious cycle in education);
- Better coordination between primary and secondary education. To address problems of curriculum continuity, student assessment, teacher preparation and supervision, and developing and guiding and implementing an overall quality-with-equity strategy needs to be developed in the national education system, especially in the context of universal secondary education target indicated in SDG4/Education 2030 agenda.
- A comprehensive law for education. An overall legal framework that would facilitate the development of the education system to realise the goals of quality with equity, rather than constrain reforms and their implementation. This was recommended by the National Education Policy 2010, but difficulties in building consensus on critical issues such as the state's role and obligations and the scope of public sector education, nature of public-private partnership, degree of devolution and decentralization, regulatory functions and mechanisms and other issues have stymied decision-making.
- Supporting development and use of professional capacity. Human resource management and use in the education system need to nurture competency and professionalism with incentives, rewards, establishment and application of performance standards, and professional network building
- Partnership building. Government, non-state actors, civil society, private sector need to work together for optimal policy development, governance, resource mobilisation and assessment of progress; greater voice of stakeholders at all levels to be encouraged.

Operational issues: The operational issues arise mainly from the governance, management and decision-making process in the national education system. These include:

- Student learning assessment. Dysfunctional learning assessment with too many public examinations which do not measure competency and distort teaching-learning;
- Curriculum reform. Curriculum burden and weak continuity and articulation through grades;
- Disadvantaged groups. Geographical, ethnic, and language-based access deficits; seriously inadequate opportunities for children with disabilities;
- School facilities. School building, premises and play grounds – built and maintained as a symbol of commitment to education and community pride.
- Quality control in private universities. Proliferation of private universities without essential quality control;
- Education policy implementation. Slow and fragmented approach to Education Policy 2010 implementation.
- Digital technology. Use of digital technology for teacher upgrading, enriching student learning resources, efficient management information system, and ensuring wide and affordable access to the internet for all educational institutions.
- School meal. School meal for all children, especially at pre-primary and primary level (a pilot program with 3 million primary school children is already on-going).
- Corruption. Controlling corruption, waste, mismanagement and moving away from a culture of tolerance of these destructive practices.

3.6. Public-Private Roles

Traditionally, the public sector has taken a lead role in providing education, training and technology adoption. Over the years after independence the private sector has developed interest and capability in delivering these services at all levels. Some of the private sector roles have emerged in partnership with the public sector providers. The best example of this is the partnership between the government and the non-government organizations (NGOs) in the delivery of primary and secondary education. In recent years private education supply has expanded rapidly in tertiary and technical education aided by an enabling environment of the government's deregulation policy. The government has accepted the premise that the demand for education is too large to be adequately provided by the government alone based on budget and delivery capacity constraints.

There is a large supply gap in the area of training and technology. The role of on-the-job training is relatively weak compared with other dynamic Asian countries. Similarly, while the adoption of ICT is making progress and R&D has done well in agriculture, the spread of ICT services is much slower than in many other countries at similar stages of development.

3.7. Gender Issues

Bangladesh can be justly proud of its achievement in reducing the gender gap. Of particular importance is the progress in primary and secondary education. Bangladesh already stands out among comparable per capita income countries in terms of achieving parity in primary and secondary school enrolment. Solid progress has also been made in reducing the large gap between male and female students at the tertiary level. Notwithstanding this progress, there is a substantial unfinished agenda for the 7th Plan and beyond. The ratio of girls to boy's gross tertiary enrolment was 50% in at the end of the 6th Plan in FY2015, below the target of 60%. The 7th Plan sets the target of eliminating gender gap in tertiary education by FY2020. In ICT, the 7th Plan notes a significant gender gap: "While there is recognition of the potential of ICT as a tool for the promotion of gender equality and the empowerment of women, a "gender divide" has also been identified, reflected in the lower numbers of women accessing and using ICT compared with men. Unless this gender divide is specifically addressed, there is a risk that ICT may exacerbate existing inequalities between women and men and create new forms of inequality." (Government of Bangladesh, 2015).

3.8. Equity Challenges

Ensuring equality is fundamental to human capital development for poverty reduction. A pro-poor strategy will help to achieve the desired objectives. Table 3.3 provides useful insights regarding some of the trends in enrolment across different groups. In terms of educational attainment, gender parity has been achieved in primary and secondary education, Female enrolment in primary and secondary education has surpassed male enrolment. However, females continue to lag behind in secondary completion. There have been improvements in equity in primary enrolment between the poor and non-poor. From 2005 to 2010, the difference in primary net enrolment between the poor and non-poor fell by 7 percentage points. A similar trend was also observed in secondary education, but the situation in higher secondary seems to have deteriorated.

Despite these improvements, the absolute gap between poor and non-poor is still high. Although the results of the 2015 HIES are not yet available, data from 2010 HIES showed considerable equity issues. Secondary enrolment for the poor in 2010 was 35 percent, while that of the non-poor was 70 percent. In 2010, the higher secondary NER of the non-poor was 25 percent, compared to just 7 percent for the poor. Within the poor segment of the population, there is a considerable gap between male and female secondary enrolment, with male numbers much lower.

A major challenge for the SAPET is to consider how equity issues are best addressed to provide equal opportunities to all children irrespective of where they are born. Children from poor family are already under-privileged in terms of access to family income and access. Equal access to quality education is the only hope to give these children a shot at climbing up the social ladder. These have implications for both policies and public investments.

3.9. Service Delivery and Institutional Issues

At the public sector level, there are 4 Ministries involved with the delivery of education, training and technology services. These are: the Ministry of Primary and Mass Education (MOPME), the Ministry of Education (MOE); the Ministry of Science and Technology (MOST); and the ICT Division of the Ministry of Posts, Telecommunications and Information Technology (MPTIT). The Ministries of Women and Children Affairs, Expatriate Welfare and Employment, Youth and Social Welfare, Heath and Family Planning and others also have specific and significant involvement. From the output and results perspective, it is obvious that there are issues of inter-ministerial linkages. Thus, for example, the quality and quantity of what gets produced at the earliest stages of the education and training cycle (primary schooling managed by MOPME) has a determining influence at the next stages of the cycle (secondary and tertiary education managed by MOE; science and technology research managed by MOST; and ICT managed by MTICT). Yet, in practice inter-ministerial coordination and joint policy making is a challenge.

A related issue is decentralization and quality of service delivery. The service delivery is heavily centralized with most policy decision and implementation managed from Dhaka. Centralized management of quality in remote districts of Bangladesh is heavily challenged. It is near impossible to manage adequately teacher attendance, quality of school infrastructure and quality of learning without a decentralized service delivery. Recruitment of teachers and procurement of infrastructure and supplies are also heavily centralized, which often tend to suffer from lags and delays resulting from centralized decision making.

Reviews of public education spending show major governance concerns in procurement and financial management. The management information system (MIS) is similarly inadequate.

Table 3.3: Gross and Net Enrolment in Different Levels of Education

		Primary			Secondary			Higher secondary		
		Both	Male	Female	Both	Male	Female	Both	Male	Female
	Quintile	Gross enrolment								
2005	1	77	71	83	30	25	35	7	8	6
	2	91	91	91	41	36	48	12	11	15
	3	98	98	98	60	54	67	17	23	10
	4	101	101	102	78	74	83	25	25	26
	5	99	102	96	98	99	96	57	57	57
	Poor	83	80	87	36	31	41	14	16	11
	Non-poor	100	100	99	78	74	82	31	30	32
	Rural	91	90	93	59	55	63	19	20	19
	Urban	93	92	93	71	68	73	45	48	43
	Quintile	Net enrolment								
	1	60	56	63	23	16	30	3	2	3
	2	64	63	66	36	33	40	3	2	4
	3	71	70	72	45	38	53	5	6	3

	4	75	75	77	55	49	62	8	7	10
	5	80	81	79	69	66	71	20	19	20
	Poor	61	60	62	27	21	32	3	3	3
	Non-poor	77	77	78	56	52	61	12	12	12
	Rural	68	67	69	43	38	47	6	6	6
	Urban	75	74	77	54	50	56	18	19	17
	Quintile	Gross enrolment								
2010	1	93	85	102	37	31	43	11	12	10
	2	103	96	109	53	47	59	23	20	26
	3	104	104	105	66	62	71	39	35	46
	4	106	106	105	75	70	81	48	47	50
	5	105	104	106	82	81	84	81	83	80
	Poor	93	86	101	41	35	47	15	15	14
	Non-poor	107	105	109	73	70	77	54	52	58
	Rural	102	98	106	62	59	66	39	39	40
	Urban	100	95	105	66	63	70	64	57	42
	Quintile	Net enrolment								
	1	72	66	78	31	25	37	5	3	7
	2	78	73	82	44	39	49	13	12	13
	3	78	77	78	51	45	56	17	15	21
	4	79	79	79	58	52	65	19	17	23
	5	81	80	82	66	64	67	36	40	31
	Poor	72	67	77	34	28	41	7	7	8
	Non-poor	81	79	83	57	54	62	25	23	28
	Rural	77	74	81	49	45	54	18	17	20
	Urban	78	75	82	54	50	59	28	25	32

Source: HIES 2005 and 2010

Chapter 04

7th FYP Targets for Education Science and Technology

The Seventh Plan comes at a critical juncture for shaping development priorities and strategies to move into the rank of middle-income countries and adapt SDG2030 and EFA2030 agenda for Bangladesh. Education and skills part of the Plan has a key role in this effort.

4.1. 7th Five Year Plan Targets

The core goals for Education, Science and Technology for the 7th Plan are summarized below by each subsector. These goals are aimed at addressing many of the gaps identified in Section C.

Primary education: In terms of the core goals for primary education, the 7th FYP outlined the following goals:

- Improving the Teaching Learning Process in Schools
- Ensuring Participation and Reducing Disparity
- Ensuring Decentralization and Enhancing Effectiveness
- Establishing Effective Planning and Management

Secondary and higher education: The 7th FYP proposes the following targets for secondary and higher secondary education:

- Qualitative Improvement: (a) Better Resource Management and Development of Infrastructure; (b) Improvement of Teaching Quality; (c) Appropriate Curricula and Pedagogy; (e) Minimizing Multiplicity in Education
- Quantitative Increase of Student Enrolment and Quality Enhancement at Secondary and Higher Levels: (a) Increasing the Rate of Enrolment; (b) Reducing the Dropout Rate; (c) Encouraging Female Enrolment; and (d) Inclusion.

Given that the country has made commendable progress in primary and secondary stages of education in terms of both expansion of education as reflected by the higher enrolment rate and greater gender equity, a cote objective of the 7th Plan is to eventually shift the policy focus towards higher education, in addition to quality improvement in primary and secondary education, in order to support the transition path to Upper Middle Income. The key targets for University Education as stated in the 7th FYP are:

- Increasing Higher Education Rate from 12% to 20%
- Enhancing Standard and Quality of University Education
- Consolidating and Strengthening of existing Universities
- Focusing on Quality, Selectivity and Excellence
- Ensuring Access to Computer and Internet Facilities
- Prioritizing Science and Technology, Business Administration and Teachers' Training
- Rationalizing Enrolment among Various disciplines
- Emphasizing Research and Development
- Introducing Virtual Education
- Emphasizing Development of Libraries and Laboratories
- Strengthening of the UGC
- Establishing an Accreditation Council
- Establish linkage with the industry

Madrasa Education:

The two main targets for the 7th Plan are:

- Improve quality of madrasa education.
- Modernize madrasa education to enable graduates integrate in the job market and society at large

Non-formal Education:

The main targets for the 7th Plan are

- Eliminating illiteracy (achieve 100% literacy rate) by 2020.
- Establishing community-based Network of Learning Centers to create scope for ICT Learning
- Extending opportunities for effective skill training
- Establishing a Non-Formal Education Board

Skills Development:

The core objectives for skills development of the 7th FYP include:

- Diversifying the TVE programs while incorporating newer technologies and skills, e.g. I.T., textiles and fashion design. Fish Production, Leather etc.
- Encouraging greater involvement of the private sector.
- Ensuring greater gender equality by incorporating more women in these programs.
- Incorporating rural indigenous technologies in TEVET institutions.

Science and Technology:

The 7th Plan stresses the importance of developing science and technology by:

- Emphasizing scientific education at the secondary and higher secondary levels.
- Constructing various scientific facilities, such as planetariums, at the divisional levels.
- Promoting research at all levels with focus on adoption of new technology.
- Establishing the Nuclear Power Training and Educational Institute to develop qualified and specially trained manpower.

ICT: The ICT related core objectives and targets for the 7th Plan are:

- Promoting Economic Growth
- Enhancing Equity through ICT
- Facilitating Youth Empowerment
- Enhancing Educational Quality
- Reduced Environmental Vulnerability
- Strengthening Responsiveness of Parliament
- Responsive Law Enforcement
- Strengthening Judiciary
- Pro-Citizen Civil Service
- ICT for transparency, good governance and service delivery.

4.2. Alignment with SDGs

The relevant SDGs for the Education, Science and Technology are shown in Table 4.1. The SDGs are intended as generic statement of objectives and targets at the global level. Respective countries are expected to adapt these broad targets to their own national targets as relevant. The main message

is that the 7th Plan targets for education and technology is broadly consistent with the SDGs within the medium-term time frame of the 7th Plan. The issues in alignment and the tasks that need to be addressed taking a time horizon beyond 2020 are indicated in the observations column in Table 4.1 above. Moving forward, the real challenge is to develop proper strategies and implement specific actions for achieving these targets.

SDG Targets	7th Plan Targets	Observations
4.1. By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.	By 2020, achieving 100% net enrolment rate for primary and secondary education.	Compulsory Primary Education Law 1990 covers up to grade 5; new Education Act envisaged; No specific universalization plan yet for education beyond grade 5.; Global target is universal full secondary education by 2030.; Quality improvement remains highly problematic; provisions needed for second chance education for dropouts. . No specific universalization plan yet for education beyond grade 5, though official and civil society SDG target is grade 8; How to reconcile global target of universal full secondary education by 2030 with national grade 8 target? Quality improvement remains highly problematic.
4.2. By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education,	One-year pre-primary education for all children entering primary; no specific target for early childhood development except a framework and policy for ECD	No specific target for early childhood development; Serious quality deficiency in pre-primary; Only scattered activities for young child dev.
4.3. By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.	By 2020, increase female enrolment in technical and vocational education to 40 per cent. Gender gap in tertiary education to be eliminated by 2020.	Overall TVET participation is low – even lower for females; no major programme for skill training for informal economy jobs; limited formal/informal apprenticeship; expansion within present structure without major reform for market responsiveness and quality will not help reach target.
4.4. By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	Strengthening education and training programmes to motivate the youth to complete education and to enable the working youth and the older workforce to acquire required skills	Targets are vague – not quantified. Diverse skills opportunities, market responsive, private-public partnership approach needed, ensuring quality and relevance rather than expanding existing types of institutions

SDG Targets	7th Plan Targets	Observations
4.5. By 2030 eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.	By 2020, the ratio of literate female to male for age group 20-24 to be raised to 100% from the current 86%. Gender disparity in primary and secondary education already eliminated. Female to male ratio in tertiary education to be raised from current 70 to 100% by 2020.	Despite primary and secondary education gender parity in enrolment, disparity remains in completion and transition at secondary level and beyond; Disparity persists in TVET and higher education. 2020 target of full female literacy repeats past 'illiteracy eradication" targets, repeatedly missed and not very meaningful, not reflecting functional literacy and lifelong learning approaches.
4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.	By 2020, increase literacy rate to 100%. 7FYP suggests community learning centres in each union and wards as vehicle for literacy and lifelong learning.	Adult literacy gender disparity has narrowed; but disparity still remains; a viable programme for literacy as the foundation for lifelong learning through networks of community learning centres (CLCs) and wide and equitable access to ICT still to be developed.
4.7. By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.	This is a catch-all SDG target on the global agenda without any specific quality and quantity dimensions. But the 7th Plan's emphasis on education quality and gender equality is broadly consistent with this SDG.	Realization of the wide-ranging and complex objectives under this target is difficult and good examples and effective practices are scarce; targets for sustainable development action imply education, awareness raising and behavior change of population; the educational implications should be made explicit and included in target and indicators. Similarly, responsible citizenship, and respect for diversity should be explicit education objectives with necessary curriculum and teaching-learning measures

SDG Targets	7th Plan Targets	Observations
4.a. Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.	All children will have access to an appropriate, relevant, affordable and effective education regardless of gender, age, physical or financial ability, ethnicity, being autistic & disabled, with impairment or HIV status. All primary schools to have at least one and all secondary schools to have at least three multimedia classrooms; 30% of primary schools and 100% of all secondary schools to have an ICT laboratory.	Specific phased targets can be set for facilities and infrastructure development to meet quality standards including acceptable class-size, single shift full day school, playgrounds, safe premises and boundary walls of schools, ICT-based teaching-learning etc.
4. B. By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing states and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.	No specific target set. There are opportunities and need for specialized professional development in the education sector in collaboration with overseas institutions provided that this is undertaken as part of a human resource development plan and policy in the education sector	There are professional development needs in specialized technical areas such as curriculum development, ICT-mediated learning, assessment of learning, educational measurement and evaluation, educational management, language and science teaching. There should be plan for international collaboration for specialized professional/technical capacity development.
4. C. By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.	Expand in-service teacher training Establish 12 Primary Teacher Training Institutes	A system of pre-service professional preparation for teaching is lacking though teaching is the single largest occupation for tertiary education graduates. School teaching is the last choice as an occupation for talented college/university graduates. New thinking is needed -- more than just more in-service teacher training. Four connected steps may be -- education as part of undergraduate general degree; attracting best students to this programme in some 100 degree colleges with incentives; ensuring academic standard for this course in these colleges; and initiating a National Teaching Service Corps with high salary and status.

Chapter 05

Strategy for Education and Technology to Achieve 7th FYP Targets and Lay the Ground for SDG4 (2030)

5.1. Strategy for Various Education and Technology Sub-sectors

The main strategic focus of the education and technology sub-sectors is to enable the education, skills and technology factors to facilitate the development progression path as Bangladesh aspires to transit from lower middle income country to upper middle income country by 2031. Education and skill development strategy is geared to nurturing the qualitative upgrading of the Bangladesh labor force needed to support the production base of an upper middle income country. Technology strategy seeks to increase total factor productivity since technology upgradation is essential to increase the productivity of both labor and capital.

5.2. Strategy for Formal Education

The Government's current education vision is articulated in the 2010 National Education Policy (NEP). The Policy is derived from the Government's commitment to the goals of Education for All and the Millennium Development Goals. As per the NEP, proposed changes include a year of pre-primary and the extension of free, mandatory primary school education to a total of eight years by 2018 as per NEP.

Strategy for Primary Education: The Government has established the following strategies to develop primary education:

1) Improve the teaching learning process in schools

- Emphasize teacher recruitment and their career path, training, professional support and remuneration
- Strengthen assessment of learners' achievements based on terminal examinations and continuous evaluation by teachers.
- Follow a core curriculum in government, nongovernment, private schools and madrasas.

2) Ensure participation and reduce disparity

- Emphasize early childhood development and pre-primary
- Expand the school feeding programme to address the problem of inadequate nutrition in children
- Pursue an inclusive education policy to enable all primary school-age children to complete quality primary education. The access portion will focus on reaching the unreached, particularly for special needs children, working children, children in difficult circumstances, and children belonging to ethnic minorities or living in

3) Ensure Decentralization and enhance effectiveness

Primary education management will be comprehensively decentralized. The School Management Committee will be given more authority. Involvement of Local Community will be further enhanced in the management and improvement of primary education.

4) Establish Effective Planning and Management

Management of primary education will be strengthened by improving sector planning, ensuring better financial management, improving human resources through training and quality staff recruitment, and good ensuring governance in procurement and staff deployment.

Secondary and Tertiary Education Strategy: The main elements of the strategy are:

Improve Participation in Education

- Improve enrolment rate and equal participation of female, disadvantaged students, persons with special needs and students in underserved geographical areas.
- Increase capacity in educational infrastructure and human resources in the existing ones and establishing new institutions to absorb increase of students.

Improve Quality of Education

- Improve skills of teachers through continuous capacity development and professional human resource management.
- Developing outcome based curricula and periodic review of national qualifications framework (approximation to international standards), textbooks and connectivity with private sector/ labour market.
- Improve student examination and evaluation systems consistent to the learning outcomes

Improve Overall Governance and Transparency

- Decentralize secondary school management by strengthening school management, District/ Upzilla education management and parents/student committees.
- Adopt proper teacher recruitment and procurement policies
- Improve financial management.

Strategies to Develop the Madrasa System: The main strategic focus of the 7th Plan for madrasa education is to make the system productive and job-oriented. The specific strategies are:

- Improve physical facilities
- Revise curriculum to include subjects that are relevant for market jobs.
- Strengthen student learning through teaching aids and interactive process
- Improve access to ICT
- Strengthen teacher training including ICT literacy

Strategy for Technical and Vocational Education and Training (TVET)

The strategy is to maintain and improve the system of TVET including engineering education ensuring equal and equitable access aiming at developing the skills and knowledge of the students to enable them to participate in the society in general and to successfully enter the local as well as global labour market in particular.

The specific strategies are:

- Improve Participation in TVET including Engineering Education
- Increase Quality of TVET including Engineering Education
- Improve Governance in TVET including Engineering Education

Strategy for Higher Education

The strategic objective is to maintain and improve the system of higher/college education aiming at developing the intended skills, knowledge and attitude of the students so that they can meet the needs of the employers, society at large and even the needs of the global community leading to socio-economic development of Bangladesh.

The Specific Strategic Elements are:

- Improve Retention, Increase Access & Equal Participation in Higher Education (Colleges and Madrasahs)
- Improve Quality of Higher Education (Colleges and Madrasahs)
- Improve Governance in Higher Education (Colleges and Madrasahs)

Strategy for University Education and Advanced Research

The strategy is to maintain and improve the system of university education and advanced research aiming at developing the skills, knowledge and attitude of students of Bangladesh to meet the needs of local as well as global employers, to participate in the society at large and thus to contribute to the socio-economic development of Bangladesh.

The Specific Strategic Elements are:

- Improve Participation in University Education and Advanced Research
- Improve Quality of University Education and Advanced Research
- Improve Governance in University Education and Advanced Research

Since the main functions of universities are teaching and research, priority will be given to infrastructural development including libraries & laboratories and procurement of scientific equipment. More universities, especially belonging to science and technological fields, will be established to meet the demand for higher education. Curricula will be modified and updated to match market demand. A new role for the University Grants Commission will be envisaged in the context of rapidly changing national and global scenario in the higher education sector. This will include restructuring the UGC to strengthen its capacity as the leader in the policy matters and ensure transparency and accountability in the academic, financial and administrative affairs in the universities as well as in UGC. Financial and administrative accountability will be brought in through efficient supervision of the activities of the universities by the UGC and the relevant Parliamentary Committees. Relevant statutes/rules of universities will be reviewed to make their operation more transparent and cost effective.

5.3. Strategy for Non-formal Education and Skill Development

5.3.1. Strategy for Non-formal Education

The Government has been implementing Literacy/NFE programmes in various forms since its Independence in 1971. The commitment to battling adult illiteracy prompted the Government to launch a major non formal education Programme in the 1990s, focusing on basic literacy. The government has adopted NFE Policy in 2006 aimed at reducing the number of illiterates, offering need-based continuing education, promotion of equivalency between formal and non-formal education, ensuring community ownership and sustainability of NFE programmes. The goal of the 7th FYP will be to completely eliminate illiteracy as outlined in the NEP.

The Specific elements of the 7th Plan Strategy for non-formal education are:

- Provide adequate resources, develop programmes and outreach for 32.5 million adolescent and adult illiterates.
- Establish a community-based network of learning centres in order to create scope for ICT based continuing and lifelong learning.
- Continue with “second chance” schooling.

- Extend opportunities for effective skill training.
- Strengthen partnerships with NGOs in delivering all aspects of the non-formal education strategy.
- Establish non-formal Education Board

5.3.2. Strategy for Labor Training and Skills

The main elements of the skills development strategy for the Seventh Plan are:

- To implement the vision and mission of National Skills Development Policy (NSDP 2011).
- To produce educated qualified and skill manpower for the accelerated economic development of the country.
- To diversify technical and vocational education programmes to meet the technical manpower needs in the areas of emerging technologies (such as: Fish Production, Leather, Textile, Mechatronics, Mining & Mine Survey, Instrumentation & Process Control, Construction, Environmental, Garments Design & Pattern Making, Electro-Medical, etc.) including the I.T. sector.
- To encourage more women's participation in TVET to ensure empowerment equality and gender equity.
- To develop and modernize the existing TVET Institutions with available rural technologies to meet the challenge of the fast changing economy in the rural setting for poverty alleviation and to arrest rural-urban migration.
- To encourage private sector involvement and initiative in the delivery of technical and vocational education programmes.

5.4. Strategy for Science and Technology (S&T)

The 7th Plan does not dwell very specifically on the strategy for Science and Technology. Yet, in many indicators, Bangladesh is far behind than what should be in order to attain the high middle income status by 2031. In order to benefit from S&T, strategies and policies should be optimally crafted, the investment may turn out to be wasteful. In this regard, review of country lessons can help shape recommend actions.

5.4.1. Lessons of Country Experiences

1. North America and Western Europe: They basically followed linear approach, starting from scientific discovery to technology invention, leading to innovations and entrepreneurship--creating new markets. Moreover, they used defence research to prime the civilian innovation economy. Over couple of hundred years, they have developed a very well- functioning national innovation system. Success of Silicon Valley or Boston's Route 128 is outcomes of such linear model--which are quite difficult to replicate over shorter span of time, say couple of decades.

2. Japan: Japan has a long history of industrial economy. After the 2nd world war, iconic success stories of Japan like Sony or Canon took the advantage of technology discontinuity to develop substitutes of existing products around emerging technology cores. Such journey is quite challenging to succeed. Technology insights, individual leadership and commitment, policy supports and being at the right place at right time strongly influence the outcome. Such success is also quite difficult to replicate.

3. India: During the period of 1947-1990, India pursued closed economic policies, giving diverse

form of protection and supports to local productive activities. Such strategy apparently developed certain capacity of scientific discovery, technology invention and commercial innovation. But after the opening of economy to global competition, the limitations of this capability in terms of global competitiveness have become obvious. For example, as reported by WIPO, in 2012 the technology value addition to industrial production was around 8% in India as compared with 14% for Brazil, 31% for China, 18% for Germany, 21% for Mexico and 23% for USA. India is now accumulating better global technology through FDI and other means.

4. China: China acquired significant industrial research and development (R&D) capability through state financing of projects related to defense, infrastructure and communication. Before getting connected to the global economy, such R&D capability was weakly connected to commercial innovation. During the last 30 years, China's economy grew through the infusion of capital for importing production technology, low-cost local labor, subsidy, and state expenditure in infrastructure. During the last 10 years, China has increased R&D budget ballooning the production of S&T graduates, publications, university science parks, and patents, but contribution of such outputs to commercial success was negligible until private R&D investment started gaining momentum.

5. Korea: Instead of following the path of discovery to invention, leading to innovation to benefit from S&T capability development, Korea followed the path of assimilation of state-of-the-art foreign technologies (primary from USA and Japan) in producing products for both domestic consumption and export. Korea managed the journey from production technology absorption to up-gradation to enable Korea to produce the same product at lower cost, even of better quality. Gradually, it developed the capability to upgrade existing products. From 1990s, it started to invest in university based research to acquire the capability of innovation, leading to new products as well as enterprises. Instead of relying on FDI, Korea focused on production technology import, assimilation and up-gradation. Such market focused approach has encouraged the private sector to take the growing role in S&T capacity development, leading to self-sustainable national industrial innovation system. For example, in 1970s, Government's investment in R&D was above 70%, while private sector's investment was around 30%. By 1990s, the scenario got reversed. The ratio has improved further, lowering the Government's R&D investment less than 20%, while the ratio of R&D investment to GDP has grown to above 4%--highest in the world.

It seems the Korean experience is likely to be most helpful for Bangladesh. Given the global progress with science and technology, it would be basically quite impossible to follow linear model of S&T capacity development. The experiences of Japan, China and India are indicative of this. Indeed, in Bangladesh, by following linear model, BCSIR has failed to produce tangible (negligible, even zero) contributions to the growth of the industrial economy. The experiences of India and China also show state-led investments in science, technology and related infrastructure may not contribute to improvements in the productivity of manufacturing or even agriculture unless this investment is linked to the efforts of the private sector to increase productivity. This strong public-private partnership in the adoption of technology has been an important feature of development in both Japan and Korea.

The above considerations suggest that instead of attempting to discover and invent to innovate, focus should be to concentrate on assimilating the already known state-of-the art commercial technology globally available and to seek to adapt to the local conditions by linking private sector efforts to adopt technology for productivity improvements. Public funding for the development of private sector R&D will be an important element of this approach. Public funding could also be designed to induce greater private sector investment in R&D. Accordingly, the role of the Bangladesh Council for Scientific and Industrial Research (BCSIR) should be redesigned to serve as contract R&D facility to support the technology need of the private sector. The Pharmaceuticals and Textile & RMG could be the initial target sector for technology transfer through process technology assimilation and innovation. Along the way, capacities of universities should be upgraded; and they should be linked with the industrial innovation system.

5.4.2. Core Elements of the Recommended Strategy for S&T

Item 1: Support S&T Policy Research

The Ministry of Science and Technology (MoST) undertakes research at regular intervals to understand the current state and opportunities of using S&T to improve the economic growth of Bangladesh, by recommending necessary policy changes and providing coordination among different ministries to maximize benefit from Science and Technology. The review of existing projects indicates that there is significant deficiency in this regard. It's recommend that MoST may partner with Universities and Think Tanks to support the capacity development of undertaking S&T policy research to advise the government for necessary policy reform. Continued research in optimizing S&T policy is key to deriving economic benefit as explained in Box 5.1.

Item 2: Undertake Sector Specific S&T Initiatives

Throughout the 7th FYP document and SDG, there has been reference that every sector should maximize the benefit from S&T to progress with sustainable development program. The MoST is expected to play the facilitation and coordination role in this regard. MoST should therefore undertake an exercise to map S&T role for every sector and coordinate the implementation of those roles.

Item 3: Align S&T Projects to Serve the Needs of the Productive Sectors

A review of projects in the ADP suggests that there is weak linkage between projects undertaken by different organizations under the MoST and contribution to productivity. To the extent possible, approved projects should take into consideration the alignment of the project to productivity improvement needs. Additional projects should be undertaken in areas where there is scarcity of relevant projects.

Item 4: Reform BCSIR

In order to meet the objective of increasing the role of total factor productivity to GDP growth, Bangladesh needs to start developing the process innovation capacity. Such process innovation should focus on improving processes producing existing products--generating high revenue. From international perspective, Korea initially focused on similar institutions, known as GRIs (Government Research Institutions). At later stage, Korea moved to integrate Universities to their innovation ecosystem. Accordingly, from Bangladesh perspective, the BCSIR should be first redesigned and strengthened. The integration with the university higher research system should happen after that.

Item 5: Link R&D Funding to Productivity

Both productivity and funding of S&T in Bangladesh are major concerns. Measures should be taken to improve both. On the productivity side, Bangladesh appears to be one of the least performing countries, with only 40 patents filling in 2015. Moreover, the alarming side is that there has been a declining trend as shown in Figure 5.1. On the other hand, with less than 0.4% of GDP investment in R&D, Bangladesh also stands at the bottom segment of international R&D funding profiles.

Box 5.1: Science and Technology Policy Making Challenge to Maximize Economic Benefit

More or less in every country, a Government department or ministry is entrusted with the role of governance of Science and Technology (S&T. A major responsibility of this agency is to undertake policies to increase the role of Science and Technology to accelerate economic activities. In the language of economics, this responsibility is geared towards improving country's total factor productivity (TFP). In addition to raw materials, labor, and capital, increasing the role of S&T in economic outputs becomes the target for increasing TFP.

Some of the commonly practiced policy options are: 1. Support basic research in Science and Technology increasing publications, so that next generation products (substitution) could be developed around the outputs of the basic research; 2. Support applied research to pursue incremental innovations, to improve existing products; 3. Support applied research to improve processes in producing existing products, so that the quality improves and cost reduces; 4. Provide support to imitate (reverse engineering) already available foreign products and offer tax incentives to create local markets of those copy products; 5. Arrange idea competition to come up with new product ideas and provide supports in terms of training and risk capital finance to turn those ideas into products; 6. Keep expanding science, technology and engineering (ST&E) education creating a large pool of ST&E graduates; 7. Reduce tax and increase budget for expanding the import of advanced technology products.

Advanced countries like the USA or Germany have been benefitting by following the first policy. The investment in basic research has led to discovery of scientific knowledge. This knowledge has been used to invent as well as improve technology to support commercial innovations. For example, the success of the USA in developing large scale semiconductor industry is primarily attributed to basic research in solid-state physics, and computational logics. The USA's journey of semiconductor industry started with the invention of transistor in 1947 through basic research, for which in 1956 John Bardeen, Walter Houser Brattain, and William Bradford Shockley were honored with the Nobel Prize in Physics. By following this model, leading developing countries like India, or even China has not produced any remarkable success story yet. On the other hand, incremental innovations have been the key success factors of some industrial economies like Japan. To succeed with process innovation strategy, Korea's S&T policy primarily focused on absorbing scientific knowledge and technology to improve production processes to improve the quality and reduce the cost of production of existing products. To facilitate the commercialization of basic research, many American institutions like Massachusetts Institute of Technology (MIT) promoted the idea competition. Such idea competitions have led to successful innovations and formation of companies around them. Despite the absence of basic research well as applied research and development capabilities, some developing countries followed this policy option to promote innovative entrepreneurships, termed as start-up campaign. By observing high science and technology (S&T) graduate density in advanced countries, some researchers came to the observation that there is likely correlation between science and technology graduates and total factor productivity. Upon believing in such correlation, many developing countries have ramped the expansion of science and technology education, even by setting up specialized universities. To their disappointment, they have observed that's such measure has only increased the pool of unemployed or underemployed S&T graduates. Even some countries like Bangladesh have waved taxes on import of technology products, primarily computer, with the perception that such measure would likely lead to the growth of high-tech industries. In reality, such policy has also failed to produce expected result.

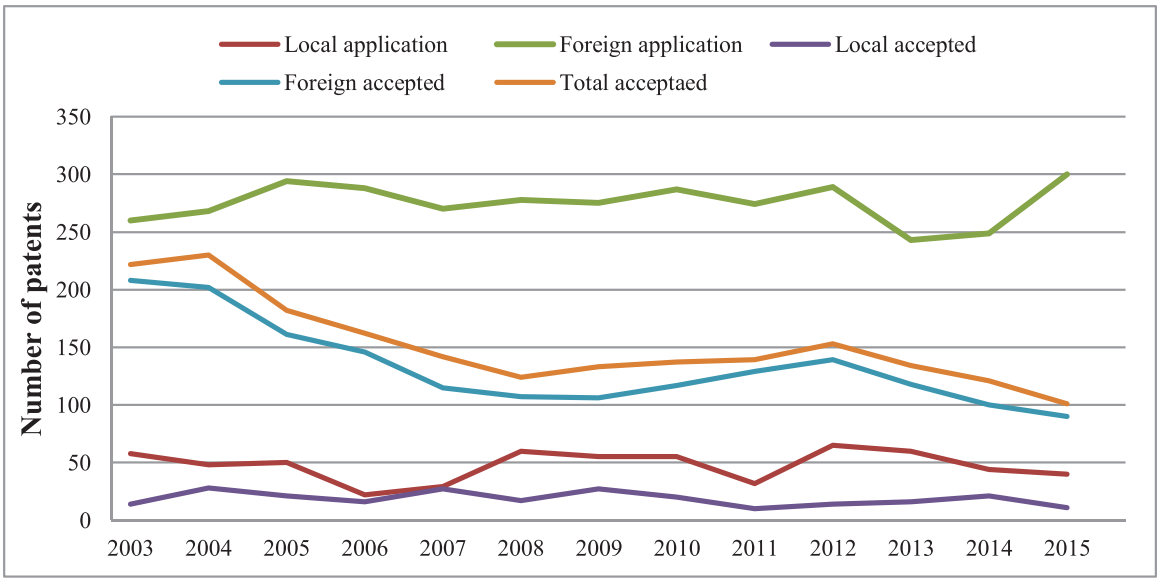
All those policy options appear to be complementary in nature. How to sequence them at the early stages of development is a rational decision making challenge. At one stage, all of these policies should be pursued in parallel, having time varying changes in weights. Deciding about the sequencing of takeoff and optimal weights has been a challenge. The return on investment in technology and innovation primarily depends on deciding about the sequencing and adjusting the weights along the path of progression.

There are numerous policy research institutions to address these issues in advanced countries. The policy research institute in Korea known as SCIENCE & TECHNOLOGY POLICY INSTITUTE is worthy of investigating. This institute has significant resource base which was instrumental in guiding Korea to acquire leading innovation capability by developing private sector led technology development and innovation market.

Bangladesh should undertake projects to strategize S&T as the growth enabler. To implement the strategy, the R&D system including the roles of academic institutions and industry should be reformed and funding should be gradually increased reaching 1-2% of GDP over next 10 years.

Item 6: Reform Academic R&D and S&T Grants

The review of research projects approved for the 2016-2017 S&T grant indicates that most of these projects do not have industry partners. Despite the allocation of very small amount of fund, the concern is about the isolation of these projects from the need of the industry. Although scientific curiosity driven projects have merit, at this early stage of development Bangladesh should leverage scientific exercise for the advancement of economic activities.



Source: Department of Patents, Designs and Trademarks, Bangladesh

Activities should be undertaken to locate suitable projects where industry and academia can have partnership to address the competitiveness issue with the application of scientific research and technology advancement.

Item 7: Rationalize Tax to Create Market for Local R&D

Creating the market for R&D should be the focus of S&T strategy, instead of just increasing the fund and making progress in conventional indicators like graduates, patents or publications. Initial public fund will prime the pump. But, the focus should be on giving incentive for encouraging the private sector to fund R&D and source outputs of local R&D activities to address the quality and cost aspect of production—meeting both local consumption and serving export markets. To support the creation of local market of R&D, reforms should be brought in tax structure, particularly import tax on capital machinery, and economic incentives like subsidies (or protection) given to different sectors to address global competitiveness issue.

Item 8: Pursue Value Chain Approach

Instead of focusing on certain indicators such as S&T graduates in isolation, an integrated approach should be taken. Unless an S&T graduate is engaged in R&D to develop technology and innovate solutions, and those solutions are used by the industry to produce higher quality products at lower cost, the investment which is being made in producing those S&T graduates do not generate return on the investment. To address such reality, a value chain approach should be taken to have appropriate investment at different links of the chain to translate upstream investment to downstream wealth creation, through process and product innovations—leading to production expansion and economic growth.

Item 9: Optimize Strategies and Polices within the Local Context

Among developing countries, there has been a tendency to copy strategies and policies from advanced countries, terming them as best practices. Often time, avoid reinventing the wheel phrase is reiterated. But, to succeed in turning S&T investment into economic return, there is a need to pursue the continuous reinvention to optimize strategies and policies to have them appropriately fit within local context to enable local economic activities to be more productive than ever before by taking the advantage from local S&T capacity.

Item 10: Begin with Process Innovation to Proceed Towards Products

Often time, we are inspired with the idea of innovating great products out of break through scientific discovery, or technology advancement. But the success rate in new product innovation is extremely low. For developing countries like Bangladesh, the prudent strategy is to pursue S&T initiatives to innovate to improve those processes, which are already being used to produce large quantities of commercial outputs. Moreover, indigenous production process innovations should also be the focus in designing S&T strategy.

Based on the above considerations, Table 5.1 summarizes the main points of the Science and Technology strategy.

Strategies	Areas to focus
1. Increase base of S&T capacity of the nation	Increase both the reach and quality of S&T knowledge and skill base of the society. For this reason, the use of on-line tools along with simulation, interactivity in virtual space and remote collaboration will be given due priority. Case studies will be shared in delivering S&T education at the School and University levels creating the awareness about the linkage of S&T capacity to economic growth. At different levels of education systems, S&T education delivery capacity will be improved.
2. Sectoral demand focused in making S&T as a cross-cutting tool for competitiveness.	Instead of just giving generic education in Science and Technology to growing number of students, focus would be to increase the contribution of TFP in different economic activities, whether for local consumption or export.
3. Increase S&T Graduates for overseas employment	Based on likely demand of S&T graduates in target overseas market, expand the education capacity for producing growing number of S&T graduates to increase our remittance income
4. Establish synergy with existing sectoral activities to open new growth areas	Focus on those areas of S&T capacities, which have relevance to competitiveness improvement of existing economic activities, having the potential of opening new growth areas— as explained in Box 5.1.
5. Use public procurement as a strategic tool to expand the local S&T capacity and innovation base.	Public procurement should open the opportunity to encourage local firms and academic institutions to undertake R&D activates to support S&T based emerging solution need to improve the effectiveness and efficiency in nationally important areas like education, health, energy, law enforcement, defense, transportation, public safety and regulation.
6. Develop innovation and entrepreneurial capacities	In addition to developing and expanding academic institutions to produce more quality gradates, the focus will be given on developing entrepreneurial and managerial capacities among S&T graduates.

Strategies	Areas to focus
7. Focus on capacities for both process and product innovation	S&T capacity development, in the form of education, skill development and R&D activates, will focus on process innovation along with product, so that processes of producing any product, starting from potato chips to software, can be improved with our S&T capacity development.
8. Develop collaborative contract research in partnership with private sector	Instead of pursuing curiosity driven research to push the envelope of science, the focus should be to undertake R&D work in partnership with the industry to improve productivity of commercial activities by taking the advantage of relevant science and technology.
9. Engage universities with research institutions to undertake industrial R&D	Collaborative academic R&D should lead to the growth of industry ready high caliber graduates, innovations and entrepreneurships.
10. Policy reform to increase both the supply and demand of R&D to create the local innovation market to address competitiveness	In order to translate the R&D outputs to economic growth, a series of policy reforms should be undertaken to expand both the supply and demand of local R&D activities leading to creation of R&D market.

5.5. ICT Strategy for the 7th Plan

Recognizing the role of ICT in economic development including improving education access and quality, the government has been promoting the spread of the ICT revolution. The ICT Policy 2009 and the Strategic Priorities for Digital Bangladesh 2011 have outlined detailed programmes. Implementation started under the 6th Plan and will continue in the 7th Plan. Additionally, in the 7th FYP the government will adopt the following strategies for ICT:

- Promote economic growth through e-commerce and e-financial transactions.
- Expand ICT exports.
- Enhance education quality through ICT use in education.
- Facilitate youth empowerment by training youth in ICT activities.
- Enhancing the equity aspects of ICT with emphasis on economic service deliveries that affect the poor most. These include: agriculture, land management
- Use ICT for greater transparency, good governance and service delivery. The emphasis is on these specific public services: establish pro-citizen civil service; strengthen judiciary; ensure responsive law enforcement; strengthen responsive parliament; and reduce environmental vulnerability.
- Reduce gender bias in the training and availability of ITC services
- Promote public-private partnerships in the development of ICT products and services.

Chapter 06

Financing Strategy for Education and Technology

6.1. Background

The level of public spending for education has been at low, at around 2% of GDP, throughout the 6th Plan (Table 6.1). This low spending is a major constraint on both the quality and quantity of education services. There was an increase in allocation to 2.5% of GDP in the FY2016-17 Budget, which is the second year of the 7th Plan. This is budgeted spending; actual spending will likely fall short of this as happens in most years.

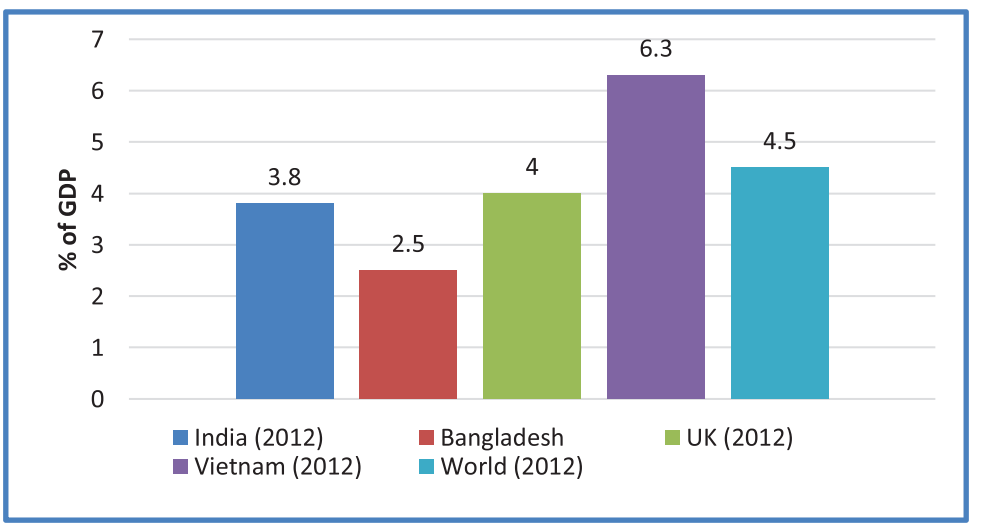
Table 6.1: Recent Trends in Public Spending on Education

	FY11	FY12	FY13	FY14	FY15	FY16RB	FY17B
As % of Total Expenditure							
Education	14.3	12.3	11.8	13.3	13.7	13.9	14.4
As % of GDP							
Education	2.0	1.8	1.7	1.9	1.8	2.1	2.5

Source: Budget Documents, Ministry of Finance

The low level of spending is illustrated in the comparison of public education in a select number of countries (Figure 6.1). The average annual education spending of 2% of GDP is very low even in comparison to such countries as India and Vietnam. Advanced countries like UK spend far more. Education spending in Bangladesh is far below the world average. Annual public spending on Science and Technology and ICT is also at a minuscule level.

Figure 6.1: Education Spending as % of GDP, 2016



Source: World Bank database

Addressing the resource constraint is a serious challenge for Bangladesh. The budget constraint will not likely change dramatically within the 7th FYP period, yet greater efforts are needed to reprioritize public spending from low priority areas to high priority areas like education and technology.

6.2. Public Financing Options and Reforms

Improving education financing: Several important features of education financing in Bangladesh - mobilization of resources and their use – deserve attention from the point of view of supporting the 7th Plan strategy for education that serves the goal of quality with equity.

A low-cost and low-yield system: Bangladesh has one of the lowest- cost education systems, even compared to other developing countries. The low per capita and total cost is no reason for satisfaction, because, educational quality - measured in terms of learning outcome, the pedagogic process and essential inputs – is clearly the victim of this situation.

Dominance of public financing: Educational financing is heavily dependent on public sector allocations. In primary education, which account for almost half of total education expenditure, the government has de facto stopped establishing new institutions for a decade and has relied on expansion in the non-government sector to meet the goal of universal access to primary education. However, major part of teachers' salaries in registered non-government schools are paid by the government and are ad hoc grants for school building construction and repair. Students of these schools receive free textbooks, with the important exclusion of NGO non-formal programs.

Large majority of the institutions at the secondary school and degree college levels are non-government, but again these are beneficiaries of substantial government subventions for teachers' salary. Only in respect of private universities and private vocational-technical training institutions, the subvention system does not apply. In principle, the generous system of subvention should be an important leverage for maintaining and enforcing quality standards in the non-government institutions. In practice, it fails to work this way because of the weak capacity of the regulatory and supervisory organizations in the government, the way these bodies perceive their role, and intrusion of partisan politics in educational management. Nonetheless, the potential of the subvention system as a policy leverage exists; how this leverage can be used effectively for educational development remains an important challenge.

Household contribution and financing strategy: Despite the heavy reliance on government for educational financing, there is a substantial private direct cost borne by beneficiaries, which is not taken into account in considering educational finance policy options. Household expenditures amount to about the same as per student government recurring expenditure in primary education. At the secondary level, non-government expenditure is of the order of two-thirds of the total national expenditure. In the case of degree colleges, which mostly are privately managed with government salary subvention, non-government contributions surpass government expenditure. Only in the highly subsidized public universities, government expenditure exceeds private costs. In the case of private universities, which are financed fully from tuition and fees, households cover the costs. In the case of relatively small sub-sector of public vocational and technical education, high government subsidy reduces private contribution to total costs. The picture, however, would change if the extensive informal apprenticeship and on-the-job training activities were taken into account and monetized, although reliable quantification of the size and costs of these efforts are not available.

The size of household expenditures in different sub-sectors of education points to several policy implications regarding mobilization and effective use of resources. These include the potential of mobilizing non-government resources, the need for developing resource mobilization and utilization strategies, keeping in view the potential of non-government sources; combining public and other resources to promote equity in education; and promoting public-private partnerships on policy and program development and in providing educational services. Accordingly, the main strategies for augmenting financial resources for education and technology and ensuring proper use during the 7th Plan are as follows:

Correct the mismatch of financing and objectives through higher budget allocations: Total national education expenditure, especially public budget allocation, has to increase substantially in the medium term to meet national goals and priorities regarding expansion and quality improvements in education and technology. For education, a reasonable target will be to increase public spending to at least 3% of GDP by FY2020. The gap in science and technology is huge. At least a modest effort will be necessary to boost scientific and technology capabilities by increasing the allocation for science and technology to at least 1% of GDP by FY2020. A substantial part of the additional funding should go to R&D. Regarding ICT, much of the additional funding will come from the private sector, where a major reform of the ICT taxation policy is necessary (see below). Public spending for ICT infrastructure, R&D and implementation of the government's e-governance policy will require spending to go up from the present 0.25% of GDP to at least about 0.5% of GDP.

Improve budget planning and management: Increased expenditure is not enough. Additional resources alone will not yield the expected gains, especially in respect of quality, unless existing weaknesses both in educational management and the teaching-learning process are seriously addressed and remedied. Along with effective management of resources, decision-making and implementation of decisions regarding learning objectives and priorities, the pedagogic process and establishing accountability, and performance standards at all levels have to be improved.

Replace incremental budgeting based on precedence with strategic budgeting based on achieving results: The standard practice of making financial allocations in the recurrent budget is to do it on an incremental basis, i.e., taking the current status as the baseline and adding annual increments in the budget. Given widespread inefficiencies and questions about external effectiveness of programs and institutions, it is necessary to require justification of what exists and assess alternatives and options in budget decisions. It is necessary to establish performance criteria and apply them so that managers of the respective component have incentives to perform and prevent wastes and inefficiency. Importantly, budget spending must be linked properly with the results and targets of the 7th Plan for the concerned sector.

Correct the dominance of staff compensation: Staff compensation dominates the recurrent budget for primary education, which could run as high as upto 90%. This includes salary in government schools and salary subvention for non-government primary schools. Government grant, available for salary subvention, to non-government institutions have the effect of maintaining the pattern of school costs dominated heavily by staff salaries with little funding for other quality inputs. This pattern in the operating budget has serious adverse consequences on the quality of education and learning outcomes. A better balance of recurrent budget spending to enable the adequate financing of materials and supplies including computers and other teaching aids will be essential to enhance education quality.

Strengthen the implementation of the medium-term budgetary framework: As a part of overall budget management improvement, development and application of a medium-term (three-year) budgetary framework has been initiated in some of the sectors including education. A medium-term budgeting framework combining both development and recurring expenditure with year-to-year rolling adjustments would still be a useful mechanism for budgetary discipline and optimizing utilization of resources. The introduction of medium-term budgetary framework (MTBF) is a major step forward. Yet, this needs to be made more effective by ensuring that all line ministries dealing with education and technology have an updated medium-term strategic business plan (MTSBP). This has been piloted in the two education ministries. The other concerned ministries also need to develop MTSBs. Importantly, these should be seen as a continuous and integral part of the work programme of the ministries and not an ad-hoc one-shot add on effort done through consultants.

Managing high share of incentive expenditures: Development expenditure in primary education is dominated by the incentive payment in the form of stipends both at primary and secondary levels. In both cases, it is offered only in rural areas; at the primary level it is paid to 40 percent of the students in the school; in the latter case, stipends are paid only to girls and are complemented by a tuition waiver. Stipends at the primary level amount to two thirds of the estimated development budget from the government's own resources for the next five years and half of the total primary sector development program (PEDP II) other than stipends. Similarly, expenditures for stipends in both primary schools and for girls in secondary schools and free tuition for girls add up to one-third of total development expenditure in the education sector.

A number of questions arise about the large share of the development expenditure in primary and secondary education being spent on stipends. Clearly, a key question is whether this starves out essential quality inputs for education programs. Questions have been raised about the efficacy of the incentive expenditures on three contexts: (a) whether they are sustainable as the claim on them rises backed by political pressures, (b) whether they can be administered efficiently and without being distorted by corruption, and (c) whether the benefits in terms of participation, equity and quality improvement would not be better achieved by spending directly on improving inputs and performance in school.

Equity and educational financing: Table 3.3 showed the prevalence of major inequities in education access. Public expenditure allocations including selection of new projects must pay attention to correcting these inequities. Greater public spending on non-formal education and extending the outreach of education, especially for the secondary and post-secondary levels, to unserved population will be a major focus for the 7th Plan. The government's commitment to education for all (EFA) requires proper planning and deployment of education resources to achieve this target.

Paucity of systematic research and analysis in education finance, including tracking of expenditures, is a major obstacle to effective educational planning and management. There is a need for research, particularly, in the form of micro-economic studies at the level of households, schools and communities; tracking expenditure

from central level to institutions and learners; analysis of private costs and expenditures; and probing internal efficiency of different types of institutions in the same sub-sector.

6.3. Mobilizing Funding through Public-Private Partnerships

Bangladesh has increasingly recognized the important role of public-private partnership in the delivery of education, training, science and technology. This partnership is wide-spread and encompasses all areas of sectoral activities. In education, the role is particularly prominent in higher education. In science and technology, much of the investment is in private sector. Indeed, it can be argued that public sector funding of higher education, science and technology is low and needs to be boosted up. In particular, absence of public spending on research and development is a major constraint on the adoption of proper technology in production that adversely affects the expansion of the manufacturing sector. Nevertheless, it can be argued that the scope for expanding private contribution to education, science and technology is still very large.

Greater private provision will help in three major ways. First, it will contribute to funding of activities needed in education, science and technology sector. Second, it will ease the capacity constraint in the public sector. Third, this will also contribute to greater efficiency of public service provision through stronger competition. The main elements of the strategy to boost private provision during the 7th Plan include;

- Improve incentives for private provision. Review and reform tax policies that adversely affect private supply. Two specific issues are the taxation of education and research services and the high taxation of ICT services (Ahmed, 2015b). Education and research are public goods and their taxation, especially through the levy of the value added tax (VAT), is inconsistent with accepted theory of public goods. The high taxation of ITC services is a serious constraint on the growth and expansion of ITC services and must be addressed speedily.
- Strengthen regulatory policies including accreditation standards to ensure quality of private service provision and safeguard public interest.
- Promote research and training in private sector through seed money and matching grants.
- Facilitate on the job training through tax breaks.

Chapter 07

Suggested Actions to Implement Proposed Strategy for Education and Technology

The strategies for each of the education and technology sub-sector identified above to achieve the objectives and targets of the 7th Plan need to be translated in specific action plans. These are summarized below under each sub-sector.

7.1. Formal Education

Primary Education

The main actions for primary education are summarized below. The actions pertain to the three overarching objectives of the 7th Plan concerning quality, access and equity, and better governance and service delivery. The actions relate to internal capacity and performance of the Ministry of Primary and Mass Education and its related departments and agencies. A particular issue is the development of capacity at the district level and coordination with local government institutions in line with the 7th plan's objective to promote better accountability and service delivery through decentralization.

7th Plan Objective:

Strengthen primary education quality

Strategy:

Improve the teaching learning process

Action Plan:

- Mainstream early child learning programme all over the country by adopting a programmatic approach to the expansion of early learning.
- Expand in-service training to teachers.
- Conduct school and classroom based assessment and use results improve learning.
- Provide quality textbooks to all children of all types of schools.
- Introduce ICT in all schools including audio visual aids.
- Adopt quality improvement measures in academic curriculum and pedagogy.
- Introduce the school level implementation plan (SLIP).
- Introduce competency-based question papers in the Primary Education Completion Examinations (PSC).
- Continue national assessment of G-5 students.
- Provide leadership training to head teachers.
- Fill vacancies as available and recruit more qualified teachers in order to increase the teacher to student ratio.
- Ensure all teachers are fully trained and certified by a cut-off date.
- Arrange regular training programmes for teacher skill upgrading including leadership training
- Develop a national center for monitoring learning.

7th Plan Objective

Expand opportunities for all

Strategy

Ensure access and reduce disparity by income group.

Action Plan

- Expand pre-primary education adopting a programmatic approach to cover all eligible children with a target date for completion.
- Provide stipends to 100% of eligible primary school children.
- Develop partnership with leading NGOs to reach children in remote areas.
- Develop a comprehensive programme to address the educational needs of children in urban slums.
- Provide health check-ups for all students and expand school feeding programme.
- Give priority to school expansion in under-served areas, especially for rural and urban poor.
- Construct more schools and classrooms for children with special needs.
- Ensure availability of clean water and adequate toilet facilities especially for girl students.

7th Plan Objective

Improve governance

Strategy (1)

Ensure decentralization and effectiveness of service delivery.

Action Plan

- Cabinet should adopt a strategy to decentralize primary and secondary education to the local governments.
- Encourage and promote school-based management (SBM).
- Increase school funding with the help of local community.

Strategy (2)

Ensure effective planning and management.

Action Plan

- Institute transparent financial management to ensure full compliance with all government-approved public finance management rules and policies.
- Improve procurement of goods and services.
- Strengthen human resource development by conducting performance and need based training and approving recruitment rules.
- Introduce (emphasize) on pre-primary education and to strengthen the link/transition from pre-primary to primary education.
- Ensure that teacher recruitment and deployment are rule based and not discretionary.
- Conduct annual primary school census every year.

Secondary and Higher Education

The critical needs and important issues related to Secondary and Higher Education will be pursued in the 7th Plan on a two-pronged basis: a qualitative goal and a quantitative goal. Since private education is increasing in secondary and higher education, the Action Plan needs to focus on both the public sector and the private sector. The main elements of the suggested action plan that is consistent with the proposed strategy for Secondary and Higher education is summarized below

7th Plan Objective

Strengthen quality of secondary and tertiary education.

Strategy

Improve education infrastructure

Action Plan

- Construct/upgrade classrooms and labs to facilitate spacious, healthy environment for the students.
- Build inclusive and separate latrines for girls in schools with adequate facilities for sanitary napkins and cleansing materials.

Strategy

Improve teaching quality

Action Plan

- Provide teaching and learning aids, facilities to increase the pupil's interest over education and to modernize the education environment.
- Focus on education quality and testing results. Implement improvement plans and monitor progress.
- Ensure proper accreditation for private schools.
- Emphasize teacher training. Address shortages of training facilities by increasing training facilities. Improve training quality by strengthening training materials and trainers.
- Increase teacher/student ratio by recruiting additional qualified teachers.
- Introduce ICT for education; providing computers to make the students competent with the modern world of students competent with the modern world of ICT and to make them fit for the present day job market.
- Provide adequate computer trained teachers.
- Establish a national institute for development of primary and secondary education teachers.
- Finalize the National Curriculum Framework and ensure proper implementation.
- Implement Curriculum Implementation Policy (CIP) prepared under SEISP
- Strengthen science and maths at the secondary level.
- Modernize madrasah education and reduce the quality gap of existing facilities for secondary education between General Education and Madrasah Education with a mix of curriculum improvements, improvements of physical facilities including introduction of ICT, teacher training and better quality teacher recruitments. Emphasis on TVE should be given priority in this regard for better employability. Additional courses on technical and vocational education can be introduced in this regard and curriculum should be linked with industry demand.
- In order to deal with the students who drop out of secondary education, engaging them in TVET can be an effective strategy. In this context, a number of policies may be considered such as strengthening of collaboration between vocational institutes and industry (as in Thailand, China); involving industry sector representatives in designing TVE curriculum (e.g. India); linking secondary education along with the TVE programs in line with evolving market demand through effective collaboration with the Ministry of Labour and the Ministry of Commerce (e.g. India) etc..

- Develop and adopt National Teacher Development Policy.
- Fully operationalize the National Teacher Education Council by end of 2017.
- Establish mechanism for full teacher certification and registration.
- Enact and establish the National Assessment Centre as recommended under SESIP.
- Develop plan for introducing and mainstreaming practical science assessment, Project-Based Learning (PBL) and portfolio assessment
- Develop a national center for monitoring learning.

7th Plan Objective

Expand opportunities for all.

Strategy

Improve access with special emphasis on the hard to reach areas, the poor, the disabled and women.

Action Plan

- Provide stipend and other financial support to the poor to encourage enrolment.
- Adopt advocacy and promotion programmes to increase enrolment.
- Provide continuous financial support in terms of stipends and maintain communications with families to prevent them from sending their children to work.
- Provide special financial support to the female students and raise awareness in the society about the importance of female education through public pronouncements, print media and TV campaigns.
- Ensure that all children have access to an appropriate, relevant, affordable and effective education regardless of gender, age, physical or financial ability, ethnicity, autistic & disable, impairment or HIV status.
- Focus expansion programmes on areas that are under-served by public and private facilities.
- Work with leading NGOs to reach students in remote areas.
- Develop a comprehensive programme to address the educational needs of children in urban slums.
- Establish schools for students with special needs.

7th Plan Objective

Improve governance

Strategy (1)

Ensure decentralization and effectiveness of service delivery.

Action Plan

- Cabinet should adopt a strategy to decentralize primary and secondary education to the local governments.
- Encourage and promote school-based management (SBM)
- Increase school funding with the help of local community.

Strategy (2)

Ensure effective planning and management

Action Plan

- Adopt transparent financial management to ensure full compliance with all government-approved public finance management rules and policies.
- Improve procurement of goods and services to ensure that the procurement is fully consistent with the guidelines of the National Procurement Policy.
- Strengthen human resource development by conducting performance and need based training.
- Ensure that teacher recruitment and deployment are rule based and not discretionary.

7.2. Madrassa Education

7th Plan Objective

Improve quality of madrasa education

Strategy

The strategy is to improve madrasa education quality by improving physical facilities of the madrasa schools that are in most cases in woefully poor condition. A second element is strengthen student learning through teaching aids and interactive processes. A third element of the strategy is to recruit qualified teachers and strengthen teacher training.

Action Plan

- Increase budget allocation to madrasa to ensure minimum standards of physical facilities including safe drinking water and toilets for girl students.
- Provide teaching and learning aids, facilities to increase the pupil's interest over education and to modernize the education environment.
- Increase teacher-student ratio by recruiting qualified and trained teachers.
- Improve teacher training,

7th Plan Objective

Modernize madrasa education to enable graduates integrate in the job market and society at large.

Strategy

The main elements of the strategy is to substantially revise curriculum to include subjects that are relevant for market jobs. In particular, the curricula will emphasize English, science and maths. Apart from curricula revision, madrasa graduates will benefit from good knowledge of and training in ICT.

Action Plan

- Thoroughly revise madrasa curriculum so that all graduates have minimum training in English, science and math subjects in addition to the regular courses in religion.
- Introduce ICT education in the madrasa system
- Equip government-approved madrasas with multi-media class rooms.
- Ensure minimum supply of ICT teaching equipment to all madrasas
- Impart ICT training to madrasa teachers.

7.3. University Education and Advanced Research

7th Plan Objective

Increase enrolment and strengthen quality

Strategy

Expand enrolment with special emphasis on women, develop scientific capabilities and improve the system of university education and advanced research aimed at developing the skills, knowledge and attitude of students with a view to supporting 8% GDP growth and achieving upper middle income status. Use the UGC as the main conduit for developing the university education and advanced research capabilities in partnership with private sector.

Action Plan

- Complete ongoing university education development projects on priority basis.
- Undertake proper repair and renovation works for existing dilapidated university buildings. These should receive priority over construction of new buildings.
- Promote the development of private universities, especially in science and technology, with proper accreditation to ensure quality. New public universities will be very limited and focused on science and technology.
- Modernize tertiary education and emphasize the matching of supply side with more graduates in science and engineering. Improve the standard and quality of colleges for higher education by providing necessary library, laboratory & IT facilities and by offering appropriate training and scholarships for the teachers. ICT courses would be introduced in all of the post-graduate colleges of Bangladesh.
- Strengthen the age old renowned public colleges to limit the need for of new public higher educational institutions without appropriate quality and facility.
- Develop Bangladesh Open University (BOU) to facilitate distant learning for on the job and dis people all over the country.
- Increase programmes for mid-term and short-term international training for university teachers and researchers.
- Introduce collaborative schemes/programs with reputed universities of different countries. Such strategy is expected to help the students about different methods of learning and is also expected to raise their acceptability in international market.
- Strengthen implementation of Higher Education Quality Enhancement Project (HEQEP)
- Further develop the Bangladesh Research Network (Bren) established under the HEQEP to facilitate online exchange with international research community.
- Empower the University Grants Commission (UGC) to take a leadership role in strengthening university education and advanced academic research. This will include restructuring the UGC to strengthen its capacity as the leader in the policy matters and ensuring transparency and accountability in the academic, financial and administrative affairs in the universities.

7.4. Non-formal Education (NFE)

The government seeks to achieve 100% literacy rate by FY2020, as a part of its commitment to the global programme on Education for All (EFA). The main actions relate to finding adequate resources and setting up proper delivery of the programme. The targeted outreach is large and has both a quantitative dimension (reaching out some 33 million illiterate people all over the country) and a qualitative dimension (ensuring minimum reading, writing and numerical skills). The latest EFA report has strongly emphasized this qualitative dimension (UNESCO, 2015).

7th Plan Objective

Eliminate adult illiteracy

Strategy

Convert 32.5 million adolescent and adult illiterates to achieve basic literacy and numerical skills

Action Plan

- Allocate adequate funds.
- Develop, print and distribute learning materials.
- Establish appropriate training outreach facilities.
- Deploy adequate training staff.

Strategy

Establish a community-based network of learning centres in order to create scope for ICT-based continuing and lifelong learning.

Action Plan

- Establish 5025 community-based network of learning centers.
- Provide adequate funding.
- Develop, print and distribute learning materials.
- Procure required technology.
- Recruit proper staff.

Strategy

Establish opportunities for effective skill training.

Action Plan

- Allocate adequate funds.
- Develop and distribute training materials, guides etc.
- Establish appropriate training outreach facilities.
- Deploy adequate training staff.

Strategy

Establish Non-Formal Education Board (NFEB).

Action Plan

- Set up a non-formal education board.
- Develop operating rules and procedures.
- Provide adequate funding to enable proper functioning of the NFEB.
- Appoint board members and staff.
- Establish performance indicators

7.5. TVET, Labor Training and Skills Development

The 7th FYP emphasizes the expansion of Technical and Vocational Education Training (TVET) system in the country. In addition to traditional TVET program included in SSC, HSC and Diploma courses, the Directorate of Technical Education (DTE) and the Bangladesh Technical Education Board (BTEB) target to strengthen technical and vocational education within formal certification through public and private institutions e.g. courses at polytechnics, vocational training institutes etc. The emphasis on TVET is placed through the National Education Policy (NEP) 2010 and through the National Skills Development Policy (NSDP) 2011 along with the TVET Reform Project (2008-2015). Learning from these experiences Bangladesh has adopted the Bangladesh Skills Development System (BSDS) as its flagship response to addressing the major skills constraint under the 7th Plan. The main action plan for labor training and skills development comprises of implementing the BSDS.

7th Plan Objective

Strengthen the skills base to meet the development needs of Bangladesh.

Strategy

Implement the Bangladesh Skills Development System.

Action Plan

- Operationalize the National Technical & Vocational Qualifications Framework (NTVQF).
- Operationalize the Competency Based Industry Sector Standards & Qualification.
- Operationalize the Bangladesh Skills Quality Assurance System.
- Strengthen implementation of the Skills for Employment Investment Project (SEIP) and monitor progress.
- Strengthen implementation of the TVET target to achieve 40% female enrolment through appropriate investments in women's polytechnic institutes and scholarship programmes. Monitor progress.
- Emphasize on dealing with the social stigma on technical and vocational education. We can learn from India about its strategies for encouraging the rapid expansion of technical education, at both state and federal government levels. The Sri Lankan example of collaboration between TVET and standard school system in technology related fields or the system of offering short courses on TVE resources to the students in standard system can be considered too. Such strategies are worth considering with a view to attracting students to technical and vocational stream of education.
- Strengthen implementation of the programme to upgrade skills of migrant workers. The programme includes:
- Establishment of 68 (including 4 divisional offices) District Employment and Manpower Offices (DEMO) is on the agenda. This will help Expand overseas employment opportunities in lagging regions by enhancing logistic support and technical advice. Costs of migration and remittance transfer will be reduced to facilitate the process.
- Setting up a 'Catering Institute' to provide market oriented skill training to address demand for new skills and knowledge.
- Completion of 40 technical training centers to ensure skill training program at grass root level including lagging regions.
- The quality component of training and skill development will be further enhanced. This will be done through capacity building of trainers by setting up a permanent institute for trainers.
- Existing training of domestic workers will be extended, and about 50,000 potential female migrant workers will be trained per year. The Government has set a target to increase the share of female migrant workers from 16.51 percent in 2014 to 30 percent in 2020.

7.6. Science and Technology

Although it is generally accepted that the capability in Science and Technology competence plays a positive role to development, the crucial challenge is to integrate scientific and technical skills to economic activities for increasing productivity, improving competitiveness and securing sustainable gains in employment, income and poverty reduction. In order to acquire specific capacity to apply S&T competence to innovate for productivity gains in different sectors, we need to design actions to develop institutions, provide economic incentives and bring changes in policy. Such actions should take into consideration of both supply and demand sides in creating the market of knowledge and innovation to make expected contribution to economic growth.

Strategies	Action Plan
1. Increase base S&T capacity of the nation	1. Increase both the reach and quality of S&T knowledge and skill base of the society. Case studies should be shared in delivering S&T education at the School and University levels creating the awareness about the linkage of S&T capacity to economic growth. At different levels of education systems, S&T education delivery capacity should be improved. 2. Common facilities to create awareness of S&T such as S&T museum and planetarium should be developed. 3. Develop common testing, fabrication and quality assurance facilities. 4. Offer fellowship for higher studies and support basic research. 5. Establish specialized facilities for producing advanced S&T based outputs like Nuclear Medicine, Power plants, etc.
2. Make S&T as a cross-cutting tool for competitiveness improvement of major economic sectors.	1) Instead of just giving generic education in Science and Technology to growing number of students and conducting research for pursuing academic interest, focus should be to increase the contribution of TFP in different economic outputs, whether for local consumption or export. 2) Map the possibility of improving the productivity of different economic sectors through technology and innovation. 3) Stimulate the investment in acquiring necessary capacity to facilitate the transfer, absorption, adaptation and further development of process and product innovations to improve the productivity.
	4) Provide fiscal (tax rebates, subsidies) and financial (interest rate waivers/ subsidies) incentives to create the demand for local innovations for improving the productivity of major products like shoes, shirts, shrimps, or software. 5) Pursue reform to redesign BCSIR as contract R&D service provider for the industry.
3. Increase S&T graduates for overseas employment	1. Expand the S&T education reach by opening S&T universities at the district level. 2. Promote cross boarder higher education to enable students to graduate with globally accepted credentials. 3. Promote online learning to reduce the cost and increase the access of quality S&T education.
4. Establish synergy with existing sectoral activities to open new growth areas	Focus on those areas of S&T capacities, which have relevance to competitiveness improvement of existing economic activities, having the potential of opening new growth areas (see Table 7.2 below)

Strategies	Action Plan
5. Use public procurement as a strategic tool to expand the local S&T capacity and innovation base.	1. Instead of pursuing the policy of purchasing the finished products to address problems faced today, take regular research to foresee future opportunities to be exploited with S&T to address Government's mission, as explained in Box 1. 2. Develop the capacity for both the acquisition and deployment of S&T capacities before the competition in the commercial market intensifies. 3. Support local firms to work in partnership with universities and research institutions, so that local firms can deliver needed solutions in a globally competitive manner.
6. Develop innovation and entrepreneurial capacities	1. S&T education should be uplifted with the inclusion of Economics and Management education to empower graduates as well as faculty members to pursue entrepreneurial initiatives to take innovative ideas to market at profit. 2. Instead of delivering S&T education in isolation by developing S&T universities, focus should be on developing comprehensive universities, particularly having strong footing in Business and Management education. 3. In existing Engineering and S&T universities, degree awarding departments in the area Business, Economics, Management and Finance should be opened.
7. Focus on capacities for both process and product innovation through technology assimilation, transfer, adaptation and development	S&T capacity development, in the form of education, skill development and R&D activities, should focus on process innovation along with product, so that processes of producing any product, starting from potato chips to software, can be improved with our S&T capacity development.
8. Develop collaborative contract research in partnership with private sector	Undertake R&D work in partnership with the private sector to improve productivity of commercial activities by taking advantage of relevant science and technology.
9. Engage universities with research institutions to undertake industrial R&D	1. Collaborative academic R&D should lead to the growth of industry ready high caliber graduates, innovations and entrepreneurships.
10. Policy reform to increase both the supply and demand of R&D to create the local innovation market to address competitiveness	In order to translate the R&D outputs to economic growth, a series of policy reforms should be undertaken to expand both the supply and demand of local R&D activities leading to creation of R&D market. This will entail government research grant as well as tax/subsidy incentives to stimulate private sector role in new technology for boosting productivity.
11. Enhance global collaboration to facilitate access to science, technology and innovation	Facilitate the cooperation between local institutions and corresponding foreign counterparts to promote access to technology knowledge through exchange programs, Foreign Direct Investment and collaborative research,
12. Increase the return from public investment in S&T	1) Review approved projects under MoST and strengthen their relevance to productivity improvements. 2) Undertake new projects that are needed to implement to S&T strategy identified in this paper. 3) Strengthen monitoring and evaluation by developing monitorable indicators of the value-added from S&T programmes.

In addition to these economy-wide actions, some sector specific actions related to specific SDGs can be implemented by MoST as coordinator of strengthening the role of S&T in specific sectors. These are summarized in Table 7.2.

Table 7.2: Sector-Specific Action Plan by MoST to Strengthen Better Technology for Productivity Enhancements

SL	Strategies	Action Plan
1	3.8: Achieve universal health coverage	1) In addition to expanding the role of nuclear medicine, facilitate the research and innovation in health technologies, and assimilation as well as adaptation of existing heath technologies to increase local value addition in medical equipment. 2) Facilitate the absorption and up-gradation of existing drug manufacturing equipment, particularly by adding machine intelligence like machine vision based inspection and quality control, for increasing the local value addition and lowering the cost of production of drugs. 3) Review and add relevant projects to support technology inputs in healthcare programmes.
3	7.1: Universal access to affordable energy	1) In addition to providing support to establishment of Nuclear Power Plant, support the technology absorption and development to facilitate the creation of local capacity for increasing efficiency of energy conversion of existing power plants and harvesting of waste energy. 2) Explore and support the exploration of technology potential for making biomass burning cooking stoves cleaner and source of electrical power.
		3) Take long term perspective of developing Bangladesh's capability to add value to energy technology for capturing a portion of local as well as global market of energy production equipment. 4) Review and add relevant projects to support technology inputs in the delivery of energy programmes.
4	7.3: by 2030, double the rate of improvement in energy efficiency	1) Pursue the policy reform to create the demand of energy efficiency technology and innovation. 2) Support the creation of local capacity of technology value addition for improving existing technologies and innovating next generation energy efficiency technology solutions. 3) Undertake appropriate technology projects to support improvement in energy efficiency.
7.	9.5: Undertake R&D for upgrading technology capabilities of industrial sectors	1) Take sector specific studies, especially in Textiles and RMG, leather and pharmaceuticals to map opportunities of productivity improvement through technology adoption of better technology. 2) Support R&D in these sectors for technology assimilation, absorption, reproduction and innovation. 3) Develop partnership with related line ministries particularly with the ministry of industry, jute and education to have collaborative effort for improving the local capacity and integrating it with production for improving the productivity.

7.7. Action plan for ICT

The primary action for ICT is to continue to implement the ICT Policy 2009 and the Strategic Priorities for Digital Bangladesh 2011 that has outlined detailed programmes. The 7th Plan ICT strategy further aims to promote growth, equity and good governance through proper deployment of ICT. A special focus of the 7th Plan ICT strategy is to increase the growth of ICT exports. While the continued implementation of ICT Policy 2009 and Strategic Priorities for Digital Bangladesh 2011 will contribute to these objectives, additional actions will be needed. These actions include:

- Ensure all primary schools to have multimedia classrooms.
- Introduce digital ID in service delivery.
- Improve tele-density and internet penetration to 100 percent by the end of 7th FYP through public investments in infrastructure and incentives for service expansion by private sector.
- Establish ICT lab in 30 percent primary schools and 100 percent secondary schools.
- Introduce ICT education in madrasas adopting a programmatic approach.
- Increase submarine cable bandwidth capacity from 30.57 GBps to 150 GBps;
- Increase R&D spending as percentage of GDP.
- Enhance digitization of all public services with special emphasis on services that benefit the poor (e.g. related to agriculture, land administration, education and health care).
- Facilitate the use of ICT services, especially internet and value-added services, by reducing the high taxation of the ICT sector
- Enable the expansion of e-commerce through regulatory reforms and by facilitating e-payment services.
- Support the growth of ICT exports through ICT parks, incentives for industry-academia collaboration and joint R&D, aggressively promoting local participation in e-government projects and facilitating internationally recognized ICT skills training.

7.8. Action Plan for Financing Education and Technology

As noted in Section F, a fundamental constraint to the implementation of the ambitious 7th Plan strategy for education and technology is the availability of resources. Furthermore in a resource constraint environment proper use of resources is of paramount importance. The 7th plan strategy for education and technology financing emphasized public resource mobilization, public-private partnership and better public expenditure managements as core elements of the strategy. The key actions are:

a) Resource mobilization

- Increase budget allocation for education to at least 3% of GDP by FY20.
- Increase allocations to science and technology to 0.75% of GDP by FY20
- Increase allocation to ICT to 0.5% of GDP by FY20
- Mobilize private financing for education, science and technology by an additional

1-2% of GDP through reducing taxes on ICT; by eliminating VAT on education services and research; provide tax incentives for training, research and innovation; providing matching grants.

b) Equity

- Provide adequate funding for NFE programmes and programmes that improve access for the poor and unserved areas, such as education programme for the urban slums.
- Provide need-based stipends for higher education.

c) Public expenditure management

- Considerably strengthen planning of education and technology programmes by adopting MTSBPs for all ministries involved with the delivery of services.
- Ensure proper balance in budget allocation between fixed facilities, staff and teaching materials and supplies.
- Increase the share of budget allocation for higher education in science and technology.
- Ensure full compliance of all financial policies including audit standards.
- Strengthen procurement policies to ensure these are corruption free.

Chapter 08
Implications for Public Investment Programme (PIP)

8.1. The Challenge of Public Investment Programme

A core element of the SAPET is the public investment programme. Proper choice of investments and their solid implementation will play a critical role in securing the development objectives for education and technology for the 7th FYP. A first major consideration at the sector level is the amount of resources that are likely available for annual investments. While the exact amounts are determined each year during the budget cycle through the Annual Development Programme (ADP), indicative medium-term resource envelope is provided by the 7th Plan (Table 8.1). The 7th FYP allows for a gradual increase in the investment resource envelope as a share of GDP for education and technology based on the priority attached to this sector. It is important to note that these resources refer to investment funding only. The current budget allocations are done through the national budgets. For education, they tend to be between 70-80% higher than the investment programme because much of the education spending are recurring in nature through operations and maintenance (teacher salaries, stipends, materials and supplies, education grants, midday meals, etc.).

Table 8.1: Indicative Public Investment for Education and Technology in the 7th FYP

(Taka billion current prices)

Ministry/Department	FY2016	FY2017	FY2018	FY2019	FY2020
Ministry of Primary and Mass Education	55.4	87.0	104.1	122.4	144.0
Ministry of Education	42.0	59.6	71.0	83.7	98.2
Ministry of Science and Technology	13.0	23.9	40.3	47.3	55.5
Information and Communication Technology Division	10.7	13.7	16.3	19.1	22.4
TOTAL	**121.1**	**184.1**	**231.7**	**272.4**	**320.0**
Percent of GDP	**0.70**	**0.94**	**1.05**	**1.08**	**1.11**

Source: 7th FYP

Public investment program (PIP) is one component of public spending. Current spending that finances operational expenses including wages and supplies and materials is the other substantive component. As discussed earlier, the level of public spending for education and technology in Bangladesh has always been at a very low level at around 2% of GDP. The allocation was increased to 2.5% of GDP in the FY2017 budget primarily to finance the recent public sector salary increase. This increase is in terms of budgeted spending, while actual spending will likely fall short of this as happens in most years. This low spending is a major constraint on both the quality and the breadth of public sector education services.

It is not only that the total allocation for education and technology in the budget is very low, a decomposition of allocation also shows relatively lower allocation for development projects. Table 8.2 shows the development and non-development expenditure in the most recent years. It shows that non-development spending occupies the major part of budgetary allocation for Education and Technology. In FY2017, non-development expenditure comprised of around 68% of total allocation of the corresponding ministry/division with only 32% of the spending allotted for development purposes. The corresponding proportion of development spending on Education and Technology of revised budget of FY2016 was only 29%. Similar pattern can also be observed in previous budget figures.

Clearly, the available resources for PIP in education and technology are very limited relative to the sector objectives for both education and technology. Against this background, a number of steps can be taken. First, given that the budget constraint is not likely to change dramatically in the near term, greater efforts are needed to reprioritize public spending from low priority areas to high priority areas like education and technology. Second, in allocating resources for education expansion, special consideration should be given to the potential role of private sector. Areas where private sector is

very active, such as tertiary education, the public sector role should be guided by the principle of additionality (e.g. to serve equity needs). Finally, in selecting development projects and in allocating funds to those, more systematic selection criteria and project management structures have to be applied to minimize project overheads or administrative expenses and overlapping of projects.

Table 8.2: Education and Science--Non Development & Development Expenditure (crore taka)

Ministry/Division	Budget FY2017	Revised FY2016	Budget FY2016
Ministry of Primary & Mass Education	22,162	16,846	14,502
Non-Development	14,452	11,599	8,960
Development	7,710	5,247	5,542
Ministry of Education (secondary and tertiary)	26,848	20,259	17,103
Non-Development	20,681	16,002	12,906
Development	6,167	4,257	4,197
Ministry of Science & Technology	2,069	1,151	1,551
Non-Development	372	351	250
Development	1,697	800	1,301
ICT Division	1,835	1,070	1,214
Non-Development	229	116	141
Development	1,606	954	1,073
Total Non-Development (Education+S&T+ICT)	35,734	28,068	22,257
Total Development (Education+S&T+ICT)	17,180	11,258	12,113
TOTAL (EDUCATION+S&T and ICT)	52,914	39,326	34,370
TOTAL NON-DEVT (BUDGET)	2,16,098	1,64,336	1,85,192
TOTAL DEVT (BUDGET)	1,12526	92,636	98,587
TOTAL BUDGETARY EXPENDITURE	3,40,605	2,64,565	2,95,100

Source: Ministry of Finance

8.2. Criteria for Project Selection

Efficient management of the development projects in this resource constrained environment will require improved planning, budgeting, staff development and proper implementation of all on-going projects. Additionally, new projects will need to be adopted to address mainly areas where there are gaps. The selection of new projects should be guided by the existing project rules of the government. Additionally, in the context of the SAPET exercise, project selection should be guided by the following broad criteria:

a. Consistency of the project with the 7th Plan targets and strategy.

b. Consistency with the government's policy for private sector participation in education sector service delivery and in the area of S&T. Projects that can be done by the private sector are best left to the private sector so that the limited capacity and funding of public resources are deployed for areas where due to market failures and other externalities private sector will not come.

c. Availability of donor funding. While donor funding is not a necessary condition for project selection, in an environment of resource constraint it is prudent to give priority for donor-funded projects. Additionally, this will ease the capacity constraint on the Ministry to develop projects.

d. Project implementation preparedness. More often than not, new projects are taken without proper arrangements for project implementation including an implementation plan, selection of project staff and procurement plan.

e. An all important criteria should be the status of completion of all ongoing projects. Past review of public investment implementation suggests that there is a tendency to adopt new projects without regards to implementation capacity constraints. The result is too many projects in pipeline with long delays in project completion. Performance with implementation of ongoing projects would inform the readiness of the Ministry to undertake new projects.

Against the backdrop of the above, the investment programmes of the education and training sector in the 7th Plan are summarized in Annex A, Tables A1-A4. The correspondence of each project to the 7th Plan objectives and to the SDG is also indicated.

On the surface, most of the ongoing projects, which also fall within the 7th FYP period, appear to be consistent with the broad thematic focus of the 7th FYP as well as the objectives/targets of SDGs. The projects tend to emphasize both the quantitative and the qualitative targets including those for infrastructure development of the existing educational institutes, quality enhancement and establishment of new infrastructure for educational institutes. A number of projects are concentrated on relatively remote areas and are expected to improve education access to the vulnerable and deprived communities. In the ADPs of FY2016 and FY2017, significant proportions of the development budget have also been allocated to the improvement of existing educational institutions by expanding and upgrading their activities including those of teachers' training program, curriculum development etc.

In the area of skills development, a number of projects of technical and vocational education have been included in the annual development programme to support the implementation of the NSDP. The focus of these ongoing programmes is three-fold: (1) expand the supply of engineering education including for specialized skills; (2) expand the supply of technical education in each district; and (3) facilitate skills development including in partnership with the private sector. In this regard, the ongoing investment programmes appear balanced and are seeking to address the major challenges in the area of skills during the 7th Plan.

8.3. Issues and Challenges for Project Selection for the Education and Technology

General Issues/Problems with Ongoing Projects:

While on a broad brush the investment programme for the education sector looks reasonable, a close look at Tables A1-A4 reveals a number of issues in terms of project management and selection.

- **Consistency in terms of SDG & 7FYP Targets:** Each project that was recently approved and is at an early stages of implementation must be examined carefully and revalidated to see how specifically and to what extent it is contributing to the objectives of the 7th Plan and SDGs. Where necessary, and to the extent practicable, the project scope and focus should be modified to fit in better with the strategic objectives of the sector.

- **Proliferation of projects:** One of the widely accepted arguments against the project selection mechanism of developing countries including Bangladesh is related to the number of projects. This is of particular concern for the education and technology sector. There are 108 ongoing projects under the Annual Development Programmes for the education sector (Annex Table A1). There are 92 newly approved education projects (Annex Table A3). Additionally there is a list of 62 education projects that are under consideration subject to availability of foreign funding (Annex Table A4). These large number of projects raise serious concern about the lack of a proper strategy for the education sector PIP. Too many projects spread thinly may seriously limit the development impact of the PIP. Furthermore, implementation of such large number of projects involves a significant amount of financial as well as non-financial resources and could easily challenge project implementation. Poor project implementation in turn contributes to inefficiency in achieving development results.

- **Length of Projects:** Long- term projects typically tend to lose focus and management attention and are therefore associated with higher costs and inefficient management. Lengthy projects, unless essential in terms of potential contribution towards broader objectives of education sector, should be avoided.
- **Procurement readiness:** A major factor that slows down the implementation of projects is procurement readiness. Agencies responsible for project implementation should be encouraged to develop a speedy procurement plan that meets the government's approved project guidelines.
- **Implications for O&M resources:** Too often projects in education and training do not adequately anticipate the O&M needs once the physical facilities are in place. Facilities are only useful if there are teachers, materials, supplies, computers etc. All these are funded from the non-development budget of the government. Indeed, teacher salaries are a major element of the total non-development budget for education and training. Shortages of computers, laboratory facilities and office supplies are well known problems in the Bangladesh education environment. Lack of proper maintenance leads to a rapid deterioration of the physical infrastructure. The concerned ministries should do a proper exercise for the O&M requirements once all the ongoing projects are completed and compare this with current and projected non-development allocations. This exercise should be an important input to the 2017-18 national budget.
- **Hard-to-reach areas:** A number of high-cost projects have been devoted to larger cities that already have many educational facilities along with a very active private sector. With limited resources, this might constrain the ability to support the expansion of education in remote areas. It is therefore recommended to prioritize spreading education in remote and hard to reach areas.
- **Inadequate attention to equity:** Chapter 3 highlighted serious equity concerns with education spending. While some projects appear to be addressing this concern, the focus on equity appears weak. Large programmes than can address equity issues and recommended in the Action Plan are missing.
- **Relevance of TVE education:** The 7th FYP has placed emphasis on TVE education and in this context a number of projects have been given allocation in the budget. However, it is well known that the current approach and associated curriculum is not well-connected with market demand. Therefore, it is critical that substantial attention should be given to making the training programmes and technical education better linked to jobs created/available in the economy and prospective labor market demand. In this context, a close collaboration with industries in designing the curriculum and involvement of different demand side agents in the process can play crucial role.
- **Emphasis on education quality:** Although a number of projects have been approved for quality enhancement at different levels of education, in many cases it is often not clear how these investment programmes will help the achievement of the quality targets. Qualitative improvements require a detailed research on course contents at different stages of education along with change in the examination system. In this context, lessons from East Asian countries can prove to be useful. As shown in Annex A, at all levels of education, although a number of projects have emphasized on quality enhancement, there is no clear guideline for quality assessment and in such cases often the project fails to attain its true objective.
- **Investment programme for Science and Technology lacks strategic focus:** The investment programmes for science and technology are not fully consistent with the proposed strategy and action plan. This needs a wholesale review as suggested below.

8.4. Proposed Action Plan for Public Investment Programme (PIP)

- **Increase the budget allocation to the education and technology sector:** As discussed, it is extremely important that the budgetary allocation in education sector is increased substantially over time. With a view to attaining the long term development objectives as outlined in the SDGs, it is essential to re-think and re-distribute the budgetary allocation accordingly. Since the overall resource envelop of the government for the Annual Budget is 17%-18% of GDP, it would be difficult to increase allocations for education and S&T to 4%-4.5% of GDP as recommended without additional resource mobilization.

Greater focus must be given to domestic revenue mobilization. As the revenue effort strengthens, it would be appropriate to target a 0.5% of GDP increase in each year for the next 5 years for the education and technology sector.

- **Conduct a portfolio review of all ongoing and newly approved projects.** In light of the concerns raised above, it will be appropriate to re-examine all newly approved projects for consistency with the Action Plan. Projects that do not meet the criteria could be dropped, scaled back or redesigned to meet the requirements of the Action Plan.
- **Identify transformational projects and ensure timely completion.** There are several projects that are transformational in nature in the sense that their rapid implementation will have noticeable impact in achieving the sectoral targets. Examples of transformational projects include: Primary Education Development Programme (PEDP); Reaching Out of School Children Project (ROSCP); Basic Literacy Project (BLP); Secondary Education Sector Investment Programme (SSEIP); Secondary Education Quality & Access Enhancement Project (SEQAEP); Teaching Quality Improvement II (TQI-II); Higher Education Quality Enhancement Project (HEQEP); and Skills for Employment Investment Program (SEIP).
- **Take a programmatic approach to project development.** In order to strengthen the development impact, reduce the administrative cost, and improve efficiency in project implementation and monitoring, it is crucial to reduce the number of projects and to bring similar projects under same umbrella. This programmatic approach to education sector investment has been adopted in several instances over the past few years, as indicated above in the examples of transformational projects. Moving forward, a programmatic approach should become the norm with increasingly lower reliance on free-standing small projects. Primary education projects like "1500 primary school establishment in "no school areas", "Government Primary School Rebuilding and Renovation Project", "Education Programme for the Urban Slums", "Introduction of ICT Education in All Schools and Madrasas" are examples of such large scale programmatic projects that should be adopted.
- Adopt a programmatic approach to upgrade the physical facilities of all government and non-government madrasas. Funding may be sought from the Islamic Development Bank in this regard.
- In order to make the Madrasa education system productive and job-oriented, vocational courses have been introduced in the Dakhil Stage in selected one hundred Madrasas through a Project with financial assistance from IDB. This Programme should be extended gradually to other Madrasas taking a programmatic approach.
- The Skills for Employment Investment Project (SEIP) is an innovative project that is an important part of governments skills development strategy that is linked to employment. It holds good promise for delivering results. It will be important to provide adequate budget and fast track this high-priority project. Based on implementation record, similar skills for employment project to cover the entire Bangladesh might be considered.
- **Adopt a programme to upgrade skills of migrant workers.** The programme should be market based using background research to assess market demand for specific skills in migrant countries and supply constraints in Bangladesh.
- **There is a proliferation on TVET projects at this time.** There are also serious concerns about the quality of many TVET institutions. Consider adopting a programmatic approach to strengthening quality of existing TVET institutions including possible restructuring to ensur proper link with market demand.
- **Fast track the restructuring of the University Grants Commission.** The 7th Plan's strategy to restructure the UGC and empower it to manage the entire university and higher research programme is excellent idea and its implementation must be fast-tracked. This will reduce the administrative burden on the Ministry of Education and allow a programmatic approach to development of public universities by a specialized and autonomous agency.
- **Put greater emphasis on projects for quality enhancement taking a programmatic approach.** Although there is a growing recognition of the importance of quality, a review of the project lists suggests that

there is still a bias in favour of new facilities rather than focus on quality enhancement. With a view to attain the development objectives of the 7th Plan and the SDGs, it is important to shift the focus of project selection towards quality enhancement rather than on mere physical or infrastructural development. In this regard, a programmatic approach to strengthening education quality may be taken. The government already has good experience with this in terms of projects like Secondary Education Quality & Access Enhancement Project (SEQAEP); Teaching Quality Improvement II (TQI-II) and Higher Education Quality Enhancement Project (HEQEP). Building on the experience with the implementation of these projects, programmes to address specific quality improvement targets as highlighted under the Action Plan for quality improvements in Chapter 7 should be given priority in the PIP.

- **Reassess education investment priorities to ensure better equity.** The list of ongoing, newly approved and reserve projects listed in Annex Tables A1, A3 and A4 shows that some priority areas identified in the Action Plan for education in Chapter 8 have not received adequate attention. These priority investment projects will have a determining influence in strengthening the equity aspects of education spending. They include: adoption of a program for addressing the education needs of urban slums; an investment program to address the needs of non-formal education; and an investment program focussed on improving access of children from poor families in under-served areas. The development of these special investment programs in the framework of a programmatic approach should be given the highest priority in new PIP. These are innovative programmes and will benefit from partnership with the donor community and NGOs.
- **Focus on long term objectives.** Success of a project is still considered on the basis of its ability to spend the allotted budget within the time frame, instead of its credibility in terms of achieving certain yardsticks of development. In the context of a developing country like Bangladesh, budgetary allocations are generally made annually with allocation made on an ad hoc basis without considering the merits of the project. However, in order to attain the development objectives of the country, each of the project's merit has to be justified on the basis of certain pre-determined long term, broad-based objectives like those of national plan or certain development goals e.g. SDGs.
- **Adhere to strict monitoring and evaluation mechanisms:** Despite the felt need of effective monitoring and evaluation mechanism for development projects, there has not been much progress in this aspect. With a view to attaining long term objectives, it is crucial to regularly evaluate the performance of projects on the basis of certain pre-determined indicators. Based on the outcome of such results, adjustments in the design and administrative structure of the projects can be made and future allocation decisions can be considered.

Consistency of SAPET with the Sub-Sector Programme Approach (SWAP)

SWAP has been applied in primary education for the last decade. Current primary education development is being carried out under the sub-sector Programme PEDP3 which is expected to end by FY 2017. Preparation is under way with the involvement of development partners for PEDP4. Similar subsector programme approaches are under consideration for Secondary education, TVET, and non-formal education and lifelong learning.

The justification for SWAP lies in the possibility that:

- All significant public funding for the sector or sub-sector supports a single sector policy and expenditure programme.
- It is under government leadership, rather than donor-driven.
- Common approaches for planning, management, funding and monitoring are followed across the sector by all funding parties.
- A progression towards relying on government procedures to disburse and account for all public expenditure, however funded. The provision of budgetary support and use of government systems for procurement are the usual features. SWAPs still can incorporate conventional project support if agreed by all parties and considered efficient.

A sector action plan as the guide to implementing the sector strategy, as envisaged in the current exercise, is entirely consistent with the SWAP logic and rationale. Yet, it is important to ensure that these SWAPs are fully consistent with the SAPET and not pursued independently of the SAPET as a donor-driven instrument. This internal consistency of a specific investment programme at the sectoral level with the SAPET is essential to ensure that the SAWP provides the maximum benefit to the country and also to avoid giving mixed signals on policies.

PEDP4, the envisaged successor to on-going PEDP3 subsector programme for primary education, may be taken as an example. This is at somewhat more advanced stage of preparation than the other sub-sector programmes under consideration. Work on it has been on-going with dialogue and interaction between the line Ministry and potential development partners with studies, analysis and technical work supported and carried out by the development partners. While the Finance Ministry and ERD are to some extent involved, the link and interaction with the planning mechanism of the planning commission is not entirely clear. Although, no more that 15% of the funding is likely to be contributed from external sources, the lead for the process appears to be taken by one of the donors – the Wold Bank in this case.

There is clearly a need for clarifying and specifying how the sub-sector programmes fits into the overall sector strategy and action plan, such as the one under preparation, and also how the SWAP supports or contributes to SDG goal and target fulfilment. These questions would apply to all of the sub-sector programmes being prepared or under consideration in the education and technology sector. This reflection of a national vison, policy and priority and fitting of the different sub-sectors objectives and outcomes into a coherent whole calls for an articulation of the national position. The sector action plan and the SDG4 planning can support and contribute to this national articulation.

8.5. Special Focus on Economic Growth Driven S&T Strategy

To increase the role of science and technology in economic growth, we have proposed a strategy, having 12 action areas. This strategy primarily focuses on improving existing production processes and the products, which are being produced now. The objective is to expand the economic activities through process and product innovation so that Bangladesh can produce better quality products at lower cost. Such strategy appears to be in apparent contradiction to existing science and technology strategy being followed in Bangladesh. Instead of following linear model of innovation starting from scientific discovery leading to technology invention and commercial innovation, the proposed strategy rather focuses on the role of science and technology to improve products, which are already being produced now, and the processes used to produce them. Instead of waiting for local scientific outputs to innovate new products, the proposed strategy is to improve existing ones by taking the advantage of state-of-the-art scientific knowledge and technology.

Existing Projects Focus on Public Goods and Base S&T Capacity: Based on the review of existing projects as shown in Table B1, it appears that first 09 projects fall in the strategic dimension of improving the base Science and Technology capacity of country. Project number 11 and 12 also fall along the dimension of the first strategic area. Although the project number 10 is for the purpose of technology transfer, but it appears to be for the purpose of implementing linear model of innovation. Projects from 13-16 appear to be targeted to the industry. But there should be strong linkage with the industry for improving existing products--which the industry is producing now-- and the processes being used to produce them. The mapping of projects and activities undertaken by BCSIR (Table B2) and Bangladesh atomic energy commission (Table B3) indicates that basically activities of these two major agencies are in the strategic area of increasing base S&T capacity. Apart from nuclear power related projects, most of these projects have very weak linkage with the industry.

R&D Grants Should be in Industry-Focused in Strategic Areas: The analysis of 395 R&D grants awarded by the Ministry of Science and Technology in 2016-2017 indicates that these projects are basically approved without the active participation of the industry. This large number of projects should have been organized around a few areas to address the productivity issues faced by different major economic sectors of the country. With limited R&D budgets and pressing need of economic growth, Bangladesh should be very focused on undertaking S&T activities to maximize return on investment.

The R&D productivity is also a major concern. The cost of producing each measurable R&D outputs in terms of patents and industrial designs, irrespective of commercial exploitation, appears to be very high.

Industry Funding is Virtually Absent: Moreover, it appears that the funding source of all these 16 projects is the Government. Lack of industry participation in the form of financing these projects runs the risk that outputs produced by these projects will have very weak linkage with commercial productive activities. Therefore, it's suggested that instead of pursuing Government finance driven linear model of innovation, the strategy should be in creating the market of R&D to support process and product innovation through state of the art science and technology to empower the industry to produce higher quality products at lower cost. Such productivity improvement centric approach appears to be the key for making strategic use of S&T to increase the role of total factor productivity to drive the economic growth.

Focus on Market Failures to Create R&D Market: It appears that existing approach being exercised by MoST is to create public goods through S&T through public finance. In addition to creating public goods, the added focus should be on addressing market failure in creating private sector led R&D market for driving innovation led economic growth.

8.6. Action Plan for Science and Technology PIP

In addition to developing base capacity, creating public goods and pursuing linear model of innovation—primarily funded by public sources—it's recommended that MoST should focus on addressing market failures for creating the industry driven R&D market for increasing the role of S&T to drive economic growth. To expand along this line, following is a list of indicative projects to consider:

1. Develop the capacity for Nuclear Power Technology acquisition for operation, quality assurance, maintenance and up-gradation of Rooppur Nuclear Power plant—creating opportunity for private sector participation for stimulating the nuclear power industry development.
2. Support innovations and adoption of virtual S&T equipment around advanced technologies such as virtual/augmented reality to increase the quality and reduce the cost of Science and Engineering education.
3. Establish S&T Monitoring, Strategy and Policy Institute in collaboration with selected Universities and Think Tanks to undertake following activities, among others:
    a. Undertake studies across all economic sectors to assess the scope of improving the productivity through process and product innovation and promote policy reform as well as capacity development to capitalize those opportunities.
    b. Promote the policy reform and institutional capacity development among all line ministries to support R&D in S&T to pursue process and product innovation so that local economic outputs benefit from lower cost and higher quality.
    c. Undertake policy reform to redesign public procurement creating bigger scope of S&T centric local value addition in supplying goods and services for the consumption of the Government.
    d. Undertake policy reform so that instead of giving subsidies and tax incentives, Government provides incentives to industry to engage in collaborative R&D with universities and research establishment to improve quality and reduce cost of production to address the competitiveness, environmental and sustainability.
    e. Periodically publish technology and economic intelligence reports giving guidance to every line ministry and industry for increasing the contribution of total factor productivity to economic outputs of the country.

4. Develop a project to reform BCSIR to be industry focused contract R&D center. Either expand BCSIR or establish industry focused research institutions to operate in collaboration with industry and academic institutions to pursue product and process innovations.
5. Establish industry focused product and process innovation laboratories, and venture incubation facilities in universities.
6. Establish advanced S&T technology laboratory to acquire emerging technology capacity for opening opportunity of economic expansion.
7. Upgrade bio-technology institute to support industry focused product and process innovation, bio-tech cluster development and entrepreneurships.
8. Upgrade Ocean Research Institute to catalyze the growth of Ocean Technology Cluster supporting the economic exploitation of vast marine resources of Bangladesh.
9. Develop an institute (similar to NSF in the USA or NSERC in Canada, but to be modeled after Korea's approach of R&D market creation) for mobilizing and administering strategic industry focused R&D fund addressing critical economic growth issues facing the country.

Chapter 09

Monitoring and Evaluation: Sector Development Results Framework

9.1. Strategic Role of the Development Results Framework (DRF)

Public programmes are intended to attain certain goals and objectives. However, in many cases apparently potential programmes might fail to reach those goals and that is why it is crucial to monitor them over time and to scrutinize their performance in a scientific manner. Monitoring is concerned with setting goals, indicators and targets and the information obtained by monitoring can be used to evaluate a programme. It can therefore be termed as a continuous process that uses systematic collection of data on specified indicators to provide policy makers and the stakeholders with an idea of the extent of progress and achievement of objectives. While comparing the outcomes of a specific programme with a set of targets, monitoring can help the policy makers to choose appropriate policies among a set of alternatives and can also help in improving the design and implementation of policies.

Evaluation, on the other hand, is the systematic and objective assessment of a project, programme, or policy with a view to determine the relevance and fulfilment of objectives, effectiveness, impact, and sustainability of that project, program, or policy. Such an assessment should be carried out in terms of its design, implementation, and results. An evaluation should provide information which is credible and useful, enabling the incorporation of lessons learned into the decision making process. As a whole, M&E analyses the way an intervention/policy option operates over time and evaluates the initial values of chosen indicators and desired outcomes.

Monitoring and evaluation promotes accountability and transparency in public spending, and ensures that resources are efficiently utilized for attaining the development goals. Governments use different tracking systems and the 'three legged stool' comprising of (i) good human resource system, (ii) financial system and (iii) accountability system are crucial for efficient management of public resources. In case of a results-based M&E system, public spending and achievements of objectives is emphasized and through that, inclusion of a 'fourth leg' into the system can be considered that reinforces good governance.

Monitoring provides the stakeholders and policymakers with the information about the current status of a policy/program/ project relative to respective targets and outcomes, whereas evaluation gives evidence of whether targets and outcomes are being achieved or not. The primary purpose of M&E is therefore to help the government to measure the quantity, quality and targeting of outputs and to quantify how the outputs affect the lives of the common masses.

The Government of Bangladesh recognizes that an effective monitoring and evaluation (M&E) system is crucial to monitor the implementation of the 7th Plan, including individual projects and associated programmes. Without an effective M&E structure, resources might be spent in an inefficient manner and could be disbursed in projects which are not consistent with the Education and Science sector plan. However, in most cases the existing M&E structure of Bangladesh including for education and science related investments mostly play an important role in tracking spending of projects/programmes. They do not offer a scientific, systematic and results-based M&E framework which would ensure the best utilization of scarce resources.

SDG4 has targets as well as global and thematic indicators (altogether 43 indicators) which are expected to guide monitoring progress in SDG4 achievement and also support planning of activities and development of monitoring mechanisms and tools. These indicators need to be closely examined and adjusted and adapted, as necessary, for use in the national system management and monitoring.

9.2. M&E Practices in Bangladesh

Presently in Bangladesh, M&E is concerned primarily with tracking spending and the physical progress of the project/programmes. The government's dedicated M&E unit, the Implementation, Monitoring and Evaluation Department (IMED), is responsible for tracking the public sector development programmes. IMED primarily monitors and evaluates the development projects for efficient implementation. Monitoring primarily oversees the implementation process, identifies the challenges in terms of quality, time and costs and provides recommendations for improvement. The key stakeholders for the IMED are the ministries/divisions and other autonomous state bodies.

IMED is involved at various stages of the project cycle- project preparation (pre-project), project completion and also post-project impact evaluation. In the pre-project phase, IMED's role is to suggest for improvement and modification whereas in the implementation phase, IMED monitors progress to ensure timely implementation and to maintain quality. It also gathers information from projects, agencies and ministries for effective monitoring consisting of: (i) periodic reports, (ii) procurement reports, (iii) field inspections, (iv) monthly coordination/review meetings, and (v) special meetings with the Project Directors. Information collected in this manner is analysed on a monthly, quarterly and annual basis to review implementation performance of ministries/divisions.

In the post implementation phase, terminal evaluation reports are prepared by IMED on all projects, containing an analysis of the performance of project with suggestions for improvement. It also evaluates selected projects for assessing their impacts on certain indicators and the findings are used in future project design and implementation. The main consideration of IMED's M&E activities is identification of implementation problems and their timely resolution and all the reports prepared by IMED contain implementation problems and suggestions for improvement. These are discussed in review meetings held at the Ministry.

Every year, on an average, IMED monitors more than 1200 projects under the Annual Development Programme and evaluates around 200 projects. It publishes: (i) Monthly performance evaluation of projects of the Ministries/Divisions, (ii) Quarterly performance evaluation reports of ADP included projects, (iii) Annual review report on ADP implementation, (iv) Annual project evaluation reports, (v) Impact assessment reports conducted by the external bodies.

As for impact evaluation, the Evaluation Wing of IMED carries out the evaluation in each project. Under this evaluation procedure, they carry out evaluation of already completed projects each financial year. The choice of those projects is made out of a list of proposed projects submitted by each of the ministries at the end of each fiscal year. After thorough review process about ten to twelve projects are selected for evaluation. This evaluation is done either through: (i) out sourcing-under which the task of evaluation is conducted by a research firm and the selection of that firm is done through open advertisement and call for proposal; (ii) in house evaluation-under this system the evaluation Wing appoints consultants and the evaluation is carried out by them. Under both of the procedures, a Technical Evaluation Team of IMED monitors the methodology, technical aspects, survey method or as a whole the procedure of the research. The final evaluation is placed in front of the Technical Evaluation Team as well as a Steering Committee. The result of the evaluation is finally disseminated for comments and suggestions. It is important to mention that, the methodology applied to individual project evaluation depends on the type of project as well as the choice of research firm/consultants regarding the project.

An important break with the past was secured by the government in the context of the Sixth Five Year Plan and further consolidated in the Seventh Plan. The Sixth Plan for the first time introduced the concept of results-based monitoring and evaluation (RBM&E). It included a development results framework (DRF) that defined certain quantitative results to be achieved at the end of the completion of the Sixth Plan. To measure progress it also provided baseline estimates of these core targets and objectives. The robustness of the RBM&E and the associated DRF was tested through an interim review and a full mid-year review was conducted to check for progress with the implementation of Sixth Plan. The analysis of the mid-year review was put on the website of the General Economics Division (GED) for public knowledge.

Based on the lessons learnt with the implementation of the RBM&E in the 6th Plan, the 7th Plan expanded the coverage of the targets and the number of indicators for monitoring progress. It formally adopted the Development Results Framework (DRF) as the quantitative framework for monitoring the implementation of the 7th Plan.

9.3. DRF for Education and Technology Sector

The DRF of the 7th FYP also contains specific quantitative targets for education, science and technology. These are summarized in Table 9.1 below along indicators to measure progress of implementation of the education, science and technology sector. One important institutional issue is the assignment of the responsibility for DRF monitoring. At the project level M&E is the responsibility of the concerned line ministry. Similarly results that relate to a specific line ministry ought to be monitored by the line ministry. However, at the sector level

that involves interaction of several ministries and the private sector, it is best to assign this to the Planning Commission. Just as the General Economics Division has the responsibility for monitoring the DRF for the entire plan, it is suggested that the DRF for a concerned sector should be done by the concerned sector division of the planning commission. Thus, in the case of the DRF for Education, Science and technology, this should be assigned to the Socio-Economic Infrastructure Division of the Planning Commission.

Table 9.1: Key Performance Indicators of Education and Technology in the 7th FYP

Key Indicators	Baseline (Year)	Target (2016)	Target (2020)
% of (i) formal and (ii) informal employment as share of total by sex	i) 12.5 (M:14.5, F: 7.7) ii) 87.5 (M: 85.5, F:92.3) (2010)	13.0 87.0	15.0 85.0
Employed persons aged over 15 years by broad economic sectors (%) i) Agriculture; ii) Industry iii) Service	i) 47.56 ii) 15.52 iii) 35.35 (2010)	i) 45.3 ii) 15.9 iii) 38.9	i) 40.8 ii) 19.6 iii) 39.6
% of overseas migration (i) skilled (ii) semi-skilled (iii) female	i) 36.69 ii) 17.10 iii) 17.86 (2014)	37.0 18.0 19.0	38.0 22.0 30.0
Net enrolment rate in (i) primary; (ii) secondary and (iii) tertiary.	i) 97.7 (Girls: 98.8 Boys:96.6,) ii) 62.25 (Girls:67.74 Boys: 57.04) iii) 13.00 (Girls:10.58; Boys:15.32) (2014)	i) 98.2 (Girls: 98.8;Boys:97) ii) 68.23, (Girls:73.54 Boys:62.90) iii)14.52 (Girls:10.68 Boys:17.10)	(i)100 (ii)79.51(B:73.92;G:84.9) (iii)20.6 (B:17.9; G:15.3) (ii)79.51(B:73.92;G:84.9) (iii)20.6 (B:17.9; G:15.3)
Completion rate (%) by gender in (i) primary; (ii) secondary and (iii) tertiary.	(a) 79 (Boys:75,Girls: 82) (b) 58.41 (Girls: 52.33; Boys: 65. 48) (2014)	(a)82 (Boys:82, Girls: 82) (b) 66.16 (Girls: 59.95, Boys 74.91)	(a) 85 (Boys:85, Girls:85) (b) 79.63 (Girls:72.43, Boys 89.85)
Number of enrolled children with disabilities (by gender)	76,522 (Boys: 42,523, Girls: 33,999)	77,287 (Boys: 42,948; Girls: 34,339)	80,000 (Boys: 45,000 Girls: 35,000)
Percentage of schools that meet the Student Teacher Ratio (STR) standard of 46:1 (%)	62 (2014)	70	78
Adult Literacy rate (%) of 15+	58.6 (2013) (Female: 55.4 Male: 62.9)	66.9	100

Key Indicators	Baseline (Year)	Target (2016)	Target (2020)
Literacy rate of 15-24 years, women and men (%)	86 (Women:81.9 Men: 67.8) (2014)	88.8	100
Public education expenditure as % of GDP	2.18 (2014)	2.2	2.5
Ratio of girls to boys in tertiary education	0.70	0.76	1.0
No. of student in TVET by gender	689663 (Girls: 27.43% Boys:72.57%) (2014)	770,172 (B:72.7; G:27.87)	933,146 (B:71.92; G:28.08)
Gender Budget as percentage of total budget	27.7 (2014)	28.2	30
Percentage of female teachers at i) primary, ii) Secondary, iii) tertiary education	i) 57 ii) 24 iii) 20	59.6 26.2 21.0	70 35 25
Expansion of submarine cable network (bandwidth GBps)	30.57 (2014 – 15)	50.0	150
Percentage of people with phone (Land phone)	0.60 (2010)	0.91	1.11
Percentage of people with broadband connection	0.01 (2010)	0.03	0.1
Internet users per 100 people population	28.24 (March 2015)	30.6	40

Source: 7th FYP, Government of Bangladesh

A key lesson from the 6th Plan DRF is the inadequacy of the information required for measuring progress. This was a major issue for the education, science and technology sector. The importance of timely availability of required information cannot be over-emphasized. While the Planning commission should take responsibility for doing the DRF, the concerned line ministries along with their specialized MIS agencies and the BBS will need to take responsibility for providing all required timely information. Where the MIS is inadequate, one of the essential elements of the SAPET should be to establish a proper MIS in each of the responsible agencies.

It can be readily seen that the KPIs are mostly quantitative in nature and relates to process inputs and outputs rather than outcomes and impacts which may indicate qualitative changes and learning outcomes. More work needs to be done in this respect based on evaluation research, sample surveys, participatory assessment, assessment of longer term impact.

9.4. Reporting and Using Results

The M&E effort can only be beneficial if it is widely disseminated and is used for policy making. The M&E will be prepared by the Planning Commission in consultation with other line ministries and their agencies. It will be useful to have wider consultations with other stakeholders including business sector, the research institutions and the NGOs.

9.5. Suggested Actions for Education and Technology DRF

Based on the above analysis, the main actions for implementing the DRF strategy for Education and Technology sector are as follows:

- Assign DRF responsibility for the sector to the Social Sector Division of the Planning Commission.
- Strengthen the MIS for each line ministry of the sector.
- Ensure timely compilation and supply of data needed to do the DRF by each line ministry to the Planning Commission.
- The Planning Commission (relevant sector) should prepare yearly reports on the implementation of the sector strategy and submit to the cabinet.
- The reports should also be put on the Planning Commission website for public areas.

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Table A1: Current Education and Training Projects in the ADP

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
01	Running Project: 1500 Primary School establishment in "no school area" (1st Corrected) (01/07/2010-31/12/2016)	90575	6000	90575	18600
02	School Feeding Program in Poverty stricken Areas (1st Corrected) (01/07/2010-30/06/2017)	314552	48166	314552	43080
03	PTI establishment (Corrected) in Jhalakathi, Shariatpur, Narayanganj, Lalmonirhat, Gopalgonj, Dhaka, Sherpur, Narail, Meherpur, Bandarban, Khagrachari and Rajbari. (01/01/2011-30/06/2017)	26945	2470	26945	5151
04	Primary Education development program-3 (Corrected) (01/07/2011-31/12/2017)	1815389	280415	1815389	
05	Primary Education development Project (IDB) (01/01/2012-30/06/2017)	(21000)	497268		
06	English in Action (01/07/2011-31/12/2017)	20952	4383	20952	
07	Reaching out of school children (ROSC) project (2nd Stage) (01/01/2013-31/12/2017)	(13860)	4177		
08	Stipend for Primary Education (3rd Stage) (01/07/2015-30/06/2017)	14446	1876	14446	1400
09	Basic Literacy Project (64 District) (01/02/2014-30/06/2018)	114026	14766	114026	26500
10	Secondary education quality and access enhancement project (SIAQEP) (01/07/2008-31/12/2017)	307424	140000	307424	140000
11	"No Govt. School in 315 Upazila" Selected private schools transform to Model Schools (2nd Corrected) (01/01/2009-30/06/2016)	45259	417	45259	14800
12	Establishment of 11 Secondary Schools & 6 Collages (Govt.) in Dhaka City (1st Corrected) (01/07/2010-30/06/2018)	382692	71755	382692	69370
13	For the improvement of quality of Education Development of all post Graduate collages, which are in District City. (2nd Corrected). (01/08/2010-31/12/2016)	55800	14018	55800	10000
14	Graduate (Pass) & Same Stage Students stipend project (01/07/2011-30/06/2016)	29481	2953	29481	6900
15	Teaching Quality Improvement-2 (TQI-2) in Secondary Education. (01/07/2012-30/06/2017)	97657	17500	97657	12000
16	Support by Information Technology view of education improvement (Selected private collages improvement) (1st corrected) (01/07/2012-31/12/2018)	50126	350	50126	300

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
17	Establishment of 7 Govt. Secondary School in Sylhet, Barishal & Khulna city. (01/07/2012-30/06/2017)	64600	17077	64600	15386
18	Secondary education investment program (SEIP) (01/01/2014-31/12/2017)	554774	44405	554774	49661
19	Establishment of Autistic Academy (01/01/2014-31/12/2016)	15192	1500	15192	6000
20	Secondary Education stipends project (2nd Stage) (SESP-2) (01/07/2014-30/12/2017)	165814	30185	165814	80000
21	Higher Education Stipends Project (01/07/2014-30/06/2017)	7411	24500	7411	6000
22	Infrastructure Development in Selected private secondary Schools (1st Corrected) (01/01/2011-30/06/2016)	79138	24500	79138	24000
23	Build Academic Building in Selected private Madrasas (1st Corrected) (01/07/2011-30/06/2016)	51275	15000	51275	15000
24	Mohammadpur central Collage, Lalmatiya Mohila Collage & Agargaon Taltola Govt. Kaloni School and Collage improvement (01/01/2013-30/06/2016)	225315	25000	225315	48436
25	Enhancement the learning environment of selected Madrasa in Bangladesh. (01/04/2013-30/06/2016)	73824	15000	73824	8322
26	Establishment of Paikgacha Agricultural Collage, Khulna (01/01/2014-30/06/2016)	2762	520	3034	450
27	Strengthening the Engineering Education Dept. By establishment Headquarters and District Office (01/01/2014-30/06/2016)	11096	3000	11096	4688
28	Infrastructure Development of Sheikh Hasina Academy and Woman Collage, Kalkini, Madaripur (01/07/2014-30/06/2016)	4536	5	12300	4000
29	Infrastructure Development of D.K Ideal Sayad Atahar Ali Academy Kalkini, Madaripur (01/07/2015-30/06/2017)	11862	800	34963	5000
30	Development of Maligaon Ideal High School in Daudkandi, Comilla (01/01/2015-30/06/2017)	1812	502	1812	1300
31	Establishment of Barishal Engineering Collage (2nd Corrected) (1/7/2010-30/06/2016)	8811	3215	8811	3266
32	Skill & Training Enhancement Project (STEP) (1st Corrected) (01/07/2010-30/06/2016)	84976	18323	84976	30000

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
33	Establishment of one Technical School In 100 Upazila (01/01/2014-30/06/2016)	92403	6129	92403	28734
34	Trasformation of the Barishal Textile Institute to Shaheed Abdhur Rob Serniyabat Textile Engineering Collage (2nd Corrected) (01/07/2010-30/06/2017)	12275	2220	12275	3500
35	Transformation of the Begumgonj Textile Institute to Textile Engineering Collage (2nd Corrected) (01/07/2010-30/06/2016)	4335	571	4335	906
36	Establishment of Jhenaidah Textile Engineering Collage (2nd Corrected) (01/07/2011-30/06/2017)	9921	1500	9921	3380
37	Establishment of Gopalgonj Textile Engineering Collage (1st Corrected) (01/07/2013-30/06/2018)	12973	635	12973	1700
38	Establishment of Gronadi Textile Engineering Collage (01/07/2013-30/06/2016)	6214	560	6214	900
39	Establishment of Bhola Textile Engineering Collage (01/07/2014-30/06/2017)	6499	300	6499	700
40	Establishment of Jamalpur Textile Engineering Collage (01/01/2015-31/12/2017)	6250	340	6250	1000
41	Establishment of Pirgonj Textile Engineering Collage (01/07/2015-30/06/2018)	10748	140	10748	1500
42	Establishment of Jamalpur Textile Engineering Collage (01/07/2015-30/06/2018)	11143	500	11143	1400
43	Establish Shohid Kamruzzaman Textile Engineering Collage, Manda. (01/07/2015-30/06/2019)	7462	-	7462	514
44	Establishment of Upazila ICT Training & Resource Center, for Education (UITRCE) BANBAIS, MOEDEU (2nd Corrected) (01/08/2010-30/06/2017)	40378	2052	40378	6500
45	Higher Education Quality enhancement Project (3rd Corrected) (01/01/2009-31/12/2018)	205432	25420	205432	29955
46	Establishment of Barishal University, Barishal (Corrected) (01/01/2009-30/06/2017)	15188	1000	15188	6600
47	Jogonnath University Development (01/01/2011-30/06/2018)	10705	1000	10705	3000
48	Academic and Infrastructure Development of Chittagong University (01/01/2011-30/06/2017)	29750	7089	29750	8026
49	Sylhet Agricultural University Development (1st Stage) (2nd Corrected) (01/10/2011-30/06/2017)	11090	2000	11090	3850
50	More development of Rajshahi University (1st Stage) (01/10/2011-30/06/2016)	7320	1800	7320	1815

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
51	More development of Bangabandhu Sheikh Mujibur Rahman Agricultural University (01/10/2011-30/06/2016)	7595	1661	7595	909
52	More development of Patuakhali Science and Technology University (01/07/2012-30/06/2017)	12518	2517	12518	3117
53	Special development of Bangladesh Agricultural University (01/07/2012-30/06/2015)	2320	895	2999	679
54	Infrastructure development of Khulna Engineering and Technology University (01/07/2012-30/06/2018)	12298	2000	12298	3113
55	Development of Jatiya Kabir Kazi Nazrul Islam University (2nd Corrected) (01/07/2012-31/12/2018)	24999	1500	24999	8000
56	Strengthening of Hazi Danesh Science and Technology University (01/01/2013-30/06/2017)	7629	2800	7629	1154
57	Establishment of the University of Rangamati Science & Technology (01/01/2013-30/06/2018)	11647	7000	11647	3535
58	Development of Noakhali Science and Technology University (01/01/2013-30/06/2016)	4715	1000	4715	1627
59	Development of Maulana Bhashani Science and Technology University (01/01/2013-30/06/2017)	5690	2800	5690	1990
60	Build two Academic Building & One Auditorium Building in Sylhet Agricultural University (01/07/2013-30/06/2018)	4715	1000	4761	1500
61	Development of Bangladesh Textile University (01/01/2014-30/06/2017)	8440	650	8440	2000
62	Infrastructural facilities for the department of industrial and production engineering and the department of Architecture in DUET (01/10/2013-30/06/2017)	2200	1000	2200	890
63	More development of Bangabandhu Sheikh Mujibur Rahman Science and Technology University (01/01/2014-30/06/2017)	10500	2000	10500	6000
64	More Expansion and Development of Chittagong Engineering and Technology University (01/03/2014-30/06/2018)	6929	1000	6929	2000
65	Development of Comilla University (1st Correction) (01/07/2014-30/06/2019)	6856	1000	6856	1400
66	More Development of Bangladesh Engineering University (01/07/2014-30/06/2019)	11000	2500	11000	3000
67	More Development of Islami University (2nd Stage) (01/01/2015-30/06/2019)	7058	1000	7058	1200

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
68	Special development of Begum Rokeya University (01/01/2015-30/06/2018)	9750	1000	9750	3000
69	Residuum Building 7 March Building at Rokeya Hall, University of Dhaka (01/01/2015-30/06/2017)	4429	3118	4470	1751
70	Create residential facilities for the Buddhists and other minority in Chittagong University (01/01/2015-30/06/2017)	2415	1068	2415	1415
71	Establishment of 20 Storeys residential Shohid Sheikh Rasel Tower Building for officers in Dhaka University (01/07/2015-30/06/2018)	8781	200	8781	5000
72	Creating Physical and Other benefits at Faculty of Agricultural Economics & Rural Development in Bangabandhu Sheikh Mujibur Rahman Agricultural University (01/07/2015-31/12/2017)	3474	100	3474	2000
73	Establishment of Ship Model Testing in Bangladesh Engineering University (Toaring Tank) (01/07/2015-31/12/2017)	4884	100	4884	2000
74	Development of Bangladesh University of Professional (01/07/2015-31/12/2018)	25688	1000	25688	9307
75	Build Female Hostel about 120 seat in Islamic University of Technology (IUT) (01/07/2015-30/06/2017)	1640	656	1640	984
76	Academic and Infrastructure development of Jessore Science & Technology University (01/12/2015-30/06/2020)	28189	100	28189	8000
77	Establishment of 2nd Campus in Chittagong Veterinary and animal Science University (01/02/2015-30/06/2020)	0	0	23887	7000
78	Increase facilities Infrastructure and Academic in Noakhali Science and Technology University	0	0	23848	2800
79	Establishment of International Mother language Institute (2nd Stage) (01/11/2011-30/10/2017)	5477	1608	5477	1657
80	Establishment of English Version Cantonment Public School and Collage Under National Curriculum at Comilla Cantonment, Comilla (01/01/2015-30/06/2017)	1992	1000	1992	892
81	Establishment of English Version Cantonment Public School and Collage Under National Curriculum at Shohid Salauddin Cantonment, Ghatail, Tangail (01/01/2015-30/06/2017)	1022	500	1022	522

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
82	Construction of Cores of military police center and School at Savar Cantonment (Establishment of Military Police Center and School at Savar Cantonment) (01/03/2015-30/06/2018)	8856	5400	8856	1500
83	Build BAFA Bangabandhu Complex in Jessore (01/07/2013-30/06/2017)	17202	3850	17202	2600
84	Build BNA Bangabandhu Complex in Patenga, Chittagong (01/08/2013-31/12/2017)	17050	3577	17050	2600
85	Build Academic Building for Dockyard and Engineering works High School in Bangladesh Navy, Narayanganj (01/07/2015-30/06/2017)	1856	150	1856	1688
86	Expansion and strengthening of the mosque library (1st corrected) (01/07/2012-30/06/2017)	1874	600	1874	684
87	Mosque-based children and mass education program (6th stage) (01/01/2015-31/12/2019)	150593	25576	150593	26000
88	Temple-based children and mass education program (4th stage) (01/07/2014-30/06/2017)	9931	3300	9931	3500
89	By religious and socio-economic context efficiency increase of Priests and Service Man (01/01/2015-31/12/2017)	1500	317	1500	600
90	Pagoda based pre-primary education (01/01/2015-31/12/2017)	303	90	303	90
91	Govt. Primary school rebuilding and renovation project (2nd Stage) (3rd Corrected) (01/07/2006-30/06/2016)	166691	23495	0	0
92	EC assisted school feeding program (1st Corrected) (01/01/2009-30/12/2015)	21968	2618	0	0
93	Primary schools Club- Scouting Expansion (3rd Stage) (01/07/2010-30/06/2016)	1137	130	0	0
94	Development of Bangladesh Girls guides association guide house and Girl guides campus Baropara, Kaliyakoir (01/07/2012-30/06/2016)	1912	500	0	0
95	Establishment of female hostel about 500 seats in Sokhipur Residential Female Collage (01/01/2014-30/06/2016)	2202	1050	0	0
96	Development of Public University (01/01/2009-30/06/2016)	45357	7011	0	0
97	For starting new academic department in 5 Public university creating Infrastructure and laboratory facilities (01/07/2009-30/06/2016)	15000	5525	0	0

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17	
		Total Foreign Currency	Taka	Total Foreign Currency	Taka
98	For sustainable development of tourism industry Archaeological places and Culture is the preservation of small ethnic culture research (1st corrected) (01/07/2009-30/06/2015)	1337	59	0	0
99	Infrastructure development of Khulna University (01/07/2010-30/06/2015)	8647	2740	0	0
100	Development of University of Dhaka (4th Stage) (1st Corrected) (01/07/2010-30/06/2015)	13130	1	0	0
101	Increased infrastructure facilities of Jahangir Nagar University (01/01/2012-30/06/2016)	7927	2777	0	0
102	Strengthening of Fisheries research and Aqua garden for biodiversity conjuration in Jahangir Nagar University (01/10/2012-30/06/2016)	550	150	0	0
103	Development of Chittagong Veterinary animal Science University (01/07/2014-30/06/2016)	2385	1300	0	0
104	Expansion of physical facilities of the defense services command and staff collage (DSCSC) at Mirpur Cantonment (01/01/2009-30/06/2016)	13857	4030	0	0
105	Establishment of BOF cant public school and college at Gazipur Cantonment (01/07/2013-30/06/2016)	1500	938	0	0
106	Establishment of English Vinson cantonment public school and collage under national curriculum at Dhamalkot, Dhaka Cantonment (01/07/2013-30/06/2017)	2475	1331	0	0
107	Establishment of cantonment public school and college at Dhamalkot Aria, Dhaka Cantonment (01/07/2013-30/06/2016)	2499	1004	0	0
108	Establishment of English Vinson cantonment public school and collage under national curriculum at Jessore Cantonment, Jessore (01/01/2014-30/06/2016)	1998	1288	0	0

Table A2: The Relevance of Ongoing Projects of Education Sector to the 7th Plan and SDG

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
01	Running Project: 1500 Primary School establishment in "no school area" (1st Corrected) (01/07/2010-31/12/2016)	4.1, 4.2	Constructing more schools and classrooms	Net enrolment rate; Total 100; G 100; B100	Relevant in terms of SDG, 7FYP. Will help in reducing disparity
02	School Feeding Program in Poverty stricken Areas (1st Corrected) (01/07/2010-30/06/2017)	4.1, 4.2	i) Increase support for inclusive education ii) Expand School Feeding Program	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant in terms of SDG, 7FYP. Is expected to help in promoting education for the disadvantaged.
03	PTI establishment (Corrected) in Jhalakathi, Shariatpur, Narayanganj, Lalmonirhat, Gopalgonj, Dhaka, Sherpur, Narail, Meherpur, Bandarban, Khagrachari and Rajbari. (01/01/2011-30/06/2017)	4.c	i)Improvement of Teaching Quality ii) Expand in service training of teachers	Completion rate of PTI Training among the Teachers	
04	Primary Education development program-3 (Corrected) (01/07/2011-31/12/2017)	4.1,4.2, 4.a, 4.c	Improve Primary Education Quality and Expand access to primary Education	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant in terms of SDG, 7FYP. PEDP 3 is however composed of a number of components and the significance of PEDP 3 hinges upon the tasks of each projects.
05	Primary Education development Project (IDB) (01/01/2012-30/06/2017)	4.1, 4.2, 4.a, 4.c	Improve Primary Education Quality and Expand access to primary Education	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant in terms of SDG, 7FYP. This project is however composed of a number of components and the significance of the project as a whole hinges upon the tasks of each projects.
06	English in Action (01/07/2011-31/12/2017)	4	Improve Quality of Education		Relevant but it is not cleat about the type of project.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
07	Reaching out of school children (ROSC) project (2nd Stage) (01/01/2013-31/12/2017)	4.1, 4.2	Increase support for inclusive education	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant in terms of SDG, 7FYP. Is expected to help in promoting education for the disadvantaged.
08	Stipend for Primary Education (3rd Stage) (01/07/2015-30/06/2017)	4.1,4.2 4.a, 4.b	Provide stipends to 100% of primary school children	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant in terms of SDG, 7FYP.
09	Basic Literacy Project (64 District)	4.6	Elimination of illiteracy	Socio-economic condition and lifestyle changed, zeal for education arose among the people.	Relevant in terms of SDG, 7FYP. Given low level of literacy, emphasis should be given on such projects.
10	(01/02/2014-30/06/2018)	4.1	Qualitative improvement of education at Secondary Levels and Quantitative increment of students and equity at Secondary levels.	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Very much relevant given the emphasis of quality of educational programs.
11		4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Consistent with the target of spreading education in remote areas.
12	Secondary education quality and access enhancement project (SEQAEP) (01/07/2008-31/12/2017)	4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Although appears relevant, the credibility of the project depends on the area of the schools as well as concentration of secondary schools in Dhaka city.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
13	"No Govt. School in 315 Upazila" Selected private schools transform to Model Schools (2nd Corrected) (01/01/2009-30/06/2016)	4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Very much relevant given the emphasis of quality of educational programs.
14	Establishment of 11 Secondary Schools & 6 Collages (Govt.) in Dhaka City (1st Corrected) (01/07/2010-30/06/2018)	4.b	Quantitative increment of students and equity at Secondary levels	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant.
15	For the improvement of quality of Education Development of all post Graduate collages, which are in District City. (2nd Corrected). (01/08/2010-31/12/2016)	4.c	Improvement of teaching quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Very much relevant given the emphasis on quality of teaching in SDGs and 7FYP.
16	Graduate (Pass) & Same Stage Students stipend project (01/07/2011-30/06/2016)	4.3,4.4,4.6, 4.7	Improvement of teaching quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	
17	Teaching Quality Improvement-2 (TQI-2) in Secondary Education.	4.2	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Quite relevant for expanding secondary education across the country.
18	(01/07/2012-30/06/2017)	4.2	Appropriation of curricula and pedagogy	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant
19	Support by Information Technology view of education improvement (Selected private collages improvement) (1st corrected) (01/07/2012-31/12/2018)	4.a	Social Inclusion		Relevant to the development goal of spreading education to the 'vulnerable' group.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
20	Establishment of 7 Govt. Secondary School in Sylhet, Barishal & Khulna city. (01/07/2012-30/06/2017)	4.b	Quantitative increment of students and equity at Secondary levels.	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment	Relevant to the development goal of encouraging education.
21	Secondary education sector investment program (SESIP) (01/01/2014-31/12/2017)	4.b	i) Quantitative expansion on desired lines but no compromise with quality ii) Focus on quality, selectivity, and excellence	Increase higher education rate	Relevant to the development goal of spreading education.
22	Establishment of Autistic Academy (01/01/2014-31/12/2016)	4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	
23	Secondary Education stipends project (2nd Stage) (SESP-2) (01/07/2014-30/12/2017)	4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	
24	Higher Education Stipends Project (01/07/2014-30/06/2017)	4.1.	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	
25	Infrastructure Development in Selected private secondary Schools (1st Corrected) (01/01/2011-30/06/2016)	4.1, 4.5	Promote quality education in Madrasas		
26	Build Academic Building in Selected private Madrasas (1st Corrected) (01/07/2011-30/06/2016)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	Apparently Consistent.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
27	Strengthening the Engineering Education Dept. By establishment Headquarters and District Office (01/01/2014-30/06/2016)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	
28	Infrastructure Development of Sheikh Hasina Academy and Woman Collage, Kalkini, Madaripur (01/07/2014-30/06/2016)	4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	Appears consistent.
29	Infrastructure Development of D.K Ideal Sayad Atahar Ali Academy Kalkini, Madaripur (01/07/2015-30/06/2017)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	Appears consistent.
30	Development of Maligaon Ideal High School in Daudkandi, Comilla (01/01/2015-30/06/2017)	4.1	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female	Not very clear how the development schemes will be operationalized.
31	Establishment of Barishal Engineering Collage (2nd Corrected) (1/7/2010-30/06/2016)	4.3, 4.4, 4.5		Number of Students in TVET System by Gender	Consistent with SDG & 7FYP.
32	Skill & Training Enhancement Project (STEP) (1st Corrected) (01/07/2010-30/06/2016)	4.7	Improve the quality of training and employability of trainees.	Number of Students in TVET System by Gender	Consistent with SDG & 7FYP.
33	Establishment of one Technical School In 100 Upazila (01/01/2014-30/06/2016)	4.3,4, 4.5,4.b	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender	Consistent with SDG & 7FYP.
34	Trasformation of the Barishal Textile Institute to Shaheed Abdhur Rob Serniyabat Textile Engineering Collage (2nd Corrected) (01/07/2010-30/06/2017)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	i) Number of Students in TVET System by Gender ii) Enrolment Rate in Tertiary Education	Unless the transformation helps in diversifying TVET, it doesn't appear relevant.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
35	Transformation of the Begumgonj Textile Institute to Textile Engineering Collage (2nd Corrected) (01/07/2010-30/06/2016)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	i) Number of Students in TVET System by Gender ii) Enrolment Rate in Tertiary Education	Unless the transformation helps in diversifying TVET, it doesn't appear relevant.
36	Establishment of Jhenaidah Textile Engineering Collage (2nd Corrected) (01/07/2011-30/06/2017)	4.3, 4.4, 4.5, 4.b	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender	Consistent with SDG and 7FYP targets. Expected to expand TVE.
37	Establishment of Gopalgonj Textile Engineering Collage (1st Corrected) (01/07/2013-30/06/2018)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	Enrolment Rate in Tertiary Education	Consistent with SDG and 7FYP targets. Expected to expand TVE.
38	Establishment of Gronadi Textile Engineering Collage 01/07/2013-30/06/2016)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	Number of Students in TVET System by Gender	Consistent with SDG and 7FYP targets. Expected to expand TVE.
39	Establishment of Bhola Textile Engineering Collage (01/07/2014-30/06/2017)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	Enrolment Rate in Tertiary Education	Consistent with SDG and 7FYP targets. Expected to expand TVE.
40	Establishment of Jamalpur Textile Engineering Collage (01/01/2015-31/12/2017)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	Number of Students in TVET System by Gender	Consistent with SDG and 7FYP targets. Expected to expand TVE.
41	Establishment of Pirgonj Textile Engineering Collage (01/07/2015-30/06/2018)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	i) Number of Students in TVET System by Gender ii) Enrolment Rate in Tertiary Education	Consistent with SDG and 7FYP targets. Expected to expand TVE.
42	Establishment of Jamalpur Textile Engineering Collage (01/07/2015-30/06/2018)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	i) Number of Students in TVET System by Gender	Consistent with SDG and 7FYP targets. Expected to expand TVE.
43	Establish Shohid Kamruzzaman Textile Engineering Collage, Manda. (01/07/2015-30/06/2019)	4.3, 4.4, 4.5, 4.b	Diversify Technical and Vocational Education Programme	ii) Enrolment Rate in Tertiary Education	Consistent with SDG and 7FYP targets. Expected to expand TVE.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
44	Establishment of Upazilla ICT Training & Resource Center, for Education (UITRCE) BANBAIS, MOEDEU (2nd Corrected) (01/08/2010-30/06/2017)	4.3, 4.4, 4.5, 4.b	Improvement of Teaching Quality	Proportion of Youth and Adults with ICT Skills	
45	Higher Education Quality enhancement Project (3rd Corrected) (01/01/2009-31/12/2018)	4.b, 4.c	Improve the Standard and Quality of Higher Education	Proportion of teachers received the minimum organized teachers training	Very much consistent with the goals of SDG and 7FYP. If implemented carefully, can be instrumental for sectoral development
46	Establishment of Barishal University, Barishal (Corrected) (01/01/2009-30/06/2017)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Appears to be consistent with SDG and 7FYP targets. Expected to help in expanding tertiary education.
47	Jagannath University Development (01/01/2011-30/06/2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Appears to be consistent with SDG and 7FYP targets. The contribution of the project however depends on the development goals proposed and its implementation.
48	Academic and Infrastructure Development of Chittagong University (01/01/2011-30/06/2017)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Consistent with SDG and 7FYP targets.
49	Sylhet Agricultural University Development (1st Stage) (2nd Corrected) (01/10/2011-30/06/2017)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Apparently consistent with SDG and 7FYP targets. The contribution however depends on the development goals proposed and its implementation.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
50	More development of Rajshahi University (1st Stage) (01/10/2011-30/06/2016)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Apparently consistent with SDG and 7FYP targets. The contribution however depends on the type of development programs proposed and its implementation.
51	More development of Bangabandhu Sheikh Mujibur Rahman Agricultural University (01/10/2011-30/06/2016)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it apparently consistent with SDG and 7FYP targets, the development schemes need to be specified to understand its relevance.
52	More development of Patuakhali Science and Technology University (01/07/2012-30/06/2017)	4.3, 4.4, 4.5, 4.7, 4.b	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
53	Special development of Bangladesh Agricultural University (01/07/2012-30/06/2015)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP targets, the development schemes need to be specified to understand its relevance.
54	Infrastructure development of Khulna Engineering and Technology University (01/07/2012-30/06/2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Apparently consistent with SDG and 7FYP targets.
55	Development of Jatiya Kabi Kazi Nazrul Islam University (2nd Corrected) (01/07/2012-31/12/2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP targets, the development schemes need to be specified to understand its relevance.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
56	Strengthening of Hazi Danesh Science and Technology University (01/01/2013-30/06/2017)	4.3, 4.4, 4.5, 4.7, 4.b	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Apparently consistent with SDG and 7FYP targets. However credibility depends on the way strengthening will be conducted.
57	Establishment of Rangamati Science & Technology University (01/01/2013-30/06/2018)	4.3, 4.4, 4.5, 4.7, 4.b	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Consistent with the goals of expanding TVE.
58	Development of Noakhali Science and Technology University (01/01/2013-30/06/2016)	4.3, 4.7, 4.4, 4.5, 4.b	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although apparently consistent with SDG and 7FYP targets, the development schemes need to be specified to understand its relevance.
59	Development of Maulana Bhashani Science and Technology University (01/01/2013-30/06/2017)	4.3, 4.4, 4.5, 4.7, 4.b	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP targets, the development schemes need to be specified to understand its relevance.
60	Build two Academic Building & One Auditorium Building in Sylhet Agricultural University (01/07/2013-30/06/2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Not very clear about exact contribution.
61	Development of Bangladesh Textile University (01/01/2014-30/06/2017)	4.3	Diversify Technical and Vocational Education Programme	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP targets, the development schemes need to be specified to understand its relevance.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
62	Infrastructural facilities for the department of industrial and production engineering and the department of Architecture in DUET (01/10/2013-30/06/2017)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
63	More development of Bangabandhu Sheikh Mujibur Rahman Science and Technology University (01/01/2014-30/06/2017)	4.3, 4.4, 4.5, 4.7, 4.b	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP, unless the development schemes are relevant, it won't help in achieving those targets.
64	More Expansion and Development of Chittagong Engineering and Technology University (01/03/2014-30/06/2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP, unless the development schemes are relevant, it won't help in achieving those targets.
65	Development of Comilla University (1st Correction) (01/07/2014-30/06/2019)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP, unless the development schemes are relevant, it won't help in achieving those targets.
66	More Development of Bangladesh Engineering University (01/07/2014-30/06/2019)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP, unless the development schemes are relevant, it won't help in achieving those targets.

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
67	More Development of Islami University (2nd Stage) (01/01/2015-30/06/2019)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP, unless the development schemes are relevant, it won't help in achieving those targets.
68	Special development of Begum Rokeya University (01/01/2015-30/06/2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	Although it is apparently consistent with SDG and 7FYP, unless the development schemes are relevant, it won't help in achieving those targets.
69	Residuum Building 7 March Building at Rokeya Hall, University of Dhaka (01/01/2015-30/06/2017)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
70	Create residential facilities for the Buddhists and other minority in Chittagong University (01/01/2015-30/06/2017)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
71	Establishment of 20 Storeys residential Shohid Sheikh Rasel Tower Building for officers in Dhaka University (01/07/2015-30/06/2018)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
72	Creating Physical and Other benefits at Faculty of Agricultural Economics & Rural Development in Bangabandhu Sheikh Mujibur Rahman Agricultural University (01/07/2015-31/12/2017)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
73	Establishment of Ship Model Testing in Bangladesh Engineering University (Toaring Tank) (01/07/2015-31/12/2017)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
74	Development of Bangladesh University of Professional (01/07/2015-31/12/2018)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
75	Build Female Hostel about 120 seat in Islamic University of Technology (IUT) (01/07/2015-30/06/2017)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
76	Establishment of 20 Storeys residential Shohid Sheikh Rasel Tower Building for officers in Dhaka University (01/07/2015-30/06/2018)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
77	Establishment of 2nd Campus in Chittagong Veterinary and animal Science University (01/02/2015-30/06/2020)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
78	Increase facilities Infrastructure and Academic in Noakhali Science and Technology University	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment rate at Tertiary Education	
79	Development of Bangladesh University of Professional (01/07/2015-31/12/2018)	4			The contribution is not very clear.
80	Establishment of English Version Cantonment Public School and Collage Under National Curriculum at Comilla Cantonment, Comilla (01/01/2015-30/06/2017)	4.1, 4.2	Constructing more schools and classrooms	Net Enrolment rate in Primary and Secondary Education	
81	Establishment of English Version Cantonment Public School and Collage Under National Curriculum at Shohid Salauddin Cantonment, Ghatail, Tangail (01/01/2015-30/06/2017)	4.1, 4.2	Constructing more schools and classrooms	Net Enrolment rate in Primary and Secondary Education	
82	Construction of Cores of military police center and School at Savar Cantonment (Establishment of Military Police Center and School at Savar Cantonment) (01/03/2015-30/06/2018)	4.1, 4.2	Constructing more schools and classrooms	Net Enrolment rate in Primary and Secondary Education	

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
83	Build BAFA Bangabandhu Complex in Jessore (01/07/2013-30/06/2017)	4			
84	Build BNA Bangabandhu Complex in Patenga, Chittagong (01/08/2013-31/12/2017)	4			
85	Build Academic Building for Dockyard and Engineering works High School in Bangladesh Navy, Narayanganj (01/07/2015-30/06/2017)	4.3	Constructing more schools and classrooms	Net Enrolment rate in Secondary Education	
86	Expansion and strengthening of the mosque library (1st corrected) (01/07/2012-30/06/2017)	4	Increase the number of Educational Facilities in the Madrasa Sector		
87	Mosque-based children and mass education program (6th stage) (01/01/2015-31/12/2019)	4.1, 4.2, 4.6	Increase support for inclusive education	i) Adult Literacy Rate ii) Literacy rate of 15 – 24 year olds	
88	Temple-based children and mass education program (4th stage) (01/07/2014-30/06/2017)	4.1, 4.2, 4.6	Increase support for inclusive education	i) Adult Literacy Rate ii) Literacy rate of 15 – 24 year olds	
89	By religious and socio-economic context efficiency increase of Priests and Service Man (01/01/2015-31/12/2017)	4	Improvement of Teaching Quality		
90	Pagoda based pre-primary education (01/01/2015-31/12/2017)	4.1, 4.2, 4.6	Increase support for inclusive education	Participation rate in Organized Learning	
91	Govt. Primary school rebuilding and renovation project (2nd Stage) (3rd Corrected) (01/07/2006-30/06/2016)	4.1, 4.2	Constructing more schools and classrooms	Net Enrolment Rate in Primary Education	
92	EC assisted school feeding program (1st Corrected) (01/01/2009-30/12/2015)	4.1, 4.2	Expand School Feeding Programme		

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
93	Primary schools Club-Scouting Expansion (3rd Stage) (01/07/2010-30/06/2016)	4.1, 4.2			
94	Development of Bangladesh Girls guides association guide house and Girl guides campus Baropara, Kaliyakoir (01/07/2012-30/06/2016)	4			
95	Establishment of female hostel about 500 seats in Sokhipur Residential Female Collage (01/01/2014-30/06/2016)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Secondary Education	Very much related to the development goals.
96	Development of Public University (01/01/2009-30/06/2016)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Tertiary Education	
97	For starting new academic department in 5 Public university creating Infrastructure and laboratory facilities (01/07/2009-30/06/2016)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Tertiary Education	
98	For sustainable development of tourism industry Archaeological places and Culture is the preservation of small ethnic culture research (1st corrected) (01/07/2009-30/06/2015)	4.3, 4.5			
99	Infrastructure development of Khulna University (01/07/2010-30/06/2015)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Tertiary Education	
100	Development of University of Dhaka (4th Stage) (1st Corrected) (01/07/2010-30/06/2015)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Tertiary Education	
101	Increased infrastructure facilities of Jahangir Nagar University (01/01/2012-30/06/2016)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Tertiary Education	

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI	Comment
102	Strengthening of Fisheries research and Aqua garden for biodiversity conjuration in Jahangir Nagar University (01/10/2012-30/06/2016)	4.3			
103	Development of Chittagong Veterinary animal Science University (01/07/2014-30/06/2016)	4.3	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Tertiary Education	
104	Expansion of physical facilities of the defense services command and staff collage (DSCSC) at Mirpur Cantonment (01/01/2009-30/06/2016)	4	Resource Management and Development of Infrastructure for Higher Education	Net Enrolment Rate in Secondary Education	
105	Establishment of BOF cant public school and college at Gazipur Cantonment (01/07/2013-30/06/2016)	4.1	Constructing more schools and classrooms	Net Enrolment Rate in Secondary Education	
106	Establishment of English Vinson cantonment public school and collage under national curriculum at Dhamalkot, Dhaka Cantonment (01/07/2013-30/06/2017)	4.1	Constructing more schools and classrooms	Net Enrolment Rate in Secondary Education	
107	Establishment of cantonment public school and college at Dhamalkot Area, Dhaka Cantonment (01/07/2013-30/06/2016)	4.1	Constructing more schools and classrooms	Net Enrolment Rate in Secondary Education	
108	Establishment of English Vinson cantonment public school and collage under national curriculum at Jessore Cantonment, Jessore (01/01/2014-30/06/2016)	4.1	Constructing more schools and classrooms	Net Enrolment Rate in Secondary Education	

Table A3: List of New Education Projects in Revised Annual development Programme, 2016 – 17 And Relevance to SDG & 7FYP

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
01	Rebuild & Reformation the new nationalization Govt. primary school (1st Stage) (July, 2015- June, 2020)	4.1, 4.2	Constructing more schools and classrooms	Enrolment Rate
02	ICT service expansion project at Primary Education (July, 2015-June, 2018)	4.3, 4.4, 4.7	Introduce ICT in all schools	Enrolment Rate
03	Divisional old Govt. Primary School Rehabilitation and develop the class room Project (1st Stage) (July, 2016- December, 2020)	4.1, 4.2	Constructing more schools and classrooms	
04	Primary School Club-Scouting Expansion (4th Stage) (July, 2016 to June, 2021)	4.1, 4.2	-	
05	Establishment of Livelihoods Skills Training Centre for the students of the Children Welfare Trust schools (July, 2016 to June, 2020)	4.1, 4.2	-	
06	Project for Education through ICT in Secondary and Higher Secondary Schools (Stage-2) (July, 2015 to June, 2019)	4.3, 4.4, 4.7	Improvement of Teaching Quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
07	Create Science education facility development project for extra 5 lac students in the 323 Govt. Secondary schools (July, 2015 to June, 2018)	4	Appropriation of curricula and pedagogy	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
08	Science education facility expansion for the 2 lac students in Govt. collages, (January, 2016 to December, 2020)	4	Appropriation of curricula and pedagogy	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
09	Establishment of 10 Govt. Secondary Schools in near Dhaka City (July, 2016 to June, 2020)	4	Constructing more schools and classrooms	Enrolment Rate
10	TTC and HSTT Training improvement project (January, 2016 to June, 2019)	4.c	Improvement of Teaching Quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
11	Establishment of new residential school and Build residential building at existing schools in the three (03) Hill District (July, 2016 to June, 2020)	4.1, 4.2	Constructing more schools and classrooms	Enrolment Rate

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
12	Development of infrastructural at Dhaka Collage, Dhaka (January, 2016 to June, 2016)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
13	Establishment of modern Science Lab in education institutes placed in District and Upazila for the improvement of interest in Science education (January, 2016 to December, 2020)	4	Providing necessary library, laboratory & IT facilities	
14	Language Skills Development Project (January, 2017 to June, 2020)	4	Capacity increase in reading, writing, listening & speaking	
15	Build Own Building for Madrasa Education Headquarter with MEMIS CELL	4	Resource management and Development of infrastructure	Enrolment Rate
16	Establishment of Multimedia Classroom In 2808 Madrasahs	4	Wider access of ICT in Madrasas	
17	With Science Laboratories PBM System and Arabic Language Lab, Infrastructural development of 100 selected Madrasas	4	Providing necessary library, laboratory & IT facilities	
18	Infrastructural development of Rajgonj Secondary School, Upazila Monirampur & Muslim Academy, Upazila, Jessore (January, 2016 to June, 2018)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
19	Upper/Horizontal expansion of selected educational institutes existing buildings (January, 2016 to June, 2020)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
20	Build Academic Building at selected private schools which has no Academic Building (July, 2016 to June, 2020)	4.1, 4.2	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
21	Development of Mollakandi Lalmia Pilot High School & Collage, Daudkandi, Comilla (January, 2016 to June, 2020)	4.1, 4.2	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
22	Build boundary wall in the selected private secondary boys schools and selected private educational institute which use as Exam center (July, 2016 to June, 2020)	4	Resource management	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
23	Development of Selected private Madrasas known with Information Technology through the improvement of the education (July, 2016 to June, 2020)	4	and Development of infrastructure Wider access of ICT in Madrasas	

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
24	Development of the Selected private Girls schools to improve female education (July, 2016 to June, 2020)	4.5	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
25	Infrastructural development of the Sayed Abul Hossain Collage, Madaripur (July, 2016 to June, 2018)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
26	Build Academic Building about 10 Storeys of Birshreshtha Munshi Abdur Rouf Public College, New Market, Dhaka (July, 2016 to June, 2019)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female
27	Establishment of Khulna Agricultural University (January, 2015 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
28	More development of Rajshahi Engineering & Technology University (January, 2016 to June, 2018)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
29	More development of She-e Bangla Agricultural University (January, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
30	Infrastructural development of Rajshahi University (February, 2016 to June, 2019)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
31	More development of Dhaka Engineering & Technology University (January, 2016 to December, 2018)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
32	Special development of Hazi Mohammod Danesh Science & Technology University (January, 2016 to June, 2019)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
33	More infrastructural development of Khulna University (April, 2015 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
34	Build Academic & Residential Building at University of Dhaka (July, 2015 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
35	Development of earth archaeological Research of Bangladesh (January, 2016 to December, 2021)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
36	Establishment of Local Center for National University in the 06 Administrative Division (July, 2015 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
37	Establishment a Digital University in Gazipur (July, 2016 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
38	More development of Jatiya Kabi Kazi Nazrul Islam University (July, 2015 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
39	Establishment of Bangabandhu Sheikh Mujibur Rahman Maritime University (January, 2016 to June, 2018)		Resource management and Development of infrastructure	Higher Education Enrolment Rate
40	More development of Shahjalal Science & Technology University (July, 2016 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
41	Expansion of Academic & Residential Facilities of the Khulna Engineering & Technology University (July, 2016 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
42	Expansion Academic Facilities of Bangladesh Engineering University (July, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
43	More development of Bangladesh Agricultural University (July,2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
44	More development of Chittagong University (July, 2015 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
45	More development of Jagannath University (July, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
46	Development of Pabna Science & Technology University (January, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
47	Institute for oceanographic and Marin Research Management at Noakhali Science & Technology University (July, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
48	Strengthen of Patuakhali Science & Technology University (January, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
49	Build Student Hostel at Bangladesh Engineering University (July, 2015 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
50	Strengthen of Maulana Bhashani Science & Technology University (July, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
51	Infrastructural facilities and research power strengthen of Bangabandhu Sheikh Mujibur Rahman Agricultural University (January, 2016 to June, 2020)	4	i) Resource management and Development of infrastructure ii) Emphasis on research and training	Higher Education Enrolment Rate
52	Introduction of ICT course in 20 post graduate collages (July, 2016- June, 2020)	4	Introducing ICT for Education	
53	Introduction of ICT and Web Based Education system in Bangladesh Open University (July, 2016- June, 2020)	4.3, 4.4, 4.7	Introducing ICT for Education	
54	More development & Special project of Jahangir Nagar University (July, 2016 to June, 2020)	4.3, 4.4, 4.7	Resource management and Development of infrastructure	Higher Education Enrolment Rate
55	Establishment of Islamic Arabic University (July, 2016 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
56	Infrastructural development, repair and reformation of University Grand Commission (UGC) residential area (January, 2016 to June, 2020)		i) Resource management and Development of infrastructure ii) Further strengthening of University Grants Commission	Higher Education Enrolment Rate
57	More development of Sylhet Agricultural University (January, 2016 to June, 2020)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
58	Farther Development of Chittagong University of Engineering and Technology to Create of Excellence in Engineering Education and Research (January, 2016 to December, 2021)	4	i) Resource management and Development of infrastructure ii) Emphasis on research and training	Higher Education Enrolment Rate
59	Infrastructural development of Marin Science and Fisheries of Chittagong University (July, 2016 to June, 2019)	4.3	Resource management and Development of infrastructure	Higher Education Enrolment Rate
60	Infrastructural development of Comilla University (July, 2015 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
61	Establishment of Comilla University of Science and Technology (July, 2015 to June, 2020)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
62	Establishment of International Mother Language Institute (3rd Stage) (January, 2016 to December, 2018)	4	Resource management and Development of infrastructure	Higher Education Enrolment Rate
63	Top Ten Leaving and Dying Languages Project (TTL & TVL) (January, 2016 to June, 2020)	4.3	Capacity increase in reading, writing, listening & speaking	
64	Expansion of Scouting in Bangladesh (July, 2015 to June, 2018)	4	-	
65	Establishment of 7 Female Technical School and colleges in 7 Divisional cities. (July, 2016 to June, 2020)	4	Improve Vocational and Technical ducation (VTE)	Number of Students in TVET System by Gender
66	Development of Bangladesh Land Survey Education (July, 2016 to June, 2019)	4	Improve Vocational and Technical education (VTE)	

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
67	Establishment of 3 Female Polytechnic Institute in Sylhet, Barisal and Rangpur Divisional Cities. (July, 2016 to June, 2020)	4.5	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
68	Establishment of 23 World-Class Polytechnic Institute in 23 Districts (July, 2016 to June, 2019)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
69	Establishment of 4 Engineering colleges in Chittagong, Khulna, Rajshahi and Rangpur division (July, 2016 to June, 2019)	4.3, 4.4, 4.5	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
70	Establishment of 389 new Technical School and Colleges in Upazilla level (2nd Stage) (July, 2015 to June,)	4.3, 4.4, 4.5	Improvement of Teaching Quality	Number of Students in TVET System by Gender
71	Upgradation of Bangladesh Institute of Technical Teachers Training and Research (BITTR) (July, 2016 to June, 2019)	4.3	Improve Vocational and Technical education (VTE)	Enrolment Rate
72	Establishment of Kazipur Textile Institute (July, 2015 to June, 2018)	4.3, 4.4, 4.5	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
73	Establishment of Shahrasti Textile Institute (July, 2016 to June, 2020)	4.c	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
74	Establishment of Sylhet Textile Institute (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
75	Establishment of Sylhet Textile Engineering College (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
76	Establishment of Faridpur Textile Institute (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
77	Establishment of Feni Textile Institute (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
78	Establishment of 11 Textile Vocational Institute (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
79	Establishment of Kapasia Textile Institute (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
80	Establishment of Comilla Textile Institute (July, 2016 to June, 2020)	4.3, 4.4, 4.5	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
81	Establishment of Sunamganj Textile Institute (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
82	Establishment of Kaligonj Textile Institute, Lalmonirhat (July, 2016 to June, 2020)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
83	Establishment of 10 Govt. secondary school near the Dhaka city area (July, 2015 to June, 2018)	4	Constructing more schools and classrooms	Enrolment Rate
84	Integration of teachers and staffs for quality assurance and skills development in 64 technical schools and collages (July, 2015 to June, 2018)	4	Improvement of Teaching Quality	Enrolment Rate
85	Academic, Community and Residential facilities development of Noakhali Science and Technology University (July, 2015 to June 2020)	4.1, 4.2	Resource management and Development of infrastructure	Higher Education Enrolment Rate
86	Establishment of 2nd Campus of Chittagong Veterinary & Animal Science University (July, 2015 to June, 2019)	4.3, 4.4, 4.5, 4.c	Resource management and Development of infrastructure	Higher Education Enrolment Rate
87	Establishment of Marin Fisheries Research Institute Under Patuakhali Science and Technology University (July, 2015 to June, 2018)	4	i) Resource management and Development of infrastructure ii) Emphasis on research and training	Higher Education Enrolment Rate
88	Development of Marin Fisheries and Research Management Institute (NFRM) (July, 2015 to June, 2018)	4	Emphasis on research and training	Higher Education Enrolment Rate
89	Modularization of existing Bangladesh Institute of Glass & Ceramic for Increasing Skilled Diploma Engineering in Glass and Ceramic Sector (July, 2015 to June, 2018)	4	-	Enrolment Rate

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
90	Infrastructural development of Lalmia Degree Collage, South Comilla (July, 2015 to June, 2018)	4	Resource management and Development of infrastructure	Enrolment Rate
91	Build Academic Building in Selected Secondary School where have no build any Govt. Building (January, 2015 to June, 2019)	4	Resource management and Development of infrastructure	Enrolment Rate
92	Development of NAYEM (July, 2015 to June, 2018)	4	-	

Table A4: List of Unallocated and Unapproved (Conditional on Foreign Aid/Loan) Education Projects

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
01	Upgrade the primary education to class Eight (July, 2015 to December 2019)	4.1	Improve Primary Education Quality and Expand access to primary Education	Enrolment Rate, Dropout Rate iii) Inclusion iv) Female Enrolment
02	For National Feeding Policy give technical support (July, 2015 to June, 2019)	4.1, 4.2	i) Increase support for inclusive education ii) Expand School Feeding Program	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
03	In every Upazila to give basic literacy and literacy livelihoods skills, establishment technical training center (July, 2015 to June, 2019)	4.6	Elimination of illiteracy	Socio-economic condition and lifestyle changed, zeal for education arose among the people.
04	Establishment of ICT Lab with facilities of language lab in Govt. Women's Collage (January, 2016 to June, 2018)	4.3, 4.4, 4.7	Qualitative Improvement of Education at Secondary and Higher Levels	
05	Establishment of IT Lab in rural secondary Schools in Bangladesh Project (July, 2015 to June, 2018)	4.1, 4.3, 4.4, 4.7	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
06	Establishment of IT Lab in selected secondary educational institutes placed in District level (July, 2015 to June, 2018)	4.1, 4.3, 4.4, 4.7	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
08	Bangladesh Smart School Establishment Project (July, 2015 to June, 2018)	4.3, 4.4, 4.7	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
09	Introduction of E-Learning in rural secondary schools of Bangladesh (July, 2016 to June, 2019)	4.1, 4.3, 4.4, 4.7	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
10	More development project of 16 Commercial Institute (July, 2015 to June, 2018)	4	Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
11	Capacity development Project for the Govt. College teachers (January, 2015 to June, 2017)	4.c	Improvement of Teaching Quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
12	Quality improvement project for govt. college teachers devoted in higher education (July, 2015 to June, 2020)	4.c	Improvement of Teaching Quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
13	Establishment of smart classroom and ICT Lab in 64 Govt. Female collages located in districts (July, 2015 to June, 2018)	4.1, 4.3, 4.4, 4.7	i) Improvement of Teaching Quality ii) Resource management and Development of infrastructure	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
14	Establishment of Rajshahi Science Laboratory (January, 2016 to December 2017)	4	Resource Management and Development of Infrastructure for Higher Education	Enrolment Rate
15	Expansion of the existing building built higher in Enhancing the Madrasa learning environment project in Bangladesh (July, 2016 to June, 2020)	4	Increase the number of Educational Facilities in the Madrasa Sector	Net Enrolment Rate in Tertiary Education
16	Establishment of a research and health center of Dhaka University (July, 2015 to June, 2018)	4.3	Resource Management and Development of Infrastructure for Higher Education	Enrolment Rate
17	Collage Education Development Project (July, 2016 to June, 2020)	4.1, 4.3	Quantitative increment of students and equity at Secondary and Higher levels.	Net Enrolment Rate in Tertiary Education
18	In polytechnic the opportunity to admission extra 1 lakh students develop the existing polytechnic institute (July, 2015 to June, 2018)	4.3	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
19	Integration of teachers and staffs for quality assurance and skills development in 64 technical schools and collages (July, 2016 to June, 2020)	4.c	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
20	Establishment of 160 Upazila ICT training and resource center for education in Upazila (July, 2015 to June, 2020)	4.1, 4.3, 4.4, 4.7, 4.c	Establishing a community-based network of learning centres in order to create scope for ICT based continuing and lifelong Learning.	Increased Awareness for Education
21	Enhancing of ICT and Arabic Language Skills in Madrasa Education (July, 2015 to June, 2020)	4.1, 4.3, 4.4, 4.7	Wider access of ICT in Madrasas	Increased Awareness for Education
22	Establishment of integrated education information, management system and ICT infrastructure for education networking (July,)	4.1, 4.3, 4.4, 4.7	Introducing ICT for Education	Increased Awareness for Education
23	Andorkilla Shahi Jame Mosque rebuild Project (July, 2015 to June 2018)	4		
24	Enhancement the quality of textile education and digitalization of DOT (July, 2015 to June, 2018)	4	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
25	2×1200 Megawatt Ruppur Nuclear Power Center Build Project (July, 2016 to June 2017)	4		
26	Establishment of International Center for Natural Product Research (ICNPR) (July, 2016 to June, 2018)	4	Emphasis on research and training	
27	The national certification exam process, (July, 2016 to June, 2018)	4		
28	Modernization of life style in urban and rural areas of Bangladesh through ICT, (July, 2016 to June, 2019)	4.4, 4.7	Establishing a community-based network of learning centres in order to create scope for ICT based continuing and lifelong learning.	Increased Awareness for Education
29	Assistance project for the Establishment of microelectronic Lab in University, (July, 2015 to June, 2019)	4.3	Emphasis on development of libraries and laboratories	
30	Integrated e-Government Project, (July, 2015 to June, 2019)	4		

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
31	Establishment of the e-Government Master Plan for Digital Bangladesh Project, (January, 2016 to June, 2018)	4		
32	Establishment of the national information security center and Digital forensic Lab , (July, 2016 to June, 2019)	4		
33	Establishment of 12 IT parks, (July, 2016 to June, 2019)	4.4, 4.7	Introducing ICT for Education	
34	Development of IT park for employment project	4.4, 4.7	Introducing ICT for Education	
35	Infrastructure development of the national information and communication technology (INFO-GOVT. Fase-3) project, (January, 2016 to December, 2017)	4	Introducing ICT for Education	
36	Establishing Digital connectivity project, (April, 2016 to June, 2019)	4	-	
37	Establishment of information and communication academy project, (July, 2016 to June, 2020)	4	Introducing ICT for Education	
38	Establishment of information and communication technology center project in the District and Upazila, (July, 2016 to June, 2019)	4	-	
39	Promotion of Reproductive Health Reproductive Rights, Health Education, Gender Equality and Prevention of HIV/AIDS in Tea Communities (2nd Phase) (01/07/2014-30/06/2018)	4	Establishing a community-based network of learning centres in order to create scope for ICT based continuing and lifelong learning.	
40	Employment injury protection and rehabilitation Project (01/07/2016-30/06/2018)	4		
41	Creating Database of all Factories, industrial and commercial institutions in the whole Country (01/07/2016-30/06/2018)	4		
42	Creating Database of owner of the Factories, industrial and commercial institutions Project	4		
43	Increasing awareness program to the worker of the Factories about HIV/Aids (01/07/2015-30/06/2018)	4		
44	Give the training project at home and abroad to save from Power and Fire at Factories and visiting building of the institute (01/07/2016 – 30/06/2018)	4		

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
45	Regarding the national Occupational Health and Safety Research and training center tools and training elements receive/buy	4		
46	Project of Establishment of Technical Teachers Training Institute (01/07/2015-30/06/2019)	4.c	i) Improvement of Teaching Quality ii) Resource management and Development of infrastructure	
47	Establishment of Technical Training center in Upazila	4.c	i) Establishing a community-based network of learning centres in order to create scope for ICT based continuing and lifelong learning. ii) Improve Vocational and Technical education (VTE	Increased Awareness for Education
48	Capacity Development Program of TTC, Rajshahi (01/01/2016-31/12/2019)	4.4, 4.7, 4.c	i) Improvement of Teaching Quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
49	Vertical extension of selected Madrasas under enhancing the Madrasa learning environment project in Bangladesh (July, 2015 to June, 2018)	4	Resource management and Development of infrastructure	Enrolment Rate
50	Development project of Tertiary Collage Education (July, 2016 to December, 2020)	4.3	Resource management and Development of infrastructure	Enrolment Rate
51	Establishment of a center of excellence for RMG-ILO (July, 2014 to June, 2017)	4	-	
52	The Process of the national Certification Exam (July, 2016 to June, 2018)	4	-	
53	For the Quality enhancement of Govt. officers, Higher education/Training Project (January, 2016 to June, 2019)	4.c	-	
54	Bengali Language enrichment in Information Technology (January, 2016 to December, 2018)	4.4, 4.7	Capacity increase in reading, writing, listening & speaking	
55	Development of Nuclear Regulatory infrastructure of Bangladesh Nuclear Energy Authorities	4		

Sl. No	Name of the Project (Implementation period)	SDG Relevance	7th FYP Relevance	KPI
56	TA for preparation of an employment plan and improving companies in the industrial sector (01/07/2014-30/12/2016)	4		
57	Study/Survey of Factories, shops, Market and Industries regarding complacence project (01/07/2014-30/06/2015)	4		
58	Encouraging project of the worker health and security of the Factories Rules, 2006 (01/07/2015-30/06/2018)	4		
59	Enhancing the Vocational Training Program of TTC, Rajshahi Under KOICA,s Deep Program (01/01/2015-31/12/2018)	4.3	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender
60	Application of Migration Policy for decent word for migrant workers (01/01/2016-30/12/2020)	4		
61	Establishment of Bangladesh-IDB friendship Technical Teachers Training Institute (01/07/2013-31/06/2016)	4.c	Improvement of Teaching Quality	i) Enrolment Rate ii) Dropout Rate iii) Inclusion iv) Female Enrolment
62	Enhancing the Vocational Training Center of TTC, Faridpur Under KOICA,s Deep Program (01/01/2015-31/12/2018)	4.3, 4.c	Improve Vocational and Technical education (VTE)	Number of Students in TVET System by Gender

Table B1: List of Projects in the S&T Sector

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17		SDG Relevance
		Total Foreign Currency	Taka	Total Foreign Currency	Taka	
01	Establishment of National Sea Research Institute (1 Stage) (2nd Correction) (01/07/2000-30/06/2016)	10234	2360	10234	1600	4.3
02	Bangabandhu fellowship on SICT (01/07/2010-31/12/2016)	8596	1207	8596	1164	4.4, 4.3, 4.b
03	Study project for establishment of Marine aquarium at Bangladesh Oceanography research institute, Cox Bazar (01/09/2015-31/12/2016)	195	30	195	165	4.3
04	Establishment of Fat-City with Saiklotrana facilities (01/10/2011-30/09/2016)	12000	5100	12000	3542	4.3
05	Establishment of Mongla port Radiation Testing and Monitoring Research Center (01/07/2012-30/06/2017)	1950	755	1938	195	4
06	Establishment of Ruppur Nuclear Power Center (1st Stage) (01/03/2013-30/06/2017)	508709	59513	508709	61800	4
07	Establishment of institute of Nuclear Medical Physics (01/09/2013-30/06/2017)	6230	1504	6230	4546	4
08	Upgrading and Strengthening the facilities of national institute of Nuclear Medicine and Allied Science (01/01/2015-30/06/2017)	2475	1129	2475	1341	4
09	Establishment of Designated Reference Institute for Chemical Measurements (01/07/2012-30/06/2017)	3075	500	3075	301	4
10	BCSIR's technology transfer and innovation, the creation of the physical facilities (01/10/2015-30/09/2017)	3663	1000	3663	1900	4
11	Establishment of National Science and Technology Complex (1st Corrected) (01/01/2014-30/06/2018)	9950	2765	22988	12263	4.3, 4.7, 4.4
12	Study project for establishing a world class state of art science and technology museum (01/07/2015-30/06/2016)	195	151	195	44	4.3, 4.7, 4.4
13	Development of low cost solar power generation (01/01/2012-30/06/2016)	2777	838			4

Sl. No	Name of the Project (Implementation period)	2015 – 16		2016 – 17		S D G Relevance
		Total Foreign Currency	Taka	Total Foreign Currency	Taka	
14	For Biomedical and Toxicological Research , Modularization the Animal Laboratory (01/07/2012-30/06/2016)	2597	892			4
15	Development of BCSIR's Fiber and Polymer Laboratory (01/07/2012-30/06/2016)	2636	878			4
16	Modularization of Pilot Plant Unit to Commercialize the most viable R and D Product of BCSIR (01/07/2013-30/06/2016)	1713	1287			4

Table B2: Mapping of Projects of BCSIR with the Strategic Areas

Strategies	Actions Areas to Implement the Strategy	On Going Projects and/or Activities	Financing	Mapping with the 7th FYP	Mapping with SDG
1. Increase base S&T capacity of the nation	Establishment of National Sea Research Institute (1 Stage) (2nd Correction) (01/07/2000-30/06/2016)	1. Increase the use of both virtual and physical instruments to improve the quality and reach of delivery of S&T education. 2. In delivering education, show the linkage of S&T education to improve the local wealth creation capacity. 3. Create on-line resources for expanding the basic S&T education in the society, leading to better awareness of the role of S&T in improving local economic activities.	In the current fiscal year around 61 students from different universities are being supervised utilizing the existing laboratory facilities and on the R&D project of BCSIR.	R&D project are being taken to create job opportunity	Goal 4

Strategies	Actions Areas to Implement the Strategy	On Going Projects and/or Activities	Financing	Mapping with the 7th FYP	Mapping with SDG
2. Make S&T as cross cutting competitiveness tool for different productive sectors.	1. At regular intervals, perform action research on assessing the scope of increasing the local S&T capacity to improve the competitiveness of local economic activities, whether for export or local consumption. 2. Develop R&D and innovation centers linking universities, delivering S&T education, to develop technologies and innovate solutions to address competitiveness issues faced by target economic sectors. 3. Instead of just giving tax incentive and cash subsidy, bring changes in policies to provide incentive for sourcing S&T innovations, whether product or process, locally.	1. R& D projects are being selected on this strategy. 2. MoUs between BCSIR and different universities are being signed regularly to increase the scope of local S&T capacity.	BCSIR revenue Budget		
3. Increase S&T Graduates for overseas employment	1. Expand the S&T education reach by opening S&T universities at the district level. 2. Promote cross boarder higher education to enable students to graduate with globally accepted credentials. 3. Promote online learning to reduce the cost and increase the access of quality S&T education.	1. Scientists are being encouraged to go for higher studies for capacity building. 2. Human resource development projects are to be taken to enhance the activities	GoB/BCSIR revenue Budget / Scholarship		

Strategies	Actions Areas to Implement the Strategy	On Going Projects and/or Activities	Financing	Mapping with the 7th FYP	Mapping with SDG
4. Establish synergy with existing sectoral activities to open new growth areas	1. At regular intervals, undertake research to detect emerging S&T opportunities and to figure out the linkage of those opportunities with already existing local economic activities. 2. Develop education, R&D, entrepreneurship and policy capacity to acquire and deploy those S&T capabilities for productive purposes.	Seminars with stake holders are being carried to address the services developed in BCSIR and to share problems of the industries and the way to overcome it.	BCSIR revenue Budget		
5. Use public procurement as a strategic tool to expand the local S&T capacity and innovation base.	1. Instead of pursuing the policy of purchasing the finished products to address problems faced today, take regular research to foresee future opportunities to be exploited with S&T to address Government's mission, as explained in Box- 2. Develop the capacity for both the acquisition and deployment of S&T capacities before the competition in the commercial market intensifies. 3. Support local firms to work in partnership with universities and research institutions, so that local firms can deliver needed solutions in a globally competitive manner.	1. R&D projects are being taken. 3. MoUs between BCSIR and different industries to address this strategy	BCSIR revenue Budget		

Strategies	Actions Areas to Implement the Strategy	On Going Projects and/or Activities	Financing	Mapping with the 7th FYP	Mapping with SDG
7. Focus and promote capacities for both process and product innovation	Increase awareness to deploy recent development of Science and Technology in the form of process innovation to produce any product, whether shirts, shoes or sugar. Process innovation should be the core area to focus to pursue product innovation at later stage, as product innovation runs the risk of suffering from high failure rate.	Ongoing limited activities	BCSIR revenue Budget		
8. Develop collaborative contract research in partnership with private sector	1. Form joint R&D program with major private sectors such as textile, RMG, leather and ICT to contribute to process and product innovation to reduce the cost of production. 2. Bring necessary reform and undertake capacity development to align/prepare Government research institutions to contribute to total factor productivity through R&D.	Ongoing limited activities	BCSIR revenue Budget		
9. Engage universities with research institutions to undertake industrial R&D	1. Design joint projects with universities to undertake co-funded (funded by both the private and public sources) projects to improve existing process to enhance competitiveness. 2. In partnership with industry, establish process as well as product innovation laboratories in different universities.	Ongoing limited activities	BCSIR revenue Budget		

Table B3: Mapping of Projects of BAEC with the Strategic Areas

Strategies	Actions Areas to Implement the Strategy	On Going Projects and/or Activities	New Projects/Activities to be undertaken	Budget	Mapping with SDG	Mapping with SDG
1. Increase base S&T capacity of the nation	1. Increase the use of both virtual and physical instruments to improve the quality and reach of delivery of S&T education. 2. Create on-line resources for expanding the basic S&T education in the society, leading to better awareness of the role of S&T in improving cyber security. 3. Establishment, Strengthening and Capacity buildup of Laboratories to Improve the Quality of S&T education.	1. Development of the infrastructure for the capacity build-up of Nano and Nano-biotechnological laboratory at Material Science Division, Atomic Energy Centre Dhaka. 2. Modernization of Food and Radiation Biology Facilities of AERE, Savar	1. Upgradation of existing facilities of Atomic Energy Centre, Dhaka (AECD). 2. Establishment of Nuclear Cyber Security & Information System Innovations Research Laboratory at BAEC. 3. Accident Analysis Strengthening of Rooppur WER Nuclear Power Plat through use of Computer Code RELAP5. 4. Establishment of Advance Nuclear medicine & Oncology Centre. 5. Screening of Congenital Hypothyroidism in New Borm Babise. 6. Upgradation of Thin Film Deposition to Thin Film Solar Cell Research Laboratory and Survey of few Areas of Bangladesh about Solar Device Efficiency and Activities.	4997 1782 2384 3984 4756 3984	Goal 4	

Strategies	Actions Areas to Implement the Strategy	On Going Projects and/or Activities	New Projects/Activities to be undertaken	Budget	Mapping with SDG	Mapping with SDG
11. Other, please mention Peaceful use of Nuclear Energy	1. Establishment of Nuclear Power Plant to generate electricity. 2. Application of nuclear methodology, techniques and processes in industry, agriculture, human health, natural resource development and the protection of the environment. 3. Exploration and Assessment of Nuclear Minerals. 4. Modernization, Development and Established of Institute of Nuclear Medicine and Allied Sciences. 5. Radiation oncology & thyroid Centre.	1. Construction of Rooppur Nuclear Power Plant 2. Establishment of Radioactivity Testing and Monitoring Laboratory at Mongla, Khulna. 3. Establishment of Institute of Nuclear Medical Physics (INMP). 4. Upgrading and Strengthening the facilities at National Institute of Nuclear Medicine and Allied Sciences (Former INMU) 5. Establishment of Positron Emission Tomography –Computed Tomography (PET-CT) with Cyclotron facilities.)	1. Patient Service Facilities and Infrastructure Development of Institute of Nuclear Medicine and Allied Sciences (INMAS) at Dhaka, Chittagong, Khulna, Sylhet, Rajshahi, Dinajpur and Rangpur (Phase 1). 2. Patient Service Facilities and Infrastructure Development of Institute of Nuclear Medicine and Allied Sciences (INMAS) at Mitford, Mymensingh, Khulna, Barisal, Faridpur, Bogra and Comilla (Phase 2). 3. Establishment of Institute of Nuclear Medicine & Allied Sciences at Sher-e-Bangla Nagar Shaheed Suhrawardy Medical Collage Hospital Campus National Institute of Diseases of the Chest & Hospital Campus Mohakhali and Medical College Hospital Campus Pabna, Kushtia, Jessore, Cox Bazar, Gopalgonj & Satkhira.	21434 29434 56223	Expansion of power Healthcare improvement	

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1. Policy Study on Financing Growth and Poverty Reduction: Policy Challenges and Options in Bangladesh (May 2009)
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4. Steps Towards Change: National Strategy for Accelerated Poverty Reduction II (Revised) FY 2009-11 (December 2009)
5. Millennium Development Goals: Bangladesh Progress Report-2009 (2009)
6. Millennium Development Goals: Needs Assessment and Costing 2009-2015 Bangladesh (July 2009)
7. এমডিজি কর্ম-পরিকল্পনা (৫১ টি উপজেলা) (জানুয়ারি-জুন ২০১০)
8. MDG Action Plan (51 Upazillas) (January 2011)
9. MDG Financing Strategy for Bangladesh (April 2011)
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20. First Implementation Review of the Sixth Five year Plan -2012 (January 2013)
21. বাংলাদেশের প্রথম প্রেক্ষিত পরিকল্পনা ২০১০-২০২১ রূপকল্প ২০২১ বাস্তবে রূপায়ণ (ফেব্রুয়ারি ২০১৩)
22. National Sustainable Development Strategy (2010-2021) (May 2013)
23. জাতীয় টেকসই উন্নয়ন কৌশলপত্র (২০১০-২০২১) [মূল ইংরেজি থেকে বাংলায় অনুদিত] (মে ২০১৩)
24. Millennium Development Goals: Bangladesh Progress Report-2012 (June 2013)
25. Post 2015 Development Agenda: Bangladesh Proposal to UN (June 2013)
26. National Policy Dialogue on Population Dynamics, Demographic Dividend, Ageing Population & Capacity Building of GED [UNFPA Supported GED Project Output1] (December 2013)
27. Capacity Building Strategy for Climate Mainstreaming: A Strategy for Public Sector Planning Professionals (2013)
28 Revealing Changes: An Impact Assessment of Training on Poverty-Environment Climate-Disaster Nexus (January 2014)
29. Towards Resilient Development: Scope for Mainstreaming Poverty, Environment, Climate Change and Disaster in Development Projects (January 2014)
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31. Manual of Instructions for Preparation of Development Project Proposal/Prforma Part-1 & Part 2 (March 2014)
32. SAARC Development Goals: Bangladesh Progress Report-2013 (June 2014)
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34. Millennium Development Goals: Bangladesh Progress Report 2013 (August 2014)
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41. জাতীয় সামাজিক নিরাপত্তা কৌশলপত্র (অক্টোবর ২০১৬)
42. Population Management Issues: Monograph-3 (March 2016)
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52. EXPLORING THE EVIDENCE : Background Research Papers for Preparing the National Social Security Strategy of Bangladesh (June 2017)
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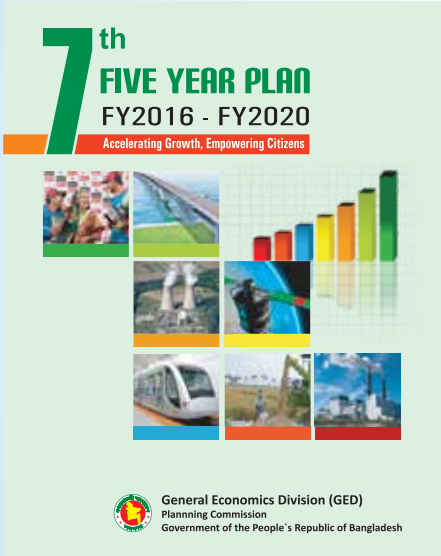
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