

Draft



PRIMARY EDUCATION DEVELOPMENT PROGRAM III (PEDP III)

**REVISED
ENVIRONMENTAL MANAGEMENT FRAMEWORK**

**DIRECTORATE OF PRIMARY EDUCATION
MINISTRY OF PRIMARY AND MASS EDUCATION**

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

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LIST OF ABBREVIATIONS AND ACRONYMS

ADB	- Asian Development Bank
AusAid	- Australian Overseas Aid Program
BDT	- Bangladesh Taka (Currency)
BNBC	- Bangladesh National Building Code
BP	- Bank Procedures
CIDA	- Canadian International Development Agency
DC	- Deputy Commissioner
DFID	- Department for International Development (of the United Kingdom)
DG	- Director General
DLIs	- Disbursement-linked Indicators
DOE	- Department of Environment
DPE	- Directorate of Primary Education
DPs	- Development Partners
DPHE	- Department of Public Health Engineering
EA	- Environmental Assessment
EC	- European Commission
ECA	- Environmental Conservation Act
ECC	- Environmental Clearance Certificate
ECR	- Environmental Conservation Rules
EIA	- Environmental Impact Assessment
EMF	- Environment Management Framework
EMP	- Environmental Management Plan
EEPs	- Eligible Expenditure Programs
GIS	- Geographic Information System
GOB	- Government of Bangladesh
IDA	- International Development Agency
IEE	- Initial Environmental Examination
LGED	- Local Government Engineering Department
MOEF	- Ministry of Environment and Forests
MoU	- Memorandum of Understanding
NCTB	- Strengthening Capacity of the National Curriculum and Textbook Board
NEMAP	- National Environmental Management Action Plan
NSDWSSP	- National Safe Drinking Water Supply and Sanitation Policy
OP	- Operational Policies
PEDP I	- (First) Primary Education Development Program
PEDP II	- Second Primary Education Development Program
PEDP III	- Third Primary Education Development Program
PTIs	- Primary Teacher Training Institutes
SLIPs	- School Level Improvement Plans
SMC	- School Management Committee
SWAp	- Sector Wide Approach
UPEPS	- Upazila Primary Education Plans
URCs	- Upazila Resource Centers
USD	- United State Dollar (Currency)
WB	- World Bank

EXECUTIVE SUMMARY

The proposed Additional Financing (AF) of Primary Education Development Program III (PEDP III) will be the follow-on phase of Primary Education Development Program II and III, the government effort to provide quality education to all Bangladeshi children in every classroom. There is an increased focus on results in this new phase. The program, which started in July 1, 2011, is being implemented over a six year period with the support of a number of development partners including the Asian Development Bank, AusAID, CIDA, DFID, EC, JICA, Netherlands, SIDA, UNICEF and the World Bank/IDA. The development objectives of the proposed program are to: (i) increase the number of children enrolled and completing primary education; (ii) reduce social and regional disparities; and (iii) improve the measurement of student learning and quality of the teaching/learning environment.

Part of this program includes quality and child-friendly infrastructure (including clean and safe toilets and arsenic free tube wells or piped water supply). The Directorate of Primary Education (DPE) is implementing these infrastructure activities in close collaboration with Local Government Engineering Department (LGED) and Department of Public Health Engineering (DPHE).

The Directorate of Primary Education (DPE), in consultation with relevant stakeholders, has prepared this revised Environmental Management Framework (EMF) to support the implementing partners of the program to deal with potential environmental issues that may arise during implementation of the various civil works/"subprojects". The purpose of this revised harmonized Environmental Management Framework (EMF) is to modify some of the tools based on the experiences gained during the last couple of years to ensure that neither the infrastructure, both in terms of needs and quality at primary schools, nor the environment is compromised through the program intervention. The specific objectives of revised EMF are to: (i) outline a revised framework for environmental screening procedures and methodologies for the "subprojects" to be financed under the project in accordance with the GOB, World Bank and ADB's Safeguard policies/rules; and (ii) specify appropriate roles and responsibilities to carryout environmental screening, monitoring and reporting related to "subprojects". To avoid potentially adverse environmental impacts and enhance environmental outcomes of the activities implemented under individual "subprojects", the World Bank Operational Policy on Environmental Assessment (OP/BP 4.01) and ADB's Safeguard Policy Statement (2009) is triggered for this Program. Considering that the project is expected to have limited and minimum adverse environmental impacts, the project environment safeguard categorization is 'Category B'. The "subproject" specific environmental impacts cannot be precisely identified upfront before sites are selected. Additionally, "subprojects" may have very minor negative environmental impacts if not properly designed, executed and mitigation measures not implemented.

The Program is envisaged as a results-based investment lending support to the Government of Bangladesh's primary education sector. The World Bank, jointly with other major development partners, will support a full primary education sector-wide approach, but identifies a selected number of areas where achievements would condition the timing and amount of disbursements. It will provide a mix of financial and technical support aimed at improving impact and efficiency of resources.

Since the specific “subprojects” are not yet identified, specific information on types of “subprojects” like site/location of the “subprojects”, land requirements, local communities, geo-physical land features and nature for majority of them is not available, this EMF has been prepared to establish the mechanism to determine and assess future potential environmental impacts of “subprojects” that are to be identified and cleared based on a community demand-driven process, and to set out mitigation, monitoring and institutional measures to be taken during implementation and operation of the “subprojects” to eliminate adverse environmental impacts, or to reduce them to acceptable limits.

The Local Government Engineering Department (LGED) and Department of Public Health Engineering Department (DPHE) are responsible for design, implementation and maintenance of the class rooms under the program. LGED developed an institutional set-up for PEDP II, which is being used in PEDP III. LGED has hired the services of an Environment Specialist who leads PEDP III environmental activities. The current arrangement of environmental screening and monitoring would continue for the rest of the period of the program. As being practiced currently, the Executive Engineer (Education) would ensure the overall coordination and would be responsible for monitoring of environmental safeguard issues. Five Assistant Engineers would be responsible for coordination and reporting of environmental safeguard issues and each would be assigned 2 regions. The Assistant Engineer at Regional Office would act as the Environmental Focal Point and be responsible for coordinating environmental activities at field level. The Upazilla Assistant Engineer/Sub-Assistant Engineers will be responsible for carrying out the screening and preparing subproject specific EMP. The Upazilla Engineer will review the screening report and EMP through field visit. The Upazilla Engineer will also be responsible for supervision and monitoring of environmental mitigation activities at Upazilla level. The Assistant Engineer at Regional Office will review at least 25% of the screening and EMP reports and implementation of EMP at field level. If IEE is required, it will be the responsibility of the Assistant Engineer at the Regional Office. The Executive Engineer at Regional Office will review all IEE and monitor the implementation of EMP. The Assistant Engineer at Headquarters will ensure quality control and reporting at the regional level. The Environmental Specialist will prepare training materials; conduct staff training; prepare screening, Initial Environmental Examination (IEE) report and Site-specific Environmental Management Plan (EMP) on sample basis; review a certain percentage of the EMPs; and prepare the Annual Environmental Monitoring Reports of the PEDP III.

In case of DPHE, a team under the leadership of a Superintending Engineer at the HQ is coordinating the activities under PEDP-III. The unit is also staffed with experienced civil engineers and adequate number of other qualified manpower. At field level under the supervision of a Superintending Engineer in Divisional Head Quarter, an Executive Engineer in every DPHE District office supported by Assistant Engineers, Sub-assistant Engineers, Estimators, and Drafts-man execute the project works of installation of water sources and WASH Block. In every Upazila DPHE has a full official set up of thirteen staffs comprising 1 diploma engineer, 4 Mechanics/Work Assistant, 4 VS masons, 2 MLSS, 1 computer operator headed by a graduate civil engineer. The Assistant Engineer at Upazila level primarily undertakes the environmental screening of the works with the help of the Sub-Assistant Engineers. The Executive Engineer at District level verify the reports and send those to the HQ where a consultant with the help of the DPHE Engineers working at HQ prepare the compiled report.

In addition, DPE will hire the consultant services to monitor at least 10% of the infrastructure implemented by the LGED and DPHE. The monitoring will include the environmental performance of the “subprojects”. The development partner(s) in consultation

with DPE may also assign a firm/institute as third party monitoring of the physical progress, construction quality, and environmental safeguard and operation status of the infrastructures.

The Program will support environmental monitoring to ensure that envisaged purpose of the program is achieved and result in desired benefits without adversely affecting environmental resources. The monitoring activities of PEDPIII will include the compliance of the environmental management plan implementation. In general, the consultant will monitor the following indicators during field visit as 'spot check' and the related mitigation measures: (i) losses of agricultural lands; (ii) drainage congestion/water logging; (iii) surface water pollution; (iv) dust and noise pollution; (v) safe distance between tube-wells and sanitary latrines; (vi) occupational health hazards and safety practices; (vii) maintenance of water supply and sanitation facilities (ix) maintenance of air and water quality, (x) management of surrounding ecosystem and biodiversity (if any) etc. DPE has signed a Memorandum of Understanding (MoU) with the Department of the Public Health Engineering (DPHE) for construction of WASH Block and annual water quality monitoring. DPHE/LGED should ensure that schools have a provision of septic tanks and infiltration gallery (soak pit) and program activities do not infringe upon natural ecosystems during the design stage. DPE will provide all the tube-wells information and field test kits to the DPHE Research and Development (R&D) Division. DPHE will coordinate and implement the testing through its field office and prepare the analytical report. DPHE will also carry out 5% quality check in their zonal laboratories.

Capacity building at different levels is necessary in order to implement the EMF successfully. The suggested capacity building measures, for example include: (i) providing environmental competency/human-resources, (ii) training, orientation and awareness activities on environmental planning and management of school and school-facilities, and (iii) mechanisms for coordination and for accessing specific environmental services e.g. water-quality testing, climate resilient school building construction etc. In consideration of increasing workload envisaged for implementation of the EMF and the nonexistence of environmental competency at centre, LGED have engaged a full-time Environmental Specialist at Education Unit to look after and monitor the EMF activities for PEDP III. The Specialist will be responsible for implementation of the EMF and its provisions, including compliance checking, facilitation, coordination and ensuring dissemination, orientations and capacity buildings activities. Additional human resources or an agency will be hired/engaged, if necessary, in order to effectively implement the EMF.

On behalf of DPE, a consultant carried out the field visit of the existing PEDP II project sites. The consultant reviewed the existing documents in field, school conditions, water supply and sanitation facilities, discussed with all relevant stakeholders and took their opinion how to improve the environmental practices in primary education program and to integrate environmental concerns to improve the sustainability of the program interventions. Moreover, recent field visit by the World Bank consultant also revealed some issues relating to environmental safeguard of the program interventions. This revised EMF includes the recommendations from these local level consultations and field visit observations. The finalized EMF will be disclosed by the DPE and LGED in their website for public comments within 30 days of notice published in the 2 daily national newspapers (one English and another Bangla).

PROJECT BACKGROUND AND INTRODUCTION

Background

1. The proposed Additional Financing (AF) for Primary Education Development Program III (PEDPIII) is the follow-on phase of Primary Education Development Program II & III, the government effort to provide quality education to all Bangladeshi children in every classroom. An Additional Financing now is being contemplated to supplement the financial gap that is felt primarily due to price escalation and also due to revision of the scope of the program to meet the emerging needs. There is an increased focus on results in this new phase. The PEDP III started in July 2011, with the support of a number of development partners including the Asian Development Bank, Australia's Overseas Aid Program (AusAID), Canadian International Development Agency (CIDA), Department for International Development of the United Kingdom (DFID), European Commission (EC), Japan International Cooperation Agency (JICA), the Netherlands Government, Swedish International Development Agency (SIDA), United Nations Children's Fund (UNICEF) and the World Bank/International Development Association (WB/IDA).
2. The operation uses a sector-wide approach (SWAP) to support the implementation of the government's program for primary education. Credit disbursements will be made against selected key education budget line items referred to as Eligible Expenditure Programs (EEPs) up to capped absolute amounts. The event and amount of credit disbursements will be based on the achievement of pre-specified and agreed results referred to as *disbursement-linked indicators (DLIs)*, determined in partnership with the Government of Bangladesh (GoB) and other Development Partners (DPs).
3. The development objectives of the proposed PEDPIII are to: (i) increase the number of children enrolled in and completing primary education; (ii) reduce social and regional disparities; and (iii) improve the measurement of student learning and the quality of the teaching/learning environment. Quality and child-friendly infrastructure (including clean toilets and arsenic free tube-wells, climate resilient and environment friendly school building) will contribute to achieve overall objective of the PEDPIII by adopting appropriate planning and innovative designs. Particular attention will be put in case of construction of school building in vulnerable geographic location (e.g. coastal areas, hilly areas, floodplain, etc.). The infrastructure located in the climate vulnerable areas will be considered for climate proofing and disaster resilient. The Program Development Objective of the proposed Additional Financing (AF) will remain unchanged from the original program and will continue to support the above activities.
4. The Directorate of Primary Education (DPE) is implementing the overall program and the Local Government Engineering Department (LGED) and Department of Public Health Engineering (DPHE) have been assigned to implement the infrastructure development activities. The selection of school for construction of infrastructure is being done primarily based on a need assessment carried out during the PEDP III preparation. The need assessed earlier is being verified at the field level before undertaking any construction work to see whether that is still required. Moreover, it has been decided that the list would be a live list to take care of the emergency requirements specially due to various natural calamities. It has been agreed that a total of 39003 additional class rooms would be provided as and where required to reduce overcrowding of the class rooms. The selection would be needs based on some agreed need assessment and prioritization criteria. The revised financial requirement is estimated at BDT 1,655,000 (USD 21,217) per room. The remaining life of the classrooms will be considered when selecting such rooms for maintenance. All of the school building will be designed in such a way (e.g. green building) so that it could serve for well ventilation for providing healthy environment and also for allowing maximum daylight for energy conservation. Since coastal

areas are vulnerable to cyclone and storm surge, special emphasis will be given for repair and maintenance of school affected by disaster and other extreme climate events. The PEDPIII intends to ensure that every school has at least one safe drinking water source, which is either a tube-well, a piped water supply or any other alternative sources. The source will be free from arsenic or any other microbial contamination. The program also intends to provide adequate sanitation for teachers, girls and boys students. Through several consultations, the following standards are recommended for PEDP III: (i) Teacher toilets – at least one (two if there are over 30 teachers); (ii) Girls’ toilet – 1:50 (between the national standard of 35-75); (iii) Boys’ WCs – 1:75 and (iv) Boys’ urinals – 1:60 (double the national and international standards). However, it was later decided that WASH Blocks with hand washing facilities would be provided instead of standalone toilets. The Male WASH block will have three toilets (one for the disabled), two urinals, one wash basin and foot washing facility. This will be used both by the boys and male teachers. The female WAHS Block on the other hand will have similar facilities except the urinals. The assessed need of toilets during the project preparation is being served as the basis to find out the number of WASH Blocks to be constructed. It has been decided that 18,500 WASH Blocks would be constructed as per the need assessment of which around 30% would be for male and 70% would be for female.

5. Apart from school building/class room, water points and WASH Blocks, PEDP-III also funds a couple of other construction, renovation and expansion of infrastructure which include renovation/expansion of PTIs, construction of Upazila Resource Center (URC) and expansion of office of the District Primary Education Officer and Upazila Primary Education Officer which are all small scale construction work. PEDP-III also would support construction of DPE HQ at Dhaka and a leadership Centre at Cox’s Bazar. Detail design of these buildings has not yet been finalized. It has been confirmed that none of these construction would require land acquisition. However, as these buildings might be multi-storied building, an environmental assessment should be done to ensure environmental safeguard associated with their design and construction and will be cleared by the DPs before awarding the contract. A TOR for such an environmental assessment is attached as Annex-F of this EMF.

6. The Directorate of Primary Education (DPE), in consultation with the Department of Environment and other relevant stakeholders, has prepared this Revised Environmental Management Framework (EMF) to support the implementing partners (Local Government Engineering Division and Department of Public Health Engineering) of the programs to manage potential environmental issues that may arise during implementation of the “subprojects”. The EMF will be applicable for all “subprojects” and/or components to be considered under the PEDP III AF.

About EMF

7. Projects and programs financed with IDA resources must comply with the World Bank Operational Policies. Therefore, program components eligible for funding under the PEDP III will be required to satisfy the World Bank and ADB's safeguard policies, in addition to conformity with relevant legislation of the Government of Bangladesh (GOB). The other development partners also have their own policies to safeguard the environment in their project planning, implementation and operation. These policies will also be considered to comply with environmental safeguard issue.

8. The types of “subprojects” to be funded under PEDPIII have been identified at the program design phase. However, specific locations of “subprojects” will only be identified at the field level during implementation phase. Therefore, it is not possible to identify the “subproject” and/or components specific environmental issues upfront during program design and appraisal stage.

9. This EMF provides general policies, guidelines, and procedures to be integrated into the implementation of all “subprojects” under the PEDPIII. In preparing this document, relevant environment safeguard practices and compliance (especially the experience of PEDPI and PEDP II) were reviewed. This review included field visits, multi-level consultations, qualitative and quantitative assessments of environmental safeguard compliance processes, a rapid capacity assessment of the implementing agency and its field level staff from environmental safeguard perspective etc. The EMF addresses the environmental related impacts as well as the occupational health and safety issues in the PEDP3. However, the EMF does not explain the general process of infrastructure planning, implementation, quality control and monitoring. These will be described in the Operational Manual for infrastructure development.

OBJECTIVES OF THE EMF

10. The purpose of this Environmental Management Framework (EMF) is to ensure that neither the infrastructure (both in terms of needs and quality) at primary schools nor the environment is compromised through the program intervention. The EMF will contribute the goal of attaining environmental sustainability by:

- enhancing environmental outcomes of the activities implemented under individual “subprojects”;
- preventing and/or mitigating any negative environmental impact that may emerge from the “subprojects”;
- ensuring the long-term sustainability of benefits from “subprojects” by securing the natural resource base on which they are dependent; and
- facilitating pro-active “subprojects” that can be expected to lead to increased efficiency and improved management in the use of natural resources resulting in improvements in local environmental quality and human well-being.

11. More specifically the objectives of the EMF are:

- To outline a framework for environmental screening procedures and methodologies for the “subprojects” to be financed under the program; and
- To specify appropriate roles and responsibilities to carryout environmental screening/assessment, environmental management (mitigation, monitoring and compensation) and reporting related to “subprojects”.

12. This will also cover institutional/organizational needs of the implementing agency in executing the recommendations to mitigate any possible environmental negative impacts and other climate induced impacts.

13. As agreed with the Government of Bangladesh and involved Development Partners, a common harmonized EMF is prepared where inputs from the government and DPs were incorporated. This common and harmonized EMF will be followed during the implementation of sub-project activities.

PROGRAM DESCRIPTION

General Description

14. The program proposes to provide technical and financial support to consolidate achievements under PEDP II and to further improve quality, equitable access and efficiency in primary education through a sector wide approach. Specifically, the program will assist the Government of Bangladesh to: (i) increase the number of children enrolled in and completing primary education; (ii) reduce social and regional disparities; and (iii) improve the measurement of student learning and the quality of the teaching/learning environment.

15. Success in meeting these objectives would be measured by outcome indicators including the following:

1. Increased net enrollment
2. Increased completion rates
3. Improved support for the teaching/learning environment
4. Improved measurement of student learning
5. Reduction in regional disparities for disadvantaged children in access to education

16. The PEDP III will build on the previous phase's (PEDP II) experience with a greater focus on results. IDA, jointly with other major Development Partners, will continue to support a sector-wide approach but will identify a selected number of areas where achievements would condition the timing and amount of disbursements. It will provide a mix of financial and technical support aimed at improving impact and efficiency of resource use. Due consideration will be given to the use of environment friendly construction materials and recyclable education materials.

Component Description

17. The PEDPIII is envisaged as results-based investment lending support to the Government of Bangladesh's primary education sector. Implemented by the Directorate of Primary Education (DPE), disbursements to the program will be made against a set of results, which aim at improving accountability and transparency. Achievements of the indicators will be required for reimbursement against the selected eligible expenditure programs (EEPs). The four key program areas are:

- Increase Access and Reduce Social and Regional Disparities – To improve access to primary education, PEDP III would support the following, with a particular focus on measures to increase participation of the poorest and most disadvantaged children: (i) provision of one year of pre-primary education to a growing proportion of children; (ii) improved physical facilities (i.e. additional classrooms to reduce classroom overcrowding, toilets and tube wells with arsenic free/safe water, climate resilient school building) ; (iii) coordination and implementation of a school health and nutrition program with schools and their communities, including school feeding and health screenings in selected areas; (iv) implementation of a revamped stipend program with improvements in administration and pro-poor targeting; (v) development and implementation of action plans for mainstreaming disadvantaged children as well as (vi) closer coordination of alternative primary education opportunities with education service delivery in the formal public sector.

- Quality of Teaching and Student Learning – To improve the teaching and learning environment PEDPIII would support: (i) the revision of the curricula for Grades 1-5 to center it around student learning competencies; (ii) timely delivery of free textbooks to all schools and improving the quality of textbooks; (iii) the development, approval and gradual implementation of a teacher education and professional development program with built-in quality assurance of training; (iv) the establishment of a transparent and effective examination and assessment system ; (v) establishment and piloting of active learning methods and teacher support networks in selected upazilas; and (vi) various pilot initiatives to expand the use of information and communications technology in primary schools.
- Institutional Strengthening – To improve the efficiency and effectiveness of education service delivery at central and decentralized levels, including schools, PEDP III supports: (i) establishment of guidelines for decentralized school-based management and the provision of school grants; (ii) application of needs-based and merit-based procedures for the recruitment and deployment of teachers and head teachers, and a performance-linked incentive program for teachers; (iii) improved delivery of teacher education programs through strengthening the capacity of PTIs by filling staff vacancies, establishing instructor career paths, and providing professional development; (iv) strengthened institutional capability to manage education service delivery through the development and implementation of a human resource management plan to define career paths, fill staff vacancies and strengthen DPE particularly through capacity building at the upazila level; (v) provision of new and upgraded facilities for the Directorate of Primary Education which are aligned with increased filling of vacancies and expanded work program, including at the field level; and (vi) alignment of all primary education service providers to support a more unified primary education system.
- Program Planning and Management - To improve education sector management and policy development, including strengthening monitoring and evaluation, PEDP3 would support: (i) improving fiscal sustainability and effectiveness of public expenditures for education through improved education budget preparation; (ii) strengthening monitoring and evaluation systems to improve data use for performance and planning based on evidence; (iii) improving the timeliness, quality and coverage of the annual school census; (iv) moving towards an integrated comprehensive framework to include school standards for all categories of primary schools in the country; (v) increasing enrolment and interest in supporting children’s education through a communication’s strategy; and (viii) increasing public-private partnerships to deliver educational services.

Program Areas

18. The PEDPIII will be implemented all over Bangladesh. However, the schools will be selected and prioritized based on the certain parameters. Through several consultations, the followings are the agreed parameters for need assessment and prioritization:

Criteria for need assessment:

- While schools may run in double shift, none should be overcrowded
- Minimum 3 classrooms with one teachers’ room in a school
- Classroom/student ratio 1:40 with flexibility of overcrowding up to 40%
- Number of teachers - at least 4 per school

- Number of teachers' toilets – common with boys' and girls' toilets
- Number of girls' WC-cum- urinal :one for every 50 girls
- Number of boy' WC : one for every 75 boys
- Number of boys' urinal : one for every 60 boys
- At least one source of drinking water (DW) – tap water supply or tube well.
- Boys' and girls' toilets to be given separately and proportionately.
- One school for habitations having catchments of 2000 and no school within 2 km 2

The following criteria have been adopted for ranking the infrastructure needs under PEDP-III.

Order of prioritization: Additional classrooms

- 1) Additional class
- 2) Additional teachers
- 3) Teachers' room
- 4) Replace kacha
- 5) Number of students

Order of prioritization: Repair & maintenance

- 1) Major repair
- 2) Minor repair
- 3) Number of students

Order of prioritization: Toilets

- 1) Girls' WC
- 2) Girls' enrolment
- 3) Boys' WC
- 4) Urinals

Order of prioritization: Drinking Water

- 1) Proposed water
- 2) Girls' enrolment
- 3) Number of students

The special zones have not been prioritized. If a school is in a special zone, it has been tagged with the zone type so that special attention could be given.

Proposed changes under Additional Financing

19. Although additional activities would be brought about under the AF as a result of deepening reforms related to quality enhancement and equity targeting, and extending universal coverage of interventions to the nationalized RNGPS, there would be no major changes in terms of type of infrastructure. A restructuring of the original Credit is proposed in light of implementation experience to date, to: (i) amend Year-3 targets for three DLIs (Teacher Education and Professional Development, Needs-based Infrastructure Development, and Teacher Recruitment and Deployment); (ii) eliminate the 18-month limit for achieving DLIs; (iii) utilize the funds that could not be disbursed for the Year-0 DLIs, and (iv) change the estimated DLI disbursement schedule from an annual to a bi-annual basis.

Outcome indicators, intermediate outcome indicators, and their targets would be revised to reflect scaled-up and expanded program interventions to be carried out by the proposed new closing date of June 30, 2018. Further clarity would be provided on indicator definitions, data sources and frequency of data availability, and additional indicators related to the proposed activities for Years 4-6 of the project will be included, consistent with conclusions of the MTR. While it is proposed to continue the practice of allocating equal (disbursement) value to each DLI, the level of financing per DLI would increase for the Year-4 to Year-6 DLIs because their milestones are more complex and challenging than the Year-0 to Year-3 milestones.

The emphases going forward which principally motivate the proposed AF and restructuring are briefly summarized below by each Part of the project.

Part 1: The emphasis is on scaling up, from the foundation built to date, to implement a further set of reforms focused on improving quality, while extending project coverage to the newly nationalized RNGPS. There are serious cost implications, in terms of technical assistance, implementation, and monitoring. Priorities are to:

- Expand the scope of coverage of the higher standards for teacher qualifications (i.e. DPEd), while setting foundations for institutionalization, accreditation and conversion of the program from an in-service to the premier pre-service program for primary teachers in the country;
- Mainstream the system's proactive accountability for each child's learning by increasing and institutionalizing channels for using the "ECL" approach and materials;
- Disseminate and consolidate applying the modernized curriculum which also involves revised textbooks and exams; and
- Use ICT more extensively to support broader and more effective coverage of training and other development initiatives across the primary education sector.

Part 2: The emphasis is more effectively to target mechanisms focused on the remaining, hardest-to-reach population groups, to enroll and retain children in school. Priorities are to boost completion rates and learning outcomes of disadvantaged children by ensuring good quality, targeted Pre-Primary Education reaches them, to infuse school improvement planning with a much stronger results focus, and link policy and activities vis-à-vis Second Chance Education directly and more strategically to the national education policy goals to universalize primary education. For more transparent and effective identification of prioritized sites for needs-based infrastructure, the need list is being converted to a "live" database, and results of efficiency gains analysis must feed into decisions on options for construction design.

Part 3: The emphasis is on continued system strengthening. The major initiatives of the project are evolving in a complex system of over 100,000 schools, 450,000 teachers, and 19 million students. The proposed AF and extension of the ongoing project would deepen the development impact of its focus on inclusiveness and quality of primary education by allowing MoPME and DPE adequate time and more resources to consolidate gains and promote synergies between the numerous interventions PEDP3 introduces on many fronts simultaneously. Under the AF, the project will also contribute to GoB's strategic thinking and systemic planning for implementing the National Education Policy intentions to extend primary education beyond Grade 5. Priorities are to:

- Build on improvements to date in data collection and analysis (*inter alia*, improving the tools for Annual School Census, Annual Sector Performance Report, Education Household Survey, National Student Assessment) and the use of data for evidence-based policy decision making at all levels of the system;

- Garner evidence from the use of SLIP and UPEP funds, in order to guide and support decentralized management and governance, also tackling emerging concerns such as low teacher-student contact hours;
- Examine lessons from existing public-private partnerships and bring these to greater use in primary education, especially for pre-primary and second chance education.

Type of Infrastructure supported under PEDP-III and related safeguard issues

20. Under PEDP-III, additional class rooms would be constructed to reduce overcrowding in the class rooms. These are basically of two types, vertical extension and horizontal extension. The architectural plan of the vertical extension is determined by the architectural plan of the existing buildings. In such case, capacity assessment of the foundation of the existing building is extremely important to find out the feasibility of a vertical extension. It is to be noted that in most of the cases, design of the existing buildings are not available. Hence field examinations remain the only available option to determine such suitability. The agency responsible for construction of such class rooms should apply their professional judgment after following all acceptable testing procedures in determining such capacity. In case of horizontal extension, LGED has approved typical architectural design as shown in Annex-K . In case of horizontal extension, the placement of the new infrastructure is very important to maintain a good school environment specially in the backdrop of land scarcity in a densely populated country like Bangladesh. It should also be kept in mind that the schools are not only buildings but they are a combination of many items such as a playground which offer learning opportunities. So it is highly recommended that the possibility of vertical extension should be explored first so that land can be made available for a playground. Only if that seems to be unfeasible, a horizontal extension can be considered. As DPHE is constructing the WASH blocks in the same school campus in many schools, coordination among the two agencies is extremely important. LGED is constructing school cum cyclone shelters in the cyclone prone areas and school cum flood shelters in the flood prone areas. In such cases, the ground floor of the school is kept open and the class rooms are built at the 1st floor. The ground floor of such buildings are used for various community activities during the normal time. However, the adequate number of toilet and source of drinking water should be carefully designed so that these can meet the demand during the peak use. As most of such schools are located in the saline prone areas where drinking water is already a problem, use of rainwater harvesting should be considered in many such schools.

In many cases the old, unusable and abandoned school buildings need demolition before commencement of construction of new class rooms. Such demolition work should be carefully planned and implemented.

PEDP-III is also supporting construction and maintenance of WASH Blocks. In the original plan, standalone toilets and urinals were planned. But later on, WASH Blocks were introduced to include the hand washing facilities. In the present design, male WASH Block consists of a three toilet compartments, two having English Pan and one having Commode to be used by the disable children. There is also a basin for hand washing, a foot washing facility and two urinals. The female WASH Blocks also have similar features except the urinals. Design of such WASH Blocks have been shown in Annex-L. The effluent from the WASH Blocks are being collected in leach pits which allow percolation of the effluent to the ground. Extra care should be undertaken where such pits would be put in a high water table area.

Provision of installation of source of drinking water in the form of shallow tube wells, deep tube wells and other alternatives sources are also included in the programme. All the tube wells installed under the program are tested for arsenic. DPHE laboratory unit undertakes these

testing of the 100% new tube wells installed under the program. If arsenic is found, alternative sources are considered in those cases.

Some schools are also planned in the Chittagong Hill Tracts region where special designs are being prepared considering the norms and culture of the local people, difficulties in carrying construction material in some of the high and remoter locations and availability of suitable locally available construction materials.

Apart from construction of additional class rooms, WASH Blocks and water points, PEDP-III would also support the extension of the Head Quarter Building of Directorate of Primary Education (DPE) and a Leadership Center at Cox's Bazar. Both the buildings are supposed be multistoried building one within the campus of the present DPE HQ which is located at Section-2, Mirpur, Dhaka and the other one within the campus of the office of District Primary Education Officer, Cox's Bazar. The design of the buildings has not yet been finalized. It appears from a preliminary site visit as shown in Annex-I & J that location wise there are no major environmental concerns. However, as they would be multistoried buildings, an Environmental Assessment should be undertaken before commencement of the work to take care of some of the issues usually associated with the construction of a multistoried building such as management of solid and liquid waste and its implication on the existing utility system of city corporation which are in place, impact on traffic congestions, safety issues like fire and earthquake hazard and provision for evacuation etc.

RELEVANT GOVERNMENT POLICIES AND REGULATORY FRAMEWORK

General Description

21. A wide range of laws and regulations related to environmental issues are in place in Bangladesh. Many of these are cross-sectoral and several of them are directly related to environmental issues. The most important of these are the Environment Conservation Act, 1995 (ECA, 1995), and the Environment Conservation Rules (ECR, 1997). The ECA 1995 is primarily an instrument for establishing the Department of Environment (DOE), and for controlling industrial and project related pollution. The Act also defines in general terms that if any particular activity is causing damage to the ecosystem, the responsible party will have to apply corrective measures. Until the appearance of ECR, 1997, enforcement of the Act was not possible, as many of the clauses refer to specifications detailed in the Rules.

22. In addition to the Environmental Conservation Act and Rules, there are a number of other policies, plans and strategies which deal with the water sector, agricultural development, coastal area, protected area disaster management and climate change. These are the National Water Policy, 1999; the Forest Act 1927 (last modified 30th April 2000); National Forest Policy, 1994; the National Conservation Strategy 1992;; National Environmental Management Action Plan (NEMAP), 1995; Coastal Zone Policy, 2005; Coastal Development Strategy, 2006; National Agricultural Policy, 1999; National Fisheries Policy, 1996; National Livestock Development Policy, 2007; Standing Orders on Disaster, 1999 (revised in 2010); Bangladesh Climate Change Strategy and Action Plan, 2009; National Plan for Disaster Management, 2010-2015. Some of these policies and legislations are described in this chapter for reference. The Bangladesh National Building Code, 2006 and Bangladesh Labor Act, 2006 will also be important regarding the occupational health and safety of workers and laborers to be involved in the Project's infrastructure development.

Relevant Policies and Legislation

Environment Conservation Act 1995

23. The national environmental legislation known as Environmental Conservation Act, 1995 (ECA'95) is currently the main legislative document relating to environmental protection in Bangladesh, which replaced the earlier environment pollution control ordinance of 1992 and has been promulgated in Environmental Conservation Rules, 1997 (ECR'97). This Act is amended in 2000 and 2002. The main objectives of ECA'95 are: i) conservation of the natural environment and improvement of environmental standards; and ii) control and mitigation of environmental pollution.

24. The main strategies of the act can be summarized as:

- Declaration of ecologically critical areas, and restriction on the operation and process, which can be continued or cannot be initiated in the ecologically critical areas
- Regulation with respect to vehicles emitting smoke harmful to the environment
- Environmental clearances
- Remedial measures for injuries to ecosystems
- Regulation of projects and other development activities
- Promulgation of standards for quality of air, water, noise and soil for different areas for various purposes
- Promulgation of standard limit for discharging and emitting waste
- Formulation and declaration of environmental guidelines

25. Department of Environment (DOE) implements the Act. DOE is under the Ministry of Environment and Forest and is headed by a Director General (DG). The DG has complete control over the DOE. The power of DG, as given in the Act, may be outlined as follows:

- The DG has the power to shut down any activities considered harmful to human life or the environment. The operator has the right to appeal and procedures exist for this purpose. However, if the incident is considered an emergency, there is no opportunity for appeal.
- The DG has the power to declare an area affected by pollution as an ecologically critical area. DOE governs the type of work or activities that can take place in such an area.
- Before beginning new development project, the project proponent must obtain Environmental Clearance from DOE. The procedures to obtain such clearance are in place.
- Failure to comply with any part of ECA'95 may result in punishment by a maximum of 10 years imprisonment or a maximum fine of BDT. 1000,000 or both.

Environmental Conservation Rules 1997

26. The Environment Conservation Rules provide a first set of rules under the Environment Conservation Act, 1995. This rules is further amended in 2002 and 2003. These provide, amongst others items, standards and guidelines for:

- Categorization of industries and development projects, including roads and bridges on the basis of actual and anticipated pollution load
- Requirement for undertaking Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA), as well as formulating an Environmental Management Plan (EMP) according to categories of industries/development projects/activities
- Procedure for obtaining environmental clearance
- Environmental quality standards for air, surface water, groundwater, drinking water, industrial effluents, emissions, noise and vehicular exhaust

27. The Rules incorporate "inclusion lists" of projects requiring varying degrees of environmental investigation. The Government is also empowered to specify which activities are permissible and which restricted in the ecologically critical area. Under this mandate, MOEF has declared Sunderban, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Yanguar Haor, Marzat Baor and Gulshan-Baridhara Lake as ecologically critical areas and accordingly has prohibited certain activities in those areas.

28. Under the Environmental Conservation Rules (1997) a classification system was established for development projects and industries on basis of the location, the size and the severity of potential pollution. It classifies industrial units and projects into four categories for the purpose of issuance of Environmental Clearance Certificate (ECC). These categories are:

- (i) Green
- (ii) Orange A
- (iii) Orange B, and
- (iv) Red

29. **Green Category** projects are considered relatively pollution-free and hence do not require initial environmental examination (IEE) and EIA. An environment clearance certificate (ECC) from the Department of Environment (DoE) is adequate for a project that fall into the Green category.. **Orange Category** projects fall into two categories. Orange A projects are required to submit general information, a feasibility report, a process flow diagram and schematic diagrams of waste treatment facilities along with their application for obtaining DOE environmental clearance. Orange B projects are required to submit an Initial Environmental Examination (IEE) report, along with their application and the information and papers specified for Orange B projects. **Red Category** projects are those which may cause 'significant adverse' environmental impacts and are, therefore, required to submit an EIA report. It should be noted that they may obtain an initial site clearance on the basis of an IEE report, and subsequently submit an EIA report for obtaining environmental clearance along with other necessary papers, such as feasibility study reports and no objections from local authorities. The DoE has recently developed IEE and EMP checklists in order to simplify the preparation of conventional and voluminous IEE and EMP reports that may contain irrelevant and unnecessary information.

30. As per ECR '97 all existing and new industries and projects in Orange B and Red category require an Environmental Management Plan (EMP) to be prepared (after conducting an IEE or EIA) and submitted along with other necessary papers while applying for environmental clearance.

National Water Policy 1998

31. The National Water Policy was promulgated in 1999 with the intention of guiding both public and private actions to ensure optimal development and management of water in order to benefit both individuals and the society at large. The policy aims to ensure progress towards fulfilling national goals of economic development, poverty alleviation, food security, public health and safety, a decent standard of living for the people and protection of the natural environment. According to the policy, all agencies and departments entrusted with water resource management responsibilities (regulation, planning, construction, operation and maintenance) will have to enhance environmental amenities and ensure that environmental resources are protected and restored while executing their activities. Environmental needs and objectives will be treated equally with the resources management needs. The policy has several clauses related to the protection and conservation of the natural environment to ensure sustainable development.

National Safe Drinking Water Supply and Sanitation Policy 1998

32. The National Safe Drinking Water Supply and Sanitation Policy (NSDWSSP, 1998) was adopted in 1998, and sets out the basic framework for the improvement of public health quality and to ensure an improved environment, together with a set of broad sectoral action guidelines. The policy offered the following various objectives to achieve the goal:

- To manage water supply and sanitation related basic needs for all
- To bring about a positive change of peoples' attitude towards water and sanitation
- To reduce the outbreak of water-borne diseases
- To increase the efficiency of the Local Government and associated communities for handling the problems related to water supply and sanitation more effectively
- To improve and make the water supply and sanitation system more sustainable
- To promote proper conservation, management and use of surface water and to control water pollution in light of the scarcity of groundwater

- To take necessary steps to capture and use rain water

33. Ensuring the installation of one sanitary latrine in each household in the rural areas and improving public health standard through inculcating the habit of proper use of sanitary latrines is mentioned as one of the objectives. About urban sanitation, the policy objective is to ensure sanitary latrine within easy access of every urban household through technology options ranging from pit latrines to water borne sewerage. Installing public latrines in schools, bus stations and important public places and community latrines in densely populated poor communities without sufficient space for individual household latrines is also emphasized.

National Policy for Arsenic Mitigation 2004

34. The policy provides a guideline for mitigating the affect of arsenic on people and environment in a holistic and sustainable way. This policy also supplements the National Water Policy 1998, National Policy for Safe Water Supply and Sanitation 1998 in fulfilling the national goals of poverty alleviation, public health and food security. Policy statement includes: access to safe water for drinking and cooking shall be ensured through implementation of alternative water supply options in all arsenic affected areas. All arsenicosis cases shall be diagnosed and brought under an effective management system. Impact of arsenic on agricultural environment shall be assessed and addressed. This policy gives preference to surface water over groundwater. The policy has set the target of providing arsenic free water by 2010 in the worst affected communities.

National Sanitation Strategy 2005

35. The goal of National Sanitation Strategy 2005 was to achieve 100% sanitation coverage by 2010. The strategy aims to delineate the ways and means of achieving the national target through providing a uniform guideline for all concerned. It defines **100% sanitation** – *at the very least, the term “100% sanitation” will mean to include all of the followings: (i) no open defecation; (ii) hygienic latrines available to all; (iii) use of hygienic latrines by all; (iv) proper maintenance of latrines for continual use, and (v) improved hygiene practice.* The strategy also defines the **Hygiene Latrine** - *A hygiene latrine would mean to include all of the following: (i) confinement of feces away from the environment; (ii) sealing of that passage between the squat hole and the pit to effectively block the pathways for flies and other insect vectors thereby breaking the cycle of disease transmission, and (iii) venting out foul gases generated in the pit through a properly positioned vent pipe to keep the latrine odor free and encourage continual use of the hygiene latrine.* The key suggested strategies for sanitation improvement include: (i) creating effective demand through health education and hygiene promotion; (ii) ensuring individual and community actions; (iii) activating local government institutions to play the key role for improving sanitation coverage; (iv) facilitating adequate supply chain of ‘hygiene latrines’; (v) reaching the hardcore poor; (vi) improvement in urban sanitation; (vii) media campaign; (viii) strategies for sustainability; (ix) financing for sanitation programs; (x) monitoring and evaluation; and (xi) emergency response.

National Environment Management Action Plan (NEMAP) 1995

36. NEMAP is an environmental planning exercise initiated by the government through the MoEF following the commitments made under Agenda 21 at UNCED in Rio de Janeiro in June 1992. The key element that distinguishes the NEMAP from the NCS is the commitment to full participation of the population at large interest groups, resource users and environmental

stockholders, NEMAP identified the key environmental concerns to Bangladesh and provided an action plan to halt or reduce the rate of environmental degradation, improve the natural and manmade environment, conserve habitats and biodiversity, promoting sustainable development and improving quality indicators of human life. NEMAP has prioritized 57 actions on the environmental front and the government is in the process of creating a second-order priority list for immediate implementation. NEMAP outlines an Action Plan not only for the government, but for the community, the society and suggest what each and every citizen can do to protect the environment. The management actions considered in NEMAP are all essential to the sustainable development and environmental protection of the natural and human resources of Bangladesh. For the purpose of management, implementation, acquiring dedicated funds and enabling all different agencies to initiate or implement their own programs singly or in combination of agencies, all the action have been grouped under four heads: institutional, sectoral, location specific and long-term issues. Sectoral issues are: Health and Sanitation, Forest, Biodiversity, Natural Hazards, Education and Awareness, Industry, Water, Agriculture, Energy, Fisheries, Land, Housing and Transport, etc.

Bangladesh National Building Code 2006

Demolition of Structure (3.1.11a)

37. BNBC sets guideline for demolition of structure. The highlight of the guideline are as follows:

- At planning stage, detailed survey and study shall be carried out before demolishing the structure.
- A written notice will be delivered to the adjoining property holder.
- Required pedestrian precaution should be taken into account before commencing the demolition
- All utility lines will be disconnected and the sequence of demolition will be maintained as mentioned in the BNBC
- The owner will provide compensation for all damages and loss of life.

Occupational Health and Safety (3.1.11b)

38. Part-7, Chapter -1 of the Bangladesh National Building Code (BNBC) clearly sets out the constructional responsibilities according to which the relevant authority of a particular construction site shall adopt some precautionary measures to ensure the safety of the workmen. According to section 1.2.1 of chapter 1 of part 7, "In a construction or demolition work, the terms of contract between the owner and the contractor and between a consultant and the owner shall be clearly defined and put in writing. These however will not absolve the owner from any of his responsibilities under the various provisions of this Code and other applicable regulations and bye-laws. The terms of contract between the owner and the contractor will determine the responsibilities and liabilities of either party in the concerned matters, within the provisions of the relevant Acts and Codes (e.g.) the Employers' Liability Act, 1938, the Factories Act 1965, the Fatal Accident Act, 1955 and Workmen's Compensation Act 1923". (After the introduction of the Bangladesh Labor Act, 2006, these Acts have been repealed).

39. Section 1.4.1 of chapter-1, part-7 of the BNBC, states the general duties of the employer to the public as well as workers. According to this section, “All equipment and safeguards required for the construction work such as temporary stair, ladder, ramp, scaffold, hoist, run way, barricade, chute, lift etc shall be substantially constructed and erected so as not to create any unsafe situation for the workmen using them or the workmen and general public passing under, on or near them”.

40. Part-7, Chapter-3 of the Code has clarified the issue of safety of workmen during construction and with relation to this, set out the details about the different safety tools of specified standard. In relation with the health hazards of the workers during construction, this chapter describes the nature of the different health hazards that normally occur in the site during construction and at the same time specifies the specific measures to be taken to prevent such health hazards. According to this chapter, exhaust ventilation, use of protective devices, medical checkups etc. are the measures to be taken by the particular employer to ensure a healthy workplace for the workers.

41. To prevent workers falling from heights, the Code in section 3.7.1 to 3.7.6 of chapter 3 of part 7 sets out the detailed requirements on the formation and use of scaffolding. According to section 3.9.2 of the same chapter, “every temporary floor openings shall either have railing of at least 900 mm height or shall be constantly attended. Every floor hole shall be guarded by either a railing with toe board or a hinged cover. Alternatively, the hole may be constantly attended or protected by a removable railing. Every stairway floor opening shall be guarded by railing at least 900 mm high on the exposed sides except at entrance to stairway. Every ladder way floor opening or platform shall be guarded by a guard railing with toe board except at entrance to opening. Every open sided floor or platform 1.2 meters or more above adjacent ground level shall be guarded by a railing on all open sides except where there is entrance to ramp, stairway or fixed ladder.....the above precautions shall also be taken near the open edges of the floors and the roofs”.

42. The major challenge is the proper implementation of the Code as section 2.1 of chapter 2 of part 1 duly states that, “The Government shall establish a new or designate an existing agency responsible for the enforcement of this Code with a given area of jurisdiction. For the purpose of administering and enforcing the provisions of the Code, the enforcing agency shall have the authority of the Government and shall herein be referred to as the Authority.”

43. Part 9, 1.2.1 states that if the land is changed and the occupants of the area are against the change, no change in use of an existing building will be allowed.

44. Section 1.2.4 of Part 9 clearly states, “Additions to existing building shall comply with all of the requirements of the BNBC for new constructions. The combined height and area of the existing building and the new addition shall not exceed the height and open space requirements for new building specified in Part 3 of the Code. Where a firewall that complies with Table 3.3.1

of Part 3 is provided between the addition and the existing building, the addition shall be considered as a separate building.”

Bangladesh Labor Act 2006

45. The Bangladesh Labor Act of 2006 provides the guidance of employers’ extent of responsibility and workmen’s extent of right to get compensation in case of injury by accident while working. Some of the relevant sections are:

Section 150. Employer’s Liability for Compensation: (1) If personal injury is caused to a workman by accident arising out of and in the course of his employment, his employer shall be liable to pay compensation in accordance with the provisions of this Act; and (2) Provided that the employer shall not be so liable - (a) in respect of any injury which does not result in the total or partial disablement of the workman for a period exceeding three days; (b) in respect of any injury, not resulting in death or permanent total disablement, caused by an accident which is directly attributable to - (i) the workman having been at the time thereof under the influence of drink or drugs, or (ii) the willful disobedience of the workman to an order expressly given, or to a rule expressly framed, for the purpose of securing the safety of workmen, or (iii) the willful removal or disregard by the workman of any safety guard or other device which he knew to have been provided for the purpose of securing the safety of workmen.

Section 151. (1) Amount of Compensation: Subject to the provisions of this Act, the amount of compensation shall be as follows, namely: - (a) where death results an amount equal to fifty per cent of the monthly wages of the deceased workman multiplied by the relevant factor; or an amount of fifty thousand rupees, whichever is more; (b) where permanent total disablement results from an injury an amount equal to sixty per cent of the monthly wages of the injured workman multiplied by the relevant factor, or an amount of sixty thousand rupees, whichever is more; and (2) On the ceasing of the disablement before the date on which any half-monthly payment falls due, there shall be payable in respect of that half-month a sum proportionate to the duration of the disablement in that half-month.

Others: Standing Orders on Disaster

46. The 'Standing Orders on Disaster, 2010' is a substantial improvement over the previous editions (English 1999 and Bangla 1887). New features introduced in this edition include, among others, the following: i) an outline of disaster management regulative framework, ii) an introduction of core groups for emergency response at various levels, iii) multi-agency disaster incident management system, iv) risk reduction roles and responsibilities for all committees and agencies, v) new outlines for local level plans, vi) revised storm warning signals, vii) a report on cyclone shelter design. Conceptually, this edition follows a comprehensive approach emphasizing risk reduction as well as emergency responses relating to all hazards and all sectors. Consequently, it has to be followed not only during disasters, but also at normal times. The Standing Order is designed to enhance capacity at all tiers of government administrative and social structures for coping with and recovering from disasters. The document contains guidelines for construction, management, maintenance and use of cyclone shelters. According to the guideline, geographical information system (GIS) technology will be applied at the planning stage to select the location of cyclone shelter considering habitation, communication facilities, distance from the nearest cyclone-center etc. The advice of the concerned District Committee is to be obtained before final decision. The cyclone shelters should have effective

communication facilities so that in times of distress there are no unnecessary delays. For this reason, the road communication from the cyclone shelters should link to cities, main roads and neighboring village areas. Provision of emergency water, food, sanitation and shelter space for livestock during such periods should also be considered for future construction of shelters.

Implication of Policies and Legislations with the PEDPIII

47. The relevant policy and legislation documents underscore the importance of environmental consideration in the project planning and implementation to promote sustainable development. These provide the general guidelines to integrate environmental issues with different sector projects and programs. The ECR'97 (with amendments later on) is the main legislation in Bangladesh. ECR'97 defined different sectors (industries and projects) as 'Green', 'Orange-A', 'Orange-B' and 'Red' categories, without considering the extent and types of interventions. Construction of multi-storied buildings is considered as the 'Orange B' category in ECR'97. However, there is no fixed definition of a multi-storied building. In practice, building more than 10 storied within Dhaka City (as per building construction rules of RAJUK) and building a more than 6-storied building outside of Dhaka city will be considered as 'Orange B' category. It is expected that the primary schools outside of the Dhaka will not be more than 6-storied building and as such, **no environmental clearance** will be required. However, if new construction of more than 6-storied building is considered such as the DPE HQ building, Initial Environmental Examination (IEE) and Environmental Management Plan (EMP) would be required to get the environmental clearance from the Department of Environment (DOE) as per ECR'97. In addition, the Environmental Management Framework (EMF) would need to be submitted to the Department of Environment (DOE) for their review and concurrence.

48. The National Building Code and National Labor Act have defined certain measures to ensure proper safety and work environment as well as the compensation measures to the laborers. By national law, in order to be compensated, contractors must follow these safety provisions and compensation arrangements. The implementing agency must ensure that the appropriate occupational health and safety provisions have been included in the bidding documents and are being implemented by contractor.

49. Many primary schools in disaster prone areas are also used as cyclone/flood shelters for the community. If the school will be considered as shelter, the concerned District Committee should be consulted about its location and other information.

50. As per the policies/guidelines on water supply and sanitation, provision for arsenic safe drinking water and adequate sanitation will have to be ensured for schools. The water quality needs to be monitored to ensure that the supplied water is safe for drinking. The latrines to be constructed in the PEDPIII must be hygienic- confinement of feces away from the environment, blocking the pathways for flies and other insects, proper ventilation of foul gases, proper maintenance for continual use with improved hygiene practice. It has been decided that WASH Blocks having hand washing facilities along with toilets and urinals would be constructed instead of standalone toilets during the remaining period of PEDP-III and also in the AF.

DEVELOPMENT PARTNER’S ENVIRONMENTAL SAFEGUARDS POLICY

World Bank Environmental Guidelines

51. The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable. The World Bank’s environmental assessment policy and recommended processing are described in Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment. This policy is considered to be the umbrella policy for the Bank’s environmental "safeguard policies" which among others include: Natural Habitats (OP 4.04), Forests (OP 4.36), Pest Management (OP 4.09), Physical Cultural Resources (OP 4.11)), and Safety of Dams (OP 4.37). The Operational Policies (OPs) are the statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, whereas Bank Procedures (BP) are the mandatory procedures to be followed by the Borrower and the Bank.

52. The most relevant policy of WB in PEDP III activities is OP/BP 4.01 Environmental Assessment. The PEDPIII has been classified as ‘Category B’, because the project may have minor site-specific environment impacts, which cannot be determined upfront since the “subprojects” are not defined at this stage. Most of the impacts are not expected to be very significant or irreversible. The project requires partial environmental assessment of “subprojects” before implementation. The partial environmental assessment examines the project’s potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted.

World Bank Environmental Screening under OP/BP 4.01

53. All World Bank projects are classified into three environmental assessment categories as shown in the following Table 1.

Category	Category ‘A’	Category ‘B’	Category ‘C’
Description	The project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works	The project has potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—are less adverse than those of Category ‘A’ projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category ‘A’ projects.	The project is likely to have minimal or no adverse environmental impacts
EA Requirements	For a Category ‘A’ project, the project sponsor is responsible for preparing a report, normally an EIA	EA is narrower than that of Category ‘A’ EA. Like Category ‘A’ EA, it examines the project’s potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.	Beyond screening, no further EA action is required for a Category ‘C’ project

ADB's Safeguard Policy Statement (2009)

54. All projects funded by ADB must comply with the Safeguard Policy Statement (SPS 2009) and Operational Manual F1 (2010). The purpose of the SPS is to establish an environmental review process to ensure that projects undertaken as part of programs funded under ADB loans are environmentally sound, are designed to operate in compliance with applicable regulatory requirements, and are not likely to cause significant environmental, health, or safety hazards. The SPS (2009) requires a number of additional considerations, including (i) project risks and respective mitigation measures and project assurances; (ii) project level grievance redress mechanism including documentation in the EMP; (iii) definition of the project area of influence; (iv) physical cultural resources damage prevention analysis; (v) climate change mitigation and adaptation; (vi) occupational and community health and safety requirements (including emergency preparedness and response); (vii) economic displacement that is not part of land acquisition; (viii) biodiversity conservation and natural resources management requirements; (ix) provision of sufficient justification if local standards are used; (x) ensuring adequate consultation and participation; and (xi) ensuring that the EMP includes an implementation schedule and (measurable) performance indicators.

55. ADB's Safeguard Policy Statement (SPS) include operational policies that seek to avoid, minimize, or mitigate adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalized by the development process. ADB's SPS set out the policy objectives, scope and triggers, and principles for three key safeguard areas: (i) environmental safeguard (ii) involuntary resettlement safeguards, and (iii) Indigenous Peoples safeguards.. All three safeguard policies involve a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle. The safeguard policies require that impacts are identified and assessed early in the project cycle; plans to avoid, minimize, mitigate, or compensate for the potential adverse impacts are developed and implemented; and affected people are informed and consulted during project preparation and implementation. A basic principle of the three existing safeguard policies is that implementation of the provisions of the policies is the responsibility of the borrower/client. Borrowers/clients are required to undertake social and environmental assessments, carry out consultations with affected people and communities, prepare and implement safeguard plans, monitor the implementation of these plans, and prepare and submit monitoring reports.

Table 2: ADB Environmental Screening				
Category	Category 'A'	Category 'B'	Category 'C'	Category FI
Description	The project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works	The project has potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—are less adverse than those of Category 'A' projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation	The project is likely to have minimal or no adverse environmental impacts	A project is classified as category FI if it involves the investment of ADB funds to, or through, a financial intermediary.

		measures can be designed more readily than for Category 'A' projects.		
EA Requirements	For a Category 'A' project, an Environmental Impact assessment (EIA) is required	An Initial Environment Examination (IEE) is required	No environmental assessment is required although environmental implications need to be reviewed	All FIs will ensure that their investment are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list.

AusAID Environmental Management Guidelines

56. The *Environmental Management Guide for Australia's Aid Program 2003* provides an overview of AusAID's Environmental Management System (EMS) and outlines the steps to be followed in environmental assessments of activities and the procedures for managing potential environmental impacts. The EMS forms an integral part of its overall management system and activity cycle. The objective of the EMS is to ensure activities in the Australian Government's aid program that are likely to have impacts on the environment are properly assessed and managed. The EMS enables AusAID to meet its legal obligations under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The EMS also provides the means for AusAID to continuously improve environmental performance in aid activities and to demonstrate the agency's commitment to sound environmental management practices. For each policy, program, plan, or activity an initial assessment is carried out to evaluate the environmental impacts by answering environmental marker questions, identifying DAC (subsector) codes, and selecting environment generic field codes. Findings are incorporated into the policy, program, plan or activity implementation and monitoring and evaluation.

GENERAL PRINCIPLES FOR EMF

57. For programmatic or sectoral projects/programs, in which specific “subprojects” are not known in advance, it is recommended that a set of environmental principles for the design and construction of small civil works be agreed upon in the Environmental Management Framework (EMF). The DPE, LGED and DPHE will follow a set of principles in implementing the infrastructures under PEDP III to ensure environmental sustainability of the project. The general principles of the environmental management in PEDP III are mentioned below:

General Principles

- The Joint Program Director or his/her assigned official at the DPE will be responsible overall for environmental compliance in PEDP III.
- The Program Coordinators (Superintending Engineers) of LGED and DPHE will be responsible for subproject specific environmental compliance and relevant reporting in PEDP III.
- All the “subprojects” to be funded under the PEDP III will be subjected to an environmental screening/assessment in order to prevent execution of “subprojects” with significant negative environmental impacts.
- The designs should avoid or minimize the need for resettlement of population, as well as the impact on green and recreational areas and buildings of historical or architectural value. If above impacts are unavoidable, resettlement plans, mitigation and compensatory measures will be included in project costs.
- The design should be harmonized with local surroundings including landscaping and planning for other uses for all additionally created spaces in order to minimize negative impacts on environmental quality and property values.
- It is assumed that there is likely to be no major harmful impacts on environment from civil construction under the program. However, particularly in the case of Chittagong Hill Tracts, given the remote and inaccessible locations of many areas where carrying costs of construction materials could be comparatively high, there should be priority given on the use of locally available construction materials (e.g. Bamboo and wood). Another, particularly important point in this regard is the preservation of the surrounding ecosystems around the school building which means there should not be any hill cutting and destruction of ecosystem for civil works. Planting of exotic/alien invasive species (e.g. teak) of trees will be avoided rather indigenous tree species will be planted to conserve the native biodiversity and maintain ecosystem integrity.
- Design and construction of school building in the vulnerable coastal areas will consider ‘climate proofing design’ (e.g. raising of plinth level for flood, increase strength of building to resist cyclone and storm surge, avoidance of erosion prone site, etc.)
- Alternative solutions and final designs should be subjected to public and community consultation with special emphasis on students/teachers. The preference of students and teachers will be given priority in designing the infrastructure.
- To minimize public nuisances, construction activities should follow strict environmental guidelines. Construction schedules and the timing of necessary interruption of public utilities should be informed to the affected community.
- The implementing agency will be responsible for obtaining and ensuring clearance required from government or local government agencies/committees, if necessary.

- All areas and infrastructure affected during construction should be restored to their original condition, specially sidewalks, green street dividers, gardens, sidewalk trees, utilities, and side streets impacted by traffic diversion.
- Annual water quality monitoring of the all the installed tube-wells under Primary Education Development Program will be carried out to ensure safe drinking water facilities to the students and teachers.
- Provision for adequate sanitation facilities for the teachers and students will be made and a mechanism for regular cleaning and routine maintenance will be developed.
- No program activities will be carried out in disputed lands or lands restricted for development or Environmentally Sensitive areas.
- Climate resilient and flood proofing considerations will be integrated in the design of relevant “subprojects”.
- Environment friendly and energy-efficient options will be promoted in the infrastructure.
- To solve the drinking water problem in remote hilly areas and coastal areas, rainwater harvesting and other feasible options will be explored.

ANTICIPATED ENVIRONMENTAL IMPACTS

Introduction

58. This section deals with the main potential environmental concerns likely to arise from the various “subprojects” and/or components interventions proposed under the PEDP III. The program will support mainly four (04) types of the “subprojects”. These are: i) new building construction, ii) expansion or major renovation of existing buildings; iii) regular operation and maintenance and minor renovation of buildings and iv) water supply and sanitation provision. The new building construction mostly includes construction of additional class room and construction of WASH Blocks. The nature of civil works proposed to be financed under the program is not likely to cause significant and/or irreversible adverse environmental impacts. Most of the project impacts would be localized due to the relatively small-scale activities. However, there are some issues of concern that cut across the range of proposed interventions. Field studies and lessons from similar programs show that issues such as selection of appropriate sites, preference of students and teachers are some of the key concerns that influence project success and sustainability. The typical environmental impacts related to the school construction and water supply and sanitation issues are discussed below.

Typical Environmental Impacts

Loss of Land

59. If a new building is constructed on agricultural land, it will reduce the availability of agricultural land and ultimately will reduce crop production. During design phase, alternative options should be explored and assessed to identify suitable land, which has less impact on agricultural production. Again, construction of a new building may change the topography of the intervention area. Surrounding agricultural land may gradually be converted to non-agricultural uses.

Drainage Congestion/Water Logging

60. The construction of new structure may interfere with cross drainage and can cause flooding or drainage congestion in adjacent areas during period of high rainfall. This may affect commercial activities in the market and cause potential risk to community health, crop damage and in extreme cases long-term loss of agricultural lands. In addition, lack of proper drainage for

rainwater/liquid waste or wastewater owing to the construction activities harms the environment in terms of water and soil contamination and mosquito growth. The need to maintain the natural drainage channels during the construction under the program (primarily school building) are to prevent pooling of water, wastewater and mosquito breeding is important. Migration of fish and other aquatic organism may be disrupted due to the arresting of water flows or drainage congestion. There is possibility of the loss of native fish diversity, if fish cannot migrate for spawning or searching of breeding ground due to the arresting of fish pass. However, the impact of blockage of drains due to such minor construction activities on fish migration and fish diversity is unlikely. Stagnant water due to poor drainage, blocked sewers, and overflowing septic tanks or soak pits may create adverse health effects. These issues should be properly addressed and taken into consideration during the design phase of “subprojects”.

Surface/Ground Water Pollution

61. During construction, surface water quality may deteriorate due to construction activities, and sewerage from construction sites and work camps. Construction will modify groundcover and topography, which may change the surface water drainage patterns, including infiltration and storage of stormwater. Dust from material stockpiles may also increase sediment and contaminant loading of surface water bodies.

Disruption of Natural Ecosystem

62. Construction of new buildings and other earthwork may disrupt the integrity of existing ecology and natural ecosystem and biodiversity. Clearing of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas. In addition, illegal sourcing of fuel wood by construction workers will impact natural flora and fauna. Precautionary measure should be put in place incase of construction of the school building in ecologically critical areas and other nature reserve.

Dust and Noise Pollution

63. Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard. Dust pollution occurs due to handling of soils during construction and mainly from lack of watering the ground. Such pollution is also a function of weather conditions in dry season nuisance is more; during rainy season, dust nuisance subsides. Dust is more important during pre-construction / construction stages. Noise pollution is normally due to some construction-related activities and machinery. Noise and vibration may impact people, property, fauna, burrowing wildlife (e.g. snake), other nocturnal animal and break the synchrony of natural ecosystem.

Occupational Health and Safety

64. Construction work may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths in extreme cases or a major accident). There is potential for diseases to be transmitted including malaria, diarrhea, and dysentery etc. exacerbated by inadequate health and safety practices. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc) and (ii) risk factors resulting from human behavior (e.g. STD,

HIV etc). A lack of first aid facilities and health care facilities in the immediate vicinity would aggravate the health conditions of the victims.

65. Lack of water and sanitation facilities at construction sites inconveniences construction workers and affect their personal hygiene.

Arsenic Risk

66. The major environmental concern for the installation of new tube-well is to ensure safe drinking water provision to the students. Arsenic poses the major environmental and health risk in the project. In the absence of proper testing facilities and alternative option, students may continue to consume arsenic contaminated water in arsenic affected-areas of the project. The long-term exposures to arsenic in drinking water may result in black spots, thickening and roughness of palms and soles, white intermittent dots, nodular growth on palms and soles, swelling of feet and legs, peripheral neuropathy, kidney and liver disorder etc. in initial and secondary stages. Gangrene or cancer may result in the final stage.

Disaster and extreme climate events

67. Due to the increased frequency and intensity of tropical cyclone, storm surge, sea level rise, flooding, river erosion, salinity intrusion and other extreme climate events, the coastal areas of the project site may be vulnerable for workers and students. Therefore pre-disaster, disaster and post disaster preparedness would be required in the project site. Proper adaptation and disaster risk reduction measure will be adopted in the emergency situation.

Risk from Poor School Sanitation

68. Sanitary latrines provide enormous health benefits to communities. However, they should be designed, constructed and maintained properly. Close location of latrines to tube-wells can lead to groundwater contamination. Again, lack of proper design, construction and maintenance can create drainage congestion. Inadequate maintenance of latrines and water logging also may create mosquito-breeding habitat.

Lighting and Ventilation System

69. Poor indoor lighting in classroom may have many harmful effects on health and well-being (e.g. eyesight) of teachers and students. Inadequate ventilation in classrooms may lead to respiratory problems, and easier transmission of infectious diseases.

ENVIRONMENTAL MANAGEMENT IN PEDP III

Environmental Screening and Assessment

70. In general, the environmental screening process identifies what level of environmental assessment is required for “subprojects” and/or components. It is one of the crucial stages of project decision making. The screening process also provides information to decision-making authorities about the nature of a subproject before its implementation. Broadly speaking, the purpose of the environmental screening is to get relevant concerns addressed early on before further design of a project and to ensure that actions to mitigate environmental impacts or enhance environmental opportunities are budgeted for. The environmental screening is about taking stock in time to avoid losing later opportunities. The participation and consultation with beneficiaries/local communities are important in identifying the potential impacts of the interventions. Partial environmental assessment (or Initial Environmental Examination) will be carried to get more information for the new construction to achieve the following objectives:

- To establish the environmental baseline in the study area, and to identify any significant environmental issue;
- To assess these impacts and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures;
- To integrate the environmental issues in the project planning and design;
- To develop appropriate management plans for implementing, monitoring and reporting of the environmental mitigation and enhancement measures suggested.

71. Considering the nature and magnitude of potential environmental impacts from relatively limited-scale construction (except DPE HQ at Dhaka and Leadership Training Building at Cox’s Bazar), renovation, refurbishing construction work and other associated components of PEDP III, the proposed operation has been classified as ‘Category B’ according to the World Bank and ADB environmental categorization. Since, no screening/assessment of the proposed operation was carried out during the preparation phase, screening will be required for all “subprojects”. A sample-screening format for construction is attached in Annex-A and Annex-B. The Bangla form will be used for the screening purposes at field level. A project influence area (PIA) map with possible location of the school will need to be attached with screening format. The DoE requirements would be addressed as per the categorization of program subprojects as per the Environmental Regulations of Bangladesh. In case of DPE HQ and Leadership Training Building in Cox’s Bazar, an environmental assessment should be carried out to take care of the environmental issues during the design phase of the building. The recommendations of such assessment should be followed during design and construction of the building.

72. For the decision of the new tube-well installation, the following information should be collected and analyzed.

- Arsenic concentration of the tube-wells (with depth and year of installation) within 500 m radius of proposed point
- Level of dissolved iron and salinity in the locality
- The depth of water tables
- Geological information
- Distance from closest sanitary latrine
- Drainage facility
- pH of water

73. The following information should be collected and analyzed for the sanitary latrine construction.

- Distance from water source
- Drainage facility
- Closest water table
- Soil condition

74. In addition to the information related to installation of new tube-wells and/or construction of latrines, the project should analyze the present condition to understand the real need for water supply and sanitation facilities and existing hygiene practices. This will specifically help the project to recommend specific measures to improve the maintenance and hygiene practices for the existing and new facilities. Screening format for water supply and sanitation facilities attached as Annex-B can help in understanding the existing sanitation and water supply facilities in the school and need for appropriate maintenance strategy.

75. Considering the large numbers of the “subprojects”, the PEDP III proposes a flexible approach for the environmental documentation for different types of the project. Table-2 provides “subproject” environmental screening table.

Table-3: Subproject Environmental Screening Table

<i>Types of “subprojects”</i>	<i>Environmental Assessment Documentation Required</i>
Water supply option (Tube-well)	Site -specific environmental screening information as per format (Annex-B). Site-specific Environmental Management Plan (EMP) if necessary.
Sanitary latrine	Site-specific environmental screening information as per format (Annex-B) Site-specific Environmental Management Plan (EMP) if necessary.
Maintenance and minor renovation of buildings	Site-specific environmental screening information as per format (Annex-A). Site-specific Environmental Management Plan (EMP) if necessary.
Major renovation/expansion and construction of new class room /building	Site-specific environmental screening information as per format (Annex :A) Site-specific Environmental Management Plan (EMP) will have to be prepared.
Construction of buildings more than 6 storied buildings	Site-specific environmental screening format and Initial Environmental Examination (IEE) are required. Site-specific Environmental Management Plan (EMP) will have to be prepared. Environmental Clearance from Department of Environment (DOE) is required.

Lessons learnt from the original project:

Third party validation of the water and sanitation facilities

76. To assess the effectiveness of the water sources and toilets installed/constructed so far, a third party independent sample testing and verification of arsenic, iron, manganese and microbial contents as well as sanitation facilities provided both under PEDP-II and PEDP-III was

undertaken in 2013. About 286 schools were sampled out of which 173 were from PEDP-II, 52 were from PEDP-III, 50 schools from the list of school which were supposed to get alternative water sources and 11 schools where tube wells were provided by other agencies were selected. Some of the key observations and recommendations from that third party validation are as follows:

It was found that in some tube wells, concentration of arsenic, iron, manganese, fecal coliform and chloride are more than the allowable limit both in the PEDP-II and PEDP-III tube wells.

The tube wells where concentration of arsenic was found more than the acceptable limit should be closed and alternative source of water should be provided.

It was found that no information is available in the school about the depth of the strainer of the tube wells which is important to have an idea about the aquifer from where water is being extracted. This is also vital. Information required developing a plan for future installation of tube wells. Detailed records of any tube well installed through PEDP should be properly maintained. Proper planning for installation of tube wells in an area involves identification of the aquifer yielding the adequate amount of water with safe drinking water quality over the designed life of the tube well. Lowering of water table, especially during dry season, is a common feature all over Bangladesh. This is primarily due to over extraction of irrigation water as well as reduced recharge. Thus, providing the tube well strainer at the appropriate depth is essential to have a prolonged life of the installed tubewell.

About 52% of the schools reported nonfunctional tube wells most of which were provided through PEDP II intervention. The primary reasons for non-functionality are: stolen pump heads, broken pump handles, damaged check valves, broken plungers, corrosion of well pipe due to high salinity, lowering of water table, Low/no yield due to inadequate pump development following installation, abandonment of wells in high salinity and high iron area. It has been observed that a number of PEDP II well have been abandoned because of high salinity and/or high iron. In such case avoidance of high salinity and high iron prone areas may be one option. However, seeking alternative sources, such as, rainwater harvesting, use of treated surface water, pond sand filtration, etc. may alleviate the problem. Development and use of water quality map in planning and installation of water sources may be an appropriate approach.

A number of schools reported that the tube wells installed through PEDP II provided water for a few months after installation, but after that there was no yield in these tube wells. This generally happens when the well is not properly developed (at least for 72hrs) after installation. Subsequently, the fine sand and silt around the well strainer deposit inside the well clogging the strainer openings. Adequate well development will ensure design yield of the installed tube well.

Although most of the tube wells surveyed have concrete bases and platforms, proper drainage facilities to drain out wastewater is absent in many cases (about 40% of the schools surveyed). Thus, puddles of water and muddy spoils are evident in these schools. Proper drains should be constructed to drain wastewater to the drainage area such as the nearby ditch or pond. These drains should be kept clean on a regular basis to prevent water logging.

Lessons learnt from field visits

77. During the implementation of PEDP-III, construction, expansion and maintenance of infrastructure went through environmental screening. Report on environmental issues was submitted by DPE as part of reporting obligation. Consultant of LGED and DPHE visited many sites as a part of their routine job to monitor the compliance of the recommendations of the environmental screening at the field level. Moreover, a number of field visits were undertaken by the World Bank professionals to see the compliance of the environmental safeguard issues. Some of the issues came out from these are summarized below:

- It seems that the data captured by the field offices some time are not properly reflecting the field condition and the environmental issues. It was felt that the screening format needs to be modified to make those more effective in capturing the field condition. The screening format is updated in the revised version and are attached to the Annex.
- Also the capacity of the officials who are associated with the environmental screening and monitoring at the field and HQ level should be enhanced.
- It was found during the field visits that the construction materials are not properly stacked in the school premises which pose safety concern to the children in many instances. A guide line needs to be prepared for the contractors observance of which would be made mandatory for them and would be a part of the tender/contract document. Such a guide line has been attached with this EMF as Annex- C.
- While the male and female WASH Blocks are supposed to be separately located considering the cultural norm of the country, it is not being properly followed. Sometime shortage of land a cause for such noncompliance. However, even if due to scarcity of land which compel to construct male and female WASH Blocks side by side, all efforts should be made to keep the entry in the opposite direction.

Environmental Mitigation

78. It is expected that the issues those described above in the “lessons learned” section would be noted by the implementing agencies and necessary efforts would be made to avoid the negative issues in the remaining works of PEDP-III. The primary objective of the environmental management and monitoring is to record environmental impacts resulting from PEDP-III activities and to ensure implementation of the ‘mitigation measures’ in order to reduce adverse impacts and enhance positive impacts from specific activities. Based on the information obtained from the environmental screening/assessment, a site-specific Environmental Management Plan (EMP) will be prepared. The EMP will indicate the impacts predicted, mitigation measures to minimize the impacts, identify the institutional arrangements for undertaking the mitigation measures and monitoring arrangements, implementation schedules of the mitigation arrangements and reporting requirements and cost estimates. For example, if the “subproject” requires a plantation to compensate for the trees lost due to construction/expansion of new structure, the cost of plantation of similar species must be considered in subproject design. A sample environmental management plan format is included in **Annex A** and **Annex B** and a typical environmental mitigation measures have been suggested in **Annex-G**. The EMP will also include specific guidelines to be followed during construction stage as well as resource extraction (e.g. sand, timber, metal, etc.) for all specific construction activities financed under the project.

79. Though construction activities are likely to have minimal on-site environmental impacts, most of the negative environmental impacts are likely to be seen off-site, where construction materials such as sand, clay for bricks and timber will be sourced. Therefore, all tender/bidding

documents for construction/renovation activities will include clauses to ensure that contractors obtain construction materials from authorized sites with proper licenses. In addition, the contractors will be required to adhere to the guide lines as shown in **Annex C**, which will form part of the contract conditions.

Environmental Supervision and Monitoring

80. The purpose of environmental supervision is to make sure that specific mitigation parameters are identified in the environmental assessment and as bound by the contract are satisfactorily implemented. In addition, monitoring is necessary to ensure that the envisaged purpose of the project are achieved and result in desired benefits to the target population without adversely affecting natural environmental resources. The monitoring activities of PEDP III will include verifying compliance with the environmental management plan implementation. In general, the following indicators and the related mitigation measures would be monitored during construction and operation stage: (i) loss of agricultural lands; (ii) drainage congestion/water logging; (iii) surface water pollution; (iv) dust and noise pollution; (v) distance between tube-wells and sanitary latrines; vii) occupation health and safety practices; viii) maintenance of water supply and sanitation facilities, (ix) impact of climate change and disasters, etc. Monitoring formats are attached as **Annex-D** and **Annex-E** in this regard. A Management Information System (MIS) will be developed to record the environmental mitigation and monitoring information along with the infrastructure development data. A climate change adaptation and disaster risk reduction plan will also be developed in some vulnerable locations. The MIS will have provision of built-in report generation with various options.

81. In addition, the arsenic level testing in the drinking water installed under PEDPIII will be carried out on an annual basis using the field test kit method. 5% of the total water samples will be tested at the laboratory for quality assurance. The water quality monitoring report will include the upazilla-wise comparison of the data with the previous year monitoring and also between the test results of the field-test kit method and laboratory test method. The report will also cover the present water supply option of the arsenic affected tube-well. The findings of the report will help in planning the next year's tube-well installation and piped water supply options.

An operation phase monitoring of the water supply and sanitation facilities by the LGED/DPHE/SMC is also recommended to take necessary action for smooth operation and maintenance.. Such monitoring may include the following indicators: (i) Is the latrine and area around it clean? (ii) Is the Latrine and area around it free from fly nuisance? (iii) Is there a cover or other means to keep the flies out? (iv) Is the latrine and the area around it free from odors? (v) Is the area around the latrine free from stagnant water? (vi) Is the latrine slab smooth and easy to clean? (vii) Is the latrine slab strong and without any cracks? (viii) Is the tube-well platform clean? (ix) Are there proper drainage facilities? (x) Are hand-washing facilities available in or near the latrine? A format in this regard has been included as **Annex-E**.

INSTITUTIONAL ARRANGEMENT AND CAPACITY BUILDING

Institutional Arrangement

82. The Local Government Engineering Department (LGED) was assigned for the infrastructure development in the Primary Education Development Project II (PEDP II). LGED has set-up its institutional arrangements for the implementation of the PEDP II. The Superintending Engineer (Education) acts as the Project Coordinator for infrastructure development. The Superintending Engineer Office supported the Executive Engineer (Education) with 74 staff (technical and support staff). The key staffs are 1 Senior Assistant Engineer, 8 Assistant Engineers, 10 Monitoring Officers, 10 Assistant Monitoring Officers and 3 computer operators. The Superintending Engineer is supported by a number of individual consultants. LGED also set-up 10 regional level offices at Dhaka, Chittagong, Rajshahi, Khulna, Sylhet, Barisal, Rangpur, Mymensingh, Faridpur and Comilla. Each Regional Office is headed by an Executive Engineer (Education and Training) with 19 technical and support staff. The key staffs at the regional office are: 1 Assistant Engineer, 1 Monitoring Officer, 1 Estimator (Sub-Assistant Engineer), 1 Draftsman (Sub-Assistant Engineer), 2 Sub-Assistant Engineers and an Assistant Monitoring Officer. In addition, at the district levels and Upazilla levels, LGED offices are also involved in the implementation of the program activities. LGED will maintain the same institutional structure for the PEDP III implementation and will include an Environmental Specialist as an individual consultant. The ToR of the Environment Specialist (individual consultant) is attached in **Annex-H**.

83. In addition to the special arrangement and staffing for the primary education project, LGED has its own regular set-up at district and upazilla level. The upazilla based LGED offices are responsible for implementation of the field level activities. These offices have also been involved with Primary Education Project since 1990 with support from primary education set-up, District level offices and Head Quarter Divisions. The Design Division at Dhaka has been responsible for providing the engineering design and cost estimation of the infrastructures. Executive Engineer (Education) office, Dhaka will act as Environmental Focal Points at Headquarters and will be responsible for coordination with 2 regional offices on environmental issues in addition to their other regular activities. The Executive Engineer (Education) will ensure the overall coordination and responsible for monitoring of environmental safeguard issues. The Assistant Engineer at Regional Office will act as the Environmental Focal Point and will responsible for coordinating environmental activities at field level. The Upazilla LGED Office will be responsible for reviewing existing facilities, "Subproject" screening and environment management plan (EMP) preparation and implementation. Specifically, the Upazilla Sub-Assistant Engineer/Assistant Engineer will be responsible for carrying out the screening and preparing subproject specific EMP preparation. The Upazilla Engineer will review the screening report and EMP through field visit. The Upazilla Engineer will also be responsible for supervision and monitoring of environmental mitigation activities at Upazilla level. The Assistant Engineer at Regional Office will review at least 25% of the screening and EMP reports and implementation of EMP at field level. If IEE is required, it will be the responsibility of the Assistant Engineer at the Regional Office. The Executive Engineer (Education & Training) at Regional Office will review all IEE and monitor the implementation of EMP. The Assistant Engineer at the Headquarters will ensure quality control and reporting at regional level. The Environmental Specialist will prepare the training materials, conduct training of staff, prepare screening, IEE report and EMP on sample basis, review certain percentage of the EMP and prepare Quarterly and Annual Environmental Reports of the PEDP III.

84. In addition, DPE will hire the consultant services to monitor at least 10% of the infrastructure implemented by the LGED. The monitoring will include the environmental performance (environmental screening, EMP and implementation of environmental mitigation measures) of the “subprojects”. The monitoring report will have a dedicated section on Environment. A Geographic Information System (GIS) will be developed at DPE to record all the Primary School locations and data. The development partner(s) in consultation with DPE may also assign a firm/institute as third party monitoring of the physical progress, construction quality, and environmental safeguard and operation status of the infrastructures.

85. The DPHE have one Superintending Engineer as a focal person for the environmental management and reporting. A team under the leadership of the Superintending Engineer at the HQ is coordinating the activities under PEDP-III. The unit is also staffed with experienced civil engineers and adequate number of other qualified manpower. At field level under the supervision of a Superintending Engineer in Divisional Head Quarter, an Executive Engineer in every DPHE District office supported by Assistant Engineers, Sub-assistant Engineers, Estimators, and Drafts-man execute the project works of installation of water sources and WASH Block. In every Upazila DPHE has a full official set up of thirteen staffs comprising 1 diploma engineer, 4 Mechanics/Work Assistant, 4 VS masons, 2 MLSS, 1 computer operator headed by a graduate civil engineer. The Assistant Engineer at Upazila level primarily undertakes the environmental screening of the works with the help of the Sub-Assistant Engineers. The Executive Engineer at District level verify the reports and send those to the HQ where a consultant with the help of the DPHE Engineers working at HQ prepare the compiled report.

86. For the purpose of annual water quality monitoring, DPE has signed a Memorandum of Understanding (MoU) with the Department of the Public Health Engineering (DPHE). DPE will provide all the tube-wells information and field test kits to the DPHE Research and Development (R&D) Division. DPHE will coordinate and implement the testing through its field office and prepare the analytical report. DPHE will also carry out 5% quality check in their zonal laboratories. DPE will pay DPHE the laboratory test cost, field test cost and reporting cost. As DPHE would also be responsible for construction of WASH Blocks and various source of drinking water, they would follow the similar reporting pattern as LGED with the help of their field level officials and coordinated by the staff at DPHE HQ.

87. For climate proof and disaster resilient school building, LGED may work together with Department of Disaster Management (DDM), BUET and other relevant organizations for designing and construction of climate resilient school building in vulnerable coastal areas. Based on expected climate impacts in vulnerable coastal areas such as flooding, cyclone, storm surge, the project will adopt simple measures such as raising the plinth level of the school structures, safeguards against cyclone and storm surge or river bank erosion of foundation and providing adequate structural strength to withstand high wind pressure etc. A climate change adaptation expert would be consulted to advise such measures at the program level.

88. The other key stakeholder is the School Management Committee (SMC). SMC will be responsible for the site selection, the design criteria definition as per teachers and students needs, supervising the construction, ensuring proper operation and maintenance of the water supply and sanitation facilities as well as the cleaning and maintenance of school room and premises.

Capacity Building

89. **Local Government Engineering Department (LGED)** is one of the leading government agencies that have incorporated environmental assessment to their project planning. It also reconstituted its Environmental Unit with an Additional Engineer as head of the unit. LGED has

prepared the 'Environmental Assessment Guidelines for LGED Projects' with the support of the IDA-funded Rural Transport Improvement Project (RTIP) in late 2008. The guidelines, prepared in collaboration with RTIP, aimed to provide the framework EIA for different sector projects undertaken by LGED for planning, implementation and subsequent operation. The guidelines constitute simple procedures and formats to undertake IEE and EIA of proposed projects and "subprojects" to identify potential negative impacts and draw up an EMP where necessary. LGED has implemented several IDA funded projects and familiar with Bank safeguard policies.

90. However, the LGED unit responsible for the Education does not have adequate experience on the environmental management. Capacity building at different levels is necessary in order to implement the EMF successfully. The suggested capacity building measures, for example include: i) providing environmental competency/human-resources, ii) training, orientation and awareness, activities on environmental planning and management of school and school-facilities, and iii) mechanisms for coordination and for accessing specific environmental services e.g. water-quality testing, climate resilient school building design and construction, etc.

91. In consideration of increasing workload envisaged for implementation of the EMF and the nonexistence of environmental competency at centre, LGED will have a full-time Environmental Specialist at Education Unit to look after the EMF activities for PEDP III. The Specialist will be responsible for implementation of the EMF and its provisions, including compliance checking, facilitation, coordination and ensuring dissemination, orientations and capacity buildings activities. Additional human resources or agency will be hired, if necessary, in order to effectively implement the EMF.

92. The Environmental Specialist will lead the capacity development efforts in LGED Education Unit. The Project Coordination will form a team who will be responsible for the environmental training in the PEDP III staff. The team will work in close cooperation with the LGED Environmental Unit and Environment Specialist. The team with the support of environmental specialist will: (i) coordinate environmental training for staff and local contractors; (ii) develop and review different training materials; and (iii) assess further capacity needs for environmental training. The staff assigned as the Environmental Focal Points and also all the Executive Engineers and Assistant Engineers will receive training on priority basis. The other staff and selected staff of DPE will also receive training gradually.

93. Capacity building program should be undertaken for the DPHE field and HQ staff so that the environmental screening of the works can be accomplished properly. The consultant working at DPHE should play important role in preparing training plan and training material to impart such training at various levels. Orientation Program is imparted by the management both in head quarter and field level to increase awareness on roles and responsibilities of quality works of Water Sources and Wash Block.

94. The program will also consider the capacity building of the SMC for the maintenance of the water supply and sanitation facilities. The option of linking with the existing government program of health and hygiene education will also be explored. Special attention will be provided to the boys and girls for encouraging them to spread the messages they have learned from teachers, health workers or other sources. Children have special advantages and special roles in spreading health messages to others. This will also help to properly maintain the hygienic condition of the urinals, toilets and water supply conditions in the schools. Grievance Redress Mechanism

95. Environmental issues will be integrated with the project **Grievance Redress System**. The Office of the Joint Program Director will be responsible for developing appropriate formats

for complaints and redress as well as disseminating information about the Grievance redress system. A grievance redress procedure will be established to deal with various non-legal issues that may arise during preparation and implementation of the infrastructure and environmental activities. The grievance mechanism should be scaled to the risks and adverse impacts of the project. It should address affected people's concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The affected people will be appropriately informed about the mechanism. Complainants can however send letters of complaint to any level and the level where they are received will act these upon. The Grievance Redress Committees (GRCs) will try to resolve conflicts amicably by bringing together the directly concerned parties. The GRCs will however not provide legal advice to the contestants. Decisions made by using this mechanism will be binding on the project authority.

CONSULTATION AND INFORMATION DISCLOSURE

Consultation

96. On behalf of DPE, a consultant carried out the field visit of the existing PEDP II project sites as part of the EMF preparation. The consultant reviewed the existing documents in field, school conditions, geographic location of school, water supply and sanitation facilities, discussed with all relevant stakeholders and took their opinion how to improve the environmental practices in primary education program and to integrate environmental concerns to improve the sustainability of the program interventions. Field visit were undertaken during implementation of PEDP-III which revealed useful information regarding improving environmental safeguard. This revised EMF included the recommendations from consultations and field visits observations.

Disclosure

97. The revised EMF will be disclosed by the DPE in their website for public comments within 30 days of the notice published in the 2 daily national newspapers (one English and another Bangla). LGED and DPHE will also disclose this document on their website. In addition, the World Bank will publish this document in Info Shop and ADB in its website.

Monitoring and Reporting

98. LGED and DPHE will monitor and measure the progress of implementation of the EMP. The extent of monitoring activities will be commensurate with the project's risks and impacts. In addition to recording information to track performance, LGED and DPHE will undertake inspections to verify compliance with the EMP and progress toward the expected outcomes. For subprojects likely to have significant adverse environmental impacts, the borrower/client will retain qualified and experienced external experts or qualified NGOs to verify its monitoring information. The LGED and DPHE will document monitoring results, identify the necessary corrective actions, and reflect them in a corrective action plan. They will implement these corrective actions and follow up on these actions to ensure their effectiveness. They will prepare periodic monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any. They will submit at least half yearly monitoring reports during construction for subprojects likely to have significant adverse environmental impacts or when requested by any of the DPs.

ANNEX-A:

Site Specific Environmental Screening (SSES) Report for Construction of Class Room/New Building

SECTION-I: SUB-PROJECT IDENTIFICATION FOR CONSTRUCTION OF CLASS ROOM

Name of the Work/School: _____

Name of the District: _____

Name of the Upazila & Village: _____

EMIS Code of the School: _____

SECTION-II: PROPOSED ACTIVITIES AS PER PRELIMINARY SCHEME DESIGN

Title of Activities	Description of Proposed Activities (length, width, area, volume, height etc.)	Remarks
Land development	Filling a low land by Sand filling (30ft X 20 ft X 10 ft)	
Construction of main School Building		
Construction of boundary wall		
Construction of Internal Road		
Construction of Toilet/WASH Block		

SECTION III: PIA map (please draw an updated site map containing key environmental features and proposed interventions including outlet of the drainage network)

PIA map to be drawn by SSEE team

SECTION-IV: ENVIRONMENTAL SCREENING FOR ADDITIONAL CLASS ROOM CONSTRUCTION

Environmental issues/ Parameters/ values (Use blank spaces/ rows for additional parameters, if needed)	Baseline Environment status	Impact without intervention No=0,Adverse=- Beneficial =+	Impact during implementation No=0,Adverse=- Beneficial =+	Impact after implementation No=0,Adverse=- Beneficial =+	Predicted Environmental Impact	Suggested MMs NMMN, NMMR, MMS
Solid waste generation	a. Is there any significant generation of solid waste from the existing facilities?		-	-	Pollution of soil, surface and ground water.	MMS-1 Environmental guide lines should be followed during construction phase.
Liquid waste generation	a. Is there any significant generation of liquid waste from the existing facilities? b. Where are the liquid wastes being discharged?		-	-	Pollution of surface water	MMS-1 Environmental guide lines should be followed during construction phase.
Air quality (Dust/ smoke/smell/pollution)	Is there any potential source of air pollution due to functioning of the existing facilities?		-	0		MMS-1 Env guide line during construction phase should be followed.
Soil Erosion	Do the existing facilities expedite or trigger soil erosion?		-	0		MMS-1 Env guide line during construction phase should be followed.
Noise pollution	Is there any significant source of noise pollution due to functioning of the existing facilities?					
Drainage congestion/ Water logging	Is there any drainage congestion or water logging in the school/site premises?					
Water quality	Is there presence of Arsenic, Manganese or Iron in the ground water? (Mention the source of information and also attached the report, if available with the screening format)					
Loss or filling up of natural water body	Is there any natural water body in the complex and is there any plan to fill it up due to construction work.					
Impact on agricultural land	Is there any impact on agricultural land due to the existing facilities? How far is the agriculture land from the school premises? What type of crop is grown in those agricultural land?					
Odor	Is there any significant source of odor due to the operation of the existing facilities?					
Spread of pathogens	Is there any threat of spread of pathogens due to operation of the existing facilities? (proximity of the water source to the latrine)					

Environmental issues/ Parameters/ values (Use blank spaces/ rows for additional parameters, if needed)	Baseline Environment status	Impact without intervention No=0,Adverse=- Beneficial =+	Impact during implementation No=0,Adverse=- Beneficial =+	Impact after implementation No=0,Adverse=- Beneficial =+	Predicted Environmental Impact	Suggested MMs NMMN, NMMR, MMS
Breeding place of Mosquitoes	Any water logged area? Waste dumping site? Big trees?					
Wetland						
Wildlife habitat						
Rare and endangered species						
Forests						
Protected area						
Plantation/ Vegetation						
Service facility to the local people						
Women's right (i, e separate toilet for the women etc.)'						
Employment/ Livelihood						
Accident risks						
Access to means of communication						
Homestead displacement						

Environmental issues/ Parameters/ values (Use blank spaces/ rows for additional parameters, if needed)	Baseline Environment status	Impact without intervention No=0, Adverse=- Beneficial =+	Impact during implementation No=0, Adverse=- Beneficial =+	Impact after implementation No=0, Adverse=- Beneficial =+	Predicted Environmental Impact	Suggested MMs NMMN, NMMR, MMS
Land Use Pattern						
Migration/resettlement						
Religious sites						
Archaeological sites						

SECTION-V: ENVIRONMENTAL MANAGEMENT PLAN (EMP) for construction of additional class room

A. MITIGATING/ ENHANCEMENT PLAN

Adversely impacted parameters requiring mitigation	Location (If applicable)	Mitigation measures	Implementation period	Person/ institution responsible
Construction Phase Impacts (Dust, noise, solid and liquid waste etc.)		MMS-1: Follow Environmental Guide lines during construction of the school building.	During Construction	Concerned Executive Engineer of LGED.
Generation of Solid Waste				
Generation of liquid waste		MMS-4:		

B. MONITORING PLAN

Critical parameters/MMs to be monitored	Monitoring indicators	Period	Frequency	Person/ institution responsible
MMS-1,MMS-3,MMS-5	Whether the environmental guide lines are being followed.	During Construction	Every quarter	Concerned Executive Engineer of LGED of his representative.
MMS-*		During Operation.	LGED/SMC	

ANNEX-B

Site Specific Environmental Screening (SSES) Report for Construction of Water and Sanitation Facilities

SECTION-I: SUB-PROJECT IDENTIFICATION (FOR water and sanitation facilities)

Name of the Work/School: _____

Name of the District: _____

Name of the Upazila: _____

EMIS Code of the School: _____

SECTION-II: PROPOSED ACTIVITIES AS PER PRELIMINARY SCHEME DESIGN

Title of Activities	Description of Proposed Activities (length, width, area, volume, height etc.)	Remarks
Land development	Filling a low land by Sand filling (30ft X 20 ft X 10 ft)	
Construction of WASH Block		
Installation of DTW		

SECTION-III: ENVIRONMENTAL SCREENING FOR WATER AND SANITATION FACILITIES

Environmental issues/ Parameters/ values (Use blank spaces/ rows for additional parameters, if needed)	Baseline Environment status	Impact without intervention No=0,Adverse=- Beneficial =+	Impact during implementation No=0,Adverse=- Beneficial =+	Impact after implementation No=0,Adverse=- Beneficial =+	Predicted Environmental Impact	Suggested NMMR ¹ / MMS ²
What is the type of existing latrines? (are these single pit/ double pits/ twin pit latrine attached with a septic tank?)						
Is the number of toilets adequate?						
Generation of Solid Waste						
Disposal of fecal waste from the toilets						
Disposal of liquid waste from toilets/construction activities						
Availability of hand washing facility						
Availability of water for hand washing						
Provision for separate toilet for male and female						
Are the location of the female toilets appropriate?						

¹ NMMR : No Mitigation Measure Recommended

² MMS: Mitigation Measures Suggested; put MMS-1, MMS-2, MMS-3... and so on (as many as required) in respective cells and relate and describe those briefly at the end in the designated place

Environmental issues/ Parameters/ values (Use blank spaces/ rows for additional parameters, if needed)	Baseline Environment status	Impact without intervention No=0,Adverse=- Beneficial =+	Impact during implementation No=0,Adverse=- Beneficial =+	Impact after implementation No=0,Adverse=- Beneficial =+	Predicted Environmental Impact	Suggested NMMR ¹ / MMS ²
Is the environment of water supply facility clean with facilities for draining out of water?						
Are there any reported events of sickness or contamination by drinking the existing water source?						
What is the source of existing drinking water in the school?						
Is there any concern about the quality of water such as arsenic, salinity, microbial contamination						
Distance of water source from nearest toilet						
Drainage facility of waste water from water sources						
Height of the location of the water source/toilets ? Are they susceptible to flood and cyclone etc.						
Spread of pathogens	Is there any threat of spread of pathogens due to the operation of the existing facilities?					
water quality	Is there presence of Arsenic, Manganese or Iron in the ground or surface water ? (Please mention the source of information)					

SECTION-IV: ENVIRONMENTAL MANAGEMENT PLAN (EMP) for water and sanitation facilities

C. MITIGATING/ ENHANCEMENT PLAN

Adversely impacted parameters requiring mitigation	Location (If applicable)	Mitigation measures	Implementation period	Person/ institution responsible
Construction Phase Impacts (Dust, noise, solid and liquid waste etc.)		MMS-1: Follow Environmental Guide lines during construction of the school building.	During Construction	Concerned Executive Engineer of LGED.
Generation of Solid Waste				
Generation of liquid waste				

D. MONITORING PLAN

Critical parameters/MMs to be monitored	Monitoring indicators	Period	Frequency	Person/ institution responsible
MMS-1	Whether the environmental guide lines are being followed.	During Construction	Every quarter	Concerned Executive Engineer of DPHE or his representative.
MMS-*		During Operation.		

ANNEX-C

Guide lines to be followed during Construction of Infrastructure

The following environmental guide lines stated below should be followed during the construction work. Such as:

1. The contractor will erect sufficient number of temporary sanitary toilets and shelter both for male and female workers at the site with proper sanitation system.
2. The contractor will ensure supply of pure drinking water to the workers during the time of construction.
3. The contractor will keep a first aid box at the site for any accident.
4. The contractor will take necessary precaution for the safety of his workers and also for the safety of the pedestrians.
5. The contractor will stack materials systematically in a safe place so that pedestrians do not fall in troubles/ accident and will not occupy any class room.
6. The contractor will not engage any child labor in the work.
7. The contractor will not pollute any nearby source of surface water by any of their activities.
8. The contractor will try to minimize sound pollution. If such sound producing activity become unavoidable, it should be matched with the local condition so that the adverse impact can be kept minimum.
9. The contractor will engage local people in the work as far as possible. The vulnerable destitute women should get preference.
10. The contractor will not hamper the drainage network of the area by any of their activity.
11. The contractor will not cut or damage any tree in and around the project area without the permission of the supervising authority.
12. The contractor will take every initiative to reduce dust emission during the construction work i,e sprinkling of water on the dust etc. .
13. The contractor will not set any temporary burner under any tree.
14. If required, the contractor will collect filling earth from existing ditches, ponds and fallow lands to avoid land loss.
15. No class rooms would be used by the contractors for the construction work.

ANNEX-D

Environmental Monitoring During Construction Phase

SUB-PROJECT IDENTIFICATION

Name of the Work/School: _____

Name of the District: _____

Name of the Upazila: _____

EMIS Code of the School: _____

Description of Parameter	Whether followed or not	Remarks
The contractor will erect sufficient number of temporary sanitary toilets and shelter both for male and female workers at the site with proper sanitation system.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will ensure supply of pure drinking water to the workers during the time of construction.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will keep a first aid box at the site for any accident.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will take necessary precaution for the safety of his workers and also for the safety of the pedestrians.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will stack materials systematically in a safe place so that pedestrians do not fall in troubles/ accident and do not occupy any classroom.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will not engage any child labor in the work.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will not pollute any nearby source of surface water by any of their	Yes <input type="checkbox"/> NO <input type="checkbox"/>	

Description of Parameter	Whether followed or not	Remarks
activities.		
The contractor will try to minimize sound pollution. If such sound producing activity become unavoidable, it should be matched with the local condition so that the adverse impact can be kept minimum.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will engage local people in the work as far as possible. The vulnerable destitute women should get preference.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will not hamper the drainage network of the area by any of their activity.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will not cut or damage any tree in and around the project area without the permission of the supervising authority.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will take every initiative to reduce dust emission during the construction work i,e sprinkling of water on the dust etc.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
The contractor will not set any temporary burner under any tree.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
If required, the contractor will collect filling earth from existing ditches, ponds and fallow lands to avoid land loss.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	

Comments and recommendations of the monitoring team:

Signature of the Monitoring Team/Officer in charge:

ANNEX-E

Monitoring of Class Room, Water and Sanitation Facilities During Operation Phase

SUB-PROJECT IDENTIFICATION

Name of the Work/School: _____

Name of the District: _____

Name of the Upazila: _____

EMIS Code of the School: _____

Description of Parameter	Status of waster disposal	Remarks
Are the latrines clean or are the dirty and smelly?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Are the latrines kept under lock and key during school time?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Are the urinals smelly?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Do the latrines need any special maintenance?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Are constructions/maintenance of the latrines OK? (are the doors, plaster, roof etc. in good condition?)	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Does the water source affected by arsenic ?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	

Description of Parameter	Status of waster disposal	Remarks
When the arsenic test was last done and by whom.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Can the latrines be locked from inside?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Do these latrines have privacy in terms of proper doors and location?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Do the girls students stay at home because of having no proper latrines or because they have to share with boys?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Is the number of latrines available sufficient for the number of students / teachers in each shift we have in the school? etc.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Is the slope of the toilet OK?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
Is there any clogging of water in the toilets?	Yes <input type="checkbox"/> NO <input type="checkbox"/>	
	Yes <input type="checkbox"/> NO <input type="checkbox"/>	

Comments and recommendations of the monitoring team:

Signature of the Monitoring Team/Officer in charge:

ANNEX-F :

Sample Terms of Reference (TORs) for an Environmental Assessment of DPE Buidling

(DPE will develop customize the ToR and share with the DPs and get no objection. EIA need to be completed at the design phase and requires to be cleared by the donors before tender)

1. Introduction. State the purpose of the TORs, identify the new building projects to be assessed and explain the executing arrangements for the environmental assessment (EA).

2. Background Information. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects. Identify other projects in progress or planned within the region which may compete for the same resources.

Major types of projects to be described include, as appropriate: traditional public housing, government assisted housing, upgrading of existing informal housing and new sites and services projects.

3. Objectives. Summarize the general scope of the EA and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase additional data collection (e.g., seasonal rainfall, river flows, flooding, natural habitats, etc.) and assessment efforts to avoid hindering the project development schedule.

4. EA Requirements. Identify laws, regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations; and
- EA regulations of any other financing organizations involved in the project.
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, eg, resettlement (land acquisition), natural habitats, etc and also other donors policies.

Note: housing projects may include a board array of components, some of which may cause direct adverse environmental and social impacts and are consequently likely to be classified as category A or B. These TORs focus upon those projects likely to be classified A or B and which would therefore require an EA under provisions of OP 4.01. Accordingly, TORs will have to be crafted to address the particular impacts

- International agreements/conventions on environment to which the borrowing country is a signatory.

Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, eg, effluent discharge limitations, , receiving water quality standards, air emission standards and zoning, drainage and building codes, etc.

5. Study Area. Specify the service area of the project, including its area of influence, eg, increased transport, solid waste management, drainage, etc. and proposed inter connections.

6. Scope of Work. The consultancy needs to address the following tasks:

Task 1. Description of the Proposed Project. Provide a full description of the project: location; general layout, including description and drawings/diagrams for rehabilitation/new components, including building materials; land ownership and characteristics (eg, flooding potential, hazards, seismicity, use of land for waste disposal, industrial or extractive activities); population served, present and projected; adjacent communities/industries to site; existing/new roads or other supportive infrastructure; energy needs and source of supply; anticipated influent and effluent characteristics (depending upon level of treatment) and solid wastes; pre-construction and construction activities (including equipment used for earthmoving operations, handling of waste materials such as oil, borrow pits); transport and disposal of asbestos or other toxic waste in the case of rehabilitation projects, schedule, staffing and support facilities and services; operation and maintenance activities; and, required off-site investments.

Task 2. Description of the Environment. Assemble, evaluate and present relevant baseline data on the environmental characteristics of the development and area of influence. Include information on any changes anticipated before the project commences.

(a) *Physical environment:* geology (including seismic characteristics), topography and soils and geotechnical considerations (general description for overall study area, including potential for soil erosion); temperature (effects of vegetation removal), rainfall and runoff characteristics, flooding and hazard potential; groundwater characteristics; description of runoff and drainage, receiving waters (identity of streams, lakes, or marine waters; annual average discharge or current data by month, water quality; existing discharges or withdrawals). Noise disturbance

(b) *Biological environment:* terrestrial habitats in areas affected by construction, facility siting, use for disposal of wastes; aquatic, estuarine or marine habitats in affected waters; rare or endangered species; sensitive habitats, including parks or reserves, significant natural habitats; species of commercial importance in/near the land site(s) and receiving waters.

(c) *Sociocultural environment:* present and projected population; present land use/ownership; planned development activities; community structure; present and projected employment by industrial category; distribution of income, goods and services; recreation; public health; cultural properties; indigenous peoples; and customs. Potential for traffic accidents.

Task 3. Legislative and Regulatory Considerations. Describe the pertinent laws, regulations and standards governing environmental quality, pollutant discharges to surface waters and land and to public sewers, building codes of practice, protection of sensitive areas and endangered species, siting, land use control, etc., at international, national, regional and local levels (The TORs should specify those that are known and require the consultant to investigate for others).

Task 4. Determination of the Potential Impacts of the Proposed Project. In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. Provide TORs for studies to obtain the missing information.

Special attention should be given to:

- Siting: sensitive issues eg, displacement of prime agricultural land and other land uses; impacts upon drainage patterns, vegetation removal and wetlands and other habitats; hazardous natural or man-made conditions; dislocation of resident populations; historic or cultural resources
- Construction: degradation of natural habitats; increase of erosion/flooding (hazard vulnerability); depletion of groundwater, sewage disposal, landscaping, material disposal (especially toxic wastes such as asbestos), etc.
- Overloading of existing infrastructure and services and depletion of resources, eg, lumber, fuel or overtaxing of industries such as brick-making
- Dislocation of existing residents.

Task 5. Analysis of Alternatives to the Proposed Project. Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to siting and design, technology selection, rehabilitation/construction techniques and phasing, and operating and maintenance procedures for collection systems, treatment works, disposal and sludge management. Compare alternatives in terms of potential environmental impacts, land and energy requirements, capital and operating costs, reliability, suitability under local conditions, and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which may be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the alternative of not constructing the project to demonstrate environmental conditions without it.

Task 6. Development of an Environmental Management Plan (EMP). Estimate the impacts and costs of the mitigation measures and of the institutional and training requirements to implement them. Assess compensation to affected parties for impacts that cannot be mitigated. Prepare an EMP, including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures, monitoring, etc. Consider compensation to affected parties for impacts that cannot be mitigated. Include measures for emergency response to natural and accidental events (e.g., flooding, entry of raw sewage into rivers, streams, etc), and health and safety, as appropriate

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan. For projects that include a land disposal facility, environmental monitoring should include a regular schedule of monitoring the quality of surface and ground waters. Provide environmental protection clauses for application by consultants and contractors.

Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the EMP may be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

Task 7. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the government will consult with affected groups likely to be affected by the proposed project and with local NGOs on the environmental and social aspects of the proposed project.

For projects categorized A, these groups will be consulted at least twice: in meetings held during preparation before the TORs for the EA are finalized and when a draft EA is available (a summary of the EA will be available prior to the meeting). For projects categorized B, these groups should be consulted once a draft EA has been prepared and a summary of the EA conclusions will, be made prior to the meeting. For both A and B category projects the draft EA should also be available in a public place accessible to affected groups and local NGOs.

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the records should indicate: means other than consultations) eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes.

7. Report. Provide an EA report that is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted

data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. (This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's directive are covered):

Executive Summary

Policy, Legal and Administrative Framework

Description of the Proposed Project

Description of the Environment

Analysis of Alternatives

Environmental Management Plan, incl. mitigation, monitoring, capacity development and training and implementation schedule and costs and environmental protection clauses for use by consultants and contractors.

Inter-Agency and Public/NGO Involvement

List of References

Appendices:

- . List of Environmental Assessment Preparers;

- . Records of Inter-Agency and Public/NGO Communications;

- . Data and Unpublished Reference Documents.

8. Consulting Team. The following specialties should be considered for the core consulting team: environmental engineering, environmental planning (or other environmental generalists); ecology (terrestrial, aquatic or marine, depending on type of discharge); water quality; soils science (for land application); wastewater utility management; and sociology/anthropology. Other specialties that may be needed depending on the nature of the project are public health, agronomy, hydrology, land use planning, limnology/oceanography (especially for outfall design), water quality modeling, and resource economics.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis are to be combined in one report

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and other significant events.

10. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed. . Examples are pre-feasibility studies, population and land use projections, land use plans, industrial activity information, water quality studies, sewerage service needs surveys, public health reports, sewer system evaluations.

ANNEX G: Typical Environmental Mitigation Measures for Building Construction

Impact	Impact Description	Mitigation Measures
Change in land use and loss of agricultural land	Change in land use pattern and topography of the project	<ul style="list-style-type: none"> * Avoid agricultural land for subproject activities * If avoidance is not possible, analyze the alternative and choose the best option
Drainage congestion/water logging	Improper site selection and construction can create localized drainage problem/water logging	<ul style="list-style-type: none"> * Consider the drainage system of the whole area in subproject design * Maintain cross-drainage at all times during construction * Prevent all solid and liquid wastes entering waterways by collecting solid waste and wastewater from brick, concrete
Losses of trees and vegetation	Cutting or trimming of trees, losses of vegetation	<ul style="list-style-type: none"> * Consider alternation options to reduce the loss of trees and vegetation * A green fence will be raised with native tree species around the school * Plant same species of trees and vegetation as compensatory measures
Dust and noise pollution	Dust generation during construction phase. Spillage of the material will be occurred from physical works Noise generation from physical interventions	<ul style="list-style-type: none"> * Spray of water during dry season and in windy conditions * Immediate compaction after construction of base course * Cover the stockpiles of fine materials in construction yard * Plan the work schedule of noise creating activities in consultation of local community * Employ best available work practices on-site to minimize occupational noise levels
Blocking of Roads/access/approach	Improper storage of construction material may block the roads/access/approach to the school or the community	<ul style="list-style-type: none"> * Construction materials and machinery should not be placed in a manner that blocks any roads, paths or local accesses * unloading of construction materials should be carried in a manner and time so as to avoid blockage of roads/paths/access * Waste should not be placed on the roads
Surface Water Pollution	Improper disposal of solid and liquid waste generate from construction sites will pollute the water quality	<ul style="list-style-type: none"> * Prohibit direct disposal of solid and liquid wastage into nearby water body. * Spoil Management Plan should be implemented by the contractor

Impact	Impact Description	Mitigation Measures
Occupational health and safety	Chances of any accidents, spread of communication diseases	<ul style="list-style-type: none"> * Implement suitable safety standards for all workers and site visitors * Provision of first aid facility * Arrangement of safe drinking water and sanitation facilities for the labors working in the “subprojects”
Day Lighting and ventilation system	Poor lighting and ventilation may impact on students and teachers	<ul style="list-style-type: none"> * Adequate windows in proper direction in consultation with students and teachers
Selection of appropriate Water Supply Technology	Without proper analysis, the new source can be arsenic contaminated	<ul style="list-style-type: none"> * Identify unions and upazillas based on DPHE survey where shallow or deep tube-wells are feasible * Analyze local surrounding arsenic test results and recommend for tube-wells or not
Selection of appropriate location for water source and sanitary latrine	<p>Location may not be convenient to female students and impacts on natural resources and common property resources.</p> <p>Close distance between water point and sanitary latrine can contaminate groundwater.</p>	<ul style="list-style-type: none"> * Discuss with school committee and students and select a location which is convenient for school and not impacting on trees or any other common property resources. * A minimum distance of 15 m should be maintained between a tube-well and a latrine to prevent contamination of water resources. In case of shallow shrouded hand tube-wells, this distance should be 20 m as horizontal filters are used in this type of tube-wells.
Integration of drainage facilities with water supply and sanitary latrine	In absence of proper drainage facilities, water logging can be created around school.	<ul style="list-style-type: none"> * Drainage facilities will be integrated with water supply options and sanitary latrine facilities in planning and design.
Water quality testing	New water source may not be safe for drinking	<ul style="list-style-type: none"> * After installation of tube-wells, arsenic will be tested and be used only it satisfy the Bangladesh standard

ANNEX H : Sample Terms of Reference of Environment Specialist

The Environmental Specialist, preferably with the post-graduation specialization in environmental engineering/science, shall have at least 10 years of working experience related to preparation or EA, integration of environmental and social issues in the design, implementation and operation of rural infrastructure projects. Experience in environmental management of school infrastructure is preferred.

The specific roles and responsibilities of the Environmental Specialist shall include, but not limited to the following:

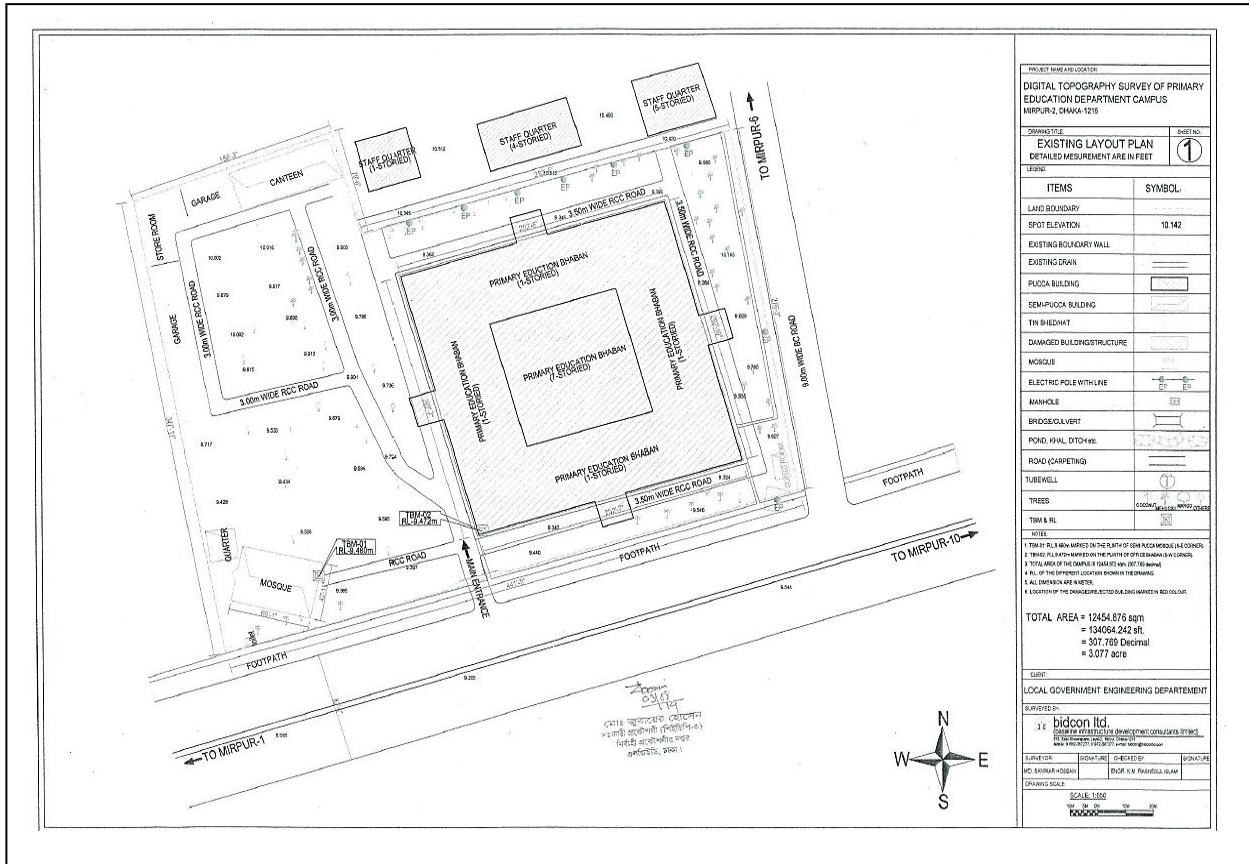
- Lead the overall EMF implementation and capacity building in LGED Education Unit
- Monitor and review the certain percentage of screening process for “subprojects”
- Review Costing subproject specific EMP
- Ensure inclusion of EMP and its cost in bidding document
- Supervise the implementation of the EMP by the Contractors
- Develop good practice construction guidelines to assist the contractors in implementing the EMP
- Carry out environmental monitoring to ensure compliance with the EMP & GOB requirements.
- Prepare and submit regular environmental monitoring and implementation progress reports
- Continuously interact with the implementing agency regarding the implementation of the environmental compliance
- Work closely Training team and ensure proper capacity building of staff and contractors

Qualification of Environmental Specialist

- At least Masters Degree in environmental studies/ management/science /engineering
- About 10 years of experience in environmental assessment
- Experience in rural infrastructure development projects or other projects in similar nature
- Experience in education project is preferable
- Ability to lead, organize and co-ordinate
- Good verbal and written communication skills in both English and Bangla
- Demonstrated interpersonal skills, and proven ability to work in a different multicultural context

Annex: IPreliminary site visit of the proposed location of DPE HQ at Dhaka

The proposed location of the extension of DPE HQ is within the campus of the existing HQ of Directorate of Primary Education at Mirpur Section-2, Dhaka. The area is accessible through the main gate of the of existing office and just beside the main road that passes from Mirpur-1 to Mirpur-10.



There are no human settlement in the proposed land and no eviction of temporary housing would be required. However some planted trees would be required to cut down which should be compensated through planned plantation after the construction. Basement floor should be incorporated in the design to accommodate the vehicle of the occupants so that no parking at the adjacent road would be necessary. However, an environmental assessment should be undertaken before the commencement of the work so that issues like management of solid and liquid waste, fire safety and emergency evacuation and energy and water efficiency in the building can be ensured to reduce its carbon foot print.

Annex-J : Preliminary site visit of the proposed location of Leader Ship Centre at Cox's Bazar

A visit to the proposed site of the Leadership Centre of DPE at Cox's Bazar to be constructed under PEDP-3 was undertaken on August 21, 2014. During the visit Mr Zahidul Islam Khan , Monitoring Officer and Mr Rafiq, Head Assistant of District Primary Education Office and Upzlia Engineer of Sadar Upazila of LGED, Cox's Bazar were present.

The proposed site for the Leadership Center is within the campus of the office of District Primary Education Officer (DPEO) and stands in the middle of the city. The area is surrounded by roads at two sides while there is a small canal flowing by another side. The fourth side (the rear side of the office) has a common boundary with private property. It was known from the DPEO officials that the campus was previously used as the hostel of the PTI and the playground was then used by the participants. The two storied hostel building and the residence of the Hostel Super is still in the campus but not being used for a long time and are left abandoned.



Fig-1: Entrance of the office campus of DPEO



Fig-2: Entrance road inside of the campus of office of DPEO

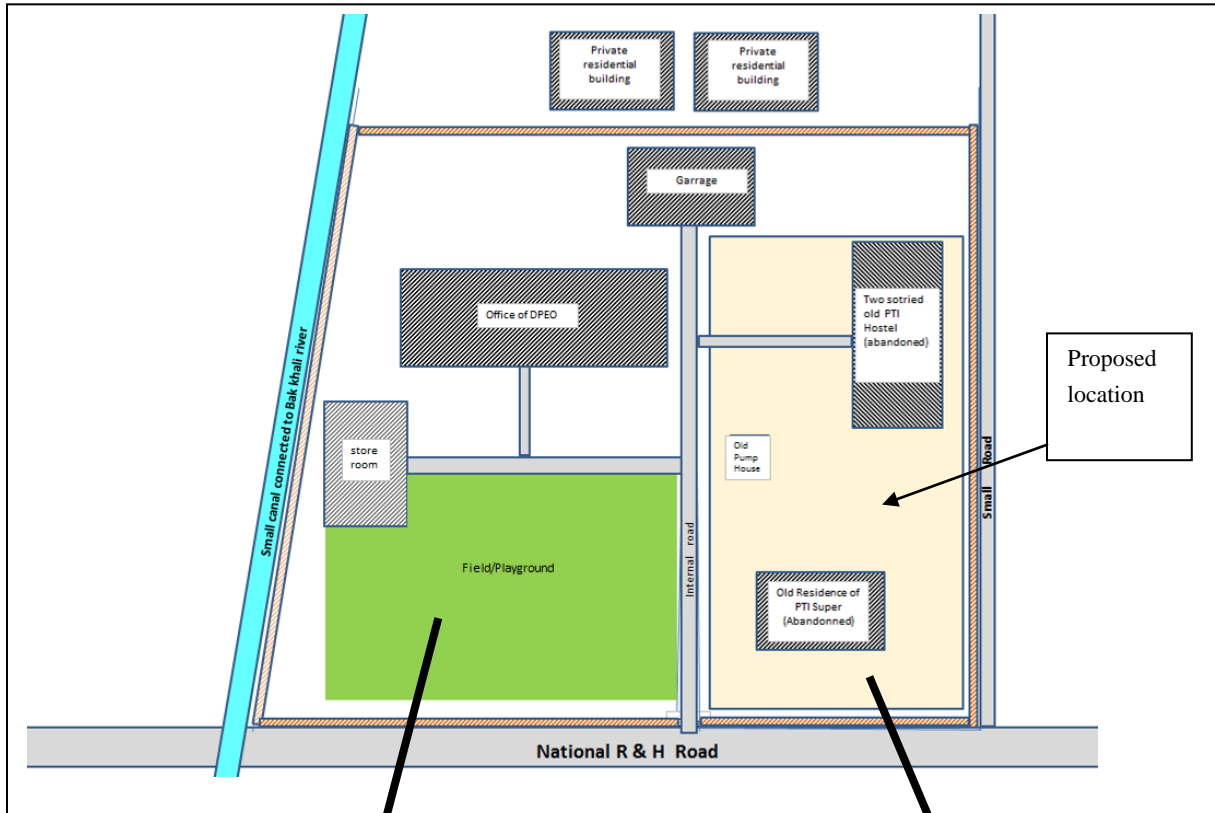


Fig-3 : Photograph and schematic diagram of location of the proposed site with the existing office campus of DPEO

If we enter into the office of the DPEO, there is a big playground at the left hand side. The land on the right hand side of the entrance road has been proposed as the location of the Leadership Centre. Within the proposed area, there are two old abandoned buildings which might need to be demolished before the commencement of the construction. One is a two storied building previously used as the hostel for the PTI and another one is a single story building previously used as the residence of the hostel Super. The old residence of the Super would certainly require demolition while the old hostel might require demolition if demanded by the design.

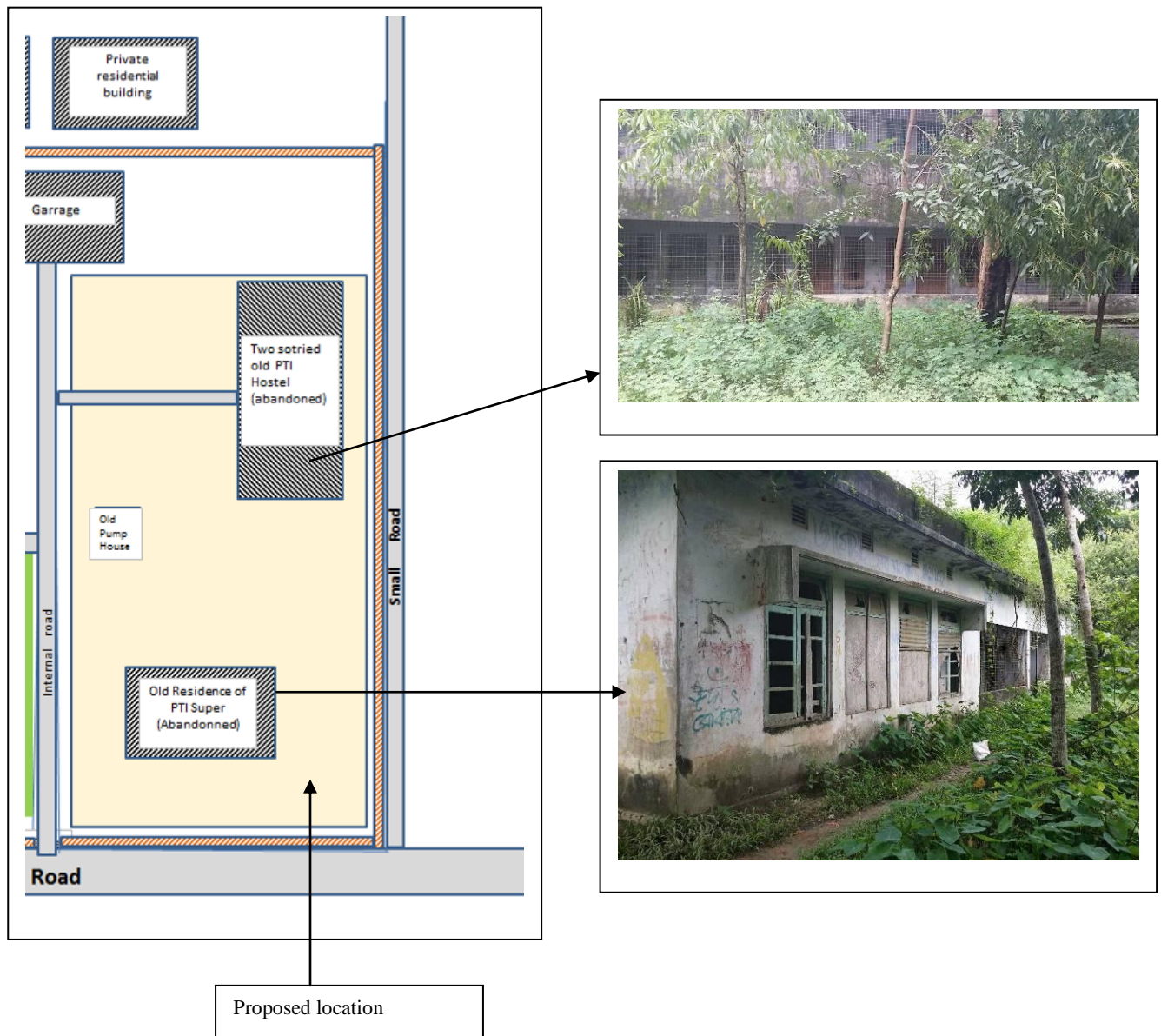


Fig-4: The two buildings in the proposed location which might need to be demolished.

It would be necessary to cut down a few trees due to the construction of the new building. But considering the number and type of the trees, these do not appear to be significant. However, plantation program can be planned in the proposed premises to offset this. The land does not require any land filling. There is no human settlement in the proposed site.



Fig-5: A few trees are there in the proposed location but do not appear to be very significant

The campus has only one entrance. There is a Small road by the side of the proposed location through which a second entrance can be made if necessary.



Fig-6: The Main gate of the office which is the only entrance at the moment.



Fig-7: A road passed by one side of the office campus

A small drain like canal runs by the side of the office campus which is connected to Bakkhali river and plays important role in draining out storm water from the city.

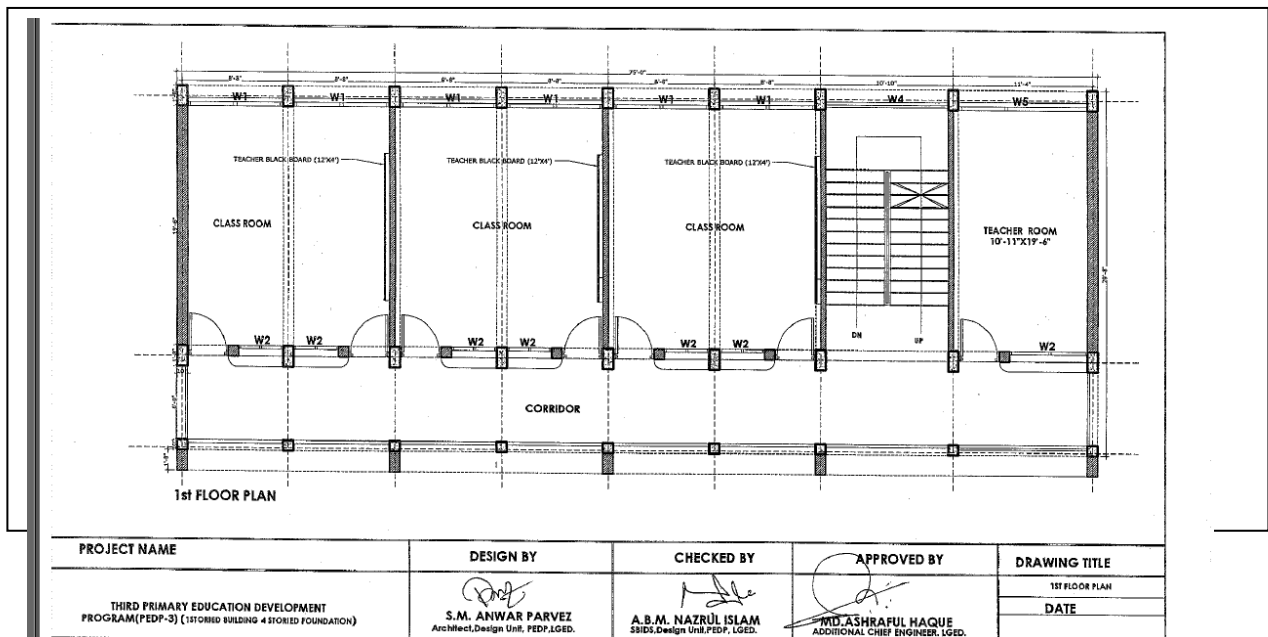
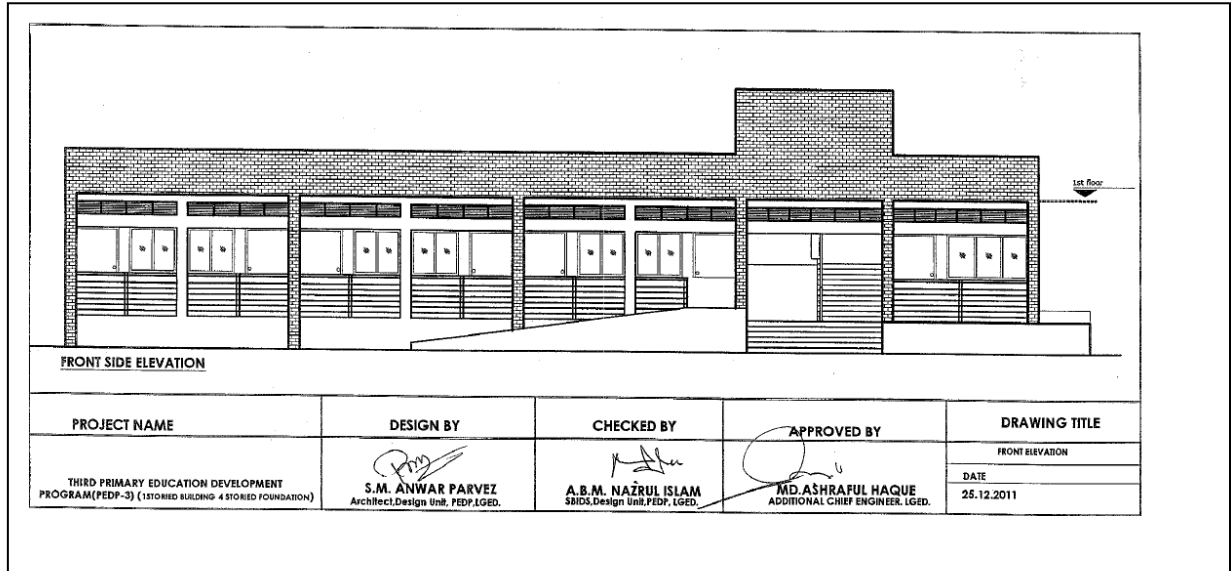


Fig-8: Small canal passing by the side of the office campus

It seems that there are no major concerns from environmental safeguard point of view. The site is not located in ecologically critical area. There is neither any human settlement in the proposed site nor any temporary shop which might be required to evict. The site also does not pose any threat to indigenous population.

However, as the old buildings need to be demolished to start the new construction, special care should be taken in such activities. Presence of asbestos has to be carefully assessed. If any trace of asbestos is found, special care should be undertaken in disposing the debris, Also the labors working in such debris should also use proper safety equipment to avoid health hazard.

Annex-K: Typical Design of school building under PEDP-III



Annex-L : Typical Design of WASH Block

