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Ministry of Local Government, Rural Development and Cooperatives

Local Government Division

Local Government Engineering Department



Third Primary Education Development Program (PEDP 3)

Biannual Environmental Management Report

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Abbreviations and Acronyms

ADB	Asian Development Bank
AF	Additional Funding
BEMR	Biannual Environmental Management Report
DLIs	Disbursement- linked Indicators
DPE	Directorate of Primary Education
EFA	Education for all
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMF	Environmental Management Framework
GOB	Government of Bangladesh
GPS	Government Primary School
IDA	International Development Agency
IEE	Initial Environmental Examination
JARM	Joint Annual Review Mission
LGED	Local Government Engineering Department
MLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoPME	Ministry of Primary and Mass Education
MIS	Management Information System
PEDP 3	Third Primary Education Development Program
RNGPS	Registered Non-Government Primary School
SAE	Sub-Assistant Engineer
SE	Superintending Engineer
SMC	School Management Committee
SSES	Site Specific Environmental Screening
SSIEE	Site Specific Initial Environmental Examination
UE	Upazila Engineer
WB	World Bank

1.0 Introduction

1.1 Background

The Primary Education Development Program 3 (PEDP- 3) 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).

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.

The development objectives of PEDP 3 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 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 3 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 especially 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 remaining life of the

classrooms will be considered when selecting such rooms for maintenance. All of the school buildings 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 PEDP 3 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 3: (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 WASH 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.

Apart from school building/class room, water points and WASH Blocks, PEDP- 3 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. It has been confirmed that none of these construction would require land acquisition.

The Directorate of Primary Education (DPE), in consultation with the Department of Environment and other relevant stakeholders, has prepared the Revised Environmental Management Framework (EMF) to support the implementing partners (Local Government Engineering Department and Department of Public Health Engineering) of the programs to manage potential environmental issues that may arise during implementation of the “subprojects”. The EMF is applicable for all “subprojects” and/or components to be considered under PEDP 3.

1.2 Objectives

The purpose of this Biannual Environmental Management Report (BEMR) is to present the finding of the environmental screening of the newly approved sub-projects and also to present the

monitoring status of the ongoing works 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 BEMR will contribute the goal of attaining environmental sustainability by:

- a. enhancing environmental outcomes of the activities implemented under individual “subprojects”;
- b. preventing and/or mitigating any negative environmental impact that may emerge from the “subprojects”;
- c. ensuring the long-term sustainability of benefits from “subprojects” by securing the natural resource base on which they are dependent; and
- d. 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.

2. Legal and Policy Considerations

2.1. National Environment Rules and Regulations

General Description

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.

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

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.

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

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

The Environment Conservation Rules provide a first set of rules under the Environment Conservation Act, 1995. This rule 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

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, Tanguar Haor, Marzat Baor and Gulshan-Baridhara Lake as ecologically critical areas and accordingly has prohibited certain activities in those areas.

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

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.

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

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

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

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

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

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

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)

BNBC sets guideline for demolition of structure. The highlights 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)

- 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).
- 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”.

- 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.
- 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”.
- 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.”
- 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.
- 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

- 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 from the injury, the sum mentioned in the second column of the fifth schedule i.e. Tk. one lakh ;(b) where permanent total disablement results from the injury, the sum mentioned in the third column of the Fifth Schedule (2) i.e. Tk.1, 25000. Monthly payment as compensation for temporary disablement# shall be paid for the period of disablement or for 1 (one) year, whichever is shorter.#Such compensation shall be paid at the rate of full monthly wages for the first 2 (two) months, at the rate of two-thirds of the monthly wages for the next 2 (two) months and at the rate of half of monthly wages for the subsequent months.

Others: Standing Orders on Disaster

- 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.

2.2 Implication of Policies and Legislations on PEDP 3

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.

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.

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.

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 PEDP-3 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-3 and also in the AF.

2.3 Development Partner's Environmental Safeguards Policy

World Bank Environmental Guidelines

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.

The most relevant policy of WB in PEDP 3 activities is OP/BP 4.01 Environmental Assessment. The PEDP-3 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

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

Table 1: World Bank Environmental Screening			
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	Beyond screening, no further EA action is required for a Category ‘C’ project

Table 1: World Bank Environmental Screening

Category	Category 'A'	Category 'B'	Category 'C'
		adverse impacts and improve environmental performance.	

ADB's Safeguard Policy Statement (2009)

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.

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 measures can be designed more readily than for Category 'A' projects.	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.
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

Table 2: ADB Environmental Screening

Category	Category 'A'	Category 'B'	Category 'C'	Category FI
				prohibited investment activities list.

AusAID Environmental Management Guidelines

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.

3.0 The Sub-Projects**3.1 Sub-project Description**

Under PEDP-3, additional class rooms are 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, the placement of the new infrastructure is very important to maintain a good school environment especially 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 floors 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-3 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. LGED constructed some standalone toilets during the early phase of the program. However, some toilet blocks is still being constructed by LGED as part of the integral design in some of the urban areas. The effluent from the toilets/WASH Blocks are being collected in leach pits/ septic tanks 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 programs. 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 remote locations and availability of suitable locally available construction materials.

Apart from construction of additional class rooms, WASH Blocks and water points, PEDP-3 also supports the construction of Upazila Resource Centers (URCs) at Rangabali, Chouhali, Kamolnagar, Kabirhat, Dhanbari and Singra.

3.2 Sub-project Selection

The PEDP-3 is being implemented all over Bangladesh. However, in this period the dilapidated schools are selected and prioritized under the head of 'Education in Emergency' based on the certain parameters. The list of the dilapidated schools has been prepared and approved by the Ministry (MoPME). The general criteria for prioritization and development for all categories of PEDP-3 infrastructures development are given below. These criteria were developed in consultation with the Director (Planning and Development) of the DPE, MoPME and consultant of The World Bank:

- School is not overcrowded
- Every primary school should have at least four classrooms with one teachers' room
- Minimum ratio of classroom versus student is 1:40 with flexibility up to 40% in the case of overcrowding which increase the ratio 1:56.
- School is having a minimum number of four school teachers
- One school is considered for every 2,000 people in catchments having no school within a periphery of 2 km.
- A single infrastructure community school in a dilapidated condition should receive priority only for the first year of the program.
- Hilly and coastal areas, chars and haors are the prioritized areas
- A primary school having a minimum of 230 students receives priority
- Availability of sufficient land for horizontal/vertical extension of classrooms is a priority qualification
- A primary school contributing to the regional disparity removal receives preference.

3.3 Scope of work of Biannual Environmental Management Report (BEMR)

MOPME approved 649 dilapidated schools(up to December 2017) for development under 'Education in Emergency' component and this report covers the outcome of environmental screening of those schools and also the result of construction phase monitoring of 740 schools.

4.0 Environmental Screening of Newly approved class rooms

4.1 Methodology and format used

Since, no screening/assessment of the proposed operation was carried out during the preparation phase; screening will be required for all "subprojects". The Upazilla LGED Offices are responsible for reviewing existing facilities, "Subproject" screening and environment management plan (EMP) preparation and implementation. Specifically, the Upazilla Sub-Assistant

Engineer/Assistant Engineers are 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.

A sample-screening format named as Site Specific Environmental Screening (SSES) has been provided in the EMF which is attached in **Annex-A**.

4.2 Number of class room screened

MoPME has approved the construction of new buildings for 649 nos. of dilapidated school buildings under 'education in emergency' head. The 649 new schools with 3241 classrooms have been taken up for construction in different Districts as shown in Table-3. Out of the total 3241 classrooms, 51 nos. (1.57%) classrooms will be in vertical extension, 812 nos. (25.05%) will be in horizontal extension and 2378(73.37%) in both vertical and horizontal extension (Table 3 and Pie chart in Fig. 2). The numbers of class rooms per school would be need based. From the pie chart in Fig.1, it is seen that against 95.40% of schools in plain land there are 1.40% of schools are situated in the Chittagong Hill Tracts region and about 3.20 % of the schools are in the haor areas.

The district wise distribution of the schools selected for new construction is shown in Table-3 and the geographical distribution is shown in map in Fig 3.

Table 3: District wise approved list of 649 dilapidated school and new construction classrooms

Region Name	District	No. of School	Ver	Hor	Ver+Hor	Total CR
BARISAL	BARISAL	17	0	20	65	85
BARISAL	BHOLA	21	0	10	95	105
BARISAL	JHALOKATHI	3	0	0	15	15
BARISAL	PEROJPUR	13	0	20	45	65
BOGRA	BOGRA	10	0	25	25	50
BOGRA	JOYPURHAT	2	0	5	5	10
BOGRA	PABNA	8	0	7	30	37
BOGRA	SERAJGONJ	16	0	10	70	80
CHITTAGONG	BANDARBAN	2	5	0	5	10
CHITTAGONG	CHITTAGONG	24	0	25	94	119
CHITTAGONG	KHAGRACHARI	4	0	0	20	20
CHITTAGONG	RANGAMATI	3	0	0	15	15
COMILLA	BRAHMONBARIA	6	0	0	30	30
COMILLA	CHANDPUR	11	0	0	55	55

COMILLA	COMILLA	14	0	0	70	70
COMILLA	FENI	21	0	5	100	105
COMILLA	LAXMIPUR	2	0	0	10	10
COMILLA	NOAKHALI	18	0	20	70	90
DHAKA	DHAKA	4	0	20	0	20
DHAKA	GAZIPUR	22	0	15	95	110
DHAKA	MANIKGONJ	6	0	5	25	30
DHAKA	MUNSHIGONJ	4	0	10	10	20
DHAKA	NARAYANGONJ	8	0	5	34	39
DHAKA	NARSHINGDI	3	0	10	5	15
DINAJPUR	DINAJPUR	54	34	30	200	264
DINAJPUR	NILPHAMARI	3	0	0	15	15
DINAJPUR	PANCHAGARH	7	0	15	20	35
DINAJPUR	THAKURGAON	9	0	0	45	45
FARIDPUR	FARIDPUR	6	0	0	30	30
FARIDPUR	GOPALGONJ	11	0	25	30	55
FARIDPUR	MADARIPUR	38	9	80	105	194
FARIDPUR	RAJBARI	4	0	0	20	20
FARIDPUR	SHARIATPUR	20	0	15	85	100
JESSORE	CHUADANGA	4	0	5	15	20
JESSORE	JESSORE	15	0	30	45	75
JESSORE	JHENAIDAH	9	0	30	15	45
JESSORE	KUSHTIA	2	0	5	5	10
JESSORE	MAGURA	14	3	25	40	68
JESSORE	MEHERPUR	2	0	0	10	10
KHULNA	BAGERHAT	12	0	20	41	61
KHULNA	KHULNA	27	0	45	90	135
KHULNA	NARAIL	4	0	15	5	20
KHULNA	SATKHIRA	9	0	25	20	45
MYMENSINGH	JAMALPUR	1	0	0	5	5
MYMENSINGH	KISHOREGONJ	8	0	5	39	44
MYMENSINGH	MYMENSINGH	9	0	15	30	45
MYMENSINGH	NETROKONA	6	0	10	20	30
MYMENSINGH	SHERPUR	1	0	0	5	5
MYMENSINGH	TANGAIL	11	0	30	25	55
PATUAKHALI	BARGUNA	9	0	15	30	45
PATUAKHALI	PATUAKHALI	16	0	30	50	80
RAJSHAHI	C. NAWABGONJ	4	0	5	15	20
RAJSHAHI	NAOGAON	10	0	10	40	50
RAJSHAHI	NATORE	5	0	10	15	25
RAJSHAHI	RAJSHAHI	6	0	10	20	30
RANGPUR	GAIBANDHA	15	0	25	50	75
RANGPUR	KURIGRAM	7	0	5	30	35
RANGPUR	LALMONIRHAT	4	0	20	0	20
RANGPUR	RANGPUR	12	0	20	40	60
SYLHET	HABIGONJ	12	0	15	45	60

SYLHET	MOULVIBAZAR	8	0	10	30	40
SYLHET	SUNAMGONJ	6	0	0	30	30
SYLHET	SYLHET	7	0	0	35	35
	Total	649	51	812	2378	3241

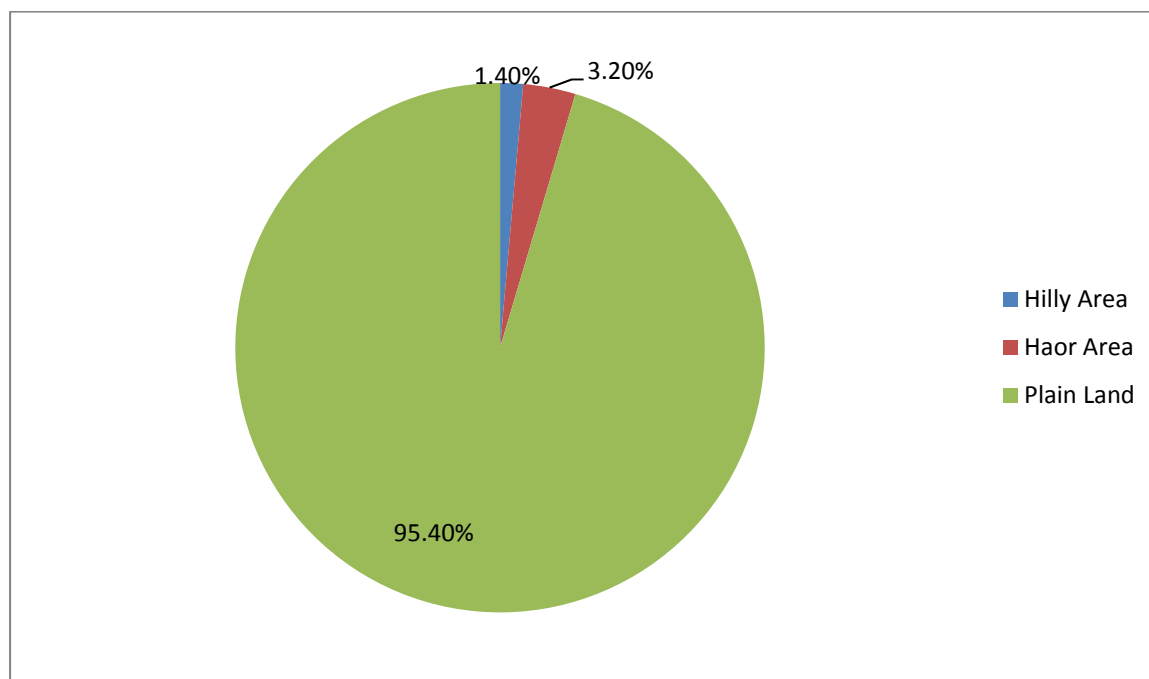


Fig 1: Percentage of classrooms located in hilly, haor and plain area.

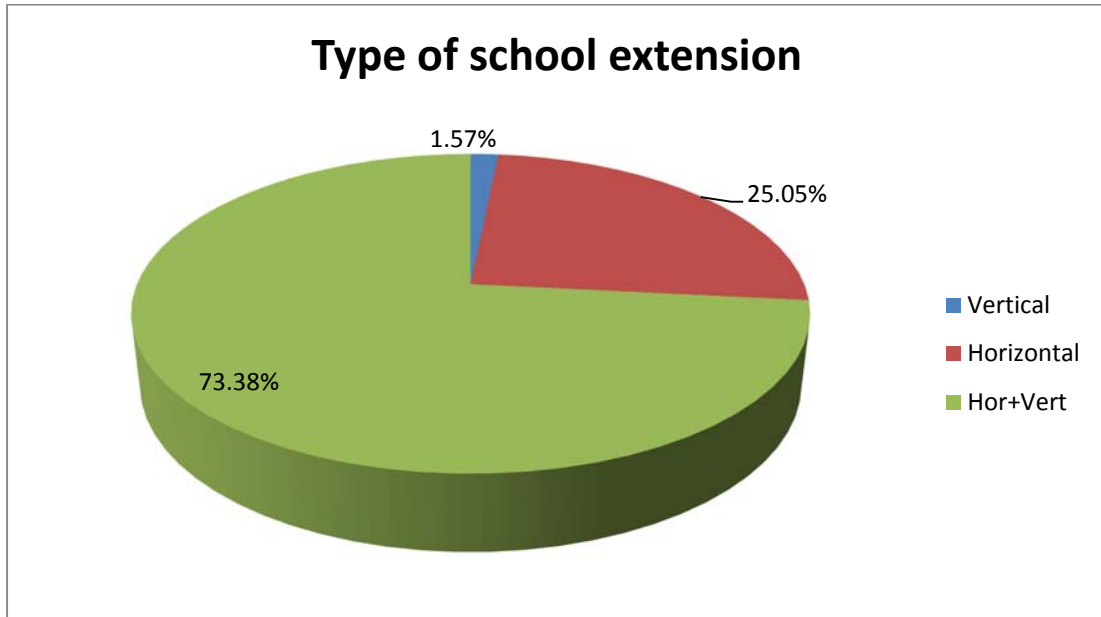


Fig 2: Percentage of schools in horizontal, vertical and both extension

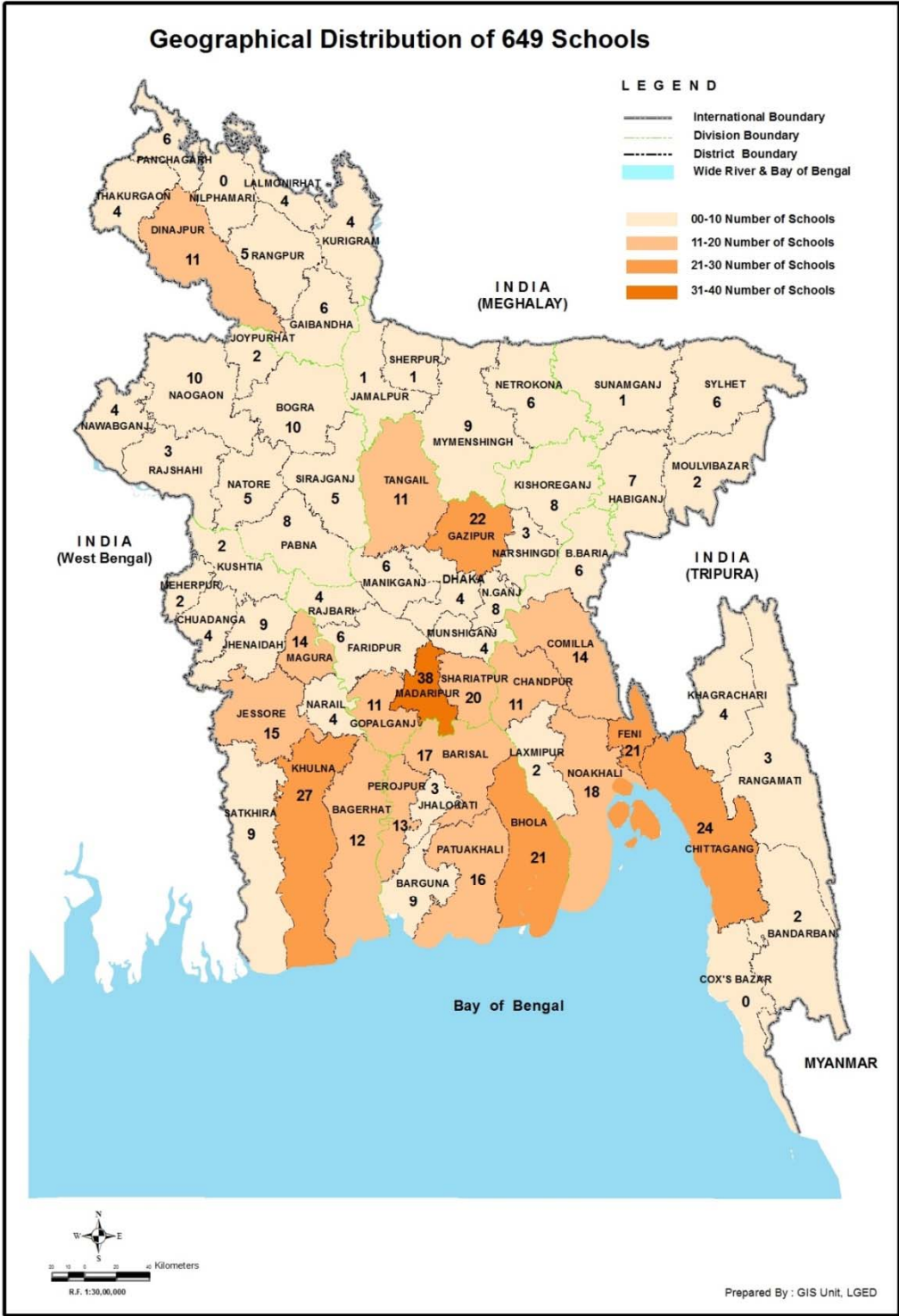


Fig 3: Geographical Distribution of 649 schools

4.3 Existing Environmental Conditions

4.3.1 Land use

In PEDP-3, additional class rooms are being built within the existing campus of the school and no land acquisition is done in any case. In case of the vertical extension of the existing building, concern for land use is minimal. However, in case of horizontal extension, care is taken to maximize the benefit of use of this scarce resource specially to maintain the physical environment of school. As more than one agency is associated in the school development such as Department of Public Health Engineering (DPHE), a provision of preparation of joint site plan of all the proposed infrastructure has been developed and is being followed.

It appeared from the report from the field offices that none of the schools where these 3241 additional class rooms would be constructed are located in any ecologically protected area or near any recognized forest. No possibility of negative impact on wetland was also observed. Similarly, no loss of agricultural land was also reported.

4.3.2 Water Quality

During construction, surface water quality may deteriorate due to construction activities, and sewerage from construction sites and work camps. Other than this there is no cause of water quality deterioration.

4.3.3 Air Quality

Normally the air quality in schools is not polluted but during construction the air quality is generally affected by dust generation from construction sites. Dust generates from material stockpiles and access roads. Such pollution is also a function of weather conditions, in dry season nuisance is more; during rainy season, dust nuisance reduces. Mitigation measures are mentioned in EMP.

4.3.4 Noise Pollution

The noise level of the schools located in the rural areas are low especially those are located close to the residential areas. However, the noise levels of some of the schools which are close to Bazar or Upazila HQ are a bit higher but seem reasonable. On the other hand, the noise levels of the schools which are located in the city corporation area are higher. Overall, the noise level of the project locations seems reasonable comparing to the requirements of Bangladesh standards for noise.

5.0 Identification and Evaluation of Potential Impacts

5.1 General Considerations

Identification of potential impacts at various stages of a project is generally carried out during Site Specific Initial Environmental Examination (SSIEE) so that appropriate measures can be adopted at the early stages of the project to reduce the adverse impacts or to enhance the beneficial one.

5.2 Scoping of Impacts

Identification of potential impacts due to the location, construction and operation of the newly approved schools have been done using a checklist SSSES (Site Specific Environmental Screening) as mentioned in the revised Environmental Management Frame Work (EMF) and shown in **Annex-A**. Checklist is a comprehensive list of environmental effects and impacts indicator designed to stimulate the analysis to think broadly about possible consequences of contemplated actions.

5.3 Impacts on Environment

5.3.1 Impacts due to the location of the project site

All the project sites are within the existing school campus and no negative impact due to the project location on the existing environment was found.

5.3.2 Impact during construction stage

Undertaking construction work in a running primary school is more challenging than construction of a school in a new location. As classes would be parallel going on, extreme care should be taken to avoid any risk of accident or causing inconvenience to the students and teachers.

During the construction phase, there are chances of environmental pollution. A large number of skilled and unskilled labour works in the project site. Many of them stay permanently at the construction area. Unless proper sanitation system is designed, this will pollute the surrounding area and pose threat of spreading epidemic diseases in the vicinity of the project site. If proper safety measures are not undertaken both for the workers and for the students, accident can take place. The equipment like mixture machine, concrete vibrator, brick breaking machine etc. would cause noise pollution. Dust from the handling of cement, breaking of khoa and mixture of concrete ingredients would cause air pollution which needs to be taken care of.

Measures to be taken:

The following mitigation measures are suggested to be taken care against the environmental pollution during the construction phase. Such as:

- ❑ In case of demolition of any existing building, great care should be taken to avoid any accident. All precaution in this regard shall be undertaken by the project proponent.
- ❑ Temporary accommodation for the work forces near the site area with adequate provision of water supply for drinking, bathing and washing purposes shall be ensured.
- ❑ Sufficient latrines to be constructed so as not to pose a health hazard.
- ❑ Safety goggles of accepted standard BDS 1360 should be used who are engaged in drilling, cutting, welding and all such other works which cause hazard to the eye.
- ❑ Helmet conforming to BDS 1265 and BDS 1266 shall be worn by the workmen and other personnel during work.
- ❑ Toxic materials are barred to be used in the construction such as lead based paints, asbestos etc.
- ❑ Building materials that may potentially threaten the environment are discouraged
- ❑ Fencing should be provided around the construction site.
- ❑ Traffic congestion should be minimized by adopting proper planning. Timing schedule for arrival of construction materials can be adjusted so that interruption with the public utility services be minimum.
- ❑ Dust and particulate materials causing nuisances to surrounding areas be kept minimum by careful handling of cement and breaking khoa by labour instead of the khoa breaking machine.
- ❑ Undesirable noise should be avoided by confining the source of noises. The khoa breaking machine should be avoided and manual breaking should be adopted. If khoa breaking machine becomes necessary, it should be confined within a temporary shed so that noise pollution can be kept at minimum. In no case such machine should be allowed to operate at night.

Some solid waste will be generated during the construction stage which will mainly come from the used cement bag and other packaging materials. These can be burned out or properly disposed after tearing so that these cannot be reused by any person.

To avoid any accidental risk, every precaution should be taken up. Medical First Aid Box should be kept at the site for any injury and transport should be made instantaneously available to take the patient to the hospital in case of major accidents.

5.3.3 Impact during operation stage

Impacts from Solid waste

The schools will not produce any significant amount of solid waste. Polyethylene bags, hard papers, soft papers and refuses from food stuff are identified as the main components of solid waste from this project.

Mitigation Measures to be taken

For solid waste management, it is suggested that project proponent arrange garbage bin in the building and also at various locations in the campus.

Impact from liquid Waste

No significant liquid waste will be generated from operation of the schools. However waste water will be generated due to the use of water for toilet activities and from little domestic activities.

Mitigation Measures to be Taken

The liquid waste should be properly disposed to septic tank and soak wells or using leach pit of approved design.

Air Pollution

Air pollution from the school buildings will not be significant.

5.3.4 Positive Impacts

There will be employment generation during the construction phase and as well as in the operation phase of project. The sub-projects would meet the demand of the need of schools/class rooms of the respective areas.

Although the project proponent deserves the right to employ the best workers, the local people should get preference in such cases which would generate opportunities for employment of the local people.

6.0 Environmental Management Plan

6.1 Environmental Mitigation

The primary objective of the environmental management and monitoring is to record environmental impacts resulting from PEDP 3 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. A sample environmental management plan format is included in **Annex A** and a typical environmental mitigation measures have been suggested in **Annex-C**. The EMP will also include specific guidelines to be followed during construction stage for all specific construction activities financed under the project.

6.1.1 Mitigation Plan

The mitigation plan develops specific measures that minimize impacts associated with the project. These have been stated earlier. The summary of such actions are described in Table- 4.

6.1.2 Benefit Enhancement measures

Benefit enhancement plan helps in maximizing the positive impact of an activity. These are shown in a summary form in Table-4.

Table-4 Possible Mitigation/Enhancement Measures

Project Phase	Potential Impact	Mitigation/ Benefit enhancement measures
Location	Disruption of earth surface and drainage pattern	<ul style="list-style-type: none"> • Cutting earth should be kept minimum at site • Adequate drainage system should be constructed for the easy natural drainage system of the area.
	Changes in landscape	<ul style="list-style-type: none"> • Plantation of trees should be done at all possible open space of the building premises
Construction Phase	Worker accident	<ul style="list-style-type: none"> • Set up warning signs, signals and provide helmet for the workers • Restrict access to the work site by students and other public. • Appoint a safety officer
	Sanitation disease hazard	<ul style="list-style-type: none"> • Supply good quality drinking water to the workers • Provide well planned hygienic sanitary facilities • Provide regular health inspection among the workers • promote health education campaign among workers
	Noise vibration hazard	<ul style="list-style-type: none"> • Make working programme according to the local situation
	Employment	<ul style="list-style-type: none"> • Employ local and landless/poor labor

Project Phase	Potential Impact	Mitigation/ Benefit enhancement measures
Operation phase	Liquid discharge	<ul style="list-style-type: none"> • Provide proper septic tank/leach pit/ sewer connection for creating proper treatment facilities
	Solid Waste	<ul style="list-style-type: none"> • Organize proper collection, transportation and disposal system of all solid wastes

6.2 Environmental Monitoring

6.2.1 Construction phase Monitoring by the field offices

As observed in Table-5, construction phase monitoring is an important phase of EMP from the standpoint of environmental monitoring of these small scale constructions of the additional class rooms in the existing school campus.

In general, the following indicators and the related mitigation measures are being monitored during construction stage: (i) Sanitary toilets and pure drinking water both for male and female workers; (ii) First aid box and safety of workers; (iii) stacking of materials at safe place, (iv) surface water pollution; (v) dust and noise pollution; (vi) child labor vii) engagement of local people; viii) drainage network, (ix) cutting of trees etc. Monitoring during construction format is attached as **Annex-B**. A Management Information System (MIS) will be developed to record the environmental mitigation and monitoring information along with the infrastructure development data.

Monitoring formats were sent to Upazila Engineers and data for 740 schools have been received so far. The number consists of both schools under ‘Education in Emergency’ and DLIs. The result is shown in Table 5.

Table5: Result of construction phase monitoring

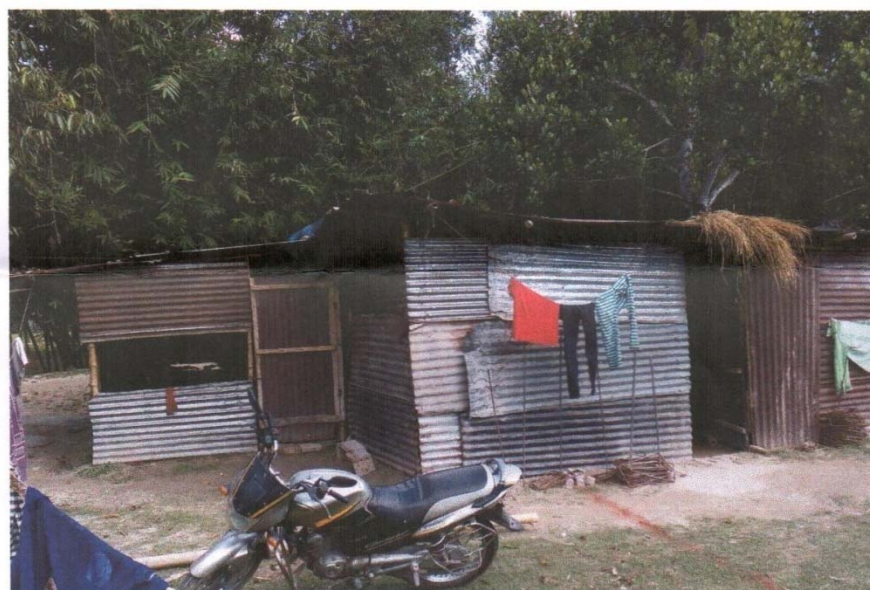
Sl.No.	Description of Parameters	Nos. followed	Nos. Not followed	Corrective Measures
1.	The contractor will erect sufficient number of temporary sanitary toilets and shelter both for male and female workers at the site with proper sanitation system.	738	2	Fig. 5 shows the shelter erected for the laborers. Where there is no suitable place, contractor rents houses nearby.
2.	The contractor will ensure supply of pure drinking water to the workers during the time of construction.	740	0	All contractors sink tube wells for labors as well as for construction purpose. One such tube well has been shown in Fig.4.
3.	The contractor will keep a first aid box at the site for any accident.	737	3	Almost all the contractors keep a first aid box at the site. One such box is shown in Fig.6. Those defaulters have been requested to arrange First Aid box immediately.
4.	The contractor will take necessary precaution for the safety of his workers and also for the safety of the pedestrians.	734	6	Contractors take necessary precaution for safety of workers and pedestrians. Figs. 8 and 9 show the safety taken for the pedestrians.
5.	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.	730	10	Some time the contractors cannot follow the rule due to space limitation but they are forbidden to occupy any classroom
6.	The contractor will not engage any child labor in the work.	740	0	No child labor is engaged by the contractor due to strict monitoring by field staff.
7.	The contractor will not pollute any nearby source of surface water by any of their activities.	736	4	Contractors were prohibited to dump

				construction wastes in the nearby water bodies
8.	The contractor will try to minimize sound pollution. If such sound producing activity becomes unavoidable, it should be matched with the local condition so that the adverse impact can be kept minimum.	735	5	To minimize sound pollution the concrete casting activities were planned at suitable time e.g. weekly holidays.
9.	The contractor will engage local people in the work as far as possible. The vulnerable destitute women should get preference.	731	9	The contractor engaged local people in construction work. Outside laborers were engaged only where local labor was not available.
10.	The contractor will not hamper the drainage network of the area by any of their activity.	740	0	The drainage was not hampered at any site.
11.	The contractor will not cut or damage any tree in and around the project area without the permission of the supervising authority.	740	0	No tree was cut.
12.	The contractor will take every initiative to reduce dust emission during the construction work i.e sprinkling of water on the dust etc.	729	11	Besides water sprinkling the construction materials were covered as shown in Fig.7
13.	The contractor will not set any temporary burner under any tree.	740	0	No burner is required in school construction
14.	If required, the contractor will collect filling earth from existing ditches, ponds and fallow lands to avoid land loss.	740	0	The contractors collected required earth from fallow lands and ditches outside of the project area.

From the table it is observed that in 11 nos. school construction the contractor did not take initiative to reduce dust emission followed by 10 nos. school construction the contractors did not stack construction materials in a safe place. The upazila engineers of these upazilas have been informed to be vigilant against such environmental safety violation.



Fig 4: Tube well set up by the Contractor at Nesarabad, Pirojpur



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Fig. 5: Contractor's labour shed at a school construction site in Pirgacha Upazila of Rangpur district



Fig.6: Contractor has provided a First Aid Box at site in Nesarabad, Pirojpur



Fig. 7: Construction materials have been covered to avoid dust pollution in a site at Narayanganj



Fig 8: Contractor has erected Tarja fencing for safety of the pedestrians at a site in Narayangonj.



Fig.9: Contractor has provided safety notice in site at Narayangonj.



Fig 10: Inspection of a school construction at Tangail

7.0 Measures taken to implement the EMF

From the beginning LGED had taken various measures to implement the EMF so that the environmental issues are properly addressed in implementation of PEDP- 3. Following are the measures:

1. In consideration of increasing workload for implementation of the EMF, LGED engaged a full-time Environmental Specialist from Jan, 2012. The Specialist is responsible for implementation of the EMF and its provisions, including compliance checking, facilitation, coordination and ensuring dissemination, orientations and capacity building activities.
2. From the LGED headquarters directive letters are sent time to time reminding the field engineers to implement and monitor the environmental issues to ensure that the envisaged purpose of the project is achieved and result in desired benefits to the target population without adversely affecting natural environmental resources.
3. For monitoring the compliance of the environmental issues during construction data in monitoring format (Appendix B) are collected from the field quarterly and stored in the MIS maintained in the LGED HQ. The monitoring results are documented; the corrective measures are identified and reflect them into a corrective action plan. The corrective measures are implemented and followed up on

these actions to ensure their effectiveness. Biannual monitoring reports are prepared mentioning the progress of implementation of the EMP along with compliance issues and corrective actions. The Reports are maintained in PEDP-3 headquarter for reference if required in future as suggested in the Revised EMF.

4. LGED is regularly holding Quarterly Review Meetings in 14 regions to review implementation and monitoring of progress of the PEDP-3. In these meetings the environmental and social safeguard issues are also reviewed and the bottlenecks are resolved for smooth implementation and monitoring.

5. Engineers from the LGED HQ as well as the Environmental Specialist undertake field trips to monitor the compliance of the environmental issues during construction and EMP implementations.

8.0 Conclusion

1. The new building construction in PEDP-3 mostly includes construction of additional class rooms which is small construction and therefore no hazard involved and the nature of civil works is not likely to cause significant and/or irreversible adverse environmental impacts.

2. Most of the project impacts are mild and localized during construction period only.

3. The compliance of the environmental mitigation measures during construction is monitored at three levels; the Upazila Engineer level, Regional Superintending Engineer office is the second level and PEDP 3 head quarter is final level.

The above measures and activities testify that the environmental safeguard measures are properly monitored and managed in PEDP-3

Appendices

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 (30ftx20ftx10 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 networks)

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 Environmental 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 ¹ ,NMMR ² ,MMS ³¹
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 guidelines 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 guidelines 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 Environmental guidelines during construction phase Should be followed.
Soil erosion	Do the existing facilities expedite or trigger soil erosion?					MMS-1 Environmental guidelines 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?					

¹ MMs:Mitigation Measures

2NMMR: No Mitigation Measures Recommended

3MMS: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

	(Mention the source of information and also attached the report, if available with the screening format)					
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 of 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 agricultural land from the school premises? What type of corn grown in this 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 the operation of the existing facilities?(proximity of the water source to the latrine)					
Breeding place of mosquitoes	Any waterlogged 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						

Land use pattern						
Migration/Resettlement						
Religious sites						
Archeological sites						

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

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 guidelines during construction of the school building.	During construction	Concerned Executive Engineer of LGED
Generation of solid waste				
Generation 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 Guidelines are being followed	During construction	Every quarter	Concerned Executive Engineer of LGED or his representative
MMS		During operation	LGED/SMC	

Annex-B

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 activities.	Yes <input type="checkbox"/> NO <input type="checkbox"/>	

Description of Parameter	Whether followed or not	Remarks
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.	<input type="checkbox"/> 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 C: 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
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
Occupational health and safety	Chances of accidents, spread of communicable diseases	<ul style="list-style-type: none"> * Implement suitable standards for all workers and site visitors * Provision of first aid facility * Provision of first aid facility * Arrangement of sanitation facilities for the subproject

		the labors working in the "subprojects"
Day Lighting and ventilation system	Poor lighting and ventilation may impact on students and teachers	* Adequate windows in proper direction in consultation with students and teachers
Selection of appropriate Water Supply Technology	Without proper analysis the new source bears arsenic contamination	Identify areas* Identify areas and u based on DPHB survey where sl 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	Location may not be convenient to female students and impact on natural resources and common property resources. Close distance between water point and sanitary latrine can contaminate ground water.	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
Integration of drainage facilities with water supply and sanitary latrine	In absence of proper drainage facilities, water logging can be created around school.	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	After installation of tube wells, arsenic will be tested and be used only it satisfy the Bangladesh Standard