Semi-Annual Report

December 2020

4th Primary Education Development Program (PEDP-4)

Semi-Annual Environmental Monitoring Report

DEPARTMENT OF PUBLIC HEALTH ENGINEERING

July 2020 – November 2020

[A report on WASH facilities and its environmental impact under PEDP-4]

Primary Education Unit, DPHE, Dhaka

Contents

ABBREVIATIONS & ACRONYMS

ADB	:	Asian Development Bank
AusAID	:	Australian Agency for International Development
CIDA	:	Canadian International Development Agency
DFID	:	Department for International Development (of the United Kingdom)
DP	:	Development Partner
DPEO	:	District Primary Education Officer
DPE	:	Directorate of Primary Education
DPHE	:	Department of Public Health Engineering
DTW	:	Deep Tube Well
EFA	:	Education For All
EMF	:	Environmental Management Framework
EU	:	European Union
GOB	:	Government of Bangladesh
IDA	:	International Development Association
JARM	:	Joint Annual Review Mission
JCM	:	Joint Consultation Meeting
JICA	:	Japan International Cooperation Agency
LGD	:	Local Government Division
MIS	:	Management Information System
MLGRD&C	:	Ministry of Local Government, Rural Development and Cooperatives
MoPME	:	Ministry of Primary and Mass Education
MOU	:	Memorandum of Understanding
PEDP-4	:	Fourth Primary Education Development Program
SDTW	:	Semi Deep Tube Well
SEC	:	Small Ethnic Community
STW	:	Shallow Tube Well
SIDA	:	Swedish International Development Agency
TSP	:	Tube Well with Submersible Pump
UNICEF	:	United Nations International Children's Emergency Fund
WB	:	World Bank

EXECUTIVE SUMMARY

The prime objective of PEDP-4 is to ensure an efficient, inclusive and equitable primary education system through a child friendly physical learning environment. Infrastructural development in terms of construction of class rooms and wash blocks, installation of safe drinking water points plays an important role in achieving the sustainable physical learning environment as well as ensuring holistic development of children. Department of Public Health Engineering (DPHE) is solely responsible to provide the facilities of quality water supply and sanitation in the primary schools of Bangladesh. As per MoU signed in between DPE and DPHE in September 15, 2019, DPHE will install 15,000 new water points and construct 58,000 Wash Blocks in the primary schools of Bangladesh throughout the program tenure of 5 years. Furthermore, DPHE will conduct water quality tests of earlier installed 65,000 water points and major maintenance of wash blocks constructed during PEDP-3. From the beginning of the project until November'2020 DPHE installed 2385 new water points and constructed 672 Wash Blocks. In this tenure, DPHE conducted major maintenance of 3889 wash blocks as well.

The sole purpose of this study is to identify any concern or issue related to the environmental safeguard due to the installation of wash blocks, water points and major maintenance of wash blocks from July' 20 to November'20. The study is based on the environmental safeguard screening conducted during construction and post implementation stages. The screening format is prepared after the approved EMF guidelines of DPE for PEDP-4. The screening included different environmental safeguard indicators such as loss of agricultural land, blockage in the drainage system, provision to access safe drinking water, provision of hand washing and hygiene facility etc.

The screening was conducted by DPHE officials at the Upazilla level which was duly verified in district level and compiled in DPHE headquarter. It cannot be denied that COVID-19 situation slowed down the overall construction and implementation progress. However, the environmental monitoring screening confirmed no significant instances or issues that may hamper or influence the environmental safety during the reporting tenure. Being an implementing agency, DPHE would like to uphold this status in its ongoing and upcoming works related to infrastructural development.

1. Introduction

Bangladesh, a rapidly developing country with its astonishing economic boom is about to cherish the golden jubilee of its independence. To ensure true development, it is utmost important to ensure holistic development of the children of a nation which includes both intellectual and emotional development in such a manner that they can uphold the nation from all aspect. This has been eloquently articulated in the Constitution of Bangladesh as well. Fourth Primary Education Development Program (PEDP-4) is the continuation of Government's approach in thriving the excellence of children through the fulfillment of several distinct milestones including construction of need based infrastructures for sanitation and water supply. The program is supported by significant contributions from Government as well as Development Partners (DPs). Department of Public Health Engineering (DPHE) under Local Government Division (LGD) of Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) is solely responsible to provide the facilities for quality water supply and sanitation in the primary schools of Bangladesh. As per MoU signed in between DPE and DPHE in September 15, 2019, DPHE will perform the following activities in the next five years with an aim to provide safe drinking water and sanitation services in the primary schools under PEDP-4.

- Install 15,000 new drinking water sources.
- Replace/repair drinking water sources (if necessary).
- Water quality testing of 65,000 water points installed earlier by DPHE.
- Construction of 58,000 new Wash Blocks.
- Major maintenance of wash blocks.
- Operation and maintenance (O/M) of water points.

2. Purpose of current report

The basic intent of this report is to identify and resolve any anticipated environmental safeguard issues that may arise during the installation of water sources or construction of Wash Blocks in the primary schools of Bangladesh. This report will encompass and summarize the findings of the environmental screening conducted during the installation of water points and major maintenance of Wash Blocks in the primary schools of Bangladesh from the tenure of July'20 to November'20. During implementation of the project, environmental monitoring screening was conducted based on the Environmental Management Framework (EMF) of PEDP-4. The purpose of this report is listed below.

- To modify some of the tools based on the experiences gained from PEDP-3 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.

- To ensure that envisaged purpose of PEDP-4 is achieved and result in desired benefits without adversely affecting the environmental resources.
- To avoid potentially adverse environmental impacts and enhance environmental outcomes so that the program is expected to have limited and minimum adverse environmental impacts.
- To establish the mechanism to determine and assess future potential environmental impacts of WASH infrastructure 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 WASH infrastructure to eliminate adverse environmental impacts or to reduce them to acceptable limits.

3. Indicators of environmental safeguard as per EMF under PEDP-4

This report covers different distinct environmental monitoring indicators based on the approved EMF of PEDP-4. Principles relevant to the environmental management of WASH (Water Supply, Sanitation and Hygiene) in PEDP-4 are mentioned below.

- Annual water quality monitoring of all the installed tube-wells under PEDP-4 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 the mechanism for regular cleaning, routine and major maintenance will be implemented.
- To solve the drinking water problem in remote hilly areas and coastal areas, rainwater harvesting and other feasible options will be explored.
- To address the post COVID crisis for adaptation to the new normal.

In general, the following indicators require to be monitored during the planning, construction and post-implementation phases.

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
viii) Maintenance of air and water quality
ix) Management of surrounding ecosystem and biodiversity (if any) etc.

A thorough screening on the above indicators were carried out during the reporting tenure.

4. Methodology

With an aim to investigate the impact of infrastructural development on environmental safeguard, a through screening was carried out in the respective primary schools by the concerned sub-assistant engineers of DPHE. The screening results were duly verified by the respective assistant engineers and a database was prepared at Upazilla level. Executive engineers at district level complied the verified database obtained from Upazilla level and sent them to DPHE Head Quarter at the MIS (Management Information System) unit, where the database was finally compiled and report was prepared under the supervision of focal point of PEDP-4.

Data for environmental safeguard screening during the installation of water sources and maintenance of Wash Blocks have been collected from the schools through DPHE official sources using the structured format (copy enclosed in Appendix-1 of this report). Data collected from grass root level have been entered into 'Master Environmental Survey Outcome' Spreadsheet by MIS UNIT and kept structured for database and reporting. A flow diagram of the screening method is depicted in Fig. 1.

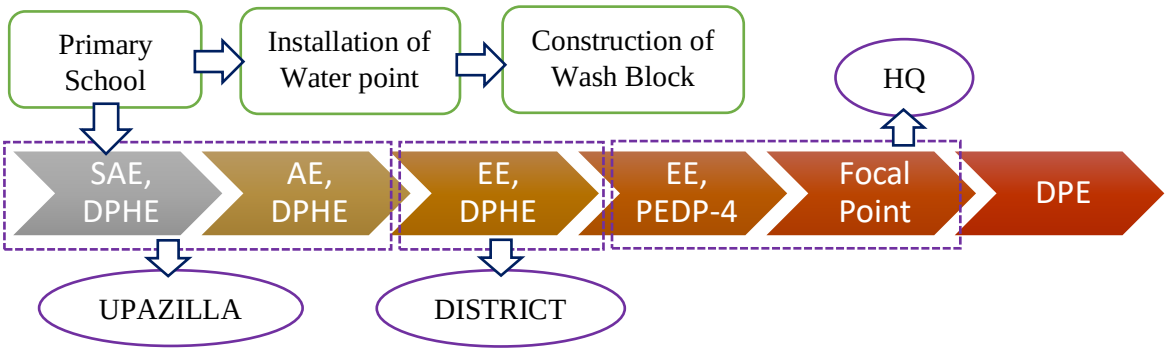


Fig. 1 Method of environmental safeguard screening

5. Role of DPHE in comprehensive monitoring

The subcomponents of PEDP-4 especially the infrastructural implementation is comprehensively monitored by several parties from commencement to operational phase. Fig.2 shows the monitoring scheme in PEDP-4 operated by different agencies. Being an implementing agency, DPHE is involved significantly from construction till post-construction monitoring. Role of DPHE is depicted in Fig.3. It can be noted that the defect liability period for installed water points and constructed wash blocks are 02 and 01 year respectively. This implies that contractor is responsible to rectify any sort of defects within this time frame counting from the date of handover of tube well and wash block. In order get a clear picture of ongoing and completed works, DPHE district office arranges monthly monitoring meeting with all concerned officers and staffs of that district. Executive Engineers thus address the issues of monitoring to the assistant/ sub assistant engineers monthly. Officers of concerned district used to visit the site frequently in order to monitor the ongoing and completed works and also focus on

the environmental safeguard aspect. Visit from Focal Point's Office and DPHE Head quarter happens frequently.

DPHE district office arranges coordination meeting between DPHE (EE, AE, and SAE) and DPE officials (DPEO, UEO) in every 3 months. A glimpse of the co-ordination meeting is depicted in Fig. 4. In this meeting, officers from department of primary education point out the necessity of monitoring of particular school which are immediately addressed by DPHE officials. Besides these, to get better insight and ensure quick action, DPHE has introduced a new system of arranging monthly meeting between DPHE officials and Headmasters of Primary School during this reporting tenure as a part of routine monitoring process (Fig 17). In addition, mechanics of DPHE upazilla headquarters repair the tube wells in an urgent basis when they are called for doing from the concerned school in order to ensure that the running water supply are fully operational.

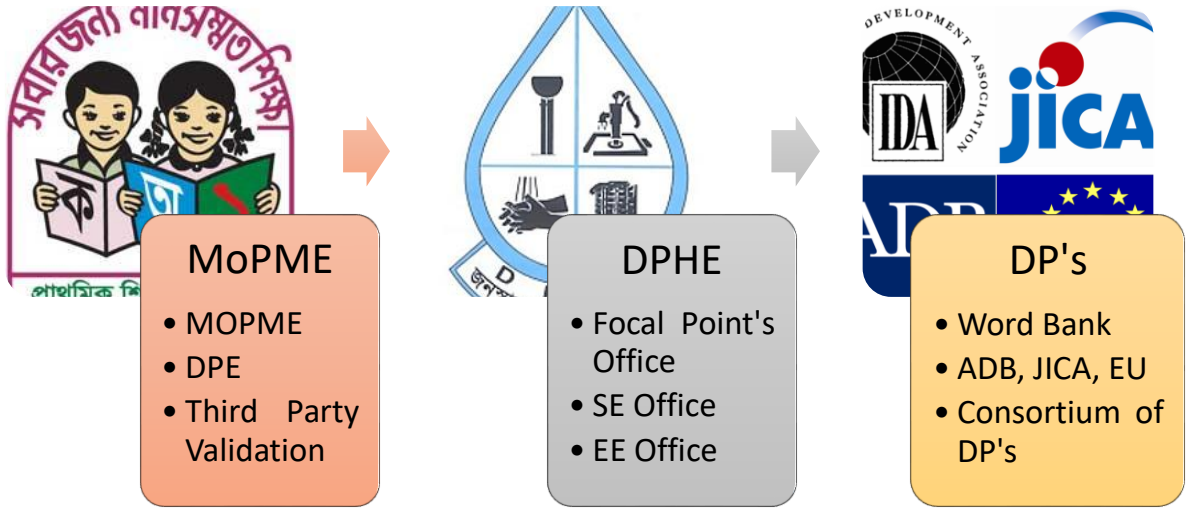


Fig. 2 Monitoring scheme in PEDP-4

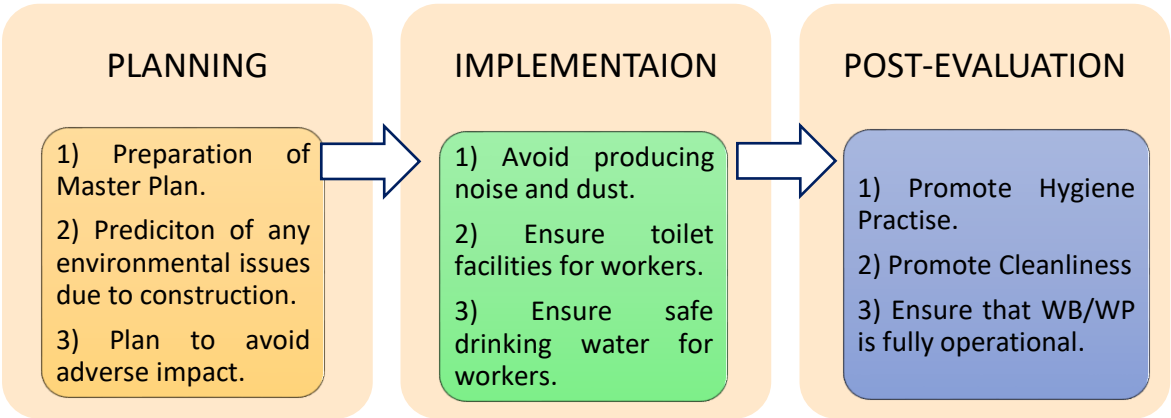


Fig. 3 Role of DPHE in environmental monitoring

Fig. 4 Co-ordination meeting between DPE & DPHE Officials at Sylhet district

DPHE arranges caretaker training and provides MoPME approved 'Maintenance Manual' to the concerned schools during the handover of water points and wash blocks which covers post construction issues. Moreover, DPHE looks after the tube wells which have already passed the defect liability period of 02 (two) years. According to the order of Chief Engineer, DPHE (memo no. 1066, dated: 16/09/2013), the packages where the defects liability period is over, DPHE will still repair the tube wells within 72 hours of receiving information provided that the concerned school bears the expense of spare parts from routine maintenance.

6. Capacity building

During the implementation of PEDP-3, a ToT (Training of the Trainers) was conducted by the World Bank among DPE, DPHE and LGED officials. The purpose was to introduce the proposed framework for environmental and social safeguard under PEDP-3 along with the importance of conducting rigorous monitoring. In addition, screening method was agreed and confirmed based on targeted outcomes. DPHE officials (Executive Engineers, Senior Assistant Engineers and Assistant Engineers) who received ToT provided trainings to the sub-assistant engineers and mechanics in the district and upazilla level who eventually filled in the environmental screening forms in the grass root level.

In PEDP-4, although a revised framework is adopted for both environmental and social safeguard, the basic changes are little but elaborate in comparison to that of PEDP-3. During the reporting tenure, no new ToT was organized by either DPE or development partners, although necessity is there for the proper implementation of revised EMF and SMF. During the reporting tenure, DPHE master trainers from Head Quarter (who received ToT during PEDP-3) conduct day long circle level meetings to expedite the works related to the construction of wash blocks and installation of water sources and for

the smooth implementation of construction work by adhering the guidelines of both revised EMF and SMF. A real picture of one such circle level meeting from Rajshahi is depicted in Fig.5

Fig. 5 DPHE HQ & Field Official meeting at Rajshahi

Thus, the newly trained engineers will function as peer educators to educate the site workers and contractors. In order to identify the key differences of revised EMF and SMF to that of original EMF and SMF of PEDP-3, more newly designed training to be carried out by the experts who had inputs during the preparation of revised EMF and SMF.

7. Environmental safeguard screening by DPHE (July'20 – November'20)

It cannot be denied that COVID-19 situation slowed down the overall construction and implementation progress. But with restrictions being lessened, DPHE has quickly adapted to the new normal by developing a comprehensive COVID-19 Site Operating Procedure (SOP) alongside several site and task specific risk assessments. DPHE handed over a total of 672 wash blocks and 2385 water points till date from the beginning of this project. All Of the mentioned wash blocks and 2145 water points were installed and handed over during the reporting tenure of July'2020 to November'2020. All these works were monitored based on approved Environmental Monitoring Framework (EMF) for

PEDP-4. Table-1 summarizes the list of DPHE implemented works where screening for environmental safeguard was carried out.

Table 1 Progress of work under PEDP-4, DPHE

Installation/ Maintenance		water points & wash blocks covered in survey		
	July'19 - December'19	Jan'20 - June'20	Jul'20- Nov'20	Total
Wash Block	-	-	672	672
Water Sources	57	183	2145	2385
Maintenance of Wash Block	91	598	3200	3889

This report focuses on the construction work from the tenure of July to November, 2020. During this period, not only new wash blocks were constructed, major maintenance of 3200 wash blocks which were constructed during PEDP-3 were carried out as well. The status of the water points and wash blocks received through the monitoring survey is given in following subsections.

8. Outcomes of environmental safeguard screening

8.1 Influence of type of water point

Planning from the lessons learnt in PEDP-3

It is fact that, DPHE installed water points of different options such as Deep Tube Well (DTW), Shallow Tube Well (STW), Tara Tube well, Ring Well (RW), Pond Sand Filter (PSF), Rain Water Harvesting (RHW) in PEDP-3 based on the variation in geological formation, position of aquifer /water table, saline water intrusion etc. However, all those options have certain advantages as well as multiple drawbacks. The common of which is the ease of availability of water from source and their familiarization and user friendliness to the young users.

Mitigation Measures Suggested (MMS):

In order to mitigate the concerns and to make the water sources more popular and user friendly, DPHE started installing Tube well with Submersible Pump (TSP) in all the primary schools under PEDP-4. This option has special features such as-

- Running water supply with storage facility.
- Multiple user can access at the same time.
- Promote hygiene practice through safe hand washing.

Fig. 6 shows the previous and improved water supply facilities in primary schools under PEDP-4.

Comment:

Installation of tube well with submersible pump added values to its user especially young user which eventually *increases the easy access to safe drinking water result in health benefit* as well as diminishes water logging and drainage problem.

Fig. 6 Improved water sources by TSP from hand tube well

8.2 Distribution of water points based on installed depth

DPHE installed tube wells of varying depth in different primary schools of Bangladesh considering the geological formation of respective district. Although the depth of tube well is depended on the suitable water layer, all the tube wells installed in the reporting tenure can be broadly categorized into four distinct types based on the depth of tube well. Fig. 7 depicts the classification of tube wells based on depth. It is clear that 44.3% tube wells were installed at a greater depth of more than 200m. Number of shallow tube wells were in the range of 38.9% where the depth is less or equal to 65m.

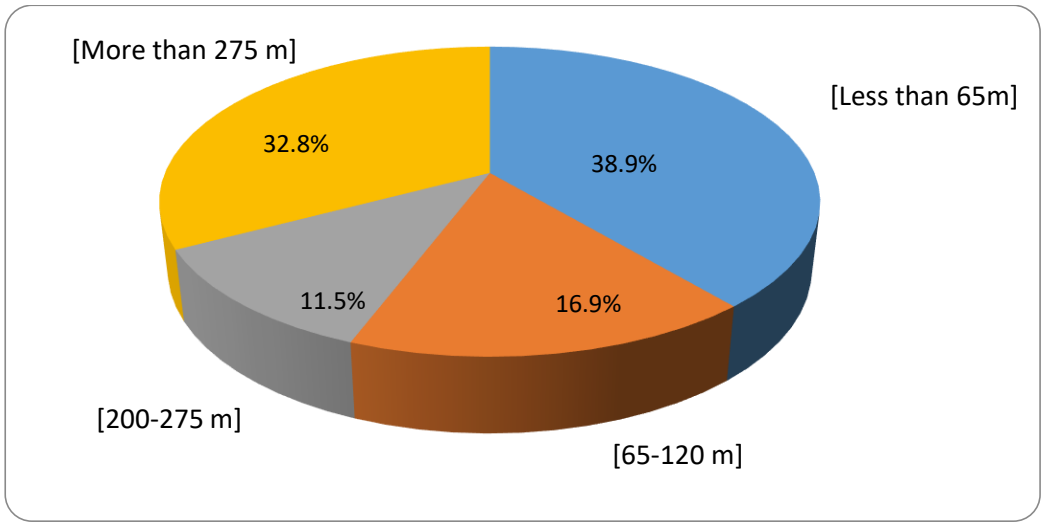


Fig. 7 Distribution of water points based on depth

8.3 Countrywide Distribution of wash blocks & water sources

Wash Block is serving as a unique unit of hygiene practice for the school children as well as for teachers. Its impact on environment as it helps to promote hygiene as well as safe and clean school environment. Open defecations and urination practices will be stopped and the washing facilities will ensure better health. On the other hand, Tube Well ensures safe drinking for the school children as well as for teachers.

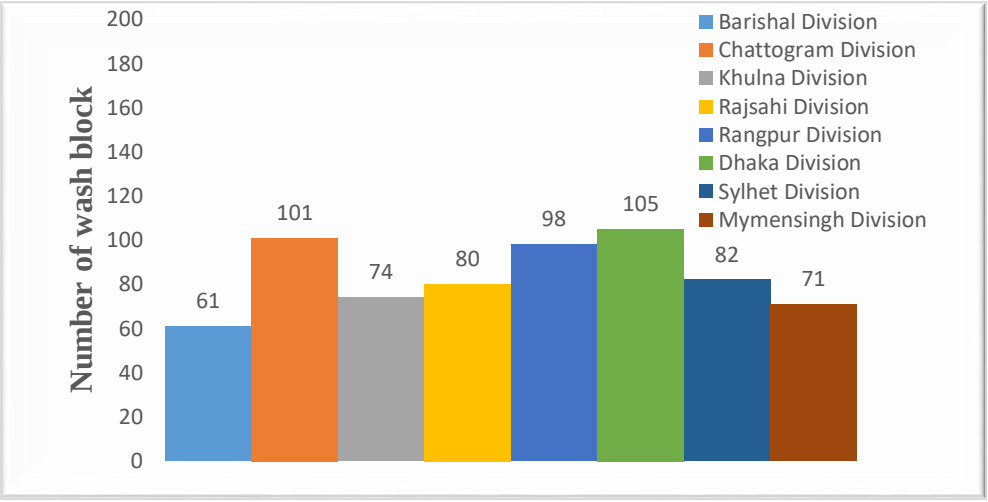


Fig. 8. Countrywide Wash Block distribution

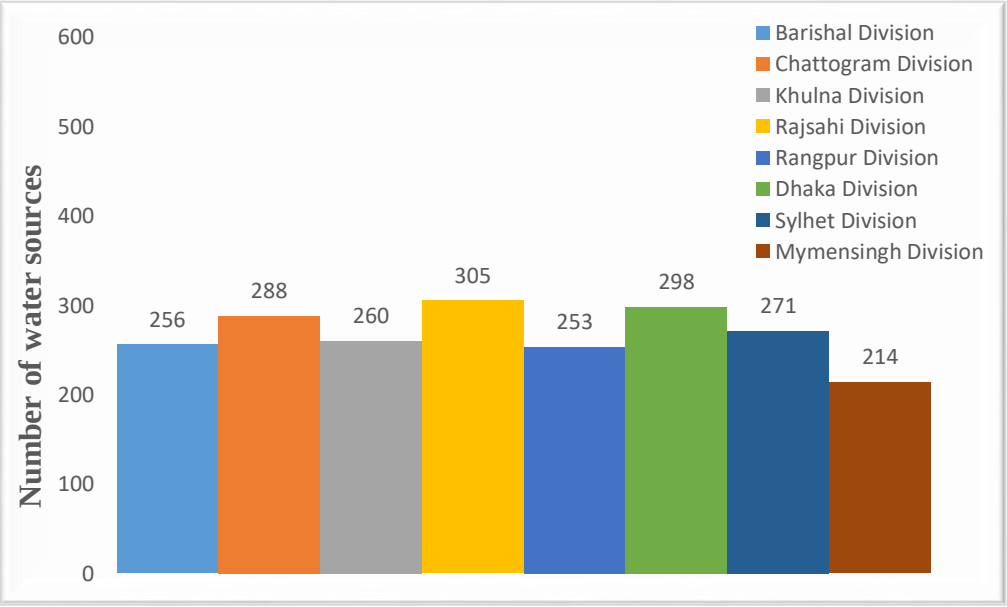


Fig. 9. Countrywide Water Source distribution

Countrywide distribution of Wash Blocks and Tube wells were surveyed and categorized division wise. Fig. 8. reflects that the distribution of wash blocks follows uniform pattern and Fig. 9 also depicts the uniform distribution of water sources.

8.4 Loss of agricultural land

During the preparation of site plan/ master plan it was the prime focus that the adoption of the new water supply facility does not preclude the use of existing agricultural lands. No loss of agricultural lands was received from the environmental screening survey conducted for the water points installed from July'20 to November'20. Furthermore, it was confirmed that installation of water points was carried out in the land owned by the respective school.

8.5 Environment of water supply facility

In case of water points 'Clean Environment' refers to the surrounding of the installed water option. If the surrounding environment is not dirty and/or not covered with algae then it would be referred to as 'Clean'. Post installation monitoring of all 2145 water points have been conducted. Clean environment was found in 2103 water points which is 98.04% of the total water points as depicted in Fig. 10. As the schools were closed due to the COVID-19 situation, there was lack of maintenance and blocked drainage due to waste dumping near the outlet was observed. It can be noted that due to the provision of basin type water points, water logging and or other problems related to dirty environment have been dramatically reduced than that observed during the environmental screening of other types of tube well installed in PEDP-3 program.

Mitigation Measures Suggested (MMS):

During the monitoring phase, mitigation measures were suggested to the concerned school such as cleaning of basin, removal of leaves and other utensils that causes blockage of the drains etc. Because of taking mitigation measures, caretakers' training and routine maintenance during monitoring phase, environment of water supply facility improves to 100% from 98.04%.

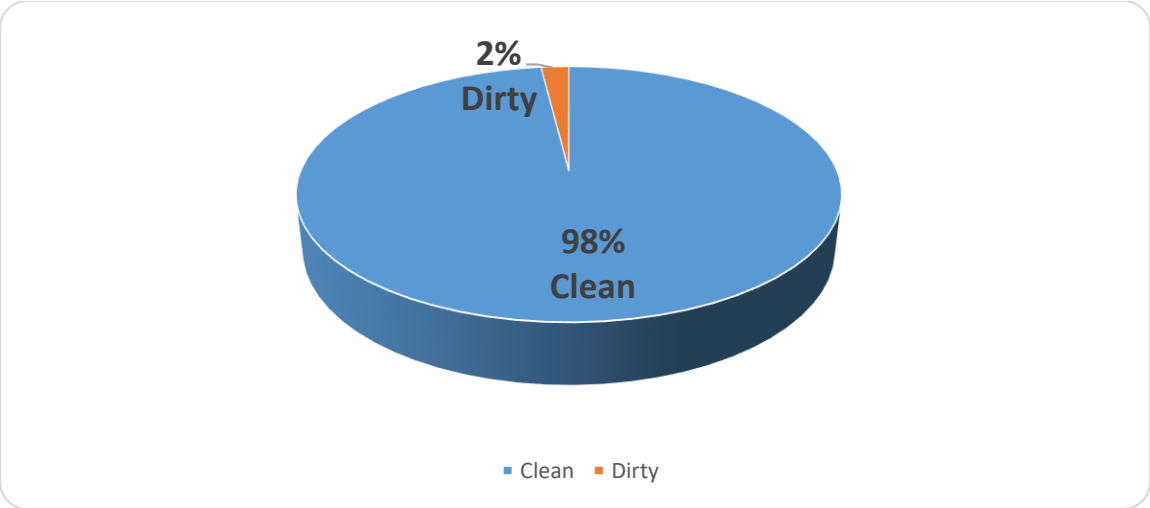


Fig. 10 Environment of water supply facility

8.6 Surface Water Pollution:

Both the water sources and wash blocks were installed in such a manner that they do not adversely pollute the surface water. The environmental screening of all 672 Wash Block and 2145 Water Points installed from July'20 up to November'20 revealed that they did not pollute any surrounding water bodies.

8.7 Facilities for draining out of water

From the lessons learnt during the environmental screening in PEDP-3, DPHE took initiative in solving the water logging problem by adopting different measures.

1) Pipe out used water to the existing drains.
2) Construction of 5 user water collection basin having 50mm dia. PVC washout pipe. Fig. 11. shows a newly constructed 5 outlet hand washing basin under PEDP-4.
3) Use of 8 ring soaks well to drain out basin water where surface drain is absent.

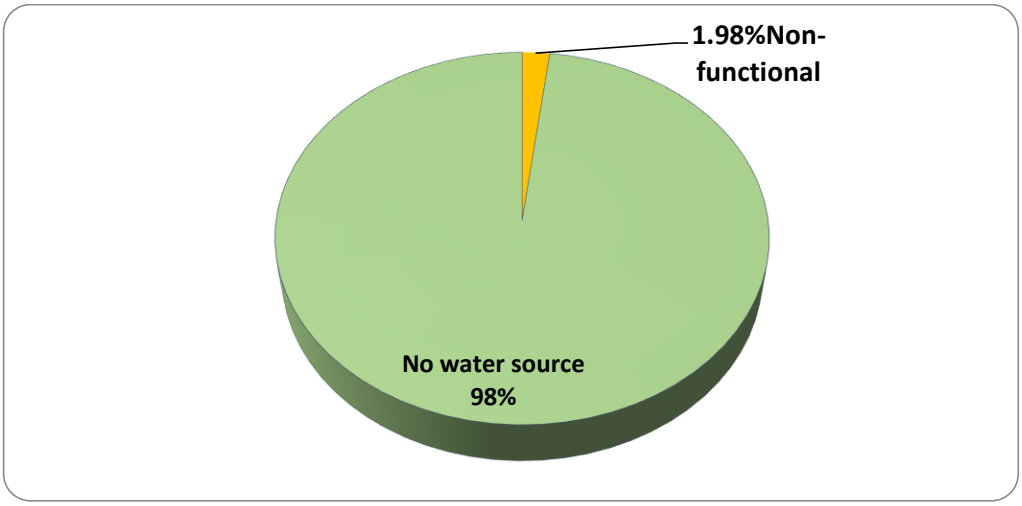
Fig. 11 Tube Well with Submersible Pump having 05 running water outlets

As because, DPHE local office took initiative in solving the drainage issue, it has been observed that, the water logging problem is insignificant compared to that in PEDP-3. However, it is revealed that out of 2145 water sources less than 1% had the problem of water logging. The reasons observed are mainly because of current COVID-19 situation schools are closed and hence the lack of cleanliness program was observed which created blockage of drainage pipe by wastes like paper, tree leaves, mud

etc. It is hence suggested that, SMC needs to look after this issue and run regular cleanliness program in the water collection basin and drains.

8.8 Source of Existing Water Supply

During preliminary survey it was found that (Fig.12), out of 2145 schools 98.02% did not have their own water option. 43.17% of them used the facility of their neighborhood. Though 1.98% schools have their own tube wells, yet those tube wells were found as non-functional or did not provide sufficient water during dry season. From the lessons learnt during the environmental screening in PEDP-3, DPHE took initiative in solving the above problem by installing new tube wells with submersible pump but at different depth as appropriate to the site geology.



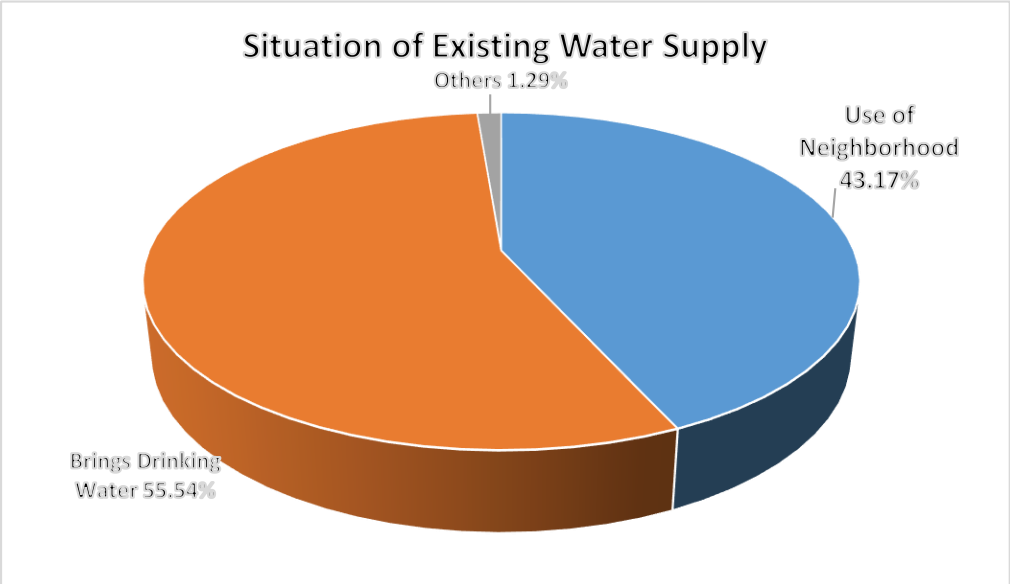


Fig. 12 Assessment of schools where new water points were installed

8.9 Water quality

Water testing facilities in DPHE zonal laboratory:

During installation of water points, suitable water layers are generally selected based on the geographic location and DPHE's experience. After installation of new water points in the said 2145 schools, laboratory tests were conducted to identify potential hazards of Arsenic, Iron and Chloride in water. The tests were done by the laboratory circle of DPHE and the reports are stored in the DPHE MIS database. Figure below shows laboratory testing facilities of DPHE.

Fig. 13 DPHE Zonal Laboratory setup for water testing

From the screening of 2145 tube wells it was found that 13 of them had the concern of excess arsenic (As) and/or, Iron (Fe) beyond the Bangladesh standard (arsenic, iron and chloride content below 50ppb, 5mg/l and 600mg/l respectively) of safe drinking water. For the rest of the cases arsenic, iron and chloride content were found satisfactory during laboratory tests. Water Quality report of those 13 unacceptable water sources and suggested alternative option is summarized in Table 2. Fig. 14 shows the diagrammatic presentation of water quality test results. In addition, ample field tests were conducted in those schools during post monitoring phase by DPHE by using field kit which re-confirmed the

DPHE laboratory test results. A sample copy of water test result is provided in Appendix-2 and water quality test report for 13 unacceptable water sources have been presented in Appendix-6.

Table 2 List of Unacceptable Water Sources

SL No.	District	Upazilla	School ID	Name of School	As	Fe	Cl	Remark	Suggested Option
1	Brahmanbaria	Ashuganj	405010312	Lalpur GPS	0.121	1.77	57	not acceptable	RO Filter
2	Brahmanbaria	Nabinagar	4050292020	Akoichora GPS	<0.001	5.23	71	not acceptable	RO Filter
3	Brahmanbaria	Bancharampur	405050902	Muktarampur GPS	0.001	5.42	57	not acceptable	RO Filter
4	Sylhet	Osmaninagar	91602030209	Ibrahimpur GPS	-	7.4	15	not acceptable	RO Filter
5	Sylhet	Companiganj	99602099024	Dalarpur-Rajnagar GPS	0.035	7	15	not acceptable	RO Filter
6	Sylhet	Bishwanath	91602040104	Vugshail GPS	0.016	7.6	13	not acceptable	RO Filter
7	Sylhet	Bishwanath	91602040403	Shahjalal Polliparishod GPS	0.02	9.1	14	not acceptable	RO Filter
8	Sylhet	Kanaighat	91602020608	Shibnagar GPS	-	9	15	not acceptable	RO Filter
9	Sylhet	Kanaighat	91602020509	Kurapur GPS	0.083	6.1	18	not acceptable	RO Filter
10	Sylhet	Guainghat	91602070405	Lengura GPS	0.034	6.2	18	not acceptable	RO Filter
11	Madaripur	Rajoir	315041002	70 No. Mohishmary Narayonpur GPS	0.091	2.72	1094	not acceptable	RO Filter
12	Madaripur	Rajoir	315041012	80 No. Dighirpar GPS	0.018	7.33	1879	not acceptable	RO Filter
13	Madaripur	Rajoir	315040901	115 No. Mohishmary West Para GPS	0.247	0.17	134	not acceptable	RO Filter

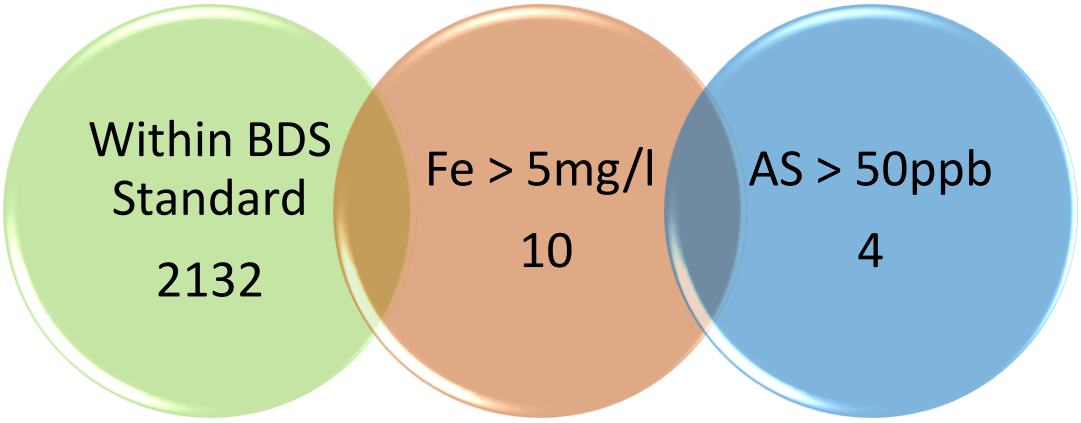


Fig. 14 Water Quality at a glance

Mitigation Measures suggested:

In cases where arsenic/iron/chloride is found beyond allowable limit in installed water source, DPHE adopts other approved alternate water options. DPHE goes for options like deep tube well of greater depth, ring well, pond sand filter, rain water harvesting, Reverse Osmosis Filter, AIRP etc. whichever is feasible. In some cases, if all the options in hand fails, i.e., boring in greater depth becomes impossible, arsenic is found even in deep tube well and none other option is feasible, DPHE has started implementing 'SONO Filter' as well. DPHE zonal offices arrange and install the said filter in those water sources and water from those sources is further re-tested. So, for those 13 water points different alternatives are being studied and the most feasible option will be implemented.

Fig. 15 AIRP & Other Filter Options executed in PEDP-3

8.10 Hand washing facility and Hygiene Promotion:

Prior to the installation of water sources, hand washing of students before and after meal especially mid-day meal and after using toilet was a matter of concern. As a result, students were more susceptible to diseases which triggered the absence of students from school. Besides these, newly constructed wash blocks with modern interior facility will surely create enthusiasm among children for the best utilization of wash blocks. A glimpse of wash block interior is shown in Fig 16.

Fig. 16 Modern Interior of Wash Blocks

Mitigation Measures Suggested (MMS):

Working with the moto of 'clean hand, safe hand' DPHE confirmed the installation of tube wells with running water supply by provision of submersible pump in all the above mentioned schools during the reporting tenure. Construction of wash basin for drinking as well as hand washing (Fig.13 as shown above) ensured total hand washing facilities in the school. Due to the global pandemic situation, although regular hygiene promotion activities could not be conducted yet monthly coordination meeting with DPE officials, TEO, ATEO and Primary School Headmasters is the indication of intensity of preparation for hygiene activities.

8.11 COVID-19 Reality & Responsive Action

Countries all over the world are trying new ways of softening or partially lifting COVID-19 related restrictions while keeping the virus progression in check. In this challenging time, the future of education depends on the provision of water, sanitation and hygiene services. So Hygiene Promotion has been emerged as an issue of particular concern when considering reopening of schools. In order to confirm adequate hygiene practise, DPHE district and upazilla level officers monthly conduct sessions

Fig. 17 Executive Engineer, DPHE conducting Hygiene promotion at school with TEO, ATEO & Head Masters

related to hygiene promotion activities with TEO, ATEO and Primary School Headmasters in the classes. All these activities put positive sign to the improvement of total environment. Fig. 16 shows a real time photo of hygiene promotion that was conducted by the Assistant Engineer, DPHE, at Tanore Upazilla, Rajshahi. Besides these all the construction activities regarding construction of wash blocks, maintenance of wash blocks and installation of water sources are constructed following the guidelines by Ministry of Local Government, Rural Development and Cooperatives (Appendix-5).

8.12 Miscellaneous observations

During the implementation phase, two basic standards were maintained.

1) Ensure at least a distance of 10m between water points and leach pit/soak well/ septic tank etc.
2) Ensure that the water collection basin is not clogged by paper, dry leaves, mud etc.

During monitoring phase, these options were found to be maintained properly.

8.13 Summary of observations

The post installation monitoring of all 672 Wash Blocks and 2145 water points confirmed no major concern or significant issues that can cause adverse environmental impact. Table 3 summarizes some other environmental issues observed during survey of Water points/ Wash Blocks.

Table 3 Important environmental issues observed

Issues/Environment Criteria	Findings from the Survey for all TWs	Findings from the Survey for all WBs
Is the TW installed?	Yes	Yes
Is the existing TW working?	Yes	Yes
Was the installed TW water tested?	Yes	Yes
Is Arsenic < 50ppb?	Yes	Yes
Is Iron <5mg/l, for iron prone area up to 10 mg/l [Based on Field Experience of DPHE; However, BDS standards are considered and followed]	Yes	Yes
Is Cl ≤ 600 mg/l, for coastal area up to 1000 mg/l [Based on Field Experience of DPHE; However, BDS standards are considered and followed]	Yes	Yes
Loss of agricultural land?	No	No
Negative effect on flora/fauna?	No	No
Conflicts with water supply, right?	No	No
Any potential health risks?	No	No
Is there provision of separate toilet for male and female?	N/A	Yes
Is there provision for adequate ventilation?	N/A	Yes
Is there provision for disabled children?	N/A	Yes

Note: Only the particular water source that met the drinking water quality in the laboratory test is handed over to the primary school authority. DPHE preserves all the testing report in the MIS cell.

8.14 Positive environmental impact

The outcomes of the environmental screening as discussed in the previous subsections pointed out the achievement of following positive impacts through the implementation of revised EMF and SMF during the construction works under PEDP-4.

1) Regular WASH related programs such as hygiene promotion through hand washing campaign not only increased the personal safety of students but also spread the positive vibe in the surrounding society which is now the key lessons for the inhabitants to fight against COVID-19.
2) Through the assurance of contamination free safe water sources in the said primary schools during the reporting tenure, a long-awaited demand was fulfilled which not only improved health potential of users but also reduced the dropout rate.
3) Lessons learnt from PEDP-3 helped in designing the type and structure of water sources with provision of running water free from bacteriological contamination. This initiative dramatically reduced the problem of water logging and drainage which was encountered in PEDP-3.

9. Grievance redressal status

A comprehensive grievance redressal system has been developed to address any issues generated due to the construction of wash blocks and installation of water sources in the primary schools. Since, no complain were raised from the concerned community, there was no issue of grievance redressal during the reporting tenure.

10.Monitoring progress report

It is fact that environmental screening report is related to the monitoring of implementation progress of environmental and social management plan. During the planning stage, all possible environmental and social safeguard issues are forecasted and related mitigation plans are included in the related contract packages. Issues related to EMP and SMP are clearly indicated in the 'Particular Conditions of Tender and Contract for Water Sources/ Wash Blocks' which is provided by default as a part of tender and contract. Following table shows the monitoring progress report of EMP during the reporting tenure.

Table 4 EMP progress monitoring

Monitoring Criteria	Progress Detail					
	July'18 – June'19	July'19-Dec'19	Jan'20-June'20	Jul'20-Nov'20	Cumulative	Compliance Status
No. of contracts that incorporated environmental clause	73/73	11/11	17/17	329/329	430/430	Complied
Funds utilized for addressing safeguards	N/A	N/A	N/A	N/A	N/A	N/A
No of schools having dirty environment around water source	6/331	2/57	2/183	42/2145	52/2716	Complied
Schools with drainage congestion identified and solved	2/331	1/57	1/183	19/2145	23/2716	Complied
No. of water points having problem with quality of water	0/331	0/57	8/183	13/2145	8/2716	Complied

11. Conclusions

This study investigates the environmental safeguard concerns during the implementation of wash blocks, water points and major maintenance of wash blocks based on the approved EMF guidelines for PEDP-4. This report has presented potential environmental impacts associated with the pre-construction, construction and operation phases of the project. The environmental monitoring screening confirmed ***no significant instances or issues*** that may hamper or influence the environmental safety during the reporting tenure. Being an implementing agency DPHE would like to uphold this status in its ongoing and upcoming works related to infrastructure development.

Appendix-1: Sample Environmental Screening

Environmental Screening Report for Water Sources

District: Jhalokathi
Upazilla: - Sadar "
Name of School: - Dewri GPS
School ID: - 30302 0704
Type of Water Source: TSP

Screening Questions	Base Line		Impact Without Intervention			Impact During Implementation			Impact after Implementation			Remarks
	Yes	No	+	-	N/A	+	-	N/A	+	-	N/A	
Any Source of existing drinking water?		No			N/A			N/A	+			
Environment of water supply facility good?		No		-			-		+			
Facilities for draining out of water proper?		No		-		+			+			
Any reported event of sickness?		No		-				N/A			N/A	
Is the existing TW working?		No		-				N/A	+			
Was the water quality tested?		No			N/A			N/A	+			
Are there provisions for water collection basin?		No			N/A	+			+			
Any concern about water quality?		No		-				N/A			N/A	
Is there provisions for RO filter?		No			N/A			N/A			N/A	
Any health risk associated?	Yes			-			-		+			
Distance of existing water source from Soak Well > 10m		No			N/A			N/A			N/A	
Height & location of new water source appropriate?	Yes				N/A	+			+			
Any loss of agricultural land?		No			N/A			N/A	+			
Any negative effect on flora/fauna?		No		-			-		+			
Any conflicts with water supply right?		No			N/A			N/A	+			

Signature of SAE

Signature of [illegible] Engineer

Environmental Screening Report for Wash Block

District: জামালপুর
Upazilla: পৌরসভা
Name of School: ইসলামপুর সর্দারপাড়া আক্কামুজ্জামান সরকারি প্রাথমিক বিদ্যালয়
School ID: ৯৯৩০১০১০১০৯০৪
Type of Wash Block: Isolated / Attached

Screening Questions	Base Line		Impact Without Intervention			Impact During Implementation			Impact after Implementation			Remarks
	Yes	No	+	-	N/A	+	-	N/A	+	-	N/A	
Condition of existing toilets Good/Usable?		✓		✓				✓	✓			
Are there provisions for safe solid & liquid waste disposal?		✓		✓			✓		✓			
Are there provisions for hand washing ?		✓		✓			✓		✓			
Are there provisions for foot washing?		✓		✓			✓		✓			
Does the existing toilets have running water supply?		✓		✓			✓		✓			
Is there provision for disabled children?		✓		✓			✓		✓			
Are there provisions of adequate urinals in male compartment?		✓		✓				✓	✓			
Is there provision for menstrual hygiene in the female compartment?		✓		✓			✓		✓			
Are there provisions of separate toilets for male & female users?		✓		✓				✓	✓			
Are the existing toilets have adequate ventillation?		✓		✓			✓		✓			
Distance of Existing water Source from Soak Pit > 10m		✓		✓			✓		✓			
Is there any reported events of sickness?	✓			✓			✓			✓		
Any Loss of Agricultural Land?		✓			✓			✓		✓		
Any Negative effect on flora/fauna?	✓			✓			✓			✓		
Are the existing toilets clean and hygienic?		✓		✓				✓	✓			

(মোহাম্মদ রাকিবুর রহমান)
উপ-সহকারী প্রকৌশলী
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর
ইসলামপুর, জামালপুর।

স্বাক্ষর ও তারিখ সীল

নির্বাহী প্রকৌশলী
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর
জামালপুর বিভাগ, জামালপুর।

Appendix-2: Sample water quality monitoring report

Government of the People's Republic of Bangladesh
Office of the Senior Chemist,
Department of Public Health Engineering
Barisal Zonal Lab C&B Road, Barisal.
Phone: 0431-2176153, E-mail : wqmsc_barishalzonallab@yahoo.com

Memo No: 46.03.0600.106.16.057.20- 18

Date: 19/07/2020.

Physical/Chemical/Bacteriological Analysis of Water Sample

Sample ID: BAR2020070478 To BAR2020070507, Total: 30	District: Jhalokathi.
Sent by: Executive Engineer, DPHE, Jhalokathi District, Jhalokathi.	Sample Source: DTW 06
Ref. Memo No: 46.03.4200.061.16.001.19-17 Date: 15/07/2020	Date of testing: 06/07/2020-17/07/2020
Collection date: 03/07/2020-14/07/2020	Received date: 06/07/2020-15/07/2020

LABORATORY TEST RESULTS:

Sample ID	District	Upazila	Village	School ID	Type of school	water point		Name of School	GPS	Water Quality					Remarks
						Type	Depth (m)			Sand	Clear	Fe(mg/l) LOQ:0.1 BDS: 0.3- 1.00	As (mg/l) LOQ:0.001 BDS: 0.05	Cl- (mg/l) BDS: 150-600	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BAR2020070478	Jhalokathi	Sadar	Berkathi	503021109	1	1	Not Given	Berkathi GPS	22°41' 17 " N 90°14' 17 " E	No	Clear	0.426	<0.001	155	
BAR2020070479	Jhalokathi	Sadar	Chachoyr	503021108	1	1	Not Given	Chachoyr GPS	22°40' 58 " N 90°15' 20 " E	No	Clear	1.709	0.00405	20	
BAR2020070480	Jhalokathi	Sadar	Dewri	503020703	1	1	Not Given	Dewri GPS	22°36' 28 " N 90°11' 36 " E	No	Clear	0.615	<0.001	85	
BAR2020070481	Jhalokathi	Sadar	Baydarapur	503020803	1	1	Not Given	Baydarapur GPS	22°38'02 " N 90°10'17 " E	No	Clear	0.293	<0.001	140	
BAR2020070482	Jhalokathi	Sadar	Kandargati	501020202	1	1	Not Given	Kandargati GPS	22°43' 28 " N 90°13' 54 " E	No	Clear	1.237	0.00373	20	
BAR2020070483	Jhalokathi	Sadar	Khadaykhira	503020305	1	1	Not Given	Nabagram GPS	22°43' 41 " N 90°12' 34 " E	No	Clear	0.525	<0.001	120	
BAR2020070484	Jhalokathi	Sadar	Charmta	503020602	1	1	Not Given	Charmta GPS	22°41' 03 " N 90°12' 02 " E	No	Clear	0.942	<0.001	251	
BAR2020070485	Jhalokathi	Sadar	Ward-01	503029001	1		Not Given	Paschim Chandkathi Paurashava GPS	22°38' 03 " N 90°11' 47 " E	No	Clear	2.34	0.0027	150	

(Kazi Fe[illegible])
Sample Analyzer, DPHE
Zonal Laboratory, Barisal

(Shamsuddin Ahmad)
Senior Chemist, DPHE
Barisal

Appendix-3: WASH Block Case Study

CASE STUDY-01:

Project	Fourth Primary Education Development Program (PEDP-4)
Name of School	Islampur Sardarpara Akramuzzaman Govt. Primary School
District	Jamalpur
Upazilla	Islampur
Handed Over Date	November, 2020
Caretaker Training	November, 2020
Monitoring from DPHE Local Office	Frequently during construction and twice after construction
Post Construction Monitoring from Focal Point's Office	December, 2020

Wash Blocks was constructed in the above mentioned school during July, 2020 to November, 2020. After the wash block was handed over on November, 2020 to SMC, Care taker training and hygiene education was provided by the Sub-Assistant Engineer Md. Rakibur Rahman, DPHE. At the time of handover to SMC, Sub-Assistant Engineer took initiative in giving caretaker training to the school. During caretaker training, following issues were covered:

i. Proper Use of Wash Block
ii. Hygiene Practice
iii. Cleanliness and maintenance aspect
iv. Emergency Contact to DPHE Local Office shortly

Fig. 18 Inspection of Wash block in presence of school authority

The post monitoring visit by SAE shows that the school is following the maintenance scheme properly.

Appendix-4: Tube Well Case Study

CASE STUDY-02:

Project	Fourth Primary Education Development Program (PEDP-4)
Name of School	Berkathi Government Primary School
District	Jhalkathi
Upazilla	Jhalkathi Sadar
Handed Over Date	July,2020
Caretaker Training	July,2020
Monitoring from DPHE Local Office	Frequently during construction and twice after construction
Post Construction Monitoring from Focal Point's Office	August, 2020

Tube well was installed in the above mentioned school on July,2020. At the time of installation of the tubewell, local DPHE Sub-Assistant engineer Mr. Amit Karmokar, mechanics along with school SMC were present. Figure below shows this fact during lowering of the said tube well.

During handover to SMC, Sub-Assistant Engineer, Jhalkathi Sadar took initiative in giving caretaker training to the school. During caretaker training, following issues were covered:

i. Cleanliness & maintenance aspect
ii. Drainage of Water
iii. Emergency contact to DPHE local office shortly

Fig. 19 Monitoring of Tube well installation in presence of Executive engineer, DPHE

During post evaluation phase in the findings were found satisfactory and the water source was found functional.

Appendix-5: Construction Guidelines by MoLGRD during COVID-19

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়
স্থানীয় সরকার বিভাগ
পাস-১ অধিশাখা।
www.lgd.gov.bd

শেখ হাসিনার মূলনীতি
গ্রাম শহরের উন্নতি

স্মারক নং-৪৬.০০.০০০০.০৮৩.১২.০০২.১৭(অংশ-২)-১৬২৯

তারিখঃ ২৪ বৈশাখ ১৪২৭
০৭ মে ২০২০

বিষয়ঃ জনস্বাস্থ্য প্রকৌশল অধিদপ্তর কর্তৃক বাস্তবায়নাধীন প্রকল্পের কাজ সম্পাদনের জন্য অনুসরণীয় নির্দেশনা।

সূত্রঃ জনপ্রশাসন মন্ত্রণালয়ের প্রজ্ঞাপন নং- ০৫.০০.০০০০.১৭৩.০৮.০১৪.০৭-১৩৫, তারিখ: ০৪ মে ২০২০।

উপর্যুক্ত বিষয় ও সূত্রোক্ত পত্রের প্রেক্ষিতে নির্দেশক্রমে জানানো যাচ্ছে যে, জনস্বাস্থ্য প্রকৌশল অধিদপ্তর কর্তৃক বাস্তবায়নাধীন প্রকল্পের কাজ সম্পাদনের জন্য নিম্নবর্ণিত নির্দেশনা অনুসরণ করতে হবেঃ

০১) প্রকল্প এলাকায় করোনা ভাইরাস (কভিড-১৯) বিষয়ক স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয় কর্তৃক জারিকৃত নির্দেশনা সম্বলিত সাইনবোর্ড স্থাপন করতে হবে;

০২) স্বাস্থ্য বিধি অনুসরণ ও সামাজিক দূরত্ব রক্ষা করে প্রকল্পের কাজ সম্পাদন করতে হবে। প্রকল্প কাজে যে সকল শ্রমিক কাজ করবে তারা শারীরিকভাবে সুস্থ কি-না তা নির্ণয়ের জন্য থার্মাল স্ক্যানারের মাধ্যমে তাদের শরীরের তাপমাত্রা পরীক্ষা করতে হবে;

০৩) ট্রাকে করে নির্মাণ সামগ্রী পরিবহন/সরবরাহের সময় ট্রাকের সামনে ব্যানারে জনস্বাস্থ্য প্রকৌশল অধিদপ্তর কর্তৃক বাস্তবায়নাধীন সুনির্দিষ্ট প্রকল্পের নাম উল্লেখ থাকতে হবে;

০৪) প্রকল্প কাজ সম্পাদনের জন্য শ্রমিকদের নির্দিষ্ট পোশাক পরিধান করতে হবে এবং প্রযোজ্য ক্ষেত্রে মাস্ক, হ্যান্ডগ্লোভস, গামবুট, হেলমেট ব্যবহার করতে হবে;

০৫) প্রকল্প এলাকায় নির্মাণ শ্রমিকদের জন্য সাবান পানি দিয়ে হাত ধোয়ার ব্যবস্থা থাকতে হবে। প্রয়োজনে হ্যান্ড স্যানিটাইজার সরবরাহ করতে হবে;

০৬) চলমান প্রকল্প এলাকায় কার্যক্রম চলাকালীন কাজের বিবরণ সম্বলিত সাইনবোর্ড স্থাপন করতে হবে;

০৭) প্রকল্প কাজে নির্মাণ সংশ্লিষ্ট যন্ত্রপাতি ব্যবহারের ক্ষেত্রে স্বাস্থ্য সুরক্ষার বিষয়টি নিশ্চিত করতে হবে;

০৮) প্রকল্প কাজে নিয়োজিত নির্মাণ শ্রমিকদের স্বাস্থ্য বিধি অনুসরণপূর্বক সামাজিক দূরত্ব বজায় রেখে নির্ধারিত নির্মাণ শেডে অবস্থান করতে হবে;

০৯) পাথর, সিমেন্ট বা অন্যান্য নির্মাণ সামগ্রী এক জেলা হতে অন্য জেলায় পরিবহনের প্রয়োজন হলে সংশ্লিষ্ট জেলা প্রশাসকগণকে অবহিত করতে হবে;

১০) প্রযোজ্য ক্ষেত্রে প্রকল্পের কাজ চালানোর জন্য সংশ্লিষ্ট জেলা প্রশাসক/উপজেলা নির্বাহী অফিসারের অনুমতি গ্রহণ করতে হবে;

অপর পৃষ্ঠায় দ্রষ্টব্য-

-০২-

১১) উল্লিখিত নির্দেশনা যথাযথভাবে অনুসরণ করা হচ্ছে কিনা তা মাঠ পর্যায়ে তদারকির জন্য জনস্বাস্থ্য প্রকৌশল অধিদপ্তর একটি কমিটি গঠন করবে। কমিটি প্রতি মাসে স্থানীয় সরকার বিভাগ বরাবর প্রতিবেদন দাখিল করবে।

১২) ঈদ-উল-ফিতরের সরকারি ছুটিতে সকল কর্মকর্তা-কর্মচারীকে তার স্ব-স্ব কর্মস্থলে অবস্থান করতে হবে।

০৫/২০২০

মো: খাইরুল ইসলাম
যুগ্মসচিব
ফোন: ৯৫৭৫৫৬২

প্রধান প্রকৌশলী
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর
কাকরাইল, ঢাকা।

স্মারক নং-৪৬.০০.০০০০.০৮৩.১২.০০২.১৭(অংশ-২)- ১৬২৯/০১(০৮)

তারিখঃ ২৪ বৈশাখ ১৪২৭
০৭ মে ২০২০

অনুলিপিঃ (সদয় অবগতির জন্য)

১. অতিরিক্ত সচিব (পাস), স্থানীয় সরকার বিভাগ।
২. বিভাগীয় কমিশনার (সকল), ... বিভাগ।
৩. মাননীয় মন্ত্রীর একান্ত সচিব, স্থানীয় সরকার পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়।
৪. জেলা প্রশাসক (সকল), ... জেলা।
৫. উপসচিব, বিধি-৪ শাখা, জনপ্রশাসন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৬. সিনিয়র সচিবের একান্ত সচিব, স্থানীয় সরকার বিভাগ।
৭. কম্পিউটার প্রোগ্রামার, স্থানীয় সরকার বিভাগ।
৮. অফিস কপি।

০৫/২০২০

মো: খাইরুল ইসলাম
যুগ্মসচিব

Appendix-6: Water Quality Report of Unacceptable Water Sources

Government of the People's Republic of Bangladesh
Department of Public Health Engineering (DPHE)
Office of the Senior Chemist
Zonal Laboratory, Comilla
Water Testing Results of PEDP-4 Samples

Sl No	District	Upazilla	Union	Village	School ID	School Type	Name of school	GPS Reading	Water Quality				
									Sand	Clear	As (mg/L)	Fe (mg/L)	Cl (mg/L)
1	Brahmanbaria	Sadar	Suhilpur	Mirhati	405012405	PEDP-4	Mirhati GPS	24º34'40" 91º06'22"	N	Y	<0.001	<0.001	71
2	Brahmanbaria	Sadar	MaChihata	Kasaeet	405011505	PEDP-4	Kasaeet GPS	23º56'06" 91º08'16"	N	Y	<0.001	<0.01	43
3	Brahmanbaria	Sadar	Budhal	Malihata	405012502	PEDP-4	Malihata GPS	24º23'03" 91º06'9.4"	N	Y	0.002	2.36	506
4	Brahmanbaria	Sadar	Mojlispur	Moindo	405010802	PEDP-4	Moindo GPS	24º21'40" 91º06'37"	N	Y	0.001	2.6	97
5	Brahmanbaria	Sadar	Machihata	Chenair	405011502	PEDP-4	Chenai (N) GPS	23º54'21" 91º09'30"	N	Y	<0.001	0.15	43
6	Brahmanbaria	Sadar	Machihata	Chenair	405011501	PEDP-4	Chenai (S) GPS	23º53'53" 91º09'48"	N	Y	<0.001	<0.01	71
7	Brahmanbaria	Sadar	Sadekpur	Damchai	405010208	PEDP-4	Damchail GPS	23º58'20" 91º02'30"	N	Y	0.002	<0.01	99
8	Brahmanbaria	Sadar	Natai (N)	Natai	405010902	PEDP-4	Natai GPS	24º21'40" 91º06'37"	N	Y	<0.001	<0.001	57
9	Brahmanbaria	Sadar	Talshahor	Telinagar	405010704	PEDP-4	Telinagar GPS	24º01'48" 91º05'29"	N	Y	0.005	0.76	113
10	Brahmanbaria	Ashugonj	Ashugonj Sadar	Ashugonj Sadar	405011305	PEDP-4	Ashugonj Bazar (E) GPS	24º02'29" 91º11'40"	N	Y	0.001	1.31	113
11	Brahmanbaria	Ashugonj	Lalpur	Lalpur	405010312	PEDP-4	Lalpur GPS	24º03'28" [illegible]	N	Y	0.121	1.77	57
12	Brahmanbaria	Nabinagar	Natghor	Akoichora	4050292020	PEDP-4	Akoichora GPS	23º54'28" 91º03'30"	N	Y	<0.001	5.23	71
13	Brahmanbaria	Nabinagar	Borikandi	Dhoravanga	4050299402	PEDP-4	Alhaz Siddikur	23º51'53"	N	Y	<0.001	0.05	355
14	Brahmanbaria	Nabinagar	Borikandi	Muktarampur	405050902	PEDP-4	Muktarampur GPS	23º53'42" [illegible]	N	Y	0.001	5.42	57
15	Brahmanbaria	Bancharampur	Soyfullakand	Paratoli	405029301	PEDP-4	Paratoli Natunpara GPS	23º47'9.8" 90º50'9.6"	N	Y	<0.001	<0.001	58

Sl. no	District	Upazila	Village	Name of school	Type of school	School ID	Type	Depth in (m)	LAT(deg-minsec)	LONG(deg-minsec)	Fe(ppm)	As(ppm)	Cl (ppm)	Date of completion
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Sylhet	Sylhet Sadar	Ali nagor	Ali nagor Govt. Primary School	GPS	91602010115	Tubewell with Submersible Pump(TSP)	201.16	24°57'37"	91°42'44"	0.4	0.036	16	20-11-19
2	Sylhet	Sylhet Sadar	Lilapara	Hazi Abdul Kadir Govt. Primary School	GPS	91602010312	Tubewell with Submersible Pump(TSP)	156.96	24°58'11"	91°53'03"	3.2	0.001	17	21-11-19
3	Sylhet	Sylhet Sadar	Nuagow	Nuagow shajalal Govt. Primary School	NNGPS	99602010701	Tubewell with Submersible Pump(TSP)	152.39	24°56'50"	91°45'16"	1.1	0.017	18	20-11-19
4	Sylhet	Balaganj	Sunapur	Sunapur Govt. Primary School	GPS	91602031103	Tubewell with Submersible Pump(TSP)	198.11	24°41'36"	91°45'43"	1.5		18	21-11-19
5	Sylhet	Balaganj	Dakhin Ghohorpur	Dakhin Ghohorpur Govt. Primary School	GPS	91602031402	Tubewell with Submersible Pump(TSP)	216.40	24°41'25"	91°48'31"	2.6		18	22-11-19
6	Sylhet	Osmaninagar	Ibrahimpur	Ibrahimpur Govt. Primary School	GPS	91602030209	Tubewell with Submersible Pump(TSP)	222.49	24°38'58"	91°41'08"	7.4		15	25-11-19
7	Sylhet	Companiganj	Dalarpar	Dalarpar-Rajnagar Govt. Primary School	NNGPS	99602099024	Tubewell with Submersible Pump(TSP)	67.05	25°07'09"	91°45'53"	7	0.035	15	26-11-19
8	Sylhet	Bishwanath	Vugshail	Vugshail Govt. Primary School	GPS	91602040104	Tubewell with Submersible Pump(TSP)	179.82	24°47'45"	91°45'43"	7.6	0.016	13	03-12-19
9	Sylhet	Bishwanath	Janamongol	Janamongol Govt. Primary School	GPS	91602040111	Tubewell with Submersible Pump(TSP)	216.40	24°48'41"	91°47'20"	3.2	0.028	12	13-12-19
10	Sylhet	Bishwanath	Shahjalal Polliparisod	Shahjalal Polliparisod Govt. Primary School	GPS	91602040403	Tubewell with Submersible Pump(TSP)	213.35	24°50'35"	91°43'31"	9.1	0.02	14	14-12-19
11	Sylhet	Kanaighat	Shibnagar	Shibnagar Govt. Primary School	GPS	91602020608	Tubewell with Submersible Pump(TSP)	219.45	25°00'14"	92°13'36"	9		15	15-12-19
12	Sylhet	Kanaighat	Maligram	Maligram Govt. Primary School	GPS	91602020508	Tubewell with Submersible Pump(TSP)	231.64	25°02'48"	92°13'12"	3.1		16	16-12-19
13	Sylhet	Kanaighat	Soroker bazar	Soroker bazar Govt. Primary School	GPS	91602020307	Tubewell with Submersible Pump(TSP)	225.54	24°59'30"	91°20'32"	1.5	0.047	18	02-12-19
14	Sylhet	Kanaighat	Bramhongoan	Bramhongoan Govt. Primary School	GPS	91602020707	Tubewell with Submersible Pump(TSP)	219.45	25°56'03"	92°10'46"	4.8	0.048	17	03-12-19
15	Sylhet	Kanaighat	Kurarpar	Kurarpar Govt. Primary School	GPS	91602020509	Tubewell with Submersible Pump(TSP)	182.87	25°02'37"	92°13'45"	6.1	0.083	18	13-12-19
16	Sylhet	Guainghat	Lengura	Lengura Govt. Primary School	GPS	91602070405	Tubewell with Submersible Pump(TSP)	237.73	25°04'35"	92°58'41"	6.2	0.034	18	14-12-19
17	Sylhet	Guainghat	Duobari	Duobari Govt. Primary School	GPS	91602070407	Tubewell with Submersible Pump(TSP)	216.40	25°02'24"	92°59'08"	2.1	0.016	18	15-12-19

Government of the People's Republic of Bangladesh
Office of the Senior Chemist
Department of Public Health Engineering
Zonal Laboratory, Purbo Thana Para D.C Road, Gopalganj.

Memo No: 59 / dphe,zonal lab,Gopalganj.

Date: 09/09/2020.

Physical/Chemical/Bacteriological Analysis of Water Sample

Sample ID	: GOP2020090005 to GOP2020090013 Total: 09	District	: Madaripur Sadar & Rajoir.
Sent by	: Executive Engineer, DPHE, Madaripur District, Madaripur.	Sample Source	: TSP .
Ref. Memo No	: 658 Date: 18/02/2020.	Date of testing	: 25/08/20, 07/09/20, 09/09/20.
Collection date	: 25/08/2020.	Received date	: 25/08/20 .

LABORATORY TEST RESULTS:

Sample ID	Union	Upazila	Village	School ID	Type of school	Water Point		Name of School	GPS	Water Quality					Remarks
						Type	Depth			Sand	Clear	As(mg/l) LOQ-0.00007 BDS-0.05	Fe(mg/l) LOQ-0.1 BDS-0.3-1.00	Chloride (mg/l) BDS: 150- 600	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GOP2020090005	Pourashava	Rajoir	Tekerhat	315040601	01	1	Not Given	Purbo Sormongol GPS	N23°.22′.893′′ E90°.02′.400′′	No	yes	0.010	1.037	1388	
GOP2020090006	Kodombari	Rajoir	Ullahbari	315041005	01	1	Not Given	73 No. Ullahbari GPS	N23°.12′.052′′ E089°.59′.100′′	No	yes	0.045	0.778	201	
G7OP202009007	Kodombari	Rajoir	Narayonpur	315041002	01	1	Not Given	70 No. Mohishmary Narayonpur GPS	N23°.10′.757′′ E089°.59′.755′′	No	yes	0.091	2.716	1094	
GOP2020090008	Kodombari	Rajoir	Dighirpar	315041012	01	1	Not Given	80 No. Dighirpar GPS	N23°.08′.570′′ E089°.58′.160′′	No	yes	0.018	7.331	1879	
GOP2020090009	Kodombari	Rajoir	Mohishmary	315040901	01	1	Not Given	115 No. Mohishmary West Para GPS	N23°.10′.491′′ E089°.59′.074′′	No	yes	0.247	0.171	134	

09.09.20

09.09.20