

Environmental Monitoring Report

Semi-Annual Report
July – December 2013

BAN: Dhaka Water Supply Sector Development Program

Prepared by Grontmij A/S in Joint Venture with AQUA-BETS-IWM for Dhaka Water Supply and Sewerage Authority and the Asian Development Bank.



DHAKA WATER SUPPLY SECTOR DEVELOPMENT PROJECT

Dhaka Water Supply & Sewerage Authority

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Date : 24.08.2014

To

Manoj Sharma

Sr. Urban Development Specialist

South Asia Urban Water (SAUW)

Asian Development Bank

Manila, Philippines

Subject: Submission of Semi-Annual Environmental Safeguard Monitoring Report (July'2013 to December'2013).

Dear Mr. Manoj,

With reference to the subject issue, please find herewith the Environmental Safeguard Monitoring Report (July'2013 to December'2013) for Dhaka Water Supply Sector Development Project, Dhaka WASA.

This is for your kind information and onward action.

Thanking you,

A.K.M. Shahid Uddin

Superintending Engineer & Project Director

Dhaka Water Supply Sector Development Project (DWSSDP)

Dhaka WASA.

Government of the People's Republic of Bangladesh

Ministry of Local Government, Rural Development and Co-operatives

Dhaka Water Supply and Sewerage Authority (DWASA)

**Semi-Annual Environmental Safeguard Monitoring Report
(2nd Half of 2013)**

Dhaka Water Supply Sector Development Project (DWSSDP)

Funded by

Asian Development Bank and Government of Bangladesh

Consultants:

Design and Management Consultants (DMC)

Grontmij A/S in Joint Venture with AQUA-BETS-IWM

May, 2014

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Abbreviations

ADB	: Asian Development Bank
DMA	: District Metered Areas
IEE	: Initial Environmental Examinations
IECs	: Important Environmental Components

Glossary

Important Environmental Components: Important Environmental Components are features of the biophysical or social or economic environments that are likely to be significantly affected by DWSSDP or facilities developments.

Initial Environmental Examination: The first stage in the environmental assessment undertaken for a regional or pre-feasibility level study for identifying and assessing possible environmental impacts.

Monitoring: Monitoring is the continuous assessment of DWSSDP implementation in relation to agreed schedules, the use of inputs, infrastructure, and services by project beneficiaries. Monitoring is undertaken to improve environmental understanding of cause –effect relationship, to provide an early warning of undesirable change in the environment, to verify earlier IEE/EIA predictions and to check on the effectiveness of environmental management plan.

1. INTRODUCTION

1. This Semi-Annual (Half Yearly) Environmental Report has been produced as an additional report to the requirement of the contract for the provision of the construction supervision services to the Ministry of Local Government Rural Development and Cooperative (MLGRDC), Dhaka Water Supply and Sewerage Authority (DWASA) of Bangladesh for the Dhaka Water Supply Sector Development Project (DWSSDP) under Asian Development Bank, Project Number ADB Loan No 2382-BAN (SF). This DWSSDP has been screened for expected environmental impacts and assigned to Category B type according to ADB SPS 2009.
2. The report covers all construction contracts involved in the project in Dhaka city and the construction supervision of these contracts is being implemented by Grontmij A/S in Joint Venture with Aqua, BETS and IWM. This report has been prepared in accordance with the environmental monitoring program followed by the environmental management plan (EMP) prepared before.
3. The purpose of this Environmental Monitoring Report is to satisfy the environmental safeguard requirements of the Government of Bangladesh and the Asian Development Bank (ADB) as well as to fulfill the requirements written in the loan document of Dhaka Water Supply Sector Development Project. The program goal of the project is improved health and quality of life and reduced poverty of the people of the project area by providing and improving access to adequate, sustainable safe water supply facilities.
4. This monitoring report has been made in consideration of the observations during the field visit performed by the Environmental Expert, DMC and according to the recommendations stated in the previous monitoring report already submitted before to ADB. This overall monitoring report covers the period up to December 2013. The DMC organogram is provided in Appendix-2. Site inspectors of Contractors have overseen the environmental safeguards in different phases of the sub-project works. Environmental Expert (EE) of the DMC is mainly overall responsible for Env. Monitoring although the man month of EE is very limited, one month for six month (half yearly). It has been assumed that in absence of EE for Long time contractors have shown negligence to implement environmental safeguards properly.
5. The following construction contract packages are under construction. The Package wise date of signing on each contract and firms responsible for civil work construction is presented in Table-1

Table 1: The Status of Contracts

Contract Number	Location	Contractor and Effective Date	Status of the Contract	Progress of Works
ICB 02.1	7 District Metered Area (DMA) of MODS Zone 5, 8, 9. Geographical area grossly: Part of Banani, Nikunja-1 & 2, Baridhara DOHS, Khilkhet, Kuril, Naddah.	National Construction Company Ltd (NCC) Effective Date: 04 April 2011. Expected Completion date: 31 December 2014	Physical works completed in 5 DMAs out of 7 DMAs. Out of completed 5 DMAs, Commissioning near to complete in 2 DMAs	Progress in details is stated in the number 5.2.2 of the report
ICB 02.2	8 DMAs of MODS Zone 8 out of 11 DMA. Geographical Area grossly: Bashundhara Residential Area, Baridhara, Nayanagar, Jagganathpur, Badda, Shahjadpur, Satarkul, Aftabnagar etc	China First Metallurgical Group Corporation Ltd. (CFMGC) Effective date: 30 May 2012. Expected Completion date: 20 March 2015	Physical works completed in 4 DMAs out of 8 DMAs. 2 DMAs Construction on going. Out of completed 4 DMAs, Commissioning completed in 1 DMA, near to complete in 2 DMAs. 1 DMA will be handed over to MODS Zone offices for regular operation	Progress in details is stated in the number 5.2.2 of the report
ICB 02.3	8 DMAs of MODS Zone -5 out of 10 DMAs. Geographical Area grossly: Gulshan 1 & 2, Mohakhali, Niketon, Tejgaon Industrial area up to Sonargaon Hotel, Karwan Bazar, Mohakhali DOHS, Nakhaklpara, Tejkunipara,	Pratibha –Jain Irrigation-Navana JV(PJIN JV) Effective Date:15 April 2012 Expected Completion: 13 July 2014	Physical works completed in 4 DMAs out of 8 DMAs. 2 DMAs Construction on going. Out of completed 4 DMAs, Commissioning near to complete in 2 DMAs operation	Progress in details is stated in the number 5.2.2 of the report

Contract Number	Location	Contractor and Effective Date	Status of the Contract	Progress of Works
	Shaheenbagh. Banani DOHS .			
ICB 02.4	10 DMAs of MODS Zone -4 Geographical Area grossly: Pallabi, Mirpur 12, 11, 10,6, 7,2, 1 , Rupnagar, West kafrul, Agargaon, west Kazipara, West Shewrapara etc	Navana Pratibha – Jain Irrigation- JV(NPJI JV) Effective Date:26 December 2012 Expected Completion: 23 November 2015	Design & Preconstruction phase	Progress in details is stated in the number 5.2.2 of the report
ICB 02.5	10 DMAs of MODS Zone -10 Geographical Area grossly: Pallabi, Mirpur 12, 11, 10, 13,14,Vashantek , Matikata, kafrul, Katchukhet, Ibrahimpur, east Kazipara, East Shewrapara etc	Cobra Tedagua JV Effective Date:03 February 2013 Expected Completion: 24 July 2015	Design & Preconstruction phase	Progress in details is stated in the number 5.2.2 of the report
ICB 02.6	10 DMAs of MODS Zone -10 Geographical Area grossly: Mohammadpur, Adabor, Shekertek, Dhanmondi, Lalmatia, Monipuripara, Elephant Road, Kathalbagan, Hazribag, Zigatola, etc	Ludwig Pfeiffer Hoch-und Tiefbau GmbH & Co.KG. Effective Date:03 June 2013 Expected Completion: 30 January 2016	Design & Preconstruction phase	Progress in details is stated in the number 5.2.2 of the report

6. The actions of the contractors in relation to Environmental Management and Monitoring have been illustrated within this report and covers the period of 1st July, 2013 until the 31

December, 2013. It is also identified where additional attention must be made by the contractors to improve their performance.

2. BACKGROUND

7. The Asian Development Bank is financing to the Government of Bangladesh to assist the implementation of Dhaka Water Supply Sector Development Project. The Project involves rehabilitation and upgrading of the existing water supply distribution networks utilizing production tube wells and surface water provision. The project includes significant construction over 4 years in over populated urban areas.
8. The conditions prevailing in Dhaka in 2006 have been documented in the Feasibility Study carried out under TA 4651-BAN (SF) that prepared the concept for the current project. Since then a number of changes have taken place that are impacting on the project. These are: (i) Additional MODS (zonal areas of DWASA operations) have been created; (ii) Significant cost escalation and inflation have taken place; (iii) National pipe manufacturers are starting to adapt to the need to produce Poly-ethylene pipes and expand capacity accordingly; (iv) Additional wells have been drilled into the lower aquifer; (v) Saidabad Surface Water Treatment Plant – Phase II is being completed to augment the supply with 225 MLD.
9. Results available from the Manikdi Pilot scheme demonstrate the viability of 24 hour pressure operations, leading to lower production volumes and larger number of customers. Groundwater mining is a matter for concern with the rate of decline accelerating until 2008.

3. THE PROJECT

10. The Dhaka Water Supply and Sewerage Authority (DWASA) is implementing the Dhaka Water Supply Sector Development Project with the assistance of the Design and Management Consultants (DMC). The DMC services for the project have started from July, 2009. The project is funded by the Government of Bangladesh and the Asian Development Bank. The project is to be benefited in the area covering a major part of the Dhaka Metropolitan city. DWASA has to control a balance between the growing demand for water result from a steadily increasing population and the declining groundwater availability.

a. Project Objectives

11. The objective of the project is to solve the most urgent problems in relation to water supply by introducing District Metered Areas (DMA) that are hydraulically self-contained and maintain water pressure 24 hours per day with minimum water head 1 bar or more at any part of the DMA. Production and consumption will both be metered and

water balance calculated and NRW to be reduced to 15% or less. Upon project completion, DWASA will be responsible for continued operation and maintenance.

4. COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

4.1. Consideration of Environmental Safeguards during Project Preparation

12. At the time of project preparation at feasibility stage, the TAPP consultants were deputed for the survey and preparation of IEE for the DWSSDP (Ref: IEE, DWASA, 2006). As part of detailed project preparation, environmental screening and assessment reports, IEEs were prepared by environmental consultant engaged by the DWASA supported by ADB. Further, the consultant suggested to ensure in procurement process that all information required for environmental safeguard stated in the environmental assessment report and its Environmental Management Plan (EMP) which have been prepared earlier under the respective pipeline rehabilitation Contract have to be incorporated in the work schedule so that contractors can adopt mitigation measures associated with construction works. Supervision consultant (DMC) has to monitor the implementation of EMP which is used to work by contractors; and ensure that the EMP is implemented throughout project implementation period. Half yearly Environmental Safeguard Report has to be prepared by the Consultant to be forwarded to PMU and ADB. It could be mentioned that IEE with EMP has been prepared according to ECA'95 (Environmental Conservation Act) & ECR'97 (Environmental Conservation Rules) and it is mandatory to follow the rules ordered by Bangladesh Government and ADB guidelines. To follow the rules, contractors have collected no objection certificates from local authorities (like DESA, City Corporation and Union Parishad etc.) before starting the works of the sub-projects.

4.2. Development of Environmental Management Plan

13. The environmental management plan was further revised by the Contractors based on ADB's comments given after reading last quarter monitoring report to identify potential environmental impacts of each sub-project and to recommend how to mitigate the impacts properly. The IEE report including EMP that already had been prepared provided necessary recommendations on how the potential environmental hazards' impacts could be mitigated. The IEE guided to develop environmental management plan to provide a set of guidance on what, how, when and where the mitigation measures have to be implemented. It includes also who has to implement and monitor the implementation of mitigation measures in different phases of the project.
14. The Initial Environmental Examination (IEE) report prepared under the feasibility stage is helpful in the following ways:
 - It provides the basic information about the environmental conditions of the project areas and what will be the potential environmental impacts;

- It provides the recommendations to mitigate potential environmental impacts and describes on how to implement in the environmental management plan ;
- It provides guidance on how the environmental monitoring has to be carried out; and
- It indicates what kind of environmental statutory clearance will need to be obtained.

4.3. Preparation of Bid Documents with incorporating the statutory environmental requirements

15. The Environmental Management Plan (Ref: in IEE, DWASA, 2006) covered the information of potential environmental impacts and the required mitigation measure for the Project has been incorporated in the bidding documents. In addition, the EMP was provided to the contractors before work order of the contract. The bidding document includes also some detailed instructions on the subjects that can be highlighted in the IEE & EMP and environmental monitoring plan which is stated some points below-

- Precaution to be adopted during disposal of debris of solid wastes including disposal of organic debris generated during rehabilitation of water pipes.
- Precaution to be adopted at sanitation and housekeeping at the labor construction camp like in the area of toilets, water supply, waste disposal, first aid and maintenance etc.
- To measure and maintain the air quality standard.
- To measure and maintain the noise quality standard.
- To check the primary water quality standard including physical and chemical properties of drinking water.

16. The contractors' response on the instruction to include works relating environmental impacts associated with the construction activities is moderate to satisfactory. Necessary budget has been allocated for the project placed in particular for Category 'B' projects to handle environmental problems. Also the contractors' budgets covered the items of implementation of environmental management and monitoring plan that has been included in the contract document (Ref: DWSSDP, Tender Documents-Rehabilitation of Tender Documents, August, 2010).

17. The contract documents for the contractor (Clauses 2.13.3; 2.13.4; 2.14; 2.14.1; 2.14.3 and 2.14.4 of Employer's Requirements) include details terms and conditions regarding the safeguard issues and implementation of the Environmental Management and Monitoring Plans that has to be adhered to and implemented by the Contractors.

4.4. Environmental Statutory Clearances in consideration of loan covenants

18. Prior to commencing a civil work as stated in the loan document, all the required statutory clearances with regard to the project (DWSSDP) have to be obtained by contractors. Removal of trees along the rehabilitation sites is considered subject to planting of native species in the same area after completion of civil work. Therefore, trees might be removed in some places to allow for appropriate workmanship but in that cases the current construction safety standards have to be maintained properly. The required clearances from relevant authorities have been obtained by the Contractors.

5. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

5.1. Monitoring of Environmental Quality

19. As the work progresses, environmental quality monitoring in terms of Air Quality, Water Quality, Noise Level, and other parameters with ecological aspects is in progress at a qualitatively and quantitatively acceptable scale with a few exceptions. Having site visited it seemed that the air pollution caused by dust and smoke produced by HDD machine and small generators as well as the noise pollution caused by same machine are not so high to exceed the limit of standard range. Nevertheless, Team leader of DMC had ordered in written to the Contractors to collect the laboratory reports on environmental quality parameters related to project activities like drinking water quality parameters, air quality parameters and noise level and he had suggested submitting it immediately. Meanwhile, some environmental quality test reports of different DMA, involving construction works, have been submitted to DMC (copies enclosed in annex-4). Although all environmental quality test reports was used to submit within the quarter. Even, no contractors of the ICBs could arrange a one day Training on Occupational Health and Safety for their labors and staff in despite of warning from TL of DMC.
20. Overall aspects associated with environmental monitoring described in the Appendix-1 for environmental monitoring have been discussed with stakeholders including contractors. Policies and Regulation of the Government of Bangladesh through Department of Environment and ADB SPS formed the basis of the environmental quality monitoring. Meanwhile, the given Non-compliance notices (NCN) and associated letters issued to the Contractors were appropriate by DMC which might be helpful for the contractors to grow consciousness on the environmental issues involved in the sub-project works.
21. The Environmental Management Plans (EMP) submitted by the Contractors have been approved by the DMC but there were some observations from ADB on previous report. Accordingly Contractors have been asked to address the ADB's observations and prepare revised EMP. The monitoring activities are being administered accordingly. The qualitative monitoring of IECs has been conducted during last period of monitoring time

for relevant parameters. But in that period, some quantitative monitoring of IECs including qualitative measuring is conducted by the contractors.

5.2. Implementation Status of Environmental Safeguards during Construction

22. Most of the construction works of the sub-projects in ICB-02.1, ICB-02.2 and ICB-02.3 have been completed during the reporting period. With some exceptions, Contractors have followed contract conditions stated in the Employer's requirement Section 6.2.14.1.
23. Most of the construction areas, there was not enough facility to implement occupational health and safety measures. During previous visit (January-June'13) of investigation, the Environmental Expert had requested to contractors to improve their PPEs facilities but unfortunately they did not do well in that issue.
24. During monitoring in some sites, the laborers violated the environmental safety regulations (**Appendix-3 photographs**) that has been reported to contractors and instructed to adopt mitigation measures to avoid such violations further.
25. Investigation results coming from field visit which outlines the present status of environmental safeguards for sub-project implementation are stated below-

ICB 2. 1:

Most of sub-projects in this ICB have been completed. All excavated roads are reinstated to original or better condition. Construction sites especially in the place of the roads namely the street number 13, 1, 9 of DMA 910 have been cleared and made good to the original. The contractor of the ICB has submitted the noise test report and document of safe drinking water supplied by New Samurai company. Noise test might be accepted but document against water quality test report is not acceptable. The contractor should submit water quality test report with other non tested environmental quality parameters like air quality parameters immediately. It is observed from test report (Appendix-4) for the ICB-2.1 that the noise value during construction was laid in standard range. So, the noise occurred in construction area is not a hazard for health and other environment.

ICB 2.2

Most of the sub-projects in this ICB have been completed. About all excavated roads are reinstated to original or better condition. In the construction area near to the road named Bilbarir Tach, Shahajatur of DMA 804, there were no basic first aid facilities and PPEs. Even, there were no drinking water supply and toilet facilities for laborers

near to construction areas. Troubles shooting posters or informatory sign boards were not displayed in the said construction area.

Necessary environmental monitoring tests including drinking water quality for laborers and noise and air quality tests near to HDD machines and power generators have not been examined yet in spite of warning by TL to submit the required test report.

ICB 2.3

Most of the sub-projects in this ICB have been completed. About all excavated roads are reinstated to original or better condition. In the construction area near to the road no. 8 of DMA 508, there were no PPEs facilities. Even, there were no drinking water supply and toilet facilities for laborers near to construction areas. It is embarrassing that the contractor has sent test results of drinking water supplied to labors but some labors claimed with sorrow that they could not get any drinking water from contractor.

It has been observed from test results of supplied drinking water for labors in this ICB that the values of the water quality parameters have been within the standard range. So, the water used for drinking purposes was safe for human life. The results of other test reports like noise and air quality examination report for the ICB-2.3 are in process to deliver from DOE (Department of Environment) (document enclosed in appendix-4).

ICB 2.4

In the construction area near to the road number 6 of DMA 401, there were no basic first aid facilities and PPEs. Even, there were no drinking water supply and toilet facilities for laborers near to construction areas. Laborers informed that most of them were not aware on this (PPEs) and in most cases they did not know how to use and also to handle it.

Necessary environmental monitoring tests including drinking water quality for laborers and noise and air quality tests near to HDD machines and power generators were not tested yet.

ICB 2.5 and 2.6

The contractor of ICB 2.5 replied against the letter of TL regarding the examination of environmental quality test reports that they did not hamper the environment for doing construction works. This is not a good reply from the contractor. The contractor should submit the necessary environmental quality test reports to prove their innocence.

The construction works of the sub-projects in these ICBs (ICB-2.5 & ICB-2.6) could not start in full swing yet. To comply with environmental safeguard, the contractors have submitted EMP to DMC recently. The contractors have given commitment to follow the relevant environmental laws and regulation in due course against the request

letter of TL of DMC. Assuredly, Environmental Expert of DMC has visited the sites to aware the relevant personnel including contractors regarding ECR'97.

5.3. Review Comments on Contractors Reports

5.3.1. Environmental Safety Issues

26. The information included in the Contractors' reports carries little things regarding occupational safety measures. It is seen that contractors have not arranged the training which was instructed by ADB on occupational health and safety yet. The contractors were requested to incorporate one section on "Environmental Management Plans and Monitoring of Safeguards Compliance" in the monthly reports as desired by the ADB. But no section has been incorporated in the reports yet.

5.3.2. Environmental Monitoring

27. During the reporting period, compliance to environmental requirements was checked by DMC based on review and validation of Contractor's IEE and EMP as well as field observations and instructions to comply with environmental laws of ECR'97 and ADB environmental guidelines.

Contractor's IEE

28. Environmental Examinations (IEE's) were prepared for each ongoing contract (in all ICBs -02.1, to 2.6) according to ADB's Environment Policy (2002) and Environmental Assessment Guidelines (2003). These IEE have been tried to include the assessment of the environmental impacts of water networks being built and steps and mitigation measures taken to avoid negative impacts at the pre, during and post implementation of the sub-project works.
29. Meanwhile, the Contractors of all rehabilitation packages submitted their Environmental Management Plan according to 'Environmental Assessment Requirements and Environmental Review Procedures of the ADB. The revised EMPs incorporates a number of mitigation measures for each DMA, mainly related to the disposal of sanitary and other waste, location of fuel, oil and lubricant depots, sheds for equipment, labour and housing facilities, etc. Environmental Site Plans have been developed in each EMP in relation to environment safeguard like air quality, noise and nuisance as well as waste management and disposal of wastewater.
30. Overall Findings result from inspection reports and visual observation on the investigated sub-projects are stated in the section of 8 (Eight) of this report.

6. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

31. The methodology is a combination of organizational principles and strategies through which responsibility for performing the monitoring process is shared with different stakeholder groups. Methods like site visits, Stakeholders' consultation, qualitative as well as quantitative analysis of quality parameters, analysis of monitoring reports come from site inspectors, subjective judgment etc. are used for environmental monitoring. Normally, Contractors' inspectors monitor the works in relation to environmental efforts in the sub-projects and they send the results of the monitoring to DMC. DMC monitors the construction works and oversees the work of contractors' activities required for environmental requirements. DMC also coordinates with Donor agencies and related Governmental agencies on the issue of environmental requirements and monitoring.

7. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVEL)

32. Normally the noise produced in the construction area appears insignificantly especially in the time of using open cut method for pipe laying but small amount of noise might occur at the time of using HDD method and operation of power generator. As it seemed that the sound occurred in the construction area is not of high range in respect of legal requirements of DOE. Meanwhile, some contractors have submitted noise test results to their respective ICB's CME. The results have been shown that the noise value during construction was laid in standard range (test results are enclosed in appendix- 4). It is safely stated that the noise dimension occurring in construction areas will be minimized more through implementing the EMP.
33. Meanwhile water quality (especially for drinking water quality for laborers engaged in construction sites) parameters come from ICB 2.3 is tested and its results have been submitted to DMC. The values of the water quality parameters which are shown in appendix-4 have been laid within the standard range. So, the water used for drinking purposes was safe for human life.
34. Air pollution owing to producing dust occurred by earth cutting and smoke emission happening by the operation of HDD machine and power generator might have occurred of low levels at construction periods. To comply with the legal requirement, SPM, SO_x and NO_x tests have to be done. No contractors who are engaged in construction works have submitted test results of air quality parameters yet in despite of warning by TL of DMC. Most of the cases, they replied, "It is on the process of examine". But this type of reply is not satisfactory because the construction period, in some cases, is about to complete.

8. OVERALL FINDINGS CONSIDERING INSPECTION REPORTS AND DIRECT FIELD OBSERVATION AND RECOMMENDATION/ REMEDIAL ACTION.

Having site visited, the findings have been identified which are stated below-

35. Observation:

- In the construction area near to the road named Bilbarir Tach, Shahajatur of DMA 804, there were no basic first aid facilities and PPEs. Even, there were no drinking water supply and toilet facilities for laborers near to construction areas. Troubles shooting posters or informatory sign boards were not displayed in the said construction area.
- In the construction area near to the road no. 8 of DMA 508, there were no PPEs facilities. Even, there were no drinking water supply and toilet facilities for laborers near to construction areas. It is embarrassing that the contractor has sent test results of drinking water supplied to labors but some labors claimed with sorrow that they could not get any drinking water from contractor.
- In the construction area near to the road number 6 of DMA 401, there were no basic first aid facilities and PPEs. Even, there were no drinking water supply and toilet facilities for laborers near to construction areas. Laborers informed that most of them were not aware on this and in most cases they did not know how to use and also to handle it.
- Most of the Contractors of ICBs could not submit the environmental quality test reports like air, noise and water quality test report for the sub-projects in spite of alarming by TL of DMC.
- Contractors who are engaged in construction works have arranged a one day Training program prescribed by ADB on Occupational Health and Safety for their labors and staff.
- In all sub-projects, no child labor was employed to do the improvement work.
- In all sub-projects, there was no Potential loss of trees/vegetation/aesthetics in the scheme area.
- In all sub-projects, no construction work was being carried out close to any streams or water bodies. With a few exceptions, there was facility (Drain) to divert water flow through the construction sites to avoid washing out of fines, aggregates, spilled oil/ lubricants downstream to open water bodies.
- In all sub-projects, agricultural and homestead land were not used to improve the water supply network.
- Most of the cases, in all sub-projects, drainage channels were free from any obstacles for continuous water flowing preventing affecting nearby sites.
- In all sub-projects, fuel and lubricants were stored on solid platforms.
- Most of the sub-projects in the ICBs (especially for ICB-2.1, 2.2, 2.3) have been completed. About all excavated roads are reinstated to original or better condition.

36. Recommendation:

- Sufficient Personal Protective Equipments (PPEs) (e.g. ear protection gear, mask, goggles, safety shoes etc.) and first aid things must be provided in every sub-project by the contractor to workers as soon as possible.
- DMC should ensure to determine the noise level, air and drinking water quality test during construction and operation period by the contractor and to collect the test reports for sending it to ADB.
- Always, campsites should be in good condition for working. Spoil/excavated materials should be kept properly in a legal place.
- Laborers and all existing personnel including contractors and their related expert should be trained on EMP and occupational health and safety to become aware on environmental issues with safety security raised by project works.
- Drinking water supply and sanitary facilities for laborers should be ensured within the short distance from construction area.

9. OVERALL ACTIVITIES INVOLVED IN THE PROJECT INCLUDING ENVIRONMENTAL SETTINGS MADE DURING THE QUARTER

Environmental Monitoring

37. During last visit (January-June'13) of investigation, the Environmental Expert had requested to contractors to improve their PPEs facilities but they did not show increasing trends to do well in the issue.
38. In last report, it had been mentioned about the constraints of environmental monitoring progress. In the present quarter of reporting, the same constraints have been repeated. Because they (the administration) did not allow to give facility to deploy full man month of EMS/ EE or did not give an indication to mention who will be responsible to monitor the environmental safeguards in construction works in absence of EMS/EE. For the above cases, some deviation on environmental monitoring works appear continuously.
39. All recommendations suggested in the previous monitoring report have not been established fully but most issues which were used to implement it in relation to environmental monitoring works have been ensured to comply with the environmental requirements in the field level.
40. However, The Environmental Expert has given alarm to the contractors to ensure the implementation of all recommendations described in the EMP in the field level immediately.
41. The Contractors have not followed the laws especially ECR'97 properly. The required immediate action has to be taken to enforce the Environmental laws and regulations of Government of Bangladesh and follow the ADB guidelines.

Monitoring activities on IEE and safeguards issues

42. A checklist on the Monitoring Activities on IEE and Safeguards Issues is given in **Appendix-1**.

10. CONCLUSION AND RECOMMENDATIONS

43. Under the current Phase of DWSSP, it is envisaged during the environmental monitoring that, at the project preparation stage, the environmental assessment study would be carried out for all the Contracts (ICB 02.1, ICB 02.2, ICB 02.3, ICB 02.4, ICB 02.5 and ICB 02.6). The bidding document has properly covered the environmental aspect by highlighting the IEE, EA, including its EMP. The contracts for pipeline rehabilitation works have included the environmental requirement as special instruction for the contractor.
44. Most of the contractors involved in construction works in different ICBs mentioned earlier have not followed the safeguard measures contained in ECR'97 properly. To enforce the Environmental laws and regulations of Government of Bangladesh and follow the ADB guidelines properly, TL of DMC has issued show-case letters further to the Contractors on the above discussed environmental issues involved in project works.
45. There were also some environmental problems at the construction works that have been mentioned earlier in this report. However, the overall environmental problems found in different sub-project areas have been investigated stated in section 8.0 and the mitigation measures as stated in the EMP have been prescribed to overcome the difficulties. In some cases, DMC has given alarm again to the Contractors to ensure the implementation of EMP properly where the illegal works have been appeared.
46. In comparison to presented monitoring activities from the past, it has been observed that the trends of safeguard implementation on the works in relation to environment are being done positively but not strong as expected to ensure and comply with the DOE and ADB requirements.
47. The next semi-annual environmental monitoring report for the Project will be submitted to DWASA-ADB in July, 2014.

11. Required action to be monitored and reported during the next monitoring report

48. The important things that will be included in the next Environmental Monitoring report are stated below-

- Collect information/test results from contractors who have not done the tests yet on quality of water, air and noise and analyze these for preparing recommendations complying with the requirements of Donor agencies and DOE.
- Oversee whether the completed construction works have been done following the environmental safeguard policies.
- Monitor and prepare a report on the pre and post operational activities of the sub-projects examining meticulously all environmental issues.
- Oversee whether observation, recommendation and suggestions provided in the previous environmental monitoring reports have been materialized or not.
- Monitor the under construction works and prepare reports on it.
- Check and provide comments on the Contractors monitoring reports.
- Visit sub-projects and submit report if deemed necessary.

Appendix-1: Checklist on the Monitoring Activities followed on IEE and Environmental Safeguards Issues

ENVIRONMENTAL MONITORING REPORT

Project Name: **DWSSDP, DWASA**

Contract Number: **ICB-02.1**

NAME: REHABILITATION OF DISTRIBUTION NETWORKS

TITLE: District Metering Areas

DMA: 501, 809, 910, 502 & 909

LOCATION: Nikunjo, Banani, DOHS Baridhara & Khilkhet

WEATHER CONDITION: **Good**

INITIAL SITE CONDITION: **Fair**

CONCLUDING SITE CONDITION:

Satisfactory: Moderate to Satisfactory (**Yes**), Unsatisfactory ☒ Incident
☐ No ☒ Resolved ☒ Unresolved ☒

INCIDENT:

Nature of incident: Not happened

Intervention Steps: N/A

Incident Issues: N/A

Inspection

Emissions	Yes	Waste Minimization	Yes
Air Quality	Yes	Reuse and Recycling	Yes
Noise pollution	Yes	Dust and Litter Control	Yes
Hazardous Substances	Yes	Trees and Vegetation	Yes

Site Restored to Original Condition Yes

Where the
construction works
is completed

No ☐

ENVIRONMENTAL MONITORING CHECKLIST

1. Area

DMA	Site visited	Environmental description of the area
910		<p>Road # 1,9, and 13: The area is situated in Nikunjo near Khelkhet in Dhaka. It is newly developed area in Dhaka city. Electricity and other utility services are there. The area is not located in any forest conservation and natural wet land areas or other protected areas.</p> <p>In the area, most of sub-projects have been completed. Construction sites have been cleared and made good to the original.</p>

2. Activity

Survey	Design	Implementation	Pre-Commissioning	Commissioning
Yes	Completed	completed	In progress	In progress

3. Scope of Environmental Management Plan and Monitoring Indicator

A. Physical and Ecological Environment	
Emissions	
Chemicals used for disinfection are discharged into :	Method and Frequency: Directly into sewerage line/Sewerage Canal. Frequency: 2 times in the DMA.
Surface water /Ground Water / Sanitary Sewer / De-chlorinated	
Air Quality	
Vehicles installed devices / maintained/and repaired/ Air quality parameters test near to smoke producing equipments	Not yet done
Wood used as fuel for execution of work/cooking/heating water	Not used

A. Physical and Ecological Environment		
<u>Noise and Nuisance</u>		
Community is informed from 15 days in advance of the upcoming works		Mostly it has been informed.
Noise level of machinery/vehicles/workers kept to a minimum		Tried to keep to a minimum.
Noise level maintained at less than 70dBA		Low noise level, it is tested.
Options investigated for noise level exceeding exposure limit		No options were taken
Visual impacts of storage facilities and other temporary structures		No remarkable environmental degradation was found on the subject stated.
Screening of areas where visual environment is important		Screened
To reduce public nuisance technologies used for pipe laying:		Justified rigorously
Pipe Bursting/HDD/and Open Trench with justification		Technologies have been used in consideration of local condition with justification.
Done night time work to reduce traffic disruption in busy roads		Tried where required
Temporary make-shift access road made for undisturbed traffic movement		done as required
Public property damage avoided/restored to original condition		Restored smoothly where the works have been completed
Involved police department for traffic planning		Yes
Utility service along pipeline were marked/encased as required		Yes
<u>Hazardous Substances</u>		
All materials, equipment, tools and plants kept in a planned yard		Yes, it is done in legal way.

A. Physical and Ecological Environment	
A team of trained staff handling the store, wastes and spillage	Yes it is tried
Refueling done with care, without spillage on the ground or drinking water source	Yes, it is done carefully
Storage of chemicals, fuel made in spill proof containers and transported properly	Yes, it is done carefully
AC pipe is not used to avoid health risks from asbestos contamination	Yes, it is followed carefully
Bentonite effluents are disposed off avoiding ground contamination	Yes, it is done carefully
Spillage from machineries are properly managed and disposed off	Yes, it is done carefully
<u>Waste Management</u>	
All waste is managed in accordance with the industrial management standard	In most cases it has been done
Solid and liquid waste are not left behind on site	It has been done. Need to improve it more in future.
Standing water is managed properly to avoid ground water contamination and/or interference with construction work	It has been done.
Pits are protected to avoid flooding and all works are stopped during flooding	It has been tried to maintain the stated protection.
<u>Reuse and Recycling</u>	
Excavated soils are reused to the extent possible and the excess are used beneficially	Excavated soils are not reused for project purposes but it has been reused for other purposes as required.
All chemicals will be reused where possible	Chemicals are not reused for project purposes but it will be reused for another purpose as required.
<u>Dust and Litter Control</u>	
Dust and Litter are contained and disposed off properly	It has been done

A. Physical and Ecological Environment	
Solid and human waste are disposed off as per the health authorities	properly Human waste has been disposed off properly. Solid wastes have been controlled in legal way.
Water sprinkled in the worksite to avoid excessive dust	It has been done.
Tarpaulins used to cover sand and waste soil and during transportation	Most of the cases, it has been complied.
<u>Trees and Vegetation</u>	
No trees or shrubs are cut without prior approval of the PM	Yes

B. Social Environment	
<u>Community</u>	
NGOs assigned to identify and compensate affected persons	Yes
Local man and women are engaged to enhance short term economic impact within the locality	Yes
<u>Health and Safety</u>	
Health and safety plan prepared, got approval and is being followed	It is prepared and approved
<u>Water Quality</u>	
Effort is made to ensure no contamination of soil and water on site from chemicals, hazardous substance or vehicle or plant washing runoff	It was being tried to protect soil and water pollution from the chemical agent.
No water other than DWASA supply is used for all project related activities including personal use of the workers	Yes, it is followed
All concrete mixing done on an impermeable surface	Yes, it is followed
No vehicle transporting concrete to the site is washed on site.	Yes
No vehicle transporting, placing or compacting asphalt or any other bituminous product is washed on site.	Not applicable

B. Social Environment	
Hazardous materials/substances are transported in sealed containers.	Yes
<u>Sanitation Facility</u>	
Sanitation facilities are provided by the contractor for the workers.	Yes
<u>Equipment Lay-down and Storage Area</u>	
Storage areas are secured of any crime or access by children and animals.	Yes
The contractor submitted method statement for storage of hazardous materials and emergency procedure	Yes
<u>Occupational Health and Safety</u>	
All workers are employed with adequate experience, training and know-how.	Most of the cases workers are trained.
Workers are led by experienced supervisor or engineer who provides the leadership in daily activities	Yes
<i>Workers are aware of :</i>	
No alcohol/drugs on site	Yes
Prevention of excessive noise	Most workers know
Make use of the facilities provided	Yes
No fire other than construction purpose is allowed	Yes
No trespassing on nearby private/commercial properties	Yes
Other than approved security staff living in construction site is not allowed	Yes
Potentially dangerous works are to be done by trained staff and they do it knowingly	Yes
Contractor monitors the performance of workers in terms of environmental and social behavior	Yes, but in some cases it is done partially.
<u>Post Construction</u>	
All excavated roads are reinstated to original or better condition	Yes, it is done properly.

B. Social Environment	
All disrupted utilities restored	Yes
All affected structures rehabilitated/compensated	Yes
Construction sites are cleared when completed and made good to the original	Yes
Contractor arrange cancellation of all temporary services	Yes
<u>Training</u>	
All existing personnel undergo EMP training	No (some personnel are trained)
All new personnel undergo EMP training	No
EMP training repeated in every quarter for all	No
<u>Others</u>	
Review of the complain management system	Yes
Management of activities done beyond working hours	Yes (Most of the cases)

Contract Package ICB-02.2

ENVIRONMENTAL MONITORING CHECKLIST

1. AREA				
DMA	Site visited	Environmental description of the area		
DMA-811,806,804,810	Several times	The area is situated in Aftabnagar near to Badda in Dhaka. It is newly developed area in Dhaka city. Electricity and other utility services are there. The area is not located in any forest conservation and natural wet land areas or other protected areas.		
		Monitoring in consideration of environmental point of view has been done in the area of Aftabnagar and the observation found in that time are stated below-		
		Top soil could not be conserved properly while open cut for pipe laying. First Aid box and Personal Protective Equipment (PPE) were not present when the laborers' worked in the construction area. Laborer' informed that most of them were not aware on this and in most cases they did not know how to use and also handle it. In some area especially in the road, Billbarir Tach of DMA 910, there was no drinking water supply and toilet facilities for laborers near to construction areas. Troubles shooting posters or informatory sign boards were not displayed in the said construction area.		
2. Activity				
Survey	Design	Implementation	Pre-Commissioning	Commissioning

Survey includes ground survey / underground survey for locating different utilities, infrastructures (valves, meters, PTWs), house connections present in the road and underground.	Based on the survey output the model design will be updated and then prepare the detail design including details of pipe section to be rehabilitated with construction method.	Mostly trenchless technology (HDD & PB) will be used for pipe rehabilitation work. The road where necessary space is not available Open Cut method will be used.	DMA wise network including all the valves & other infrastructures completed operationally will be tested at 6 bar for 4 hours and if test found satisfactory completion certificate will be issued.	If the performance criteria: (i) 1 bar pressure at any point in the network and (ii) system loss not more than 15% is found satisfactory, the network will be commissioned.
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Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major

3. SCOPE F ENVIRONMENTAL MANAGEMENT PLAN AND MONITORING INDICATOR

A. Physical & Ecological Environment:						
<u>Emissions</u>						
Chemicals used for disinfection are discharged into: Surface water/Ground Water/Sanitary Sewer/ De-chlorinated	Site Visit	Sanitary Sewer		√		
<u>Air Quality</u>						
Vehicles installed devices/maintained/and repaired/ Air quality parameters test near to smoke producing equipments	do	Not yet tested			√	
Wood used as fuel for execution of work/cooking /heating water	do	No wood use	√			
<u>Noise and Nuisance</u>						
Community is informed 15 days in advance of the upcoming works	do	Advance Information given		√		
Noise level of machinery/vehicles/workers kept to a minimum	do	Impact to the workers but not to the community. Noise level test is not done yet		√		
Noise level maintained at less than 70dBA	do	Not yet measured		√		
Options investigated for noise level exceeding exposure limit	do	Taken no option to measure				

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Visual impacts of storage facilities and other temporary structures	do	No remarkable environmental degradation was found on the subject stated.		√		
Screening of areas where visual environment is important	do	Screening done	√			
To reduce public nuisance technologies used for pipe laying:	do	Tried to keep minimum public nuisance for trench technology. Most of the cases, trenchless technology are used.		√		
Pipe Bursting/HDD/and Open Trench with justification (These 3 techniques have different impacts)	do	PB= Limited space in road, HDD= Reduce surface cut, OT= Narrow road.			√	
Done night time work to reduce traffic disruption in busy roads	do	Done where required		√		
Temporary make-shift access road made for undisturbed traffic movement	do	Done where required			√	
Public property damage avoided/restored to original condition	do	It is done perfectly			√	√
Involved police department for traffic planning	do	It is done before starting work	√			
Utility service along pipeline were marked/encased as required	do	It was discussed with concern people	√			
Hazardous Substances					√	

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
All materials, equipment, tools and plants kept in a planned yard	do	Most of the cases, discard material kept in a safe distance place from working site. So, it should be improved in future.				
A team of trained staff handling the store, wastes and spillage	do	Handling as directed.	√			
Refueling done with care, without spillage on the ground or drinking water source	do	Refueling with care by using container at working site.	√			
Storage of chemicals, fuel made in spill proof containers and transported properly	do	Storage as instructed by manufacturer	√			
AC pipe is not used to avoid health risks from asbestos contamination	do	No AC pipe is used	√			
Bentonite effluents are disposed off avoiding ground contamination	do	Normally Bentonite is not used. Where borehole caving occurred a slight amount is used.			√	
Spillage from machineries are properly managed and disposed off	do	No considerable spillage is appeared from machineries.		√		
<u>Waste Management</u>						
All waste are managed in accordance with the industrial management standard	do	Yes, it is tried.			√	
Solid and liquid waste are not left behind on site	do	Site cleaning is done regularly.		√		

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Standing water is managed properly to avoid ground water contamination and/or interference with construction work	do	Using de-watering pump to manage standing water.		√		
Pits are protected to avoid flooding and all works are stopped during flooding	do	Protected by excavated earth/soil.		√		
<u>Reuse and Recycling</u>						
Excavated soils are reused to the extent possible and the excess are used beneficially	do	Excavated materials were not used as per instruction of DPP.	√			
All chemicals will be reused where possible	do	No chemical is reused.	√			
<u>Dust and Litter Control</u>						
Litter is contained and disposed of properly	do	Using hose pipe for disposing to a safe distance place.		√		
Solid and human waste are disposed off as per the health authorities	do	With a few exceptions, these wastes are disposed at safe distance in a safe place.			√	
Water sprinkled in the worksite to avoid excessive dust	do	With a few exceptions, Water sprinkler is used (in most cases using hose pipe).			√	
Tarpaulins used to cover sand and waste soil and during transportation	do	Sand and waste soils are carried at night time covered by Tarpaulin.		√		
<u>Trees and Vegetation</u>						

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
No trees or shrubs are cut without prior approval of the PM	do	Pipeline alignment is always kept a distance from tree.	√			
B. Social Environment:						
<u>Community</u>						
NGOs assigned to identify and compensate affected persons	do	Yes, NGO assigned.	√			
Local men and women are engaged to enhance short term economic impact within the locality	do	Sometimes, local person are engaged	√			
<u>Health and Safety</u>						
Health and safety plan prepared, got approval and is being followed	do	Plan prepared & approved but in some cases it is violated.	√			
<u>Water Quality</u>						
Effort is made to ensure no contamination of soil and water on site from chemicals, hazardous substance or vehicle or plant washing runoff	do	Washing runoffs are disposed in sewerage line.		√		
No water other than DWASA supply is used for all project related activities including personal use of the workers	do	No source other than DWASA is available at working site.	√			
All concrete mixing done on an impermeable surface	do	Concrete mixing was on impermeable surface.		√		
No vehicle transporting concrete to the site is washed on site	do	No vehicle transporting concrete is washed on the site.	√			

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
No vehicle transporting, placing or compacting asphalt or any other bituminous product is washed on site	do	No such vehicle is washed at site.	√			
Hazardous materials/substances are transported in sealed containers	do	No existence of hazardous substances at site.		√		
<u>Sanitation Facility</u>						
Sanitation facilities are provided by the contractor for the workers		With a few exceptions, temporary arrangement was at working site.			√	
<u>Equipment Lay-down and Storage Area</u>						
Storage areas are secured of any crime or access by children and animals	do	Day-night security guards are engaged	√			
The contractor submitted method statement for storage of hazardous materials and emergency procedure	do	No methodology was submitted for storage of hazardous materials, but storage facilities were available.		√		
<u>Occupational Health and Safety</u>						
All workers are employed with adequate experience, training and know-how.	do	In most cases, the workers have low know-how regarding these.		√		
Workers are led by experienced supervisor or engineer who provides the leadership in daily activities	do	Yes	√			
<u>Workers are aware of</u>						
No alcohol/drugs on site	do	Aware	√			

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Prevention of excessive noise	do	Partial		√		
Make use of the facilities provided	do	Partial		√		
No fire other than construction purpose is allowed	do	Yes	√			
No trespassing on nearby private/commercial properties	do	No trespassing.	√			
Other than approved security staff living in construction site is not allowed		No out-side personnel are allowed.	√			
Potentially dangerous works are to be done by trained staff and they do it knowingly	do	Yes		√		
Contractor monitors the performance of workers in terms of environmental and social behavior	do	partially		√		
<u>Post Construction</u>						
All excavated roads are reinstated to original or better condition	do	Temporary reinstated. It will come as original after completion of the works by road owner.		√		
All disrupted utilities restored	do	Yes		√		
All affected structures rehabilitated/compensated	do	Yes		√		
Construction sites are cleared when completed and made good to the original	do	Yes		√		
Contractor arrange cancellation of all temporary services	do	Yes		√		
<u>Training</u>						
All existing personnel undergo EMP training	do	Partial		√		
All new personnel undergo EMP training	do	No		√		
EMP training repeated in every quarter for all	do	no		√		
<u>Others</u>						
Review of the complain management system	do	Yes			√	

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Management of activities done beyond working hours	do	Yes			√	

ICB-02.3:

ENVIRONMENTAL MONITORING CHECKLIST

1. AREA				
DMA	Site visited	Environmental description of the area		
504, 505,506,508	Several times	The area is situated in Niketon near to Gulsan-1 of Dhaka city. It is newly developed area. Electricity and other utility services are there. The area is not located within any forest conservation and natural wet land areas or other protected areas. First Aid box and Personal Protective Equipment (PPE) were not present when the laborers’ worked in the construction area. Laborer’ informed that most of them were not aware on this and in most cases they did not know how to use and also handle it. In some area especially in the road no. 8 of DMA 508, there were no drinking water supply and toilet facilities for laborers near to construction areas.		
2. Activity				
Survey	Design	Implementation	Pre-Commissioning	Commissioning
Survey includes ground survey / underground survey for locating different utilities, infrastructures (valves, meters, PTWs), house connections present in the road and underground.	Based on the survey output the model design will be updated and then prepare the detail design including details of pipe section to be rehabilitated with construction method.	Mostly trenchless technology (HDD & PB) will be used for pipe rehabilitation work. The road where necessary space is not available Open Cut method will be used.	DMA wise network including all the valves & other infrastructures completed operationally will be tested at 6 bar for 4 hours and if satisfactory test will found completion certificate will be issued.	If the performance criteria: (i) 1 bar pressure at any point in the network and (ii) system loss not more than 15% is found satisfactory, the network will be commissioned.

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major

3. SCOPE F ENVIRONMENTAL MANAGEMENT PLAN AND MONITORING INDICATOR

A. Physical & Ecological Environment:						
<u>Emissions</u>						
Chemicals used for disinfection are discharged into: Surface water/Ground Water/Sanitary Sewer/ De-chlorinated	Site Visit	Sanitary Sewer		√		
<u>Air Quality</u>						
Vehicles installed devices/maintained/and repaired/ Air quality parameters test near to smoke producing equipments	do	Not yet tested			√	
Wood used as fuel for execution of work/cooking /heating water	do	No wood use	√			
<u>Noise and Nuisance</u>						
Community is informed 15 days in advance of the upcoming works	do	Advance Information given		√		
Noise level of machinery/vehicles/workers kept to a minimum	do	Impact to the workers but not to the community. Noise level test is not done yet		√		
Noise level maintained at less than 70dBA	do	Not yet measured, it on the process		√		
Options investigated for noise level exceeding exposure limit	do	Taken no option to measure				

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Visual impacts of storage facilities and other temporary structures	do	No remarkable environmental degradation was found on the subject stated.		√		
Screening of areas where visual environment is important	do	Screening done	√			
To reduce public nuisance technologies used for pipe laying:	do	Most of the cases, trenchless technology are used		√		
Pipe Bursting/HDD/and Open Trench with justification (These 3 techniques have different impacts)	do	PB= Limited space in road, HDD= Reduce surface cut, OT= Narrow road.			√	
Done night time work to reduce traffic disruption in busy roads	do	Done where required		√		
Temporary make-shift access road made for undisturbed traffic movement	do	Done where required			√	
Public property damage avoided/restored to original condition	do	It is done perfectly			√	√
Involved police department for traffic planning	do	It is done before starting work	√			
Utility service along pipeline were marked/encased as required	do	It was discussed with concern people	√			
<u>Hazardous Substances</u>					√	

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
All materials, equipment, tools and plants kept in a planned yard	do	Most of the cases, discard material kept in a safe distance place from working site.				
A team of trained staff handling the store, wastes and spillage	do	Handling as directed.	√			
Refueling done with care, without spillage on the ground or drinking water source	do	Refueling with care by using container at working site.	√			
Storage of chemicals, fuel made in spill proof containers and transported properly	do	Storage as instructed by manufacturer	√			
AC pipe is not used to avoid health risks from asbestos contamination	do	No AC pipe is used	√			
Bentonite effluents are disposed off avoiding ground contamination	do	Normally Bentonite is not used. Where borehole caving occurred a slight amount is used.			√	
Spillage from machineries are properly managed and disposed off	do	No considerable spillage is appeared from machineries.		√		
<u>Waste Management</u>						
All waste are managed in accordance with the industrial management standard	do	Yes			√	
Solid and liquid waste are not left behind on site	do	Site cleaning is done regularly.		√		

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Standing water is managed properly to avoid ground water contamination and/or interference with construction work	do	Using de-watering pump to manage standing water.		√		
Pits are protected to avoid flooding and all works are stopped during flooding	do	Protected by excavated earth/soil.		√		
<u>Reuse and Recycling</u>						
Excavated soils are reused to the extent possible and the excess are used beneficially	do	Excavated materials were not used as per instruction of DPP.	√			
All chemicals will be reused where possible	do	No chemical is reused.	√			
<u>Dust and Litter Control</u>						
Litter is contained and disposed of properly	do	Using hose pipe for disposing to a safe distance place.		√		
Solid and human waste are disposed off as per the health authorities	do	In most cases, these wastes are disposed at safe distance in a safe place.			√	
Water sprinkled in the worksite to avoid excessive dust	do	With a few exceptions, Water sprinkler is used (in most cases using hose pipe).			√	
Tarpaulins used to cover sand and waste soil and during transportation	do	Sand and waste soils are carried at night time covered by Tarpaulin.		√		
<u>Trees and Vegetation</u>						

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
No trees or shrubs are cut without prior approval of the PM	do	Pipeline alignment is always kept a distance from tree.	√			
B. Social Environment:						
<u>Community</u>						
NGOs assigned to identify and compensate affected persons	do	Yes, NGO assigned.	√			
Local men and women are engaged to enhance short term economic impact within the locality	do	Sometimes, local person are engaged	√			
<u>Health and Safety</u>						
Health and safety plan prepared, got approval and is being followed	do	Plan prepared & approved but in some cases it is violated.	√			
<u>Water Quality</u>						
Effort is made to ensure no contamination of soil and water on site from chemicals, hazardous substance or vehicle or plant washing runoff	do	Washing runoffs are disposed in sewerage line.		√		
No water other than DWASA supply is used for all project related activities including personal use of the workers	do	No source other than DWASA is available at working site.	√			
All concrete mixing done on an impermeable surface	do	Concrete mixing was on impermeable surface.		√		
No vehicle transporting concrete to the site is washed on site	do	Yes it is happened	√			

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
No vehicle transporting, placing or compacting asphalt or any other bituminous product is washed on site	do	No such vehicle is washed at site.	√			
Hazardous materials/substances are transported in sealed containers	do	No existence of hazardous substances at site.		√		
<u>Sanitation Facility</u>						
Sanitation facilities are provided by the contractor for the workers		With a few exceptions, temporary arrangement was at working site, but permanent was at workers' shed.			√	
<u>Equipment Lay-down and Storage Area</u>						
Storage areas are secured of any crime or access by children and animals	do	Day-night security guards are engaged	√			
The contractor submitted method statement for storage of hazardous materials and emergency procedure	do	No methodology was submitted for storage of hazardous materials, but storage facilities were available in site.		√		
<u>Occupational Health and Safety</u>						
All workers are employed with adequate experience, training and know-how.	do	In most cases, the workers have low know-how regarding these.		√		
Workers are led by experienced supervisor or engineer who provides the leadership in daily activities	do	Yes	√			
<u>Workers are aware of</u>			√			

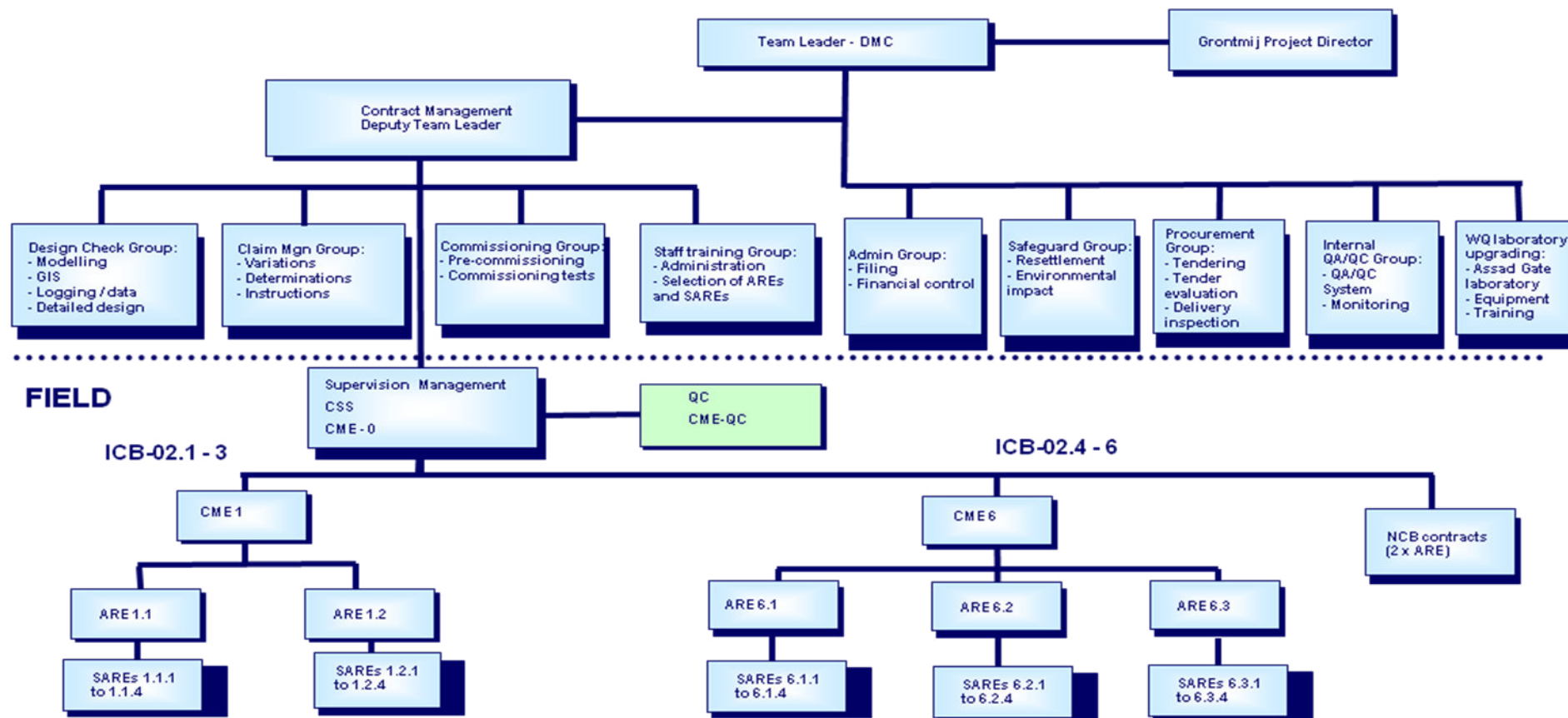
Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
No alcohol/drugs on site	do	Aware				
Prevention of excessive noise	do	Partial		√		
Make use of the facilities provided	do	Partial		√		
No fire other than construction purpose is allowed	do	Yes	√			
No trespassing on nearby private/commercial properties	do	There was no trespassing.	√			
Other than approved security staff living in construction site is not allowed		No out-side personnel are allowed.	√			
Potentially dangerous works are to be done by trained staff and they do it knowingly	do	Yes		√		
Contractor monitors the performance of workers in terms of environmental and social behavior	do	Yes		√		
Post Construction						
All excavated roads are reinstated to original or better condition	do	It has been reinstated to original when the subproject is completed.		√		
All disrupted utilities restored	do	Yes		√		
All affected structures rehabilitated/compensated	do	Yes		√		
Construction sites are cleared when completed and made good to the original	do	Yes		√		
Contractor arrange cancellation of all temporary services	do	Yes		√		
Training						
All existing personnel undergo EMP training	do	Partial		√		
All new personnel undergo EMP training	do	No		√		
EMP training repeated in every quarter for all	do	no		√		
Others						

Criteria/Activities	Method and Frequency	Observations	Impact IEE			
			No	small	Moderate	Major
Review of the complain management system	do	Yes			√	
Management of activities done beyond working hours	do	Yes			√	

Appendix 2: DMC Proposed Organogram

Dhaka Water Supply Sector Development Project (DWSSDP)

Organogram - DMC



Appendix-3 Photographs of Physical Works: Unprotected

	
<p>The road named Bilbarir Tach, Shahajatpur of DMA 804, ICB-2.2</p>	<p>DMA 401. in ICB2.4</p>

Appendix-4 Copies of environmental quality test reports and other documents-

 ENVIRONMENTAL PROTECTION ENGINEERING AND CONSULTANTS LTD.
for a greener tomorrow...

National Construction Company limited
House-03, Road-01 A, Sector-04, Uttara, Dhaka

Noise Level Assessment (outdoor)

Sample Location	Obtained Values Average Value at (dBA)	DQE/ADB Recommended Value(dBA) For day time (Community Noise Level)	Date & Time 05.03.2014 12.00-3.00 pm	Remarks
HDD Machine/Bursting Machine				
Front side (2.5 meter distance)	64-68	70	-	OK
Back side (2.5 meter distance)	62-67	70	-	OK
Right side (2.5 meter distance)	64-66	70	-	OK
Left side (2.5 meter distance)	65-67	70	-	OK

Location of construction:
1. Banani, Dhaka
2. Khulshet, Dhaka
3. Nikunja, Dhaka
4. Bandhara, D.D.H.S, Dhaka
5. Jorahatara & Kuril, Dhaka

Review by: 
M. Hossain
M.Sc. Environmental Engg. (Denmark) & B.Sc. Civil Engg.
Certified Lead Auditor ISO-9001 & ISO-14001:2004 (UK, ENA, UK),
OHSA-18001 (British Standard 18001)

Assessment done by: 
M. Mahsin Uddin
Project Engineer (EEE)

 PROJECT MANAGER
NCC Ltd.
House 100th Floor, Road 6, Sector 3, Uttara, Dhaka 1200, Bangladesh
Tel: +880 2 8850888, 8815557 Fax: +880 2 8823461 E-mail: info@epectbd.com URL: www.epectbd.com

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House-03, Road-01 A, Sector-04, Uttara, Dhaka

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[illegible]

PRATIBHA-JAIN IRRIGATION-NAVANA JV

Date: 08.12.2013
Director
Department of Environment [DoE]
Dhaka research Centre
Agargaon Dhaka.

Sub: TEST FOR DRINKING WATER, AIR, NOISE OF EQUIPMENT VEHICLES AT GULSHAN-1, NIKETON AREA.

Dear Sir,

This is for your kind information that we are implementing DWSSOP Project of DWASA financed by ADB. During Implementation we are using Generator, HDD & Pipe Busting Machines Vehicles etc. As per tender conditions we have to submit the following Test to DMC.

1. Drinking Water Test (as supplied to workers) report
2. Air Test (SOXS, NOXS, SPN) at working site.
3. Noise Test (For Generator, HDD & P.B Machines, Vehicles)

So you are requested to perform the above test as soon as possible.

Thanking you

Engr. Md. Zahurul Alam
Contract Manager, PJIN JV
ICB- 02.3

Copy:

1. ACE/PO, DWSSDP, DWASA
2. TL, DMC
3. DTL, DMC
4. EE-2 (Tech-1), PMU
5. CME, DMC/ ICB-02.3

Design & Management Consultancy Pvt. Ltd.
DATE: 08.12.2017
FILE #
COPY ACTION INFO SEEN
CME
MOL
ATL
gladesh.
62
constituent

House # 28/A, Road # 83 Gulshan-2, Dhaka, Bangladesh.
Tel: 88-02-8812601 (Hunting), Fax: 88-02-8811662
E-mail: info@navana-construction.com, web: www.navana-construction.com

Design and Management Consultants (DMC)

of
Dhaka Water Supply Sector Development Project – ADB Loan No. 2382-BAN(SF)
10th Floor WASA Bhaban, 98 Kazi Nazrul Islam Avenue, Karwan Bazar, Dhaka 1215

Date: 9 December 2013
Ref.: 221/TL/09122013/1736

1. National Construction Co. Ltd.
House No. 3, Road No. 1/A, Sector 4
Uttara, Dhaka 1230
Attn: *Mr. Muhammad Nazrul Islam*
2. China First Metallurgical Group Co., Ltd (CFMCC)
House # 101 (Ground & 1st floor)
Northern Road, Baridhara New DOHS, Dhaka
e-mail: cfmccbangladesh@gmail.com
Attn: *Contract Manager: Mr. Ling Zhen*
3. Pratibha-Jain Irrigation-Navana JV
House # 28/A, Road # 83
Gulshan - 2, Dhaka- 1212, Bangladesh
Phone: 02-8812601 (Hunting), Fax: 02-8811662
Email: jai@navana-construction.com
Attn: *Engr. Zahurul Alam, Contract Manager*

**Subject: ICB-02.1, ICB-02.2 & ICB-02.3: Environmental Safeguards:
Drinking Water Quality, Noise Levels and Air Quality**

Dear Contract Manager(s),

According to GCC 22.2.11 Supply of Water "The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel."

You are requested to inform us about the source of your Water Supply for your Field Staff as well as the method of dispensing. Further you are requested to submit Examination Reports and Related Test Results of the Various Water Quality Parameters.

To comply with Environmental Regulations you are requested to submit Test Results of SPM, SOx, NOx and as well as Noise levels at your Work/Installation Sites.

Kind Regards

Simon de Haan, Project Manager
(Team Leader, Design and Management Consultants)

- CC: 1. Additional Chief Engineer & Project Director, (DWSSD);
2. Deputy Team Leader, DMC;
3. Deputy Project Director-1 (Tech-1), PMU, DWSSDP;
4. Executive Engineer-1/2 (Tech-1/2), PMU, DWSSDP;
5. Contract Management Expert, DMC/ICB-02.1/ICB-02.2/ICB-02.3.



In joint venture with



Page 1 of 1

	Government of the People's Republic of Bangladesh Office of the Chief Chemist Department of Public Health Engineering Central Lab, 36-39, Mohakhali C/A, Dhaka-1212 Phone: 88-12-988107 Fax: 88-12-988105 Email: cehc@central.dgphs.gov.bd	
	Lab Memo: 842 / CC, DPHE, DL, Dhaka Date: 08/03/2013	

Physical /Chemical/ Bacteriological Analysis of Water Sample	
Sample ID: CEN201308015	Sample Receiving date: 05/08/2013
Ref. Memo No: 39 & Dated: 04/08/2013	Sample Source: Others
Sent by: Md. Waheedul Islam Murad, Plant Manager, Bottled Water Production Plant, Dhaka WASA, Dhaka.	Det/Dhaka, Upa Dhaka city corporation north.
Core Taker: Bottled Water Production Plant, Dhaka WASA	Unit: VII Block-4, Section-10, Mirpur Dhaka
Sample Collection date: 05/08/2013	Date of Testing: 05/08/2013-08/08/2013

LABORATORY TEST RESULTS:					
S/L	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method
1	Arsenic (As)	0.05	<LOQ	mg/L	AAS
2	Barium (Ba)	0.01	<LOQ	mg/L	AAS
3	Calcium (Ca)	0.065	<LOQ	mg/L	AAS
4	Cadmium (Cd)	75	1.40	mg/L	AAS
5	Chloride	100-600	5.0	mg/L	Titrimetric
6	Chloride (Residual)	0.1	0.02	mg/L	UVS
7	Coliform (faecal)	0	0	CFU/100 ml	MPN
8	Coliform (Total)	0	0	CFU/100 ml	MPN
9	Copper	15	<LOQ	mg/L	Hezen Membrane Filter
10	Copper (Cu)	1.0	<LOQ	mg/L	AAS
11	Cr (Total)	0.05	0.0009	mg/L	AAS
12	Fluoride	1.0	<LOQ	mg/L	Ion Meter
13	Hardness	200-400	13	mg/L	Titrimetric
14	Iron (Fe)	0.3-1	0.19	mg/L	AAS
15	Lead (Pb)	0.05	<LOQ	mg/L	AAS
16	Magnesium (Mg)	30-35	0.35	mg/L	AAS
17	Manganese (Mn)	0.1	<LOQ	mg/L	AAS
18	Mercury (Hg)	0.001	<LOQ	mg/L	Mercury Analyser
19	Nickel (Ni)	0.1	<LOQ	mg/L	AAS
20	Nitrogen (Nitrate)	10.0	<LOQ	mg/L	UVS
21	Nitrogen (Nitrite)	<1.0	<LOQ	mg/L	UVS
22	Oxygen	Unobtainable	0	Unobtainable	MPN



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