Initial Environmental Examination of Package 2

Management Design & Supervision Consultant for Dhaka Environmentally Sustainable Water Supply Project

Submitted: September 2019

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ABBREVIATIONS

Table 1: Abbreviations

ADB	Asian Development Bank
AAQ	Ambient Air Quality
BFRI	Bangladesh Fisheries Research Institute
BIWTA	Bangladesh Inland Waterways Transport Authority
BWDB	Bangladesh Water Development Board
BNBC	Bangladesh National Building Code
BOD	Biochemical Oxygen Demand
BR	Bangladesh Railways
CSC	Construction Supervision Consultant
DBC	Design Build Contractor
DC	District Commissioner
DESWSP	Dhaka Environmentally Sustainable Water Supply Project
DMC	Design Management Consultants
DNCC	Dhaka North City Corporation
DoE	Department of Environment
DoF	Department of Fisheries
DSCC	Dhaka South City Corporation
DTW	Deep Tube Well
DWASA	Dhaka Water and Sewerage Authority
ECA	Environment Conservation Act
ECR	Environment Conservation Rules
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EM&MP	Environmental Management & Monitoring Plan
GW	Ground Water
IEE	Initial Environmental Examination
IWM	Institute of Water Modelling
LAP	Land Acquisition Plan
LGED	Local Government Engineering Division
MoEF	Ministry of Environment and Forest
NGO	Non-governmental Organization
PMU	Project Management Unit
RAJUK	Rajdhani Unnayan Kartripakhaya
RAP	Resettlement Action Plan
REB	Rural Electrification Board
RoW	Right of Way
SC	Supervision Consultant
STW	Shallow Tube Well
SW	Surface Water
SWTP	Surface Water Treatment Plant
WSF	Water Safety Framework

WSP	Water Safety Plan
WTP	Water Treatment Plant

UNITS

Table 2: Units

°C	degree Celsius
CFU	Colony-Forming Unit
dB	decibels
ha	hectare
km	kilometer
km/h	kilometer per hour
m	meter
mg/l	milligram per liter
MLD	million liters per day
mm	millimeter
µg/m3	micro-gram per cubic meter
NTU	Nephelometric Turbidity Unit
ppm	parts per million

CURRENCY EQUIVALENTS

As of 26 November 2015

Table 3: Currency Equivalents

Currency unit	–	Taka (Tk)
Tk.1.00	=	$0.01283
$1.00	=	Tk. 77.95

NOTE: In this report, "$" refers to US dollars

WEIGHTS AND MEASURES

Table 4: Weights and Measures

km	–	kilometer
km^2	–	square kilometer
m^2	–	square meter
mm	–	millimeter
m^3/day	–	cubic meter per day

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EXECUTIVE SUMMARY

An IEE has been prepared for all project packages P1, P2 and P3 in 2013. [1], The IEE (2013) was a review of the reasonably foreseeable effects on the environment of the whole proposed Dhaka Environmentally Sustainable Water Supply Project (DESWSP).

The present IEE refers to the revised detailed design of Package 2 (P2). Package 2 is the 14 km Treated Water Transmission Line from Gandharbpur Water Treatment Plant to Injection Point near US Embassy. The IEE is conducted if the project is likely to have minor or limited impacts, which can easily be predicted and evaluated, and for which mitigation measures are prescribed easily. However, the IEE is also used to confirm whether this is, indeed, requires an EIA as a follow up.

However, ADB requires the consideration of environmental issues in all aspects of the Bank's funded projects, and the requirements for environmental assessment are described in ADB's Safeguard Policy Statement (SPS), 2009. The potential environmental impacts of the subproject have been assessed using ADB Rapid Environmental Assessment (REA) Checklist for DESWSP.

This IEE is based on the requirements of ADB's SPS 2009. Principal sources of information were the field data for rapid environmental assessment (REA) followed by terrestrial flora and fauna data and scoping exercises. Supplementary information was taken from direct consultations with DWASA staff, field observations and site assessment, review of documents and project plans, designs and previous reports on similar projects implemented in other areas in Bangladesh.

A scoping and field reconnaissance were conducted at project sites, to identify the potential impacts and categorization of project activities. The methodology of the IEE study was then elaborated in order to address all impacts. Subsequently primary and secondary baseline environmental data were collected from possible sources, and the intensity and likely location of impacts were identified with relation to sensitive receivers. The significance of impacts from construction of P2 pipelines was then assessed and, for those impacts requiring mitigation measures were proposed to reduce impacts within acceptable limits. Informal public consultation (PC) was carried out in project areas.

Section 2 presents Bangladeshi laws and regulations related to environmental issues. Many of these are cross-sectoral and partially related to environmental issues. The most important of these are the Environment Conservation Act, 1995 (ECA, 1995), and the Environment Conservation Rules (ECR, 1997). The ECA 1995 is primarily an instrument for establishing the Department of Environment (DoE), and for controlling industrial and project related pollution. The Act also defines in general terms that if any particular activity is causing damage to the ecosystem, the responsible party will have to apply corrective measures. Until the appearance of ECR, 1997, enforcement of the Act was not possible, as many of the clauses refer to specifications detailed in the Rules. ECA and ECR were further amended to address the growing environmental challenges.

[1] Draft Initial Environmental Examination, BAN: Dhaka Environmentally Sustainable Water Supply Project, August 2013

ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all ADB investments.

Section 3 describes the existing status of the project and proposed P2 intervention. The proposed Project is Package 2 which describes that, treated water from Gandharbpur WTP will be conveyed at a distance of 14 km pipeline corridor through rural countryside, up to Injection point at Vatara (Natun Bazar near American Embassy) through two 1.6m diameter pipes. This pipeline route passes over flood prone and high-water table soils subject to earthquake liquefaction, and with large river crossings of Shitalakhya and Balu Rivers. The project is guided by detailed design of the Consultant, reviewed by the Contractors. (Figure-1, Figure-3, and Figure-4).

Section 4 details on the description of environmental baseline situation, as topography, climate, rainfall, geology, air quality, noise, socioeconomic aspects etc, Ecological resources includes description of various habitats types in project influence area.

Section 5 highlights on socio cultural resources. The archaeological heritage and relics at Araihazar include that, the two-storied building with 108 rooms (Sadasardi), mazars of Hazrat Garibullah Shah (R) and Jangali Shah (R) at Haizadi, colored glass decorated Durga Mandir, house of Zamindar Birendra Roy Chowdhury, Dighipar Math (Araihazar), single-domed Jami Mosque (Uchitpur).

Archaeological heritage and relics at Rupganj: Bajra Mosque, residence of Mura Para Zamindar, Mura Para Shahi Mosque, At-ani Mosque and Tara Mosque at Gandharbapur, Brahmangaon Jami Mosque, Golakandail Kalim Shah Jami Mosque

Section 6 focuses on anticipated environmental impacts and mitigation measures at Planning and Design Phase, construction and O&M stages.

The detailed design shall identify suitable locations for construction work camps, stockpile areas, storage areas, and disposal areas and other facilities near to the project locations or DNCC disposal sites. However, if it is deemed necessary to locate elsewhere, sites to be considered shall not promote social instability and result in destruction of property, vegetation, irrigation, and water bodies.

None of these temporary facilities shall be located (i) within 500 m of residential areas and rivers identified as ecologically critical areas (ECA), Balu and Shitalakhya Rivers, and (ii) within 100 m of other water courses and canals (khals). Though the contractor will be free to decide locations, a list of feasible locations shall be included in the design specifications and plan drawings for approval by the PMU (DNCC disposal sites).

Section 7 includes Public Consultation, the active participation of stakeholders including local community, NGOs, etc., in all stages of project preparation and implementation is essential for successful implementation of the project. It will ensure that the P2 Project is designed, constructed, and operated with utmost consideration to local needs, ensures community acceptance, and will bring maximum benefits to the people. Public consultation and information disclosure is a must as per the ADB policy.

Most of the main stakeholders have already been identified and consulted during preparation of this IEE, and any others that are identified during project implementation will be brought into the process in the future. The stakeholders of P2 Project are: residents, shopkeepers, NGOs and business people who live and work near sites where facilities will be built (14 km treated water pipelines), BWDB, LGED, RAJUK beneficiary community in general, and the ADB.

Section 8 highlights grievance redress mechanism. A common GRM will be in place to redress social, environmental or any other project related grievances. The GRM described below has been developed in consultation with stakeholders. Public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures is generated. The campaign will ensure that the poor, vulnerable and others are made aware of grievance redress procedures, and PMU will ensure that their grievances are addressed.

Section 9 presents environmental management and mitigation. An environmental management plan (EMP) has been developed to provide mitigation measures to reduce all negative impacts to acceptable levels. The EMP will guide the environmentally-sound construction of the P2 Project and ensure efficient lines of communication between DWASA, project management unit (PMU), consultants and contractors. The EMP will (i) ensure that the activities are undertaken in a responsible non-detrimental manner; (i) provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site; (ii) guide and control the implementation of findings and recommendations of the environmental assessment conducted for the subproject; (iii) detail specific actions deemed necessary to assist in mitigating the environmental impact of the Project; and (iv) ensure that safety recommendations are complied with. The EMP includes a monitoring program to measure the environmental condition and effectiveness of implementation of the mitigation measures. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries.

Section 10 describes the conclusion and recommendations. As such, the proposed P2 project will not have any significant adverse impacts on the environment since the project activities will be limited within the pipeline corridor of land which is already acquired by the Government. The impacts of the project are site-specific, reversible and are confined within the property. The site is not an ecologically sensitive area.

Most of the adverse impacts are likely to occur during the construction phase and are considered as temporary in nature. The anticipated adverse environmental impacts are manageable and can be mitigated through proper design and consideration of the proposed mitigation measures.

Based on the analysis conducted in this assessment it is concluded that overall the project will result in significant positive socio-economic benefits, and those potential negative environmental impacts that have been identified are small-scale and local, and can be minimized adequately through good design and the appropriate application of mitigation measures. It is therefore recommended that the project be supported by ADB, subject to the implementation of the commitments contained in the EMP and allocation of appropriate technical, financial and human resources by implementing agencies such as DWASA, Construction Supervision Consultant and Contractors to ensure these commitments are effectively and expediently implemented.

The IEE report will be part of the bidding documents. The contractor has to follow the EMP and to implement properly suggested mitigation measures.

The IEE includes in addition an Environmental Monitoring Plan. A program of monitoring will be required to ensure that all concerned agencies take the specified action to provide the required mitigation, to assess whether the action has adequately protected the environment, and to determine whether any additional measures may be necessary. Regular monitoring of mitigation measures by Contractors will be conducted and overseen on behalf of DWASA. Monitoring of noise, ambient air and water quality will be implemented at selected locations.

Environmental training will help to ensure that the requirements of the EMP clearly understood and followed by all Project personnel throughout the Project period. The primary responsibility of providing training to all project personnel will be that of the Consultant's environmental inspectors.

1 Introduction

1.1 Background

The Government of Bangladesh has received financing from the ADB, Agence Française de Développement (AFD), and European Investment Bank (EIB), which will be re-lent to Dhaka Water Supply and Sewerage Authority (DWASA) for the implementation of Dhaka Environmentally Sustainable Water Supply Project (DESWSP). The proposed project aims to provide safe, reliable and continuous drinking water as per Government of Bangladesh's standard to about 15 million people of Dhaka-the capital, located in the heart of the country.

DWASA is responsible for providing potable water supply services to about 90% of Dhaka's population, sewerage services, and storm water drainage services throughout its 400km^2 services areas. In fact, the city relies heavily on groundwater sources for water supply but current abstraction exceeds sustainable yields, water table levels are falling by 2 to 3 m /year and increasing numbers of tube wells become inoperable. Groundwater extraction is expected to be reduced from 1,900 MLD in 2012 to 1,360 MLD by 2020 and 1,260 MLD by 2025. In addition, ground water quality deteriorates continuously. At the same time, the overall supply needs to be increased to cater for the growing population in a larger service area.

Out of the total 2400 MLD currently provided by DWASA, 450 MLD is provided by the two phases of Saidabad Water Treatment Plant (WTP), which abstracts water from the nearby Shitalakhya River, where water quality is deteriorating rapidly, particularly due to high ammonia concentrations during the dry season. This puts sustainable operation of the WTP at serious risk. This in turn makes it essential for DWASA to find an adequate and sustainable source of raw water to achieve its long-term development objectives.

The outcome of the project will be drinking water security ensured in selected district metered areas (DMAs), and in addition, gender-responsive, and sustainable drinking water service delivered in Project DMAs.

1.2 Objectives of the IEE Report

TheIEE report prepared in 2013 referred to the whole DESWSP [2], The report reviewed the reasonably foreseeable effects on the environment of the proposed Dhaka Environmentally Sustainable Water Supply Project (DESWSP). The present IEE report considers the revised detailed design of Package 2 (P2). Package 2 is the 14 km Treated Water Transmission Line from Gandharbpur Water Treatment Plant to Injection Point at Natun bazar near US Embassy. The IEE is conducted if the project is likely to have minor or limited impacts, which can easily be predicted and evaluated, and for which mitigation measures are prescribed easily. However, the IEE is also used to confirm whether this is, indeed, requires an EIA as a follow up.

However, ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for environmental assessment are described in ADB's Safeguard Policy Statement

[2] Draft Initial Environmental Examination, BAN: Dhaka Environmentally Sustainable Water Supply Project, August 2013

(SPS), 2009. The potential environmental impacts of the subproject have been assessed using ADB Rapid Environmental Assessment (REA) Checklist for DESWSP. Then potential negative impacts were identified in relation to pre-construction, construction and operation of the improved infrastructure, and results of the assessment show that the project (Package 2: the 14 km Treated Water Transmission Line) is unlikely to cause significant adverse impacts. Thus, this updated initial environmental examination (IEE) has been prepared in accordance with ADB SPS's requirements for environment category B projects.

This IEE is based on the preliminary project reports and detailed design prepared by the Consultant (Mott MacDonald), DWASA, and a feasibility report prepared by the Project Preparatory Technical Assistance (PPTA) team and will be finalized during implementation stage by design, build and operate (DBO) contractor to reflect any changes and latest project designs. The IEE was based mainly on field reconnaissance surveys and secondary sources of information. No field monitoring (environmental) survey was conducted however, the environmental monitoring program developed as part of the environmental management plan (EMP) will require the contractors to establish the baseline environmental conditions prior to commencement of civil works. The results will be reported as part of the environmental monitoring report and will be the basis to ensure no degradation will happen during Package 2 project implementation.

1.3 Methodology of IEE Report

This IEE is based on the requirements of ADB's SPS 2009. Principal sources of information were the field data for rapid environmental assessment (REA) followed by terrestrial flora and fauna data and scoping exercises. Supplementary information was taken from direct consultations with DWASA staff, field observations and site assessment, review of documents and project plans, designs and previous reports on similar projects implemented in other areas in Bangladesh.

A scoping and field reconnaissance were conducted at project sites on 13 and 14 February 2018, to establish the potential impacts and categorization of project activities. The methodology of the IEE study was then elaborated in order to address all impacts. Subsequently primary and secondary baseline environmental data were collected from possible sources, and the intensity and likely location of impacts were identified with relation to sensitive receivers. The significance of impacts from construction of P2 pipelines was then assessed and, for those impacts requiring mitigation measures were proposed to reduce impacts to within acceptable limits. Informal public consultation (PC) was carried out in project areas.

1.4 Report Structure

This Report contains the following seven (7) sections including the executive summary at the beginning of the report:

- Introduction;
- Description of the project
- Policy, legal and administrative framework;
- Description of the environment;
- Anticipated environmental impacts and mitigation measures;
- Environmental management plan, and,
- Conclusion and recommendation.

2 Policy, Legal and Administrative Framework

2.1 Relevant Government Policies, Acts, Rules and Strategies in Bangladesh

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

In addition to the Environmental Conservation Act and Rules, there are a number of other policies, plans and strategies which deal with the water sector, agricultural development, coastal area, protected area disaster management and climate change. These are the National Water Policy, 1999; the Forest Act 1927 (last modified 30th April 2000); National Forest Policy, 1994; the National Conservation Strategy1992;; National Environmental Management Action Plan (NEMAP), 1995; Coastal Zone Policy, 2005; Coastal Development Strategy, 2006; National Agricultural Policy, 1999; National Fisheries Policy, 1996; National Livestock Development Policy, 2007; Standing Orders on Disaster, 1999 (revised in 2010); Bangladesh Climate Change Strategy and Action Plan, 2009; National Plan for Disaster Management, 2010-2015. Some of these policies and legislations are described in this chapter for reference.

2.1.1 Environment Conservation Act, 1995

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

The main strategies of the act can be summarized as:

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

- Formulation and declaration of environmental guidelines

Department of Environment (DOE) implements the Act. DOE is under the Ministry of Environment and Forest and is headed by a Director General (DG). The DG has complete control over the DOE.

2.1.2 Environment Conservation Rules, 1997

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

- Categorization of industries and development projects
- Procedure for obtaining environmental clearance
- Environmental quality standards in relation to water pollution, air pollution and noise, as well as permitted discharge/emission levels of water and air pollutants and noise by projects

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

Environmental Conservation Rules (1997) classifies industrial units and development projects into four categories for the purpose of issuance of Environmental Clearance Certificate (ECC). These categories are:

i. Green
ii. Orange A
iii. Orange B, and
iv. Red

Green Category projects are considered relatively pollution-free and hence do not require initial environmental examination (IEE) and EIA. An environment clearance certificate (ECC) from the Department of Environment (DoE) is adequate.

Orange Category projects fall into two categories. Orange A projects are required to submit general information, a feasibility report, a process flow diagram and schematic diagrams of waste treatment facilities along with their application for obtaining DOE environmental clearance. Orange B projects are required to submit an Initial Environmental Examination (IEE) report, along with their application and the information and papers specified for Orange B projects.

Red Category projects are those which may cause ‘significant adverse’ environmental impacts and are, therefore, required to submit an EIA report. It should be noted that they may obtain an initial site clearance on the basis of an IEE report, and subsequently submit an EIA report for obtaining environmental clearance along with other necessary papers, such as feasibility study reports and no objections from local authorities.

An EIA referring to all packages P1, P2 and P3 has been prepared and submitted to DoE. A no-objection certificate has been issued by DoE on 21 May 2015 (Annex J). An update of the certificate is still pending

due to some changes in the detailed design. The Updated EIA is approved by DoE on 11 December 2018, accordingly ECC is presented in Appendix-O.

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

2.1.3 Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009

The Government of Bangladesh prepared the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2008 and revised in 2009. This is a comprehensive strategy to address climate change challenges in Bangladesh. It is built around the following six themes:

- **Food security, social protection and health** to ensure that the poorest and most vulnerable in society, including women and children, are protected from climate change. All programs focus on the needs of this group for food security, safe housing, employment and access to basic services, including health.
- **Comprehensive disaster management** to further strengthen the country's already proven disaster management systems to deal with increasingly frequent and severe natural calamities.
- **Infrastructure** to ensure that existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change.
- **Research and Knowledge management** to predict that the likely scale and timing of climate change impacts on different sectors of economy and socioeconomic groups; to underpin future investment strategies; and to ensure that Bangladesh is networked into the latest global thinking on climate change.
- **Mitigation and low carbon development** to evolve low carbon development options and implement these as the country's economy grows over the coming decades.
- **Capacity building and Institutional strengthening** to enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change.

2.1.4 National Water Policy 1999

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

2.1.5 National Safe Drinking Water Supply and Sanitation Policy 1998

The National Safe Drinking Water Supply and Sanitation Policy (NSDWSSP, 1998) was adopted in 1998, and sets out the basic framework for the improvement of public health quality and to ensure an improved

environment, together with a set of broad sectoral action guidelines. The policy offered the following various objectives to achieve the goal:

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

2.1.6 National Agricultural Policy, 1999

The overall objective of the National Agriculture Policy is to make the nation self-sufficient in food through increasing production of all crops including cereals and ensure a dependable food security system for all. One of the specific objectives of National Agricultural Policy is to take necessary steps to ensure environmental protection as well as 'environment-friendly sustainable agriculture' through increased use of organic manure and strengthening of the integrated pest management program. The policy also suggests creating awareness so that the chemical fertilizers and pesticides used for increased crop production do not turn out to be responsible for environmental pollution. Water logging and salinity are identified as one of the serious problems in some parts of the country including the coastal areas for agricultural activities and environmental damage. The policy recommends for crop rotation and salt tolerant crop varieties.

2.1.7 National Fisheries Policy, 1996

The National Fisheries Policy, 1996 recognizes that fish production has declined due to environmental imbalances, adverse environmental impact and improper implementation of fish culture and management programs. The policy suggests following actions:

- Shrimp and fish culture will not he expanded to the areas which damage mangrove forest in the coastal region;
- Biodiversity will be maintained in natural water bodies and in marine environment;
- Chemicals harmful to the environment will not be used in fish shrimp farms;
- Environment friendly fish shrimp culture technology will be used;
- Control measures will be taken against activities that have a negative impact on fisheries resources and vice-versa;
- Laws will be formulated to ban the disposal of any untreated industrial effluents into the water bodies.

2.1.8 National Livestock Development Policy, 2007

The National Livestock Development Policy has been prepared to address the key challenges and opportunity for a comprehensive sustainable development of the Livestock sub-sector through creating an enabling policy framework. The policy recognizes that there are no guidelines for environmental protection and bio-security when establishing poultry farms. The use of antibiotics in feeds is thought to be common

and a cause of public health concern. The policy recommends for developing and enforcing specific guidelines for establishing environment-friendly commercial poultry farms.

2.1.9 Relevant International Environmental Agreements

Bangladesh has signed and ratified a number of international treaties, conventions and protocols relating to environmental protection. The following protocols are of particular relevance to the DESWSP.

- Rio Declaration, Convention on Biological Diversity, Rio De Janeiro, 1992 (Ratified 1994)
- RAMSAR, 1971(Ratified 1992)
- International Plant Protection Conservation, Rome, 1951 (Ratified 1978)
- Basel Convention, Basel, 1989 (Ratified 1993)
- United Nations Framework Conservation on Climate Change, New York, 1992 (Ratified 1994)
- Montreal Protocol, 1987 (Ratified 1994)
- World Heritage Convention, 1972 (Ratified 1983)

Among them, following Table 5 summarizes the relevant to this project activity.

Table 5: International environmental conventions relevant to the project activities

International	Details	Relevance
Rio Declaration 1992	United Nations Conference on Environment and Development (UNCED) adopted the global action program for sustainable development called 'Rio Declaration' and 'Agenda 21 'Principle 4 of the Rio Declaration', 1992, to which Bangladesh is a signatory along with a total of 178 countries.	No sensitive species are located in the project area. There is no threat to the conservation of flora or fauna.
Convention on Wetland of International Importance Especially as Waterfowl Habitats, Ramsar (1972)	The Ramsar Convention was adopted on 2 February 1971 and entered into force on 21 December 1975. Bangladesh ratified the Convention on 20 April 2002. Bangladesh has two Ramsar Sites (i) parts of Sundarban Reserved Forest (Southwest of Bangladesh), and (ii) Tanguar Haor Northeast of Bangladesh).	No impact on these wetlands caused by P 2 project activities, these wetlands are not within P 2 project area

2.1.10 Environmental Safeguards

As noted previously this IEE of DESWSP has been classified as Category "B" for Environmental Assessment. The categorization was carried out based on ADB's Safeguard Policy Statement 2009.

In July 2009, ADB's Board of Directors approved the Safeguard Policy Statement (SPS) governing the environment and social safeguards of ADB's operations. The SPS builds upon and enhances the relevance and effectiveness of the three previous ADB safeguard policies on the environment, involuntary resettlement and indigenous peoples by bringing them together into one consolidated safeguard policy framework. The SPS became effective in January 2010.

The goal of the SPS is to promote the environmental and social sustainability of ADB- supported projects by protecting people and their environment from potential adverse impacts and enhancing the benefits provided. This goal is integral to achieving environmentally sustainable and socially inclusive growth and poverty reduction in Asia and the Pacific, a defining element of ADB's Long-Term Strategic Framework, Strategy 2020. In this context, the SPS is one of ADB's key policy instruments for achieving its corporate vision and mission under Strategy 2020.

The SPS sets out the policy objectives, scope, triggers, principles and requirements for three key safeguard areas:

(a) Environmental safeguards
(b) Involuntary resettlement safeguards
(c) Indigenous Peoples safeguards

The ADB Sourcebook focuses on the SPS requirements for environmental safeguards. It does not establish or change policy. Instead, it aims to increase the likelihood that each ADB- supported project will achieve the objectives of the environment safeguards set out in the SPS, by adding clarity, providing further technical guidance, and recommending good practices in the implementation of the SPS. This Sourcebook is based on ADB's experience in environmental assessment and management, and international good practices adopted by other multilateral development banks. It updates ADB's previous *Environmental Assessment Guidelines of 2003.*

Following Appendix 1 of ADB SPS, Safeguard Requirements 1 outlines the requirements that borrowers/clients are required to meet when delivering environmental safeguards for projects supported by the Asian Development Bank (ADB). It discusses the objectives and scope of application and underscores the requirements for undertaking the environmental assessment process. These requirements include assessing impacts, planning and managing impact mitigations, preparing environmental assessment reports, disclosing information and undertaking consultation, establishing a grievance mechanism, and monitoring and reporting. The document also includes particular environmental safeguard requirements pertaining to biodiversity conservation and sustainable management of natural resources, pollution prevention and abatement, occupational and community health and safety, and conservation of physical cultural resources. The applicability of particular requirements is established through the environmental assessment process and compliance with the requirements is achieved through implementation of environmental management plans agreed to by ADB and the borrower/client.

The Policy then goes onto list the Safeguard Requirements for Environment, focusing on:

- Environmental assessment (to describe a process of environmental analysis and planning to address the environmental impacts and risks associated with a project. At an early stage of project preparation, the borrower/client will identify potential direct, indirect, cumulative and induced environmental impacts on and risks to physical, biological, socioeconomic, and physical cultural resources and determine their significance and scope, in consultation with stakeholders, including affected people and concerned NGOs).
- Environmental Planning and Management (an environmental management plan (EMP) that addresses the potential impacts and risks identified by the environmental assessment. The EMP will include the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the project is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document).
- Information Disclosure (The borrower/client will submit to ADB the following documents for disclosure on ADB's website: (i) a draft full EIA (including the draft EMP) at least 120 days prior to ADB Board consideration, and/or environmental assessment and review frameworks before project appraisal, where applicable; (ii) the final EIA/IEE; (iii) a new or updated EIA/IEE and corrective action plan prepared during project implementation, if any; and (iv) the environmental monitoring reports. The borrower/client will provide relevant environmental information, including

information from the documents in para. 17 in a timely manner, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.

- Consultation and Participation (the borrower/client will carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation. Meaningful consultation is a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle;[1] (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues. Consultation will be carried out in a manner commensurate with the impacts on affected communities. The consultation process and its results are to be documented and reflected in the environmental assessment report.
- Grievance Redress Mechanism (The borrower/client will establish a mechanism to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance. The grievance mechanism should be scaled to the risks and adverse impacts of the project. It should address affected people's concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism should not impede access to the country's judicial or administrative remedies. The affected people will be appropriately informed about the mechanism.
- Monitoring and Reporting (the borrower/client will monitor and measure the progress of implementation of the EMP. The extent of monitoring activities will be commensurate with the project's risks and impacts).
- Unanticipated Environmental Impacts (where unanticipated environmental impacts become apparent during project implementation, the borrower/client will update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, evaluate the alternatives, and outline mitigation measures and resources to address those impacts).
- Biodiversity Conservation and Sustainable Natural Resources Management (the borrower/client will assess the significance of project impacts and risks on biodiversity and natural resources as an integral part of the environmental assessment process.

However, the Contractor shall ensure compliance with the above safeguard requirements (5 bullets mentioned) as applicable during construction including labor laws and pertinent occupational health and safety regulation of Bangladesh, IFC's EHS Guidelines. The Contractor shall ensure that all workers are supplied with and use the relevant protection safety equipment on the construction site. Abstain from employing child labor (detailed in Appendix C). Further to note, international agreements are not applicable, no impact on these wetlands caused by P 2 project activities, these wetlands are not within P 2 project area (Table 5 above).

2.2 ADB Environmental Requirements

ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all ADB investments.

Screening and categorization: The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project; the sensitivity, scale, nature, and magnitude of its potential impacts; and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impacts, and are assigned to one of the following four categories:

Category A: Projects could have significant adverse environmental impacts. An Environmental Impact Assessment (EIA) is required to address significant impacts.

Category B: Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report. Package P 2 of Dhaka DESWSP has been categorized as category B. Adverse environmental impacts are site specific, limited and can be mitigated accordingly.

Category C: Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.

Category FI: Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.

Environmental management plan: An EMP, which addresses the potential impacts and risks identified by the environmental assessment, shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the project's impact and risks.

Public disclosure: ADB will post the safeguard documents on its website as well as disclose relevant information in accessible manner in local communities:

i. For environmental category A projects, draft EIA report at least 120 days before Board consideration;
ii. Final or updated EIA and/or IEE upon receipt; and
iii. Environmental monitoring reports submitted by the implementing agency during project implementation upon receipt.

2.3 IFC EHS Guidelines on Air Quality, Noise and Waste Water Quality

The IFC EHS Guidelines on Noise, Air Quality, Water Quality and supporting Performance Standard recognizes that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. There is also a growing global consensus that the current and projected atmospheric concentration of greenhouse gases (GHG) threatens the public health and welfare of current and future generations.

However, these guidelines and standard outlines a project-level approach to resource efficiency and pollution prevention and control in line with internationally disseminated technologies and practices. In addition, these guidelines and standard promotes the ability of autonomous and private sector agencies to adopt such technologies and practices as far as their use is feasible in the context of the DESWSP project that relies on commercially available skills and resources.

During the project life-cycle, the client will consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention principles and techniques that are best suited to avoid, or where avoidance is not possible, minimize adverse impacts on human health and the environment. The principles and techniques applied during the project life-cycle will be tailored to the hazards and risks associated with the nature of the project and consistent with good international industry practice (GIIP), as reflected in various internationally recognized sources, including the World Bank Guidelines.

The Community Health, Safety, and Security (*Performance Standard 4*) recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration and/or intensification of impacts due to project activities. While acknowledging the public authorities' role in promoting the health, safety, and security of the public, this IFC Performance Standard addresses the client's responsibility to avoid or minimize the risks and impacts to community health, safety, and security that may arise from project related-activities, with particular attention to vulnerable groups.

2.3.1 Ambient Air Quality

Projects with significant sources of air emissions, and potential for significant impacts to ambient air quality, should prevent or minimize impacts by ensuring that:

- Emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards by applying national legislated standards (DOE), or in their absence, the current WHO Air Quality Guidelines (Table 6), or other internationally recognized sources;
- Emissions do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards. As a general rule, this Guideline suggests 25 percent of the applicable air quality standards to allow additional, future sustainable development in the same airshed.

ADB Safeguard Policy Statement Requirements

During the design, construction, and operation of the project the Project Management Unit (DWASA) will apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When Government of Bangladesh regulations differ from these levels and measures, the Project Management Unit (PMU) will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the PMU will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS (Table 6: WHO Ambient Air Quality Guidelines).

The following Table 6 presents the air quality guidelines:

Table 6: Air Quality Guidelines

WHO Ambient Air Quality Guidelines

	Averaging Period	Guideline Value in µ/m3
Sulfur dioxide (SO2)	24-hour 10 minute	125 (Interim target-1) 50 (Interim target-2) 20 (guideline) 500 (guideline

WHO Ambient Air Quality Guidelines		
Nitrogen dioxide (NO2)	1-year 1-hour	40 (guideline) 200 (guideline)
Particulate Matter PM10	1-year 24-hour	70 (Interim target-1) 50 (Interim target-2) 30 (Interim target-3) 20 (guideline) 150 (Interim target-1) 100 (Interim target-2) 75 (Interim target-3) 50 (guideline)
Particulate Matter PM2.5	1-year 24-hour	35 (Interim target-1) 25 (Interim target-2) 15 (Interim target-3) 10 (guideline) 75 (Interim target-1) 50 (Interim target-2) 37.5 (Interim target-3) 25 (guideline)
Ozone	8-hour daily maximum	160 (Interim target-1) 100 (guideline)

Details are provided in IFC Environmental, Health, and Safety Guidelines, General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality

Table 7: Bangladesh Air Quality Standards

S.N	Locations	Concentration						
		SPM µg/m3	PM2.5 µg/m3	PM10 µg/m3	SO2 µg/m3	NOX µg/m3	O3 µg/m3	CO ppm
DoE Standard		200	65	150	365	100	157	10

Noise Level

Prevention and Control

Noise prevention and mitigation measures should be applied where predicted or measured noise impacts from a project facility or operations exceed the applicable noise level guideline at the most sensitive point of reception. The preferred method for controlling noise from stationary sources is to implement noise control measures at source. Methods for prevention and control of sources of noise emissions depend on the source and proximity of receptors.

Noise reduction options that should be considered include:

- Selecting equipment with lower sound power levels Installing silencers for fans
- Installing suitable mufflers on engine exhausts and compressor components
- Installing acoustic enclosures for equipment casing radiating noise
- Improving the acoustic performance of constructed buildings, apply sound insulation

- Installing acoustic barriers without gaps and with a continuous minimum surface density of 10 kg/m^2 in order to minimize the transmission of sound through the barrier. Barriers should be located as close to the source or to the receptor location to be effective & others.

Noise impacts should not exceed the levels presented in Table 8 or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

Following is the Noise-level Guidelines:

Table 8: World Bank Group's Environment, Health and Safety Noise Level Guidelines

Noise Level Guidelines

		One Hour (dB(A)
Receptor	Day Time (07:00 – 22:00)	Night Time (22:00 -07:00)
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Table 9: Noise Quality Standards, by Zone and Time of Day (DoE; Bangladesh)

Zone Class	Limits in dB(A)	
	Daytime (6 am – 9 pm)	Nighttime (9 pm – 6 am)
Silent zone	45	35
Residential zone	50	40
Mixed (residential/commercial/industrial) zone	60	50
Commercial zone	70	60
Industrial zone	75	70

Source: Department of Environment (DoE), Bangladesh

Highly intrusive noises, such as noise from aircraft flyovers and passing trains, should not be included when establishing background noise levels.

Wastewater and Ambient Water Quality

This guideline applies to projects that have either direct or indirect discharge of process wastewater, wastewater from utility operations or storm water to the environment. These guidelines are also applicable to industrial discharges to sanitary sewers that discharge to the environment without any treatment. Process wastewater may include contaminated wastewater from utility operations, storm water, and sanitary sewage. It provides information on common techniques for wastewater management, water conservation, and reuse that can be applied to a wide range of industry sectors. This guideline is meant to be complemented by the industry-specific effluent guidelines presented in the Industry Sector Environmental, Health, and Safety (EHS) Guidelines. Projects with the potential to generate process wastewater, sanitary (domestic) sewage, or storm water should incorporate the necessary precautions to avoid, minimize, and control adverse impacts to human health, safety, or the environment. In the context of their overall ESHS management system, facilities should:

- Understand the quality, quantity, frequency and sources of liquid effluents in its installations. This includes knowledge about the locations, routes and integrity of internal drainage systems and discharge points

- Plan and implement the segregation of liquid effluents principally along industrial, utility, sanitary, and storm water categories, in order to limit the volume of water requiring specialized treatment. Characteristics of individual streams may also be used for source segregation.
- Identify opportunities to prevent or reduce wastewater pollution through such measures as recycle/reuse within their facility, input substitution, or process modification (e.g. change of technology or operating conditions/modes).
- Assess compliance of their wastewater discharges with the applicable: (i) discharge standard (if the wastewater is discharged to a surface water or sewer), and (ii) water quality standard for a specific reuse (e.g. if the wastewater is reused for irrigation).

Wastewater Management: Wastewater management includes water conservation, wastewater treatment, storm water management, and wastewater and water quality monitoring.

Details are provided in IFC Environmental, Health, and Safety Guidelines, General EHS Guidelines: Environmental Wastewater and Ambient Water Quality.

The following tables provide national standards for inland surface waters to be followed during environmental monitoring.

Table 10: National Standard for Inland Surface Water

Best Practice-Based Classification	pH	BOD (mg/l)	DO (mg/l)	Total Coliform Number/100
a. Source of drinking water for supply only after disinfecting	6.5-8.5	2 or less	6 or above	50 or less
b. Water usable for recreational activity	6.5–8.5	3 or less	5 of more	200 or less
c. Source of drinking water for supply after conventional treatment	6.5–8.5	6 or less	6 or more	5,000 or less
d. Water usable by fisheries	6.5–8.5	6 or less	5 or more	---
e. Water usable by various process and cooling industries	6.5–8.5	10 or less	5 or more	5,000 or less
f. Water usable for irrigation	6.5–8.5	10 or less	5 or more	1,000 or less

Source: Department of Environment (DOE)

Table 11: National Standard for Inland Surface Water

Parameter	Unit	Standards	Parameter	Unit	Standards
1. Aluminium	mg/l	0.2	26. Hardness (as CaCO3)	mg/l	200 – 500
2. Ammonia (NH3)	mg/l	0.5	27. Iron	mg/l	0.3 – 1.0
3. Arsenic	mg/l	0.05	28. Kjeldahl nitrogen (total)	mg/l	1
4. Barium	mg/l	0.01	29. Lead	mg/l	0.05
5. Benzene	mg/l	0.01	30. Magnesium	mg/l	30 – 35
6. BOD5 20°C	mg/l	0.2	31. Manganese	mg/l	0.1
7. Boron	mg/	1.0	32. Mercury	mg/l	0.001
8. Cadmium	mg/l	0.005	31. Manganese	mg/l	0.1
9. Calcium	mg/l	75	32. Mercury	mg/l	0.001
10. Chloride	mg/l	150 – 600*	33. Nickel	mg/l	0.1
11. Chlorinated alkanes			34. Nitrate	mg/l	10
carbon tetrachloride	mg/l	0.01	35. Nitrite	mg/l	<1
1.1 dichloroethylene	mg/l	0.001	36. Odour	mg/l	Odourless
1.2 dichloroethylene	mg/l	0.03	37. Oil and grease	mg/l	0.01
tetrachloroethylene		0.03	38. pH	--	6.5 – 8.5
trichloroethylene		0.09	39. Phenolic compounds	mg/l	0.002
12. Chlorinated phenols			40. Phosphate	mg/l	6
pentachlorophenol	mg/l	0.03	41. Phosphorus	mg/l	0
2.4.6 trichlorophenol	mg/l	0.03	42. Potassium	mg/l	12
13. Chlorine (residual)	mg/l	0.2	43. Radioactive materials (gross alpha activity)	Bq/l	0.01
14. Chloroform	mg/l	0.09	44. Radioactive materials (gross beta activity)	Bq/l	0.1
15.Chromium (hexavalent)	mg/l	0.05	45. Selenium	mg/l	0.01
16. Chromium (total)	mg/l	0.05	46. Silver	mg/l	0.02
17. COD	mg/l	,, 4	47. Sodium	mg/l	200
18. Coliform (faecal)	n/100 ml	0	48. Suspended particulate matters	mg/l	10
19. Coliform (total)	n/100 ml	0	49. Sulphide	mg/l	0

Parameter	Unit	Standards	Parameter	Unit	Standards
20. Colour	Hazen unit	15	50. Sulphate	mg/l	400
21. Copper	mg/l	1	51. Total dissolved solids	mg/l	1,000
22. Cyanide	Mg/l	0.1	52. Temperature	°C	20-30
23. Detergents	mg/l	0.2	53. Tin	mg/l	2
24. DO	mg/l	6	54. Turbidity	NTU	103
25. Fluoride	mg/l	1	55. Zinc	mg/l	5

Source: Department of Environment (DOE)

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

In addition to the Environmental Conservation Act and Rules, there are a number of other policies, plans and strategies which deal with the water sector, agricultural development, coastal area, protected area disaster management and climate change. These are the National Water Policy, 1999; the Forest Act 1927 (last modified 30th April 2000); National Forest Policy, 1994; the National Conservation Strategy1992;; National Environmental Management Action Plan (NEMAP), 1995; Coastal Zone Policy, 2005; Coastal Development Strategy, 2006; National Agricultural Policy, 1999; National Fisheries Policy, 1996; National Livestock Development Policy, 2007; Standing Orders on Disaster, 1999 (revised in 2010); Bangladesh Climate Change Strategy and Action Plan, 2009; National Plan for Disaster Management, 2010-2015. Some of these policies and legislations are described in this chapter for reference.

2.4 Implication of Government Polices, Acts and Rules on Package 2 Activities

The regulatory requirement for environmental management is described in the Environmental Conservation Act'95 and Environmental Conservation Rules'97. The ECR'97 (with amendments later on) is mainly intended for different industries and large-scale projects. ECR'97 defined different sectors (industries and projects) as 'Green', 'Orange-A', 'Orange-B' and 'Red' categories, without considering the

[3] The FS advises producing treated water that conforms to WHO guidelines and Bangladesh drinking water quality ECR 1997. One of the two most important parameters reduced by the WTP is turbidity (the other is microbiological matter, by providing a multi-stage barrier). In Section 10.3, the FS quotes WHO and Bangladesh standards of 10 and 5 NTU respectively. We recommend that the turbidity in the treated water leaving the WTP should never exceed 1.0 NTU and that the operational guideline should be set at 0.5 NTU, to be achieved 95% of the time. The design of the process units and their controls should accommodate these recommendations. Operational procedures must be devised to achieve these recommendations. Computerized monitoring equipment must be provided and staff trained in its use to display real-time trends and record events. Laboratory staff must monitor, record, and report treated water quality parameters to review past trends and predict operational changes, if required.

extent and types of interventions. For example, construction/reconstruction/expansion of flood control embankment, polders, dikes etc. are classified as the 'Red' category project. However, it does not explicitly mention about the environmental category for earthen embankments/polders, small-scale repairing or rehabilitation projects having minor environmental impacts. In addition, there is no clear guidance on how to address the environmental concerns in community driven projects. Considering the demand of drinking water supply to residents of Dhaka City, Package-2 Project attempt to implement community level large scale subprojects, the Package-2 requires a flexible approach on environmental categorization and clearance. However, as per ECR, the project implementing partners (DESWSP-DWASA, MDSC) have screened all the sub-projects P1; P2; P3.1 and P3.2) and further carried out IEE P2 (This report) and considered appropriate mitigation measures. It should be mentioned P2 project is not categorized as significant environmental impact. As such DOE granted ECC with conditions to comply with environmental safeguards during implementation.

3 Description of the Project

3.1 Existing Water Supply Situation and Need for the Project

At present DWASA provides around 2400 MLD of water per day to the population of Dhaka. Approximately 85% of this water comes from over 600 deep tube wells (production tube wells) spread throughout the city area. The aggregate transmission and distribution network length is around 3,000 km with over 250,000 service connections. The project is needed because DWASA presently provides an inadequate water supply service to the residents of Dhaka, which has insufficient pressure, suffers significant losses, is rapidly depleting the groundwater resource, and delivers insufficient cost recovery to the government. The project will address all of these issues by refurbishing the existing network to repair leaks, increase capacity and pressure, remove illegal connections, and provide a new system of metering to streamline leak detection and aid cost recovery.

The proposed project intends to withdraw up to 1,050 MLD from Meghna River in two phases for transmission to Dhaka city and for distribution after treatment. The project consists of the following components:

- Construction of an intake at the village of Bishnondi from the Meghna River, with pumping and other facilities to deliver an uninterrupted supply of water into the transmission mains;
- Construction of raw water transmission pipelines connecting the raw water intake with the Gandharbpur water treatment plant (WTP);
- Construction of a 500-MLD surface water treatment plant at Gandharbpur; and
- Construction of treated water transmission mains from the Gandharbpur treatment plant to the injection point connecting with the distribution system inside Dhaka. This IEE deals with this component.

3.2 Project Area

The proposed Project is Package 2 which describes that, treated water from Gandharbpur WTP will be conveyed at a distance of 14 km pipeline corridor mostly through rural countryside, up to Injection point at Vatara (Natun Bazar near American Embassy) through two 1.6m diameter pipes. This pipeline route passes over flood prone and high-water table soils subject to earthquake liquefaction, and with large river crossings of Shitalakhya and Balu Rivers. The project is guided by detailed design of the Consultant, reviewed by the Contractors. (Figure-1, Figure-3, and Figure-4).

The sections will include (i) Gandharbpur WTP to Murapara Bridge (3 km), along the DWDB road; (ii) Shitalakhya River crossing by micro-tunnelling method (0.5 km); (iii) the west bank of Shitalakhya River to Balu River through open paddy fields for a length of 4.5 km, wherein the pipes shall be accommodated within a 25 m wide corridor through open paddy fields; (iv) Balu River crossing at Baraid by micro-tunnelling for a length of 0.25 km; and (v) Balu River crossing to Vatara near US Embassy for a length of 6.5 km within the RoW of Rajdhani Unnayan Kartripakhaya (RAJUK), a 100-ft wide road.

Further on, from the injection point, 1,000 mm-1,800 mm diameter feeder mains will be laid along major arterial roads, connecting at strategic points based on the Dhaka water distribution model designed and operated for DWASA by IWM under the DMC (Figure-2).

Project scope is:

Conventional construction package:

- 14 km twin DN1600 DI Treated Water Pipeline
- 2 river crossings
- 4 shafts + 1.65 km tunnel drive

Figure 3-1: P2 Project Area in Green Line

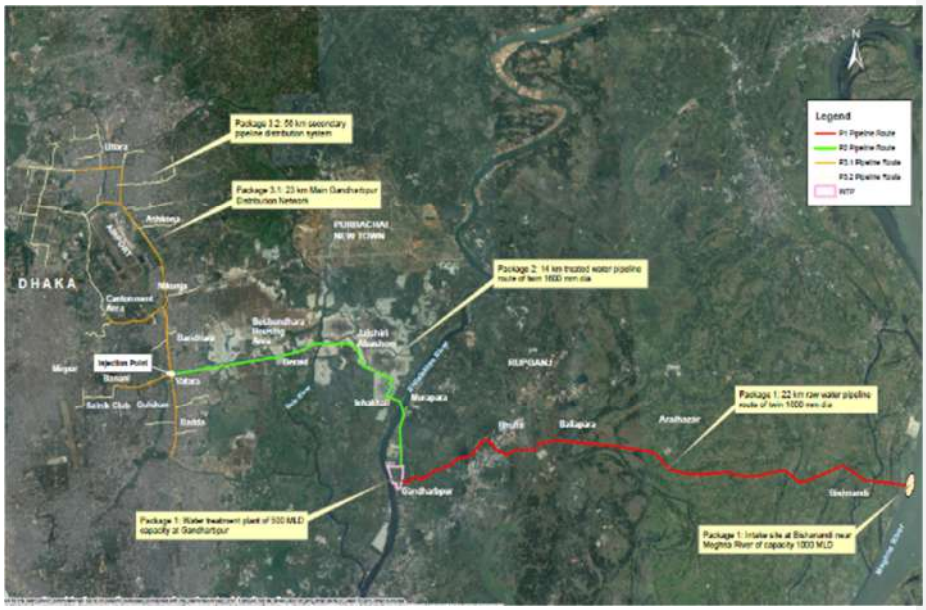
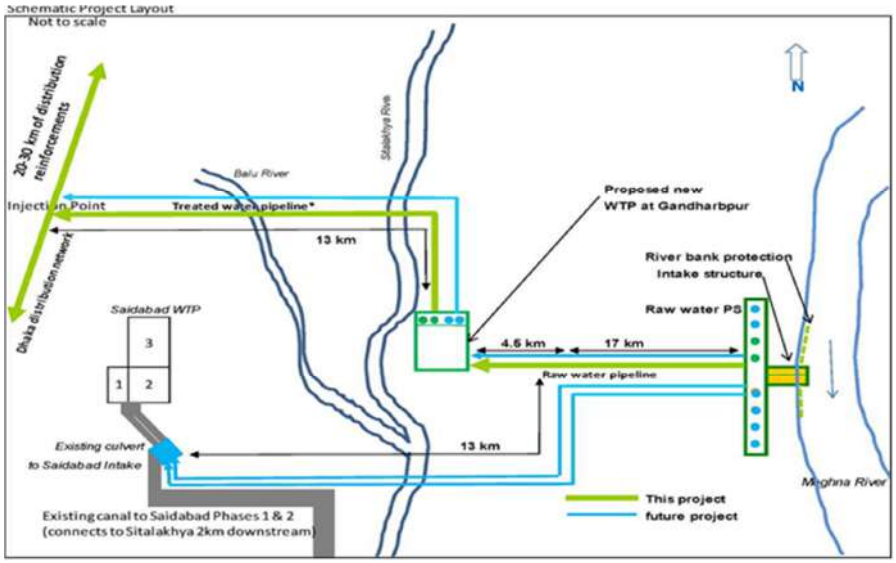


Figure 3-2: Raw Water and Treated Water Pipelines



The Project task includes, Detailed Design of Packages 2 including prequalification requirements for contractors, procurement and supervision of the geotechnical survey(s) contracted by DWASA, topographic and geotechnical mapping for Package 2 bid documents and related infrastructure, detailed designs of pipelines, tenderers evaluation, negotiations, approvals, and award of contracts, plan, check and monitor safeguards, survey and detailed design reports, cost estimates.

3.3 Treated Water Mains

The treated water pipeline transmission main starting from Gandharbpur Treatment Plant to Near US Embassy. Borehole and subsequent activities of the P2 are presented in Table-12.

Table 12: Borehole and Activities of the P2

Sl. No	Component	Activities under the component
1.	• P2 14 km of new pipeline from Gandharbpur to the injection point near US Embassy.	139 Boreholes -Pipeline; -Access road; -Access road earthworks; -River crossings and; -Ancillary pipeline structures and infrastructure; -Valves; -Thrust blocks.

3.4 Project Goals and Objectives

The objectives of the Dhaka Environmentally Sustainable Water Supply Project (DESWSP) Phase 1 are to:

1. Design and build modern, reliable WTP facilities to provide 500MLD of treated water
2. Construct a 14km treated water transmission pipeline from the Gandharbpur WTP to the injection point of the existing distribution network (Package 2)
3. Implement distribution reinforcements (Package 31, and package 3.2).

This IEE is concerned with the Package 2.

3.5 Field Description

The following Table-13 presents site description with corresponding photograph.

Table 13: Field Description P2 and WTP

1. WTP and Surroundings

Item	Photograph	Description
	 	Location: The construction of a 500-MLD surface water treatment plant is proposed at Gandharbpur, eastern side of Shitalakhya River. This WTP will be constructed in an area of 81 acres. The raw water pipes will join to the south-eastern part of the WTP. (Figure-.1 Layout Plan of Water Treatment Plant at Gandharbpur, Murapara). Likewise, the construction of treated water transmission mains will exit from north-eastern part from the Gandharbpur treatment plant to the injection point connecting with the distribution system inside Dhaka (P3.1 and P3.2). The WTP is the official property of DWASA, currently used for vegetation cultivation by farmers. The environmental team reviewed the landscape in terms of surrounding areas. The WTP is located at a medium town with human settlements in leaner form exists along the north-south direction at the eastern part of WTP. The area shows already human impact. No impact on fauna and flora is expected. Environmental impacts refer to the construction phase and can be mitigated. (Figure-3: DESWSP Resettlement Plan)

1. WTP and Surroundings

2. Borrow areas

During construction of treated water transmission pipelines, the borrow areas may be subject to turbidity. Excavated soil will be stored in geotextile bags to mitigate turbidity. The revised design aligned along the western shore of the water body, will mitigate this impact. In addition, the geotextile (200mm thick grout-filled mattress) will be used for stabilization of the embankment. Fish culture is very limited due to poor water quality. People use the water body for washing clothes, and bathing.

As discussed, the surface area of the water body will be reduced. As such, the pipeline has been shifted to the western shore to mitigate this impact.

3. Treated Water Pipeline Route

The treated water transmission pipeline is 14 km long with 25m wide corridor, will run from the proposed WTP connecting to the Injection Point near US Embassy at Bhatara. Further connecting to P3.1 and P3.2 (Dhaka water distribution network).

The pipeline route passes along the public waterbody, fallow land, low land, sand fill areas and roads. There are no environmentally sensitive features like forests, archaeological and cultural sites, sanctuaries or protected areas along the pipeline route (Table-14: Archaeology, Cultural and Historical Sites in Dhaka).

There are two major rivers (Shitalakhya and Balu River). There is no direct impact as pipelines will not be encroaching/disturbing these areas, there will be impacts during construction due to spilling of excavated soil or silt laden run off or washing of construction material, waste into these low lands.

Other localized impacts such as, noise and dust generation, health and safety are limited to construction period.

1. WTP and Surroundings

Insignificant number of tree cutting will require from northern part of WTP (200m to 600m). The route is along the western edge of BWDB borrow area (currently waterbody). The advice is to replant native species and maintain 5 trees for each tree that is removed.

Figure 3-3: DESWSP Resettlement Plan

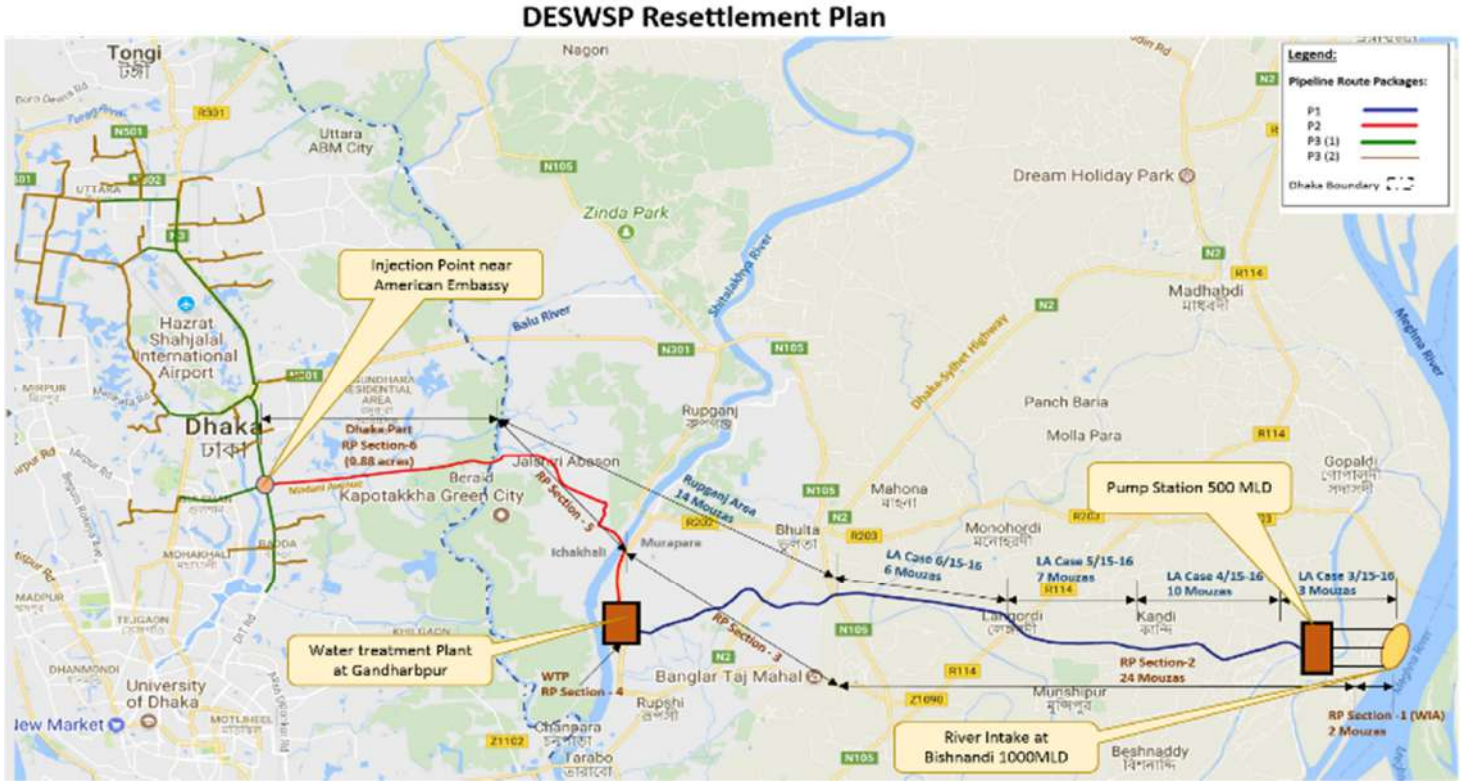


Figure 3-4: Layout Plan of Water Treatment Plant at Gandharbpur, Murapara, Rupganj

3.6 Implementation Schedule

The implementation schedule of Package 2 (14km Treated Water Transmission Pipeline) is from mid-March 2019 to January 2022.

4 Description of the Environment

4.1 Physical Resources in Project Area

As part of the IEE, of the project, an environmental baseline survey carried out in areas surrounding the project site. The specific objectives of the baseline study were to gather information on the existing physical environment, biological-ecological environment and socio-economic environment of the areas in and around the project site to gather and assess peoples' perception on different aspects of the proposed project in and around the project area. The baseline survey report provides a detailed description of the existing conditions of physical, biological as well as the socio-economic environment in and around the project area.

This Chapter describes the existing physical environment of areas in and around the project site based on the baseline survey and other studies carried out as a part of the present study. Relevant information on climate, topography and drainage, geology and soils, hydrology and water resources, air quality, noise level, and water quality have been described in this Chapter.

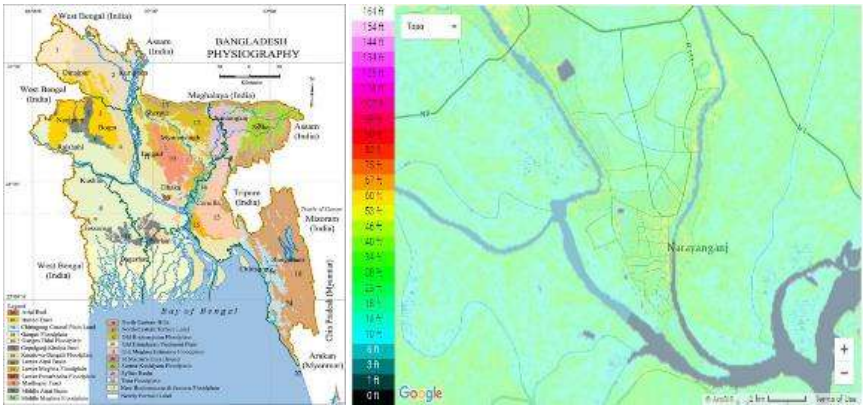
4.1.1 Topography

Dhaka and surrounding region is low-lying with elevations varying from +4m in the south to +18m in the north (PWD). Nearly 80 percent of the region is alluvial in origin and much of the remainder lying within the slightly uplifted Madhupur Tract (some 240,000ha) is also depositional in origin. The older Madhupur alluvium originated during a previous geological era. Much of the alluvium is unconsolidated, or poorly consolidated, and comprises poorly-cohesive particles. Thus, the landscape as a whole is easily erodible, and can be readily displaced, transported and otherwise re-arranged by the normal fluvial processes of the country.

The terraces are surrounded by the Ganges-Meghna floodplain in the south, the old Brahmaputra floodplain in the east, and the Jamuna floodplain in the west. The topographic elevation in the project area is reflected in specific landforms as highlands, lowlands, depressions, and abandoned channels. Around the outskirts of Dhaka, the rivers Buriganga, Turag, and Balu drain a complex of low areas, which are a system of low-lying alluvial plains. The average elevation here is less than 2 m above mean sea level. Broad streams cut through the central high area and fall into this unit. The broad streams are locally known as *khals*, and the broad depressions are called *bils*.

The project area is spread over the Madhupur tract and old Brahmaputra Flood plain. Figure 5 shows the topographic view of Bangladesh and the project area.

Figure 4-1: Topographic view of Bangladesh and the Project area.



4.1.2 Climate

Located to the North of the Tropic of Cancer, the North Central Region (NCR) of Bangladesh has a sub-tropical monsoon climate with more sharply defined seasons than the much of the rest of the country. The water year is defined as beginning on April and ending on March. It is divided into four more-or-less distinct seasons, corresponding to by a twice-yearly reversal of air movement over the region.

- Pre-monsoon : April to May
- Monsoon : June to September
- Post-Monsoon : October to November
- Dry season : December to March.

For about four months in winter (December through March) air flows from the north-east, while for about four months in summer (June through September) it flows from the south-west. These airflows (monsoons) are respectively the “north-east monsoon” and the “south-west monsoon”. Agricultural activity is closely linked to the monsoon periods, rabi crops (mainly boro rice) being cultivated with irrigation during the dry north-east monsoon, while kharif crops (almost exclusively aus and aman rice) are grown during the south-west monsoon when the rainfall is abundant.

The first inter-monsoon reversal occurs in April-May, when the change of wind direction is from north-east to south-west via the north-west. The second occurs in October-November, when the change is from south-west to north-east via the south-east. These periods of changing wind direction correspond to the pre-monsoon and post-monsoon seasons.

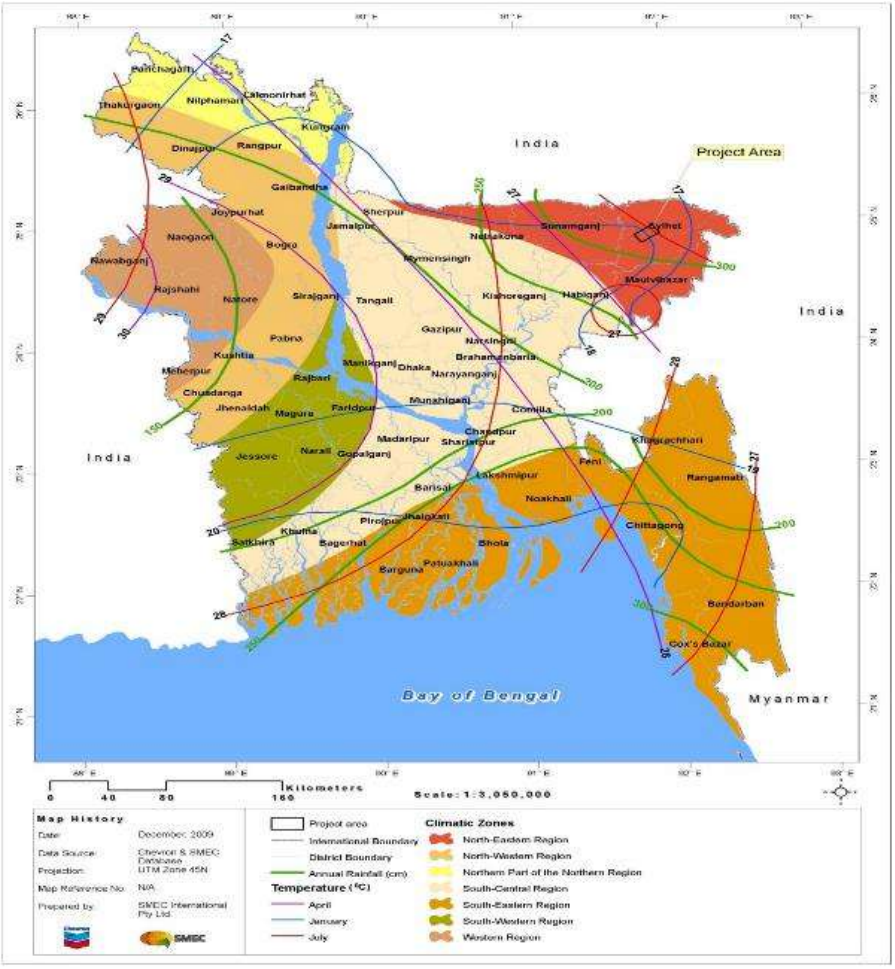
The pre-monsoon hot season is characterized by high temperatures and thunderstorms. April is the hottest month in the country with mean temperatures ranging from 27°C in the east and south, to 31°C in the west-central part of the country. After April, increasing cloud-cover reduces the temperature. Wind direction is variable during this season, especially during the early part. Rainfall, mostly caused by thunderstorms, at this time can account for 10 to 25 percent of the annual total.

Southerly or south-westerly winds, very high humidity, heavy rainfall and long periods of consecutive days of rainfall characterize the rainy season, which coincides with the summer monsoon. This is caused by the tropical depression that enters the country from the Bay of Bengal. About 80% of the annual precipitation occurs during the four months monsoon season from June to September.

Low temperatures, cool air blowing from the west or northwest, clear skies and low rainfall characterize the cool dry season. The average temperature in January varies from 17°C in the northwest and north-eastern parts of the country to 20°C to 21°C in the coastal areas. Minimum temperatures in the extreme northwest in late December and early January reach between 3°C to 4°C.

Several climatic zones occur within Bangladesh. The study area occurs within the north-central zone as illustrated in Figure 6. This region includes most of east Dhaka. Mean maximum temperature is rarely above 32°C but mean minimum is 10°C and below. Average humidity is relatively high and winter rain is minor.

Figure 4-2: Climatic Zones of Bangladesh



4.1.3 Geology

Dhaka is situated on the southern tip of a Pleistocene terrace, the Madhupur Tract. Two characteristic geological units cover the city and surrounding areas; the Madhupur Clay of the Pleistocene age and alluvial deposits of recent age. The Madhupur Clay is the oldest sediment exposed in and around the city area and characterized by reddish plastic clay with silt and very fine sand particles. This Madhupur Clay unconformable overlies the Dupi Tila Sand of Plio-Pleistocene age, which is composed of medium to coarse yellowish-brown sand and occasional gravel.

The channels and depressions within the city are floored by recent alluvial floodplain deposits and are subdivided into Lowland Alluvium and Highland Alluvium. The alluvial deposits are composed of fine sand, silt and clay in different combinations.

The alluvial soils of these floodplains mainly consist of ridges of loamy material like silty clays and silty sands with large areas of shallow clays in the basins. The soil pattern can become more irregular close to river channels due to more recent deposits. With regard to the youngest activities (natural as well as anthropogenic) organic soils of swamps may be found locally as well as areas where the ground level has been raised using loose sands (hydraulic sand filling) dredged and pumped from nearby rivers.

4.1.4 Air Quality

Within the pipeline corridor from Gandharbpur WTP to Beraid, there are no major industries that could be sources of significant air emissions, such that air quality is considered relatively clean. From Beraid (Madani Road) to injection point at Bhatara exhibits relatively poor air quality due to lowland filling operations by the real estate developers, traffic management leading to severe traffic congestion, and use of high sulphur diesel by trucks, and inadequate control of emissions.

4.1.5 Water Resources

The region is bounded by the River Brahmaputra-Jamuna to the west, the Padma to the south and the Old Brahmaputra-Lakhya-Meghna system to the north-east. The Brahmaputra-Jamuna River carries runoff from the Himalayan mountain chain, passing through Nepal, Bhutan, and Tibet before flowing into Bangladesh. The river has a broad braided bed with large sand shoals and islands. It is very unstable morphologically, with severe bank erosion. The mean annual peak discharge of the river, calculated from at Bahadurabad is approximately 67,000 cumecs, with the 1 in 100-year flood discharge estimated at 108,000 cumecs (m^3/sec, FAP 25, 1992).

The river system in the Dhaka watershed includes Dhaleswari, Turag, Tongi Khal, Buriganga, Balu, Bangshi, and Shitalakhya Rivers. Dhaka is primarily surrounded by three rivers: Buriganga on the southwest, Turag in the northwest, and Balu in the northeast. The Shitalakhya River flowing by the south-eastern part of Greater Dhaka is also included in the surrounding river system. More than 40 canals within the city were originally used for drainage.

Dhaka Region is in the natural floodplain of various rivers in the area. It functioned as an important breeding ground for many aquatic species in the past. This function is still evident in the seasonal flooding that affects large parts of the city. The floodplain function has been further degraded by the construction of embankments to protect the city from flooding, and particularly from infilling to reclaim land, which reduces the water retention capacity of these areas and increases flooding both upstream and downstream.

Most of the canals are non-functional due to the disposal of solid wastes, as such, several areas of the city have become vulnerable to water logging. All the rivers receive untreated sewage and industrial liquid wastes and municipal waste through the major canal systems, as well as from direct disposal. The surface water quality in the two river systems and other surface water bodies, e.g. *khals* and ponds, is quite poor with very high biological oxygen demand (BOD_5), chemical oxygen demand (COD), and *E-coli* content, indicating discharge of untreated industrial effluents and domestic sewage. The organic pollution of the rivers is mainly caused by the poor state of sewerage and sanitation systems of the Dhaka urban area (EIA, Enviro Consultants; February 2018).

4.2 Ecological Resources in Project Area

4.2.1 Habitats

With the exception of the Madhupur uplands the region can be broadly described as a semi-aquatic, deltaic environment, which is regularly inundated by the rivers Meghna and the Brahmaputra. The ecology of the region involves the interaction between a large number of faunal and floral species and a range of different types of habitat. The habitat also includes both aquatic and terrestrial environment, the main types being as follows:

a. **Charlands**

   Island chars on the Meghna and Old Brahmaputra rivers are the main feature of the braided channels. They have a unique ecosystem, with distinct successions of natural and homestead vegetation, settlement and land use patterns. They form an important habitat for birds, both local and migratory.

b. **Homesteads**

   Except for the deep interior of the Madhupur forest in the north, throughout the region there is a distinct habitat type, which can be found in the immediate vicinity of homesteads, comprising a managed agro-forestry and pond environment.

   Homestead vegetation is of particular environmental importance as it provides one of the major sources of biodiversity in the extensively cultivated, lower-lying areas.

   Homesteads are also important for providing the main environment for humans and livestock, nutritional and medicinal crops, fruit and timber producing trees. The habitat provides nesting, breeding, and feeding grounds for a host of locally important insects, birds and other fauna.

c. **Wetlands**

   Wetlands in the region comprise natural and man-made waterbodies. The natural system includes different aquatic environments and ecologies, which cover perennial and seasonal drains river channels, beels, khals, and floodplains. The man-made areas are composed of borrow pits, ponds and impeded drainage areas on low lying ground. Wetlands are rich in aquatic seasonal flora and fauna. They contain important habitats for fish and migratory birds. Fish species include rui, katal, thai puti, minar carp, silver carp, pabda, sheatfish. None of these species are listed in IUCN Red List.

d. **Terrestrial**

   Terrestrial flora is classified according to their habitats. In the study areas, terrestrial floras are present mainly in the homestead regions, roadsides, village groves and cultivated lands. Homesteads and orchards include: betel nut, kadam, coconut, date palm, sofeda, mango, jackfruit, guava, grapefruit, pomelo, lemon, blackberries, plum, toddy palm, koroi, shisoo, shirish, rain tree, evcaiytta, bamboo, babla, jeol, neem, tamarind, banana, ipil-ipil, papaya, mehgani, debdaru, shimul,

akashmoni, khai babla, jamrul, chalta, bel, amra, amloki, segun, etc. Roadside plantations include: datepalm, road chambol, koroi, rain tree, banyan, shisoo, babla, akashmoni, eucalyptus, mango, blackberries, raj koroi, etc.

4.3 Economic Development

4.3.1 Demography

Population of Araihazar Upazila: Total 331566; male 171482, female 160084; Muslim 319854, Hindu 116553, Buddhist 22, Christian 28 and others 9.

Population of Rupganj Upazila: Total 403629; male 215019, female 188610; Muslim 379879, Hindu 23466, Buddhist 106, Christian 59 and others 119.

Administration of Araihazar Thana was formed in 1921 and it was turned into an Upazila in 1983. Administration of Rupganj Thana was turned into an Upazila in 1983.

The proposed pipelines and road are mostly through agricultural land. West end of the project, the Water Treatment Plant is located at Gandhrabpur village of Murapara Union of Rupganj Upazilla (GPS: N 23° 45' 32.422", E 90° 30' 50.119").

Araihazar Upazila (Narayanganj district): area 183.35 sq. km, located in between 23°40´ and 23°53´ north latitudes and in between 90°35´ and 90°45´ east longitudes. It is bounded by Narsingdi Sadar Upazila on the north, Homna Upazila on the south, Banchharampur Upazila on the east and Rupganj and Sonargaon Upazilas on the west.

Rupganj Upazila (Narayanganj district): area 176.16 sq. km, located in between 23°42´ and 23°54´ north latitudes and in between 90°28´ and 90°37´ east longitudes. It is bounded by Kaliganj (gazipur) and Palash Upazilas on the north, Sonargaon Upazila on the South, Araihazar and Narsingdi Sadar Upazilas on the east, Demra, Khilgaon, Badda and Khilkhet Thanas on the West (Figure 7 and Figure 8).

Figure 4-3: P2 Pipeline Route in Rupganj Upazila

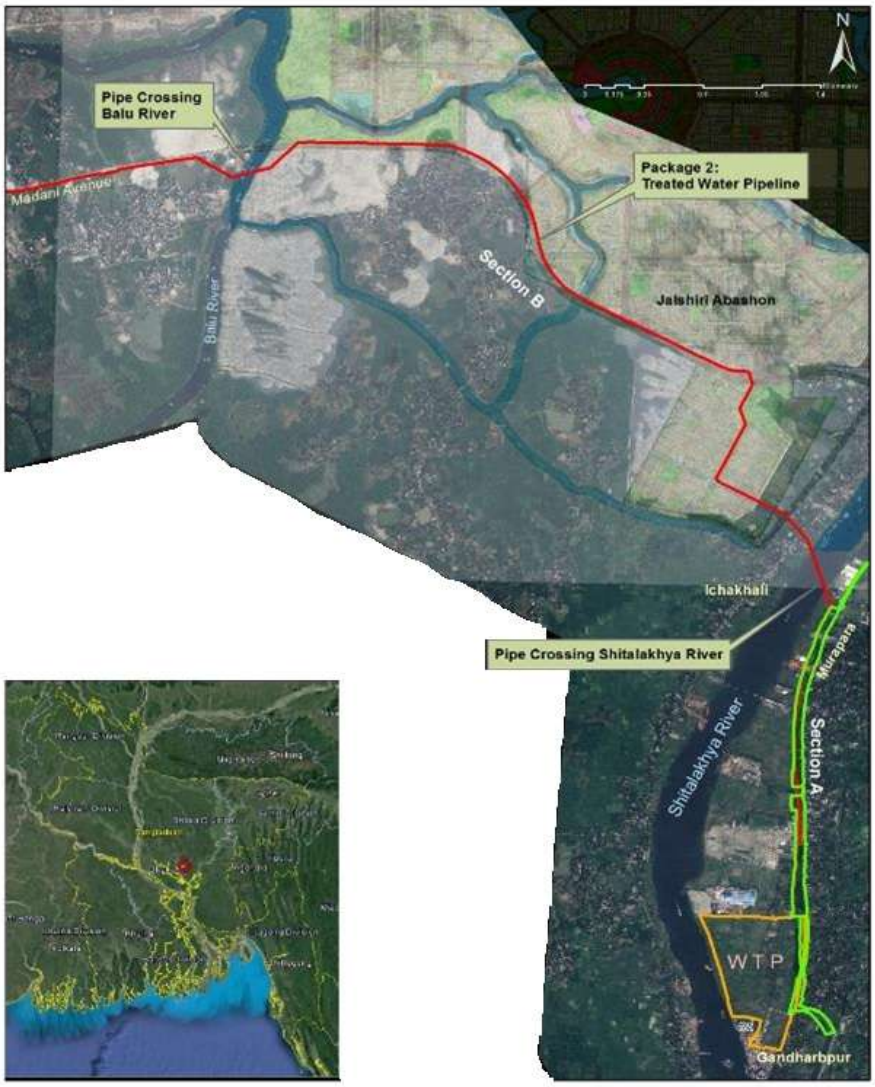


Figure 4-4: P2 Pipeline Route up to Injection Point

(Source: Banglapedia, Census and Upazila).

4.3.2 Economic Activity

Main sources of income of Araihazar: Agriculture 28.48%, non-agricultural labourer 8.29%, commerce 20.19%, transport and communication 4.84%, industry 15.13%, service 5.96%, construction 1.40%, religious service 0.26%, rent and remittance 3.44% and others 12.01%. Main crops are paddy, jute, wheat, potato, mustard seed, and vegetables. Ownership of agricultural land of Araihazar: Landowner 50.89%, landless 49.11%; agricultural landowner: urban 54.11% and rural 50.76%.

Main sources of income of Rupganj: Agriculture 22.72%, non-agricultural laborer 3.14%, industry 9.19%, commerce 21%, transport and communication 6.58%, service 19.75%, construction 1.98%, religious service 0.18%, rent and remittance 3% and others 12.46%. Main crops are paddy, jute, wheat, sugarcane, mustard, vegetables.

Ownership of agricultural land of Rupganj: Landowner 44.07%, landless 55.93%; agricultural landowner: urban 46.97% and rural 43.44%, (Source: Banglapedia, Census and Upazila).

5 Socio Cultural Resources

The archaeological heritage and relics at Araihazar include that, the two-storied building with 108 rooms (Sadasardi), mazars of Hazrat Garibullah Shah (R) and Jangali Shah (R) at Haizadi, colored glass decorated Durga Mandir, house of Zamindar Birendra Roy Chowdhury, Dighipar Math (Araihazar), single-domed Jami Mosque (Uchitpur).

Archaeological heritage and relics at Rupganj: Bajra Mosque, residence of Mura Para Zamindar, Mura Para Shahi Mosque, At-ani Mosque and Tara Mosque at Gandharbapur, Brahmangaon Jami Mosque, Golakandail Kalim Shah Jami Mosque.

(Source: Banglapedia, Census and Upazila)

The project sites are not located within any sensitive historical, cultural, and archaeological areas. Though it is not a major religious/cultural destination, there is a small graveyard at the location of the water treatment plant, as well as religious properties along the transmission alignments. Efforts to avoid and minimize impacts on these areas and structures through slight alignment shifts shall be taken up as part of the detailed design. If unavoidable, impacts shall be addressed in consultation with the affected groups as per the provisions of the RP for common properties.

5.1 Archaeology, Cultural and Historical Places

The following Table-14 presents archaeological and cultural sites of Dhaka City. Proposed P2 Project does not affect these places.

Table 14: Cultural and Historical Places

Name of Establishment	Description
Murapara Zamindar, Rupganj Upazila	The Murapara Zamindar is located in Rupganj Upazila, 330m east of Shitalakhya tunnel shaft site. Ramratan Banarjee built zamindar Palace is 1890. During the war 1971, people plundered many ornate portions of the palace. This site is located at 2.1km from the nearest section of the proposed treated water mains alignment.
Lalbagh Fort	An incomplete 17th century Mughal fort complex which was originally built in 1678 AD by Subahdar Muhammad Shah, the Lalbagh Fort remains a potent reminder of the extent of Mughal rule in Bangladesh. It lies on the Buriganga River in the south-western part of the old city of Dhaka, and its extensive grounds and gardens remain an oasis of peace amidst the tumult of the city streets. Lalbagh Fort is situated about 14 km away from the proposed treated water mains alignment.
Hindu Street/Shankaria Bazaar	The 300-year-old centre of Dhaka's Hindi community, this colorful and vibrant area is a slice of the commercial life of Old Dhaka, and reveals the artisanal traditions of the Hindu community in Bangladesh. The area is crisscrossed with alleyways packed with tiny workshops where artisans practice their age-old traditional crafts; making everything from kites to jewellery. This site is located at a distance of 12.3km from the proposed treated water mains alignment.

Name of Establishment	Description
The Pink Palace of Ahsan Manzil	This resplendent pink palace was once the home of the Dhaka Nawab Family, the rulers of Dhaka for much of the 19th and early 20th century, who were given sovereignty over the city under the British Raj. It was built in 1869 and is an example of the Indo-Saracenic Revival architecture, which is evident throughout the subcontinent as one of the Raj,'s enduring remnants. The palace has now been turned into a museum as a means of preserving it and commemorating its importance as a cultural and political centre of the city. The distance of this site from the proposed treated water mains is about 12.7km.

Source: Field observation, March 2018, and personal visit to Cultural sites of Dhaka Mega City 2009, Banglapedia-National Encyclopaedia of Bangladesh revised Second Edition, 2012

5.2 Public Consultation

The Consultation Meeting was held at proposed WTP premises chaired by Mr Abdul Gani Mollah. Mr Iqbal of DORP delivered introductory speech followed by project familiarization. Other speakers were Mr. Imtiazul Haque, Syed Latif, Dr. Thomas Balling, Dr. Rafeza from the Consultant team, Mott MacDonald. The participants shared their ideas on different issued, detailed in social LAR section. Most important topics were loss of agricultural land and loss of livelihood due to the construction of the WTP. Impact on ponds north of the WTP was not an important issue. Minutes were provided for the consultation done on 13 February 2018 (Detailed in Appendix-A), and 29 September 2018 (Detailed in Appendix-I).

6 Anticipated Environmental Impacts and Mitigation Measures

6.1 Planning and Design Phase

The detailed design shall identify suitable locations for construction work camps, stockpile areas, storage areas, and disposal areas and other facilities near to the project locations or DNCC disposal sites. However, if it is deemed necessary to locate elsewhere, sites to be considered shall not promote social instability and result in destruction of property, vegetation, irrigation, and water bodies.

None of these temporary facilities shall be located (i) within 500 m of residential areas and rivers identified as ecologically critical areas (ECA), Balu and Shitalakhya Rivers, and (ii) within 100 m of other water courses and canals (*khals*). Though the contractor will be free to decide locations, a list of feasible locations shall be included in the design specifications and plan drawings for approval by the PMU (DNCC disposal sites).

6.2 Construction Phase

The impacts during construction will include typical construction-related impacts associated with laying of treated water transmission pipe lines. While the nature of these impacts is not expected to be significant, the magnitude is, given the size and scale of the proposed facilities. However, these impacts are known and can be addressed through good engineering practices and specific mitigation measures for minimization of construction impacts on sensitive receptors and communities in the vicinity of locations and alignments.

From Water Treatment Plant at Gandharbpur twin treated water pipeline goes up to Shitalakhya River Crossing shaft location. In this project area have some major river crossing points. For instances- Shitalakhya River crossing of 0.5km which will be crossed by micro-tunnelling (0.402 km), Balu River crossing of 0.25km at Baraid which will be crossed by micro-tunnelling for a length of 0.234 km. 2 tunnel shafts will be located at both side of these rivers for Phase-1); Moreover 4 brides will be crossed by diverting the pipe under the canal. After Balu River crossing pipe goes up to Vatara at Notun Bazar near US Embassy for a length of 6.5 km. Finally treated water from Gandharbpur WTP will be conveyed to the injection point through twin 1,600-mm diameter pipe.

Further to note, main civil works in the P2 Project route include laying of 14 km pipelines, will be confined to twin pipe installation trench of 5m width and 3.4m depth linear trenches sites, and construction will include general activities like site clearance, excavation for pipeline foundations. Treated water pipelines of 14km will cover all habitations, and will be buried along the Madani Road from Beraid using open cut method.

Since these works are confined to the boundary of identified sites, there is no direct interference of construction work with the surrounding land use. However, construction dust, noise, use of local roads for transportation of construction material, waste, labor camps etc., will have negative impacts, which needs to be avoided or mitigated properly.

Open cut trenching method of pipe laying involves excavation for laying pipes along the roads, placing pipes in the trench, jointing and testing, and refilling with the excavated soil. The trenches will be of 5m wide and 3.4m deep. Earthwork excavation will be undertaken by machine (backhoe excavator) or

manually, while pipe laying works will include laying pipes at required gradient, fixing collars, elbows, tees, bends and other fittings including conveying the material to work spot and testing for water tightness. Sufficient care will be taken while laying so that existing utilities and cables are not damaged and pipes are not thrown into the trenches or dragged, but carefully laid in the trenches. As trenches are only 3.4m deep, there risk of collapse of trenches or damage to surrounding structures is minimal or negligible. However, necessary precautions will be taken depending on the soil conditions, and if required measures such as bracing or shoring in the trench will be provided. Once they are laid, pipes will be joined as per specification and then tested for any cracks of leakages. In Madani avenue 100% sand, Jalshiri 100% if river sand satisfy specification (lab test result), or 75% imported sand and 25% excavated river sand will be used for refilling the trench after placing the pipe and the residual soil will be disposed of.

Although pipe laying work involves quite simple techniques of civil work, the invasive nature of excavation and pipeline alignment in the built-up areas where there are a variety of human activities, will result in impacts to the environment and sensitive receptors such as residents, businesses, and the community in general (near injection point-Badda). These anticipated impacts are temporary and for short duration, however, needs to be mitigated.

Other anticipated impacts during the construction phase are discussed below along with appropriate mitigation measures to avoid, minimize or mitigate those impacts to acceptable levels.

Air Quality: Construction work, especially from earthwork activities, coupled with dry and windy working conditions, material and debris transport, and works along the public roads carrying significant traffic, have high potential to generate dust. Also, emissions from construction vehicles, equipment, and machinery used for excavation and construction will induce impacts on the air quality. Anticipated impacts include dust and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur oxides, particulate matter, nitrous oxides, and hydrocarbons. Dust generation will be significant during pipeline laying along the roads. Increase in dust/ particulate matter in ambient air is detrimental, and may have adverse impacts on people and environment. To mitigate the impacts, construction contractors will be required to:

1. For Pipeline Works
    i. Barricade the construction area
    ii. Initiate site clearance and excavation work only after barricading of the site is done
    iii. Confine all the material, excavated soil, debris, equipment, machinery (excavators, cranes etc.), to the barricaded area
    iv. Limit the stocking of excavated material at the site; remove the excess soil from the site immediately to the designated disposal area (Status of existing DNCC and DSCC designated disposal sites at Matuail, Gabtoli and Uttara Transfer Station are presented in Appendix-N).

Commented [TB2]: Please provide photographs of these disposal sites

Undertake the work section wise. However, none of the three landfills is suitable for disposal of construction waste including spoiled soil from P2 construction site because of the following reasons:

- Landfills of Gabtoli (Amin Bazaar) and Matuail do not have capacity anymore. In addition, Gabtoli Landfill is operated in an unsanitary manner and the environment (ground water, air, soil) is heavily polluted due to unsafe and improper dumping of waste.
- Uttara landfill is a secondary waste transfer station without sufficient capacity.

DoE, DWASA, MDSC and contractors have to discuss and to find out alternative options for proper waste disposal.

- Conduct work sequentially - excavation, pipe laying, backfilling; conduct pipe testing section-wise (for a minimum length as possible) so that backfilling, stabilization of soil can be done.
- Remove the excavated soil of first section to the disposal site; as the work progresses, sequentially, by the time second section is excavated, the first section will be ready for back filling,
- Backfilled trench at any completed section after removal of barricading will be the main source of dust pollution. The traffic, pedestrian movement and wind will generate dust from backfilled section. Road restoration shall be undertaken immediately.

Surface Water Quality. Run-off from stockpiled materials and chemicals from fuels and lubricants during construction works can contaminate surface water quality of the water bodies, streams, Shitalakhya and Balu rivers. Project area receives considerable rainfall, although mostly confined during the monsoon months. There are a number of water bodies/ponds along the roads, where pipelines will be laid. It is important that runoff from the construction areas, which may contain silt and chemical traces do not enter these water bodies. Impact will be temporary, but needs to be mitigated. Construction contractor will be required to:

i. All earthworks be conducted during the dry season to prevent the problem of soil run-off during monsoon season;
ii. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;
iii. Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, only designated disposal areas shall be used
iv. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies
v. Place storage areas for fuels and lubricants away from any drainage leading to water bodies
vi. Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling
vii. Dispose any wastes generated by construction activities in designated sites; and
viii. Conduct surface quality inspection according to the Environmental Management Plan (EMP).

Groundwater Quality. Another physical impact that is often associated with excavation is the effect on drainage and the local water table if groundwater and surface water collect in the voids. In the project area, groundwater depth is shallow, there are numerous water bodies and ponds, and it also receives high rainfall during the monsoon. Conducting excavation works during non-monsoon season will certainly help, but due to high water table, water may collect in pits as they are excavated. To avoid this the contractor needs to be implement the following measures:

i. Pump out the water collected in the pits / excavations to a temporary sedimentation pond; dispose of only clarified water into drainage channels/streams after sedimentation in the temporary ponds
ii. Consider safety aspects related to pit collapse due to accumulation of water

Generation of Construction Wastes. Solid wastes generated from the construction activities are excess excavated earth (spoils), discarded construction materials, cement bags, wood, steel, oils, fuels and other similar items. Domestic solid wastes may also be generated from the workers' camp. Improper waste management could cause odour and vermin problems, pollution and flow obstruction of nearby watercourses and could negatively impact the landscape.

The following mitigation measures to minimize impacts from waste generation shall be implemented by the contractor:

i. Prepare and implement a Construction Waste Management Plan
ii. As far as possible utilize the debris and excess soil in construction purpose, for example for raising the ground level or construction of access roads etc.,
iii. Avoid stockpiling any excess spoils at the site for long time. Excess excavated soils should be disposed to designated areas immediately (DNCC designated sites)
iv. If immediate disposal is required, the site shall be selected preferably from barren, infertile lands; site should be located away from residential areas, water bodies and any other sensitive land uses.
v. Domestic solid wastes should be properly segregated in biodegradable and non-biodegradable for collection and disposal to designated solid waste disposal site; create a compost pit at workers' camp sites for disposal of biodegradable waste; non-biodegradable / recyclable material shall be collected separately and sold in the local recycling material market.
vi. Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by DNCC;
vii. Prohibit burning of construction and/or domestic waste;
viii. Ensure that wastes are not haphazardly thrown in and around the project site; provide proper collection bins and create awareness to use the dust bins.
ix. Conduct site clearance and restoration to original condition after the completion of construction work; PMU to ensure that site is properly restored prior to issuing of construction completion certificate

Further to note that, following a meeting with DNCC on 26 May 2019 with Dr. Tarek, PD of a project, DNCC. Followings are the meeting results:

1. Presently DNCC has no such identified dumping site for hazardous waste. Amin Bazar dumping site is for kitchen waste only and it is almost full. Matuail dumping site condition is same.
2. DNCC have a proposal for new dumping site which is in Ministry to get approval and will take time to materialize, not within coming 2 -3 years.
3. DNCC thinks in Madani Avenue waste are not hazardous. Those are mostly rubbish, building materials, plastic bags and kitchen waste which can be dumped in DNCC Transfer station or dumping site with DNCC permission and may cost for the contractor for transportation to DNCC.
4. Outside Dhaka city there are hardly any hazardous waste along the pipe route. Contractor may sell the excavated soil to the developer or individual land owners to raise their land because presently they are filling their land with costly river sand and demand is very high.
5. Inside Dhaka, contractor may sell or give free the excavated soil to the interested inhabitants but need to find those interested land owners.

DNCC helped to take excavated soil of Metro Rail Project to DNCC dumping site at Amin Bazar to develop their future extension land. PMU together with contractor may approach for this kind of assistance if there is a possibility.

Noise and Vibration Levels. Most of the works are to be implemented in rural setting, with thickly populated habitation areas and surrounding extensively cultivated agricultural lands. Noise and vibration impacts are likely to be minimal as most of the pipeline route sites located outside habitation in agricultural

lands. Few sites are located adjoining habitation areas (Near Shitalakhya, approach to Jalshiri Housing), where there are houses, religious places and businesses. The sensitive receptors are the general population in these areas. Increase in noise level may be caused by breaking of bitumen roads for laying of pipelines, operation of construction equipment like concrete mixers, and the transportation of equipment, materials, and people. Vibration generated from construction activity, for instance from the use of pneumatic drills, will have impact on nearby houses/buildings. This impact is negative but short-term, and reversible by mitigation measures. The construction contractor will be required to:

i. Plan activities in consultation with PMU so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance;
ii. Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and use portable street barriers to minimize sound impact to surrounding sensitive receptor;
iii. Identify any buildings at risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity;
iv. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;
v. Consult local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.

Accessibility. Excavation along the roads for laying of pipelines, hauling of construction materials and operation of equipment on-site can cause traffic problems. Roads connecting Beraid to Injection Point at Vhatara sites (Near US Embassy) are main roads, but are narrow and carry considerable local traffic, mainly comprise bicycles, 2 wheelers, Mini trucks, auto rickshaws, tempo service, private cars etc. Works related to pipeline laying will be confined to the selected sites, therefore there is minimum or no direct interference of these works with the traffic and accessibility. Hauling of construction material, equipment, construction waste, etc., to and from the work site may increase the road traffic on local roads, which are not in good condition. This will further inconvenience the local community and road users. Potential impact is negative but short term and reversible by mitigation measures.

Further to note that, in most cases river transport will be used to carry materials and equipment. However, the construction contractor will be required to:

i. Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites
ii. (ii) Drive vehicles in a considerate manner
iii. Notify affected public by public information notices, providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.

Pipeline Works

i. Confine work areas along the roads to the minimum possible extent; all the activities, including material and waste/surplus soil stocking should be confined to this area. Provide barricading; avoid material/surplus soil stocking in congested areas – immediately removed from site/ or brought to the as and when required;
ii. Leave spaces for access between mounds of soil to maintain access to the houses / properties;
iii. Provide pedestrian access in all the locations; provide wooden/metal planks over the open trenches at each house to maintain the access;

iv. Inform the affected local population 1-week in advance about the work schedule;
v. Plan and execute the work in such a way that the period of disturbance/ loss of access is minimum;
vi. Keep the site free from all unnecessary obstructions;
vii. Coordinate with Police for temporary road diversions, where necessary, and for provision of traffic aids if transportation activities cannot be avoided during peak hours.

Socio-Economic – Employment. Manpower will be required during the construction stage. This can result in generation of temporary employment and increase in local revenue. Thus, potential impact is positive and long-term. The construction contractor will be required to employ local labor force as far as possible.

Occupational Health and Safety. Workers need to be mindful of the occupational hazards which can arise from working in excavation works. Potential impacts are negative and long-term but reversible by mitigation measures. The construction contractor will be required to:

i. Comply with national labor laws;
ii. Develop and implement site-specific occupational health and safety (OHS) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use personal protective equipment; (c) OHS Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;
iii. Ensure that qualified first-aid is provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;
iv. Provide medical insurance coverage for workers;
v. Secure all installations from unauthorized intrusion and accident risks;
vi. Provide health and safety orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;
vii. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
viii. Ensure moving equipment is outfitted with audible back-up alarms;
ix. The use of hearing protection shall be enforced actively;
x. Provide supplies of potable drinking water;
xi. Provide clean eating areas where workers are not exposed to hazardous or noxious substances

Land Use, Impact and Risk Analysis

The analysis of project impacts and risks is the technical heart of the environmental assessment process, providing a comprehensive net appraisal of the project's effects on the environment and socioeconomic conditions. Potential impacts and risks have been evaluated according to laws and regulations of Bangladesh and ADB's requirements as set out in the safeguard policy statement (SPS 2009).

Type and Scope of Impacts and Risks

Impact analysis considered potential environmental impacts and risks of the project, while focusing on the major ones identified through scoping exercise. The analysis has covered both adverse and beneficial effects over time to fully describe the net project effect. Adverse environmental impacts are negative impacts on physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and cultural resources. Notable benefits

could be environmental (e.g. landscaping along the treated water pipeline route for enhancing aesthetic view and protection of pipeline corridor, indirectly reduces emissions of pollutants and greenhouse gases), and social (e.g. the project provides jobs).

Impact analysis should consider the following features when they are potentially affected by the project, Table-9.

- **Physical** – surface and ground water, air, soil, land use, landform/topography, noise, vibration, geology, seismicity and other natural hazards, resource use, waste, greenhouse gases, etc.
- **Biological** – terrestrial and aquatic flora and fauna, habitat and ecosystems, endangered or critically endangered species, protected areas, etc.
- **Socioeconomic** – occupational health and safety, community health and safety, impacts on vulnerable groups and gender issues, impacts on livelihoods (e.g. river pollution or river flow reduction decreases downstream fishing yields)
- **Physical cultural resources** – movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance.

Table 15: Land Use P2, Impacts and Risk Factors

Sl. No	Section (in meter)	Description	Risk Factor (intensity in ascending order +/- 1 to 5)	Remarks
1.	000 to 450	BWDB Water bodies, the pipeline will follow along the western edge of water body. Approximately, at location 450m from the WTP, Pipe route will change direction here not to affect existing buildings.	-1	The water body is less important as no natural habitat for aquatic species.
2.	450 to 650	Informal industry under construction, unused land. Pipeline route will avoid existing wall boundary of Globe Factory.	-3	The change of pipeline alignment may create social dissatisfaction.
3.	650 to 750	BWDB Water bodies, the pipeline will run through the water body. Sand filling is required to lay pipeline	-1	Temporary dust pollution may occur
4.	750 to 825	Partially filled land, fallow land doesn't belong to BWDB, DWASA has to acquire	-1	Community/social dissatisfaction
5.	825 to 1275	BWDB Water bodies, the pipeline will follow along the western edge of water body. Sand filling is required to lay pipes	-1	Temporary dust pollution/traffic disruption
6.	1275 to 1325	LGED bridge approach, pipeline will cross through the approach road	-1	Temporary traffic disruption
7.	1325 to 1600	Informal commercial development along the west side of LGED north-south road towards Ferry Ghat. At 1525 existing illegal brick wall needs to be demolished	-3	Social dissatisfaction
8.	1600 to 2000	Partially land fill, temporary structure and pond etc within BWDB land (ROW)	-2	At 1600 m, the ship-building yard along the pipe route is an obstacle.

Sl. No	Section (in meter)	Description	Risk Factor (intensity in ascending order +/- 1 to 5)	Remarks
				Relocation required.
9.	2000	Phase I and phase II shaft landing location at east bank of Shitalakhya River. Proposed 60x60m land required for construction of large shafts to transport dual 1600 pipes for Phase I and future pipes of Phase II from east to west side of the Shitalakhya River. DWASA has to acquire private land	-2	Will require evacuation of recently built structures
10.	2000 to 2100	Floodplain of Shitalakhya River, fallow land. A portion of both private land and BIWTA land may require to be acquired.	-2	Community/social dissatisfaction; Livelihood impact
11.	2100 to 2400	Shitalakya River		
12.	2400	Floodplain of Shitalakhya River, fallow land. Land required for construction of large shafts to transport dual 1600 pipes for Phase I and future pipes of Phase II from east to west side of the Shitalakhya River. A portion of both private land and BIWTA land may require to be acquired.	-2	At 2400 m, Recently constructed ship-building yard at shaft location is an obstacle. Relocation required.
13.	2475 to 2850	LGED Road, adjacent houses, homestead and agricultural land.DWASA has to acquire private land	1	The pipes will pass through road and fallow land
14.	2850 to 3875	Jalshiri Abashon, (land filled with river dredged materials, elevated tract in nature with road demarcations. Pipe will follow within 15 m ROW beside the planned road through green field	2	No impacts to physical, biological and cultural resources
15.	3875 to 4900	Pipe route along the greenfield beside newly proposed Madani Avenue extension road by RAJUK (Capital Development Authority) beside Jolshiri Abashon.	2	No impacts to physical, biological and cultural resources
16.	4900	Canal crossing		
17.	5000 to 5575	Pipe route along the proposed green field beside proposed Madani Avenue extension road by RAJUK within the edge of Jolshiri Abashon land development	0	No impacts
18.	5575 to 5775	Pipeline route through private land which is not acquired by Jolshiri. DWASA need to acquire.	-1	Social dissatisfaction, No impacts to ecological resources
19.	5775 to 6275	Pipe route along the greenfield beside newly proposed Madani Avenue extension road by RAJUK	0	No impacts
20.	6275 to 6425	Pipeline route through private land and homestead which is not acquired by Jolshiri or Basundhara. DWASA need to acquire.	-2	Social dissatisfaction
21.	6425-7175	Pipe route along the greenfield beside newly proposed Madani Avenue extension road by	-1	Temporary impact during construction

Sl. No	Section (in meter)	Description	Risk Factor (intensity in ascending order +/- 1 to 5)	Remarks
		RAJUK. Presently the land is owned by Basundhara Private Development.		
22.	7175-7375	Pipeline route turns towards south to shaft location at east bank of Balu river to avoid future bridge over Balu and other structures of Rajuk. Presently the land is owned by Basundhara	-1	Temporary impact during construction
23.	7375	Shaft location at the east bank of Balu river. Proposed 60mX60m land required for construction of shaft. Pipeline will start crossing the Balu river from this place by tunnelling. East side of the pipeline before the tunnel crossing is laid over greenfield is proposed Bashundhara housing.	1	No impacts on physical, biological and social resources.
24.	7375 to 7675	Balu River	2	Pipe route should move downwards and cross the canal 10 meter below the Balu river bed level
25.	7675	Proposed 50mx40m land required for construction of large shafts to transport dual 1600 pipes for Phase I and future pipes of Phase II from east to west side of the New pipeline alignment.	1	No impacts on physical, biological and social resources
26.	7675 to 7875	Partial flood plain, land filling in progress. The pipe route layout enters in to the Madani Avenue.	1	The pipe route changes to north-west direction diagonally. No impacts on physical and biological resources, except some seedbeds and private land adjacent to river.
27.	7875 to 8375	The pipe route location is at the southern side of Madani Avenue within the ROW of Rajuk, runs from east to west. South side of the pipeline are under private development by real estate companies.	-1	Community dissatisfaction
28.	8375	At bridge no 4 pipe will divert outside of the road in to the RAJUK ROW and private land to cross the bridge. This will require further land acquisition.	-1	Temporary disruption to seasonal agricultural activity. No impact to ecology
29.	8475 to 9375	The pipe route location is at the southern side of Madani Avenue within the ROW of Rajuk,	1	No impact to ecology
30.	9375	At bridge no 3 pipe will divert outside of the road in to the RAJUK ROW and private land to cross the bridge. This will require further land acquisition.	-1	Temporary disruption to seasonal agricultural

Sl. No	Section (in meter)	Description	Risk Factor (intensity in ascending order +/- 1 to 5)	Remarks
				activity. No impact to ecology
31.	9475 to 10975	The pipe route location is at the southern side of Madani Avenue within the ROW of Rajuk	1	No impact to ecology
32.	10975	Boro Kathaldia bridge no 2 pipes will divert outside of the road in to the RAJUK ROW and private land to cross the bridge. This will require further land acquisition.	-1	Temporary disruption to seasonal agricultural activity. No impact to ecology
33.	11075 to 11475	The pipe route location is at the southern side of Madani Avenue within the ROW of Rajuk	-1	Temporary impacts to livelihood
34.	11475	Boro Kathaldia bridge no 1 pipe will divert outside of the road in to the RAJUK ROW and private land to cross the bridge. This will require further land acquisition	-1	Temporary disruption to seasonal agricultural activity. No impact to ecology
35..	11575 to 12075	The pipe route location is at the southern side of Madani Avenue within the ROW of Rajuk Land development is ongoing by private developer at southern side beyond ROW	1	No impacts anticipated
36..	12075 to 13800	The pipe route location is at the southern side of Madani Avenue within the ROW of Rajuk Commercial development on both sides of Madani Avenue. Temporary market and other settlements	1	No impacts anticipated

Table 16: Pipe line detail, Contract: P2

Branch Line ID	Dia wise Length of Pipes in kilometer								
	Twin 2X 1600	Total Length (km)	ROW	Owner	Vegetation	Trees	Utilities	Area for Material storage	Excess materials (m3)
Sec A	2.00	2.00	30.00	BWDB/ DWASA	Yes	919	Nil	Private/ DWASA land	Sand filling
Sitalakya River	0.45	0.45							
Sec B	4.93	4.93	15	Jolshiri/ DWASA	350m	Nil	Nil	Jolshiri area	6174
Balu River	0.25	0.25							
Sec C	6.04	6.04	15	Rajuk/DW ASA	No	Nil	Drainage	Private/ DWASA land	106546
Total Length	13.645	13.645							
Trench Width	5.040 meter								
Trench Depth	3.500 meter								
Earth Volume	112720m3							Total	112720

In Section A, the 919 trees are the unclassified native species, not important for timber producing, medicinal plant or ornamental perspective. In usual case, 3 to 5 native species are planted for cutting of 1 tree considering mortality rate. However, in this area all the 919 trees will be removed, and the Resettlement Plan recommended to pay owners BDT 300 for each tree as replantation cost. Maps showing the existing land use are provided in the Biddings Documents in Section 4 Technical Requirements Appendix A.

Excess material will be stored at DNCC designated disposal sites possibly at Gabtoli (Amin Bazar), see discussions note “Generation of Construction Waste”, meeting with DNCC provided in page 52.

6.3 Operation and Maintenance Phase

6.3.1 Operation and Maintenance Impacts

Once the construction is over the O&M of the treated water pipeline system will be carried out by DWASA (up to injection point) along with P1 and P3 components. Prior to supply of water, it will be ensured that the newly laid pipes are properly cleaned and disinfected. In water supply distribution system project, the impacts are primarily due to construction phase activities, and are not generally associated with any

significant impacts as a result of activities during operation. The stability and integrity of the system will be monitored periodically to detect any problems and allow remedial action if required.

Recurrence of pipe bursting and leakage problems can be managed by the leak detection, rectification and water auditing surveys. DWASA will be required to ensure that the leak detection and rectification time is minimized.

The citizens of the Dhaka will be the major beneficiaries of the improved water supply system, as they will be provided with a constant supply of better-quality water, piped into their homes at an appropriate pressure. The project will improve the over-all health condition of the town as water borne diseases will be reduced, so people should spend less on healthcare and lose fewer working days due to illness, so their economic status should also improve, as well as their overall health. This should also improve the environment of these areas, should deliver major improvements in individual and community health and well-being (Annex-1).

7 Public Consultation and Information Disclosure

7.1 Public Consultation

The active participation of stakeholders including local community, NGOs, etc., in all stages of project preparation and implementation is essential for successful implementation of the project. It will ensure that the P2 Project is designed, constructed, and operated with utmost consideration to local needs, ensures community acceptance, and will bring maximum benefits to the people. Public consultation and information disclosure are a must as per the ADB policy.

Most of the main stakeholders have already been identified and consulted during preparation of this IEE, and any others that are identified during project implementation will be brought into the process in the future. The stakeholders of P2 Project are: residents, shopkeepers, NGOs and business people who live and work near sites where facilities will be built (14 km treated water pipelines), BWDB, LGED, beneficiary community in general, and the ADB.

7.2 Involvement of NGOs, CBOs and Women's Organizations

The active involvement of NGOs, and organizations representing women and other vulnerable groups is seen by DWASA as essential in fostering positive community participation in the program and ensuring that the views and wishes of the disadvantaged are heard and acted upon. NGOs will perform a number of key roles in the project, in particular:

1. An NGO named "DORP" has been appointed by the PMU to organize and implement the consultation and disclosure activities described above, and the various awareness raising campaigns;
2. The concern consultant and resettlement expert engaged for monitoring the activities, with the help of the NGO, may fulfil the role of Training Coordinator in the PMU. They will organize training for DWASA staff, environment and resettlement cells, and CBOs in community level;
3. DORP NGOs will be assisted to the PMU with other technical tasks.

The consultation process so far has solicited inputs from a range of stakeholders, including government officials, experts, and researchers, including elected representatives, residents at the project locations, and project affected persons. Details are provided in Table 17. Attendance sheet is attached in Appendix

Table 17: Details of Public Consultations

Sl. No.	Place, Date	Participants	Purpose of Consultation	Key Issues Discussed
1	DORP office, Rupgonj, of the proposed P2 pipeline location	Local community and elites, teacher, farmers, serviceman and businessman. No. of participants: 25	Consultations with the local people and community on the GI 139 borehole drilling and pipeline on P2 component activities and understanding grievances of the communities, if any	• Awareness campaign should be done before starting the borehole drilling. • The area of borehole drilling will be cordon off by caution tape in order to restrict the area. • No trees and establishment, structure will be affected during the borehole drilling. • There are few families in the village may temporarily impacted due to bore log drilling work. • Noise less equipment should be used

Sl. No.	Place, Date	Participants	Purpose of Consultation	Key Issues Discussed
	Date: 17.04.2017	No of participants 25; 3 females, 22 males		• Dust pollution should be suppressed by water spraying • The community was aware of the arsenic contamination of groundwater and was averse to using it. • During survey found there is no loss of crops, trees, business and structure, prepare and provide detail compensation if any of the affected person (Aps) for pipeline construction and laying • The community said that they have not any objection regarding soil test through borehole drilling and pipeline laying along the P2 alignment. • The contractor should be asked for to avoid any damage of trees, utility service line damage, pedestrian and vehicle movement and have flexibility of freedom to shift the location of borehole point by few feet.

Source: EIA, Enviro Consultants, February 2018 and Mott MacDonald, February 2018

Further to note that, on 13 February 2018 (Tuesday) at about 10.30 am a meeting was held in section-3. In the meeting there were present by the participants from PAPS, Elites and local community people including service holders, Entrepreneur, homemakers DORP staff and Personnel from MDSC. The meeting was coordinated by DORP Area Manager Md. Iqbal Hossain. The meeting was chaired by Md. Serajul Islam Miah the very accepted and be loving person by all of the PAPs. The chairman of the meeting expressed his gratitude to participants for being present in the meeting by leaving their important and urgent business. DORP Area Manager briefed about the project. MDSC Environmental and Social Experts discussed a wide range of relevant construction issues and responded to participants queries, There were 72 participants (male 86% and female 14%) in PC meeting of 13.02.2018 (Detailed in Appendix-A)..

Another consultation meeting was organized on 29th September 2018 (Saturday) at about 03.30 pm in section-6 along the treated water mains. The meeting was chaired by Md. Nurul Amin Miah the most reverend and accepted person by all of the PAPs. Md. Iqbal Hossain expressed his gratitude to participants for being present in the meeting by leaving their important and urgent business. He briefed about the project. The MDSC Specialists briefed the participants that, surface water will be delivered through pipeline to the Water Treatment Plant at Gandharbpur in Rupganj Upazila. The treated water will then be delivered to the distribution network of Dhaka city. He seeks everyone's cooperation and suggestions. During consultation, female participants were 28% (Detailed in Appendix-I). The number of participants were 82 (97.5% male and 2.5% female) at PC Meeting organized in 29.09.2018,

7.3 Information Disclosure

Executive summary of the IEE will be translated in Bengali and made available at the offices of PMU-DWASA, and also displayed on their notice boards. Hard copies of the IEE will be accessible to citizens as a means to disclose the document and at the same time creating wider public awareness. Electronic version of the IEE in English and Executive Summary in Bangla will be placed in the official website of the DWASA, PMU and ADB after approval of the IEE by ADB. Stakeholders will also be made aware of grievance register and redress mechanism.

Public information campaigns to explain the project details to a wider population will be conducted. Public disclosure meetings will be conducted at key project stages to inform the public of progress and future plans. Prior to start of construction, the PMU will issue Notification on the start date of implementation in local newspapers A board showing the details of the project will be displayed at the construction site for the information of general public.

Local communities will be continuously consulted regarding location of construction camps, access and hauling routes and other likely disturbances during construction.

8 Grievance Redress Mechanism

8.1 Complaints and Grievance Mechanism

A Grievance Redress Committee (GRC) has been formed at PMU level and will be established at the community level in each Union to resolve complaints and grievances informally through community participation. The GRC formed with representatives from the DWASA, local elected representatives from the Local Government Institutions (LGI), INGO, AHs, women AHs to allow voices of the affected communities to be heard and ensure a participatory decision-making process. The representative of the INGO will have the responsibility as Member Secretary of GRC. The GRC decision will be disposing up on a priority basis and be publicized among the local communities. Where the complaining parties are not satisfied with the GRC decisions, they can file their cases in the court of law.

The GRC will be established at the community level at Union Parishad through a gazette notification from the Ministry of Local Government, Rural Development and Cooperatives (MLGRDC).

The Member Secretary of GRC will be regularly available and accessible for AHs to address concerns and grievances. Female member of GRC and the female Aps of the AHs will participate in the grievance redress session when the complainants will be a female. Legal advisor and DORP will support the GRC regularly and assist the Aps to formulate their complaints. The grievance cases will be recorded with details and results of the cases. The EMA will review the cases. Just to record, provision is there to ensure that the affected people can also go to the GRC for any environmental concern**.** However, the construction not yet started.

8.2 Scope and Jurisdiction of GRC

The scope of work and Jurisdiction of GRC are:

4. The Grievance Redress Committees (GRCs) will be established to ensure stakeholders' participation in the implementation process and fair compensation to affected persons.
5. The Aps can also call upon the resettlement NGO to assist them in presenting their grievances or queries to the GRC.
6. The GRCs will receive grievance cases from the affected persons through the resettlement implementation NGO.
7. Other than disputes relating to ownership right and award of compensation by the Deputy Commissioner under the Court of Law, GRCs will review grievances involving all resettlement assistances, relocation, and other supports. Grievances will be redressed within 21 days from the date of lodging the complaints. In cases of complicated cases requiring additional investigations it will be resolved within a period of one month.
8. Grievances of indirectly displaced persons and/or persons displaced during project implementation will also be addressed by the GRC.
9. Where land acquisition will not be involved but relocation of structures or vacating land for cultivation will be required, the GRCs will facilitate resolution of complaints regarding categorization of vulnerable affected persons, types of structures, and eligibility for compensation and assistance within the set guidelines and provisions of the resettlement plan.

10. Any complaints of ownership or other suits to be resolved by the judiciary system will not be resolved in GRCs. GRC will resolve all complaints, grievances related to compensation entitled by affected persons.
11. The decisions of the GRC should be ideally be arrived at through consensus, failing which resolution will be based on majority vote. Any decision made by the GRC must be within the purview of social, resettlement and environmental policy framework.
12. A minimum of 4 (four) members shall form the quorum for the meeting of GRC.
13. If needed the GRC members may undertake field visit to verify and review the issues at dispute, including titles/share, reasons for any delay in payment or other related matters.
14. In case the resolution is not accepted by the AP, the grievance will be forwarded to Project Director for final decision.

8.3 Filling Grievance Cases and Documentation

AHs will be able to file their grievances without any fear and intimidation. Where required, the implementing NGO will assist the AHs in drafting the grievances. All grievances must be submitted in writing to the Convener, GRC. The complainant may be represented by AHs him/herself or appointed agent such as locally elected officials/legal advisors. The judgment made by the GRC will be communicated to the concerned AH in writing. If dissatisfied, and with the agreement of the GRC, the AH may request a further review of the judgment of GRC by the Project Director. In such case, the case will be forwarded to the PD with all documents. If the disputant still remains unsatisfied, he/she can go to the court of law.

GRC procedures and operational rules will be publicized widely through community meetings and pamphlets in the local language so that AHs are aware of their rights and obligation, and procedures of grievance redress.

To ensure access and fast response to any project-related grievances from the affected people and communities, contact numbers and names of focal persons in the DWASA PMU/SIU responsible for any complaints and grievances will be posted in public areas, contractor's field offices, UP offices, and NGO field offices.

All GRC documents will be maintained by the INGO for review and verification by MDSC and ADB. DWASA field offices will act as secretariat to the GRCs. As a result, the record will be up-to-date and easily accessible on-site.

The GRC meeting will be held in the respective field office of DWASA, DORP Office or other location as agreed by the Committee. If needed, the GRC members may take field visits to verify and review the issues at dispute, including ownership/shares, reasons for any delay in payments or other relevant matters. The complaints and grievances from the AHs will be addressed through the process described in the Table below.

Table 18: Grievance Resolution Process

Steps	Action Level	Process
Step 1	Counselling	The NGO will recommend that the DPs submit their complaints to the GRC. NGO staff assists the DPs filing the complaints (maximum 7 days); Complaints and grievances from displaced person will first be heard during personal contact and focus group discussion at the village level with the involvement of the SIU social safeguard officer. If not resolved within 14days;

Steps	Action Level	Process
		The DORP will counsel AHs for gaps in information about the policy and eligibility for compensation and resettlement assistances. The DPs will sign and formally submit the written report to the GRCs at the office of the NGO assisting DWASA in implementing the RP; If the complaint found outside the mandate of the GRC, the DORP will advise the aggrieved AHs to lodge their complaints in the court of law at the district level. If the complaint is within the jurisdiction of GRC, the DORP will advise the aggrieved AHs to formally lodge their complaints with the GRC.
Step 2	GRC Resolution	Member Secretary of the GRC will scrutinize the complaints and prepare case file for hearing and resolution. A formal hearing will be held before the GRC at a date fixed by the Member Secretary of GRC in consultation with the convener and other aggrieved Ahs. On the date of hearing, the aggrieved AHs will appear before the GRC at a place set in consultation with the AHs and DWASA and procedure proof in support of his/her claim. The Member Secretary will note down the statement of the complainants and documents with all proofs. GRC will deliver its decision on complaints/grievances within 21 days from the date of grievance received. The decisions from majority of the members will be considered final from the GRC and will be issued by the Convener and signed by other members of the GRC. The case records will be updated and the decision will be communicated to the complainant AHs by the Member Secretary of the GRC at the village level.
Step 3	Decision from PMU, DWASA	If any aggrieved AHs are not satisfied with the GRC decisions, the next option will be to lodge grievances to the Project Director of the DESWSP at Dhaka within two weeks after receiving the decision from the GRC. The AHs, in the complaint, must produce documents supporting his/her claim. The PD with the assistance of the Resettlement Experts, MDSC will review the proceedings of the GRC hearing and convey its decisions to the aggrieved AHs within two weeks after receiving the complaint.
Step 4	Decision from PD	If the resolution from PMU fails to satisfy the aggrieved AHs, they will facilitate to forward their case for further review and settlement with the office of the Chief Engineer, DWASA at Dhaka. The aggrieved AHs will submit the petition with all documentary evidences of complaints and the resolution proceeding of step 2 and 3 within two weeks after the decisions from the PMU.
Step 5	GRC Minutes Communicating	The GRC minutes, approved by the project director, will be received at the conveners' office. The approved verdict is communicated to the complainant DP in writing.
Step 6	Decision from Court	If the grievance redress system fails to satisfy aggrieved AHs, they can go/pursue further action by submitting their case to the appropriate court of law at the District level.

8.4 Approval of GRC and Entitlements of GRC Members

Upon formation, all GRC members will attend a training and orientation meeting prior to commencement of their work. The training will be conducted by the project staff and consultants/Resettlements Experts.

The GRC members (except DWASA and DORP representative) will be entitled to Tk.1000/meeting as honorarium from the implementing budget. Light snacks/refreshments will be provided during the meetings under the RP budget. DORP will make necessary stationery and other logistic available.

The Project Director, PMU, DESWSP will finally approve any decisions and proceeding of the GRC meetings. The approved GRC decisions will be implemented on site within the framework of the Resettlement Plan.

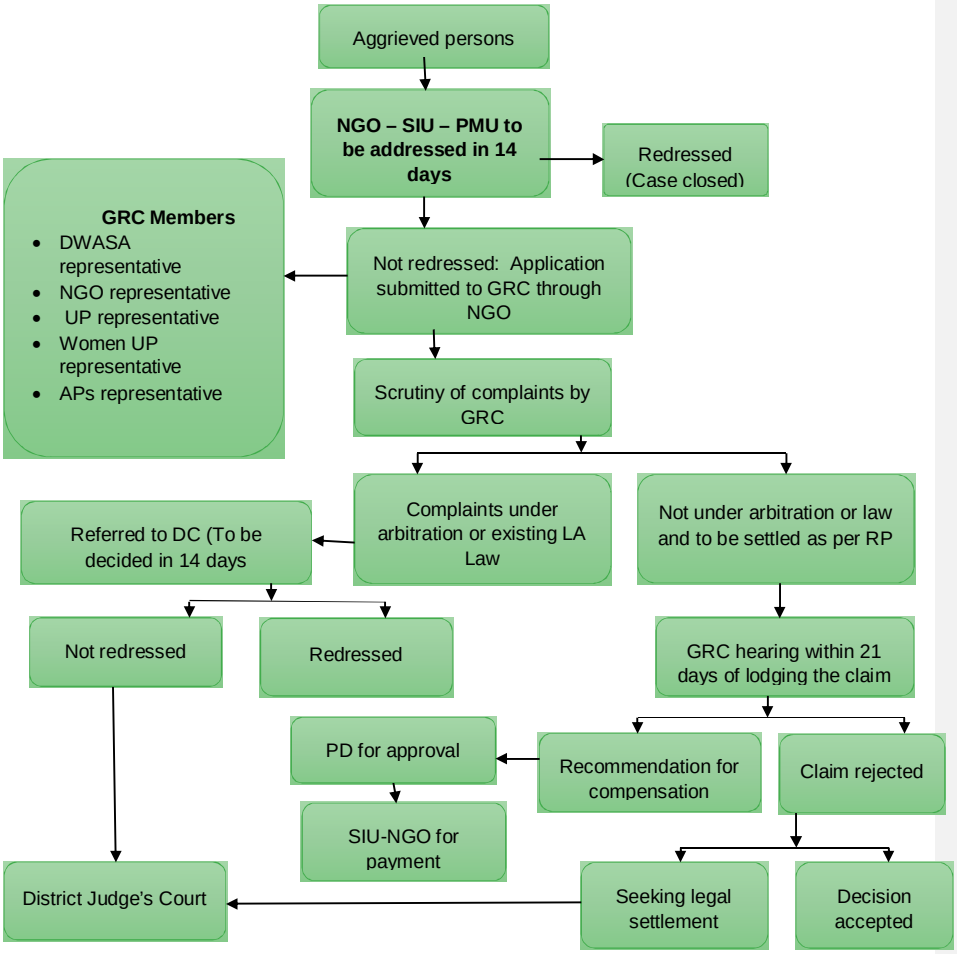
The details procedures for redress of grievances and the appeals process will be shared and documented.

The GRC could hear the grievances once in 15 days. Since the entire resettlement, process has to be completed before construction works starts. The GRC could meet more than once in every 15 days

depending upon the number of such cases. The GRC will inform the concerned AHs of their decisions within 21 days of the hearing of the grievances. The GRC will continue during the whole construction period.

Appendix L provides the composition of GRC members at PMU level.

Figure 8-1 Grievance Redress Mechanism



8.5 Grievance Redress Monitoring

The Deputy Project Director (Resettlement), PMU, DESWSP will keep records of all the grievances and their redress in monthly cumulative formats, which are to be signed by the Convener of the GRC. The format will contain information on the number of grievances received, resolved, and number of unresolved grievances. The monitoring information and findings on grievances will be included in the quarterly report to ADB.

8.6 Summary

The basic concern of the affected people is to get proper compensation for their lost land and livelihoods in a smooth manner without the interference of any middlemen. The discontents of the locals can be mitigated following proper resettlement plan, which has already been prepared as a separate document.

The overall objective of the GRM is to create an effective communication channel between stakeholders to ensure a timely and effective bilateral feedback mechanism to address any environmental (terrestrial and aquatic) grievance redress submitted for the project, including from community members, construction workers and staff, local enterprises and other stakeholders, and awareness-raising the public about P2 project and the availability of the GR mechanism. The procedure for resolving grievance requires their resolution, conducted in the spirit of mediation between the parties, and must comply with the spirit of ADB standards and practices. The workers can also go the GRC for any issues and concerns during P2 project implementation.

9 Environmental Management and Mitigation

9.1 Environmental Management Plan

An environmental management plan (EMP) has been developed to provide mitigation measures to reduce all negative impacts to acceptable levels. The EMP will guide the environmentally-sound construction of the P2 Project and ensure efficient lines of communication between DWASA, project management unit (PMU), consultants and contractors. The EMP will (i) ensure that the activities are undertaken in a responsible non-detrimental manner; (i) provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site; (ii) guide and control the implementation of findings and recommendations of the environmental assessment conducted for the subproject; (iii) detail specific actions deemed necessary to assist in mitigating the environmental impact of the Project; and (iv) ensure that safety recommendations are complied with. The EMP includes a monitoring program to measure the environmental condition and effectiveness of implementation of the mitigation measures. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries.

The contractor will be required to submit to PMU, for review and approval, a site-specific environmental plan (SSEP) including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SSEP; and (iv) budget for SSEP implementation. No works are allowed to commence prior to approval of SSEP.

A copy of the EMP/approved SSEP will be kept on site during the construction period at all times. The EMP included in the bid and contract documents. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

For civil works, the contractor will be required to (i) carry out all of the mitigation and monitoring measures set for in the approved SSEP; and (ii) implement any corrective or preventative actions set out in safeguards monitoring reports that the environmental inspectors will prepare from time to time to monitor implementation of this IEE and SSEP. The contractor shall allocate budget for compliance with these SSEP measures, requirements and actions.

The following Tables show pre-construction phase and construction phase potential environmental impacts, proposed mitigation measures and responsible agencies for implementation and monitoring.

Further to conclude, the environmental management will cover following activities:

- Preparation of a detailed Environmental Management and Monitoring Plan (EMMP) but with sections, which deal with any additional matters relating to specific project activities. The EMMP will address fully the nature and extent of other related agencies/departments involvement in environmental management, and will provide cost estimates for environmental management and monitoring;
- Preparation of detailed designs which give due consideration to minimization of adverse impacts and benefit enhancement;
- Preparation of tender and construction contract documentation which contains appropriate clauses to allow control of impacts arising from construction activities;
- Acquisition of land and property to accommodate the proposed works.

Responsibility for reviewing of IEE, preparation of the EMMP, detailed design, and the preparation of tender and contract documentation lies with the study and design consultants, who are providing this service to DWASA. Overall responsibilities for environmental management in these respects will, therefore, lie with the consultant's Team Leader, supported by his environmental team, and the contract document specialist.

The management, design and supervision consultant will be responsible for preparing site plans showing the extent of land that will have to be acquired in order to accommodate the project works, together with an estimate of land and property acquisition costs, for inclusion in the project budget. Annex-2 to 5 presents recommendations for tender documents. Other recommended documents are (a) Package 2 Bidding Document, DESWSP, MML, 3 June 2018, (b) Condition of Contract for Construction, Multilateral Development Bank Harmonized Edition, General Conditions, Clause 4.18 Protection of Environment, FIDIC, June 2010.

9.2 Reporting

Construction: During construction phase, the contractor will supply regular package-specific monthly and quarterly monitoring reports to the MDSC-DESWSP Engineer (Construction Supervision Consultant (CSC-MML) covering all aspects of site-specific EHS activities. The monitoring reports will include data and information on environmental and social protection such as spill and non-compliance, health and safety such as, accidents and incidents, status of contractor's engineers and unskilled labor (numbers, grades, problems), community relations (complaints, issues), and relevant training. The CSC-MML will check the contractor's report and forward them to the Employer (PMU, DESWSP, and DWASA), including any additional records concerning implementation of the EMP. DWASA will check the reports and forward to ADB.

Operation: During P2 operation, reporting will be developed and circulated to the DESWSP, DWASA by the O&M Contractor and Consultant.
As described, the EHS monitoring reports will include mitigation measures undertaken, monitoring activities undertaken, details of monitoring data collected, and analysis of monitoring results, environmental and social training conducted, and EHS regulatory violations. The EHS monitoring reports will be submitted to ADB twice annually (as Semi-annual Environmental Monitoring Report) during project implementation. Further to note: (a) at pre-construction-should set up a program of sampling, testing, parameters, frequency, location, (b) actual detailed reporting during construction by MDSC, and (c) less reporting-set up a program during operation by PMU.and annually for three years after completion of construction.

Project Completion Environmental Monitoring Report: Regular reporting and final reporting after completion of construction, the Executing Agency (EA) shall submit a Project Completion EHS Monitoring Report to ADB which will summarize the overall EHS impacts from the project.

Table 19: Pre-construction Phase Environmental Impacts and Mitigation Measures

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
Existing Utilities	Impact on Telephone lines, electric poles and wires, water lines within proposed P2 route	(13) Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and (ii)Require construction contractors to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services.	DBO Contractor in collaboration with and approval of PMU	(13) List of affected utilities and operators; (ii) Bid document to include requirement for a contingency plan for service interruptions	Project cost
Construction work camps, stockpile areas, storage areas, and disposal areas.	Conflicts with local community; disruption to traffic flow and sensitive receptors	(13) Prioritize areas within or nearest possible vacant space in the project location; (ii) If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems; (iii) Do not consider residential areas; (iv) Take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community. (v) prepare Layout plan of the work camp including description of precautionary measures (vi) prepare sewage management plan, e.g. installation of (temporary) cesspits, safe disposal of sewage from the camp (vii) prepare waste management plan, collection, segregation and disposal of waste, combustible waste to be burnt at designated burn pit only as demarcated by Resident Engineer. Non- combustible, non-recyclable garbage sent to the designated landfill site, (viii) prepare layout plan of equipment maintenance area, lubricant and fuel storage area, car wash area must be at least 50m away from surface water	DBO Contractor to finalize locations in consultation and approval of PMU	(13) List of selected sites for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas. (ii) Written consent of landowner/s	Project cost

Table 20: Construction Phase Environmental Impacts and Mitigation Measures

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
All construction sites	Loss of trees	perm	mod	Transmission mains: Trees within the corridor of impact (area required for construction) will be felled after prior approval.	Contractor
				Tree Plantation: Log trees will be planted at the suggested/appropriate distances on both slopes of the service roads, which will surplus the loss of trees cut by many times. The social plantation model as followed by the MoEF can be followed in such cases.	Contractor
	Impact on fish ponds and fish	perm	mod	Designs to ensure cross-drainage through the provision of balancing culverts and sufficient cross-movement, including movement of fishes, shall be done to minimize severance impacts on khals and fish ponds cut across by the alignment.	Design Build Contractor, and CSC
	Assets/facilities lost, including common property resources and religious structures	perm	mod	Designs to be worked out to minimize impacts on these assets. Compensation and assistance will be provided in accordance with the provisions of the RP.	Design Build Contractor, and CSC
	Soil erosion	perm	mod	The measures to address soil erosion at the proposed facilities will consist of measures as per design, or as directed by the SC to control soil erosion, sedimentation, and water pollution. All temporary sedimentation, pollution control works, and maintenance thereof will be deemed incidental to the earthwork or other items of work.	Design-Build Contractor and CSC
	Construction Stage				
All construction sites	- risk of accidents - risk of diseases (dengue fever, HIV Aids)	temp	mod	At every workplace, a readily available first aid unit, including an adequate supply of sterilized dressing material and appliances, will be provided as per the factory rules. Suitable transport will be provided to facilitate the transfer of injured or ill persons to the nearest hospital. At every workplace and construction camp, equipment and nursing staff will be provided. The contractor will, at his own expense, conform to all disease prevention instructions given to him by the CSC. All relevant provisions of the Bangladesh Labor Act, 2006 and Bangladesh National Building Code, 2006 will be adhered to, concerning the provision of adequate safety measures during construction. The contractor will comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches, and safe means of entry and egress.	Design Build Contractor and CSC

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
	Insufficient Hygiene in the construction camps and sites	temp	mod	All temporary accommodations will be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking, and washing. Safe drinking water in sufficient quantity for the workforce will be provided at the construction site as well as at the construction camps. Adequate toilets, separate for women and men, shall be provided at the construction sites, with septic tanks. Sewage management plan for the work camp has to be prepared by the contractor and agreed with the construction supervision. Garbage bins will be provided in the camps and regularly emptied, and the garbage disposed of in a hygienic manner. A waste management plan for the work camp has to be prepared by the contractor and agreed with the construction supervision.	Design Build Contractor and CSC
				Adequate health care will be provided for the workforce. Unless otherwise arranged for by the local sanitary authority, the local medical health or municipal authorities will make arrangement for disposal of excreta. On completion of the works, all such temporary structures will be cleared away, all rubbish disposed, excreta tank and other disposal pits or trenches filled in and effectively sealed off, and the outline site left clean and tidy, at the contractor's expense. The site will be restored to pre-project conditions through the removal of all extraneous material on site.	Design Build Contractor and CSC
	Risk caused by force majeure	temp	Minor	All reasonable precaution will be taken to prevent danger to the workers and the public from fire, flood, drowning, etc. Specifically, the contractor will (i) provide medical and accident insurance for workers; (ii) provide first aid in the construction campsite; and (iii) provide access to hospitals/clinics within the project site that can be accessed in case of emergency by arranging necessary transport for safe carriage of the injured.	Design Build Contractor and CSC
	Risk of contractors or subcontractors hiring child labor in the construction activities.	Temp	Minor	National laws on child labor will strictly followed. No child labor will be allowed by the contractors or subcontractors in any of the project activities.	Design Build Contractor and CSC
	Risk of injury			Awareness of workers about hazardous materials and proper handling methods. Warning signs, labels and signals. Provide helmets, safety shoes and other PPE for workers in accordance with accident prevention and work safety procedures	
	Dust Pollution • Impact Sources Emissions from construction related traffic and machinery.	Temp	mod	The contractor will (i) take every precaution to reduce the levels of dust at construction sites, and not exceeding the pre-project ambient air quality standards; (ii) fit all heavy equipment and machinery with air pollution control devices that are operating correctly; (iii) reduce dust by spraying stockpiled soil, excavated	Design Build Contractor and CSC

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
	• Dust from works, carrying machinery equipment to the site, and traffic from trucks and vehicles.			materials, and spoils; (iv) cover with tarpaulin vehicles transporting soil and sand; and (v) cover stockpiled construction materials with tarpaulin or plastic sheets. • Implement measures in Environmental Code of Practice of Air Quality Management. Dust generation will be restricted as much as possible and water sprinkling carried out as appropriate, especially where earth moving and excavation are carries out. • Emissions during bore logs digging, excavations, use of equipment and traffic will comply with ADB EHS guidelines and will be monitored. Spray of water is suggested in the road and construction sites	
	Air pollution (SPM, PM2.5, PM10, Sox, NOX and CO) • Impairment of air quality may have an impact on workers, local residents and surrounding environment Air pollution generated from exhaust of engines, during bore logs work, excavations, emission from drilling vehicle and construction machinery			• Drilling and transport vehicles shall move only in-designated areas and roads. • Water dry drilling areas and access roads to reduce dust emissions • Minimize traffic in villages and other residential areas • Reduce vehicle speed in construction areas and access roads to 10 km/h • Machines and vehicles must be regularly examined and maintained to comply with requirements of technical specifications Repair and maintain access roads, as necessary	Design Build Contractor and CSC
	Noise and Vibration from construction equipment	temp	mod	The contractor will ensure (i) regular maintenance of vehicles, equipment, and machinery to keep noise from these at a minimum; and (ii) all vehicles and equipment used for construction will be fitted with exhaust silencers. During routine servicing operations, the effectiveness of exhaust silencers will be checked, and if found to be defective, will be replaced.	Design Build Contractor and CSC
	Disturbance to business, people, activities and socio-cultural resources due to construction work	temp	mod	The contractor will provide the following measures during the laying of transmission mains for sections in the vicinity of habitations and commercial and institutional areas, to minimize access and livelihood disruption: (i) place walkways and metal sheets where required to maintain access across trenches for people and vehicles; (ii) increase workforce in front of critical areas such as institutions, places of worship, business establishments, hospitals, and schools; (iii) consult businesses and institutions regarding operating hours and factoring this into work schedules; and (iv) provide signboards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints	Design Build Contractor and CSC

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
				(v) schedule construction works in consultation with construction supervision, institutions and the traffic police	
	Socio-economic benefits from employing local people in construction work	temp	mod	To the extent possible labour force should be drawn from the local community	Design Build Contractor and CSC
	Safety and health risk – public and worker	temp	mod	• Follow standard and safe procedures for all activities – such as provision of shoring in deep trenches (>2 m) • Exclude public from the site – enclose construction area, provide warning and sign boards, security personnel • Provide adequate lighting to avoid accidents • Ensure that all workers are provided with and use appropriate Personal Protective Equipment - helmets, hand gloves, boots, masks, safety belts (while working at heights etc.); • Maintain accidents records and report regularly • Avoid appearance of pools and standing water during construction phase to prevent water borne diseases and dengue fever • Introduce social guidelines to minimise tensions between workers and local people • The contractor has to ensure that his workers are healthy before the construction phase • Implement health check-up and screening • Ensure that workers are provided with drinking water of good quality	Design Build Contractor and CSC
	Emission from construction vehicles, equipment, and machinery	temp	mod	All vehicles, equipment, and machinery used for construction will be regularly maintained to ensure that pollution emission levels comply with the relevant requirements of DoE. Copies of conformance will be submitted regularly to the CSC.	Design Build Contractor and CSC
	soil contamination due to leakages with mineral oil	temp	Mod	• Provide double walled fuel tanks or store single walled fuel tanks in collecting basin for refuelling construction engines • Provide modern non-leaking equipment • Provide mineral oil adhesive agent • Collect contaminated soil and dispose it on a landfill	Design Build Contractor and CSC
	Excavation of contaminated soil and waste (e.g. at Madani Avenue)	temp	mod	Proper disposal of contaminated soil and waste at designated landfill	Design Build

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
					Contractor and CSC
	Contamination of ground water and surface water			• Prevent pollutants from contaminating the soil and the ground water • Storage of lubricants and fuel at least 50 m from water bodies • Storage of fuel and lubricants in double hulled tanks • Daily control of machinery and vehicles for leakages • Collection of waste during construction activities • Provide uncontaminated water for dust suppression • Enclose the construction area to prevent unauthorized access	Design Build Contractor and CSC
	dust pollution and water pollution due to stockpiling of construction materials and excavated earth, construction waste	temp	mod	Due consideration will be given to material storage and construction sites such that it doesn't cause any hindrance to daily traffic movement. The contractor will (i) consult with implementing agency on the designated areas for stockpiling of clay, soils, gravel, and other construction materials; (ii) avoid stockpiling of earth fill, especially during the rainy season, unless covered by tarpaulins or plastic sheets; (iii) prioritize reuse of excess spoils and materials in the construction works; and (iv) protect surface water bodies from any source of contamination, such as oily wastes, debris, and spoils that will degrade its quality. • Excavated material shall not enter surface waters, surface water banks or impede flows – in particular, the following shall be done: • do not dump material in surface waters, at river banks or in flooding areas, in case rivers have been blocked remove the material • mitigation of turbidity at borrow pits through application of geotextile bags during excavation works	Design Build Contractor / CSC
	Disturbance of residents and local business	temp	mod	The movement of construction materials and equipment, to the extent possible, will be planned along major roads, with the exception of access roads to the site. In the event of movement of construction vehicles and equipment on the narrow roads, strengthening of these roads will be carried out, and timing of movement of heavy vehicles worked out to avoid peak hours and night time, and to ensure minimal disturbances to the communities and the resident population along these roads. Construction traffic has to be consulted with traffic police and local affected institutions.	Design Build Contractor and CSC
	Disturbance/nuisance/noise due to construction activity including haulage of material/waste	temp	mod	• Plan transportation routes in consultation with rural authorities, road department, and Police • Schedule transportation activities by avoiding peak traffic periods • Clean wheels and undercarriage of haul trucks prior to leaving construction site	

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
				• Educate drivers: limit speed between 20-25 km/h in settlements and avoid use of horn • Earmark parking place for construction equipment and vehicles when idling; no parking shall be allowed on the roads, that may disturb the traffic movement • Provide prior information to local people about work; • No night time construction activities including material/waste haulage • Construction activities must be prohibited from 9pm to 7am Noise barriers must be installed in housing areas to reduce the noise level.	
	Pollution of soil and water with hazardous substances (mineral oil, grease and lubricant)	temp	mod	Maintenance of machinery will be conducted at safe distance (at least 50m) from watercourses so that no oil spills can enter the water. Contaminated soil should be excavated and disposed properly in a confined place outside inundation areas	Design Build Contractor and CSC
	Contamination of soil and water resources			For effluents to be discharged from work place, camps, and offices, treatment arrangements such as retention ponds and septic tanks will be incorporated in the facility designs. A sewage management plan has to be prepared by the contractor and agreed with the construction supervision.	Design Build Contractor and CSC
	Impact on archaeological sites – chance findings	perm	mod	In the event of an archaeological chance find at the construction site, the contractor will prevent workmen or any other persons from removing and damaging any chance find artefacts and will, immediately upon discovery thereof, inform the SC of such discovery and carry out the CSC's instructions for dealing with the same, awaiting which all work will be stopped for 100 m in all directions from the site of discovery.	Design Build Contractor and CSC
				The CSC will seek direction from the Department of Archaeology before instructing the contractor to resume work on the site.	
	Loss of access to residents, businesses, and institutions during construction.	Temp	mod	The contractor will provide safe and convenient passage for vehicles and pedestrians through diversions to and from side roads, and property access connecting the project roads. The contractor will ensure that (i) the construction works do not interfere with the convenience of the public or access to, use, and occupation of public or private roads, or any other access to properties, whether public or private. Temporary access to properties adjacent to the construction site will be provided through the construction of ramps with concrete slabs for use of pedestrians and light vehicles; (ii) in critical areas such as institutions, operating hours are factored into work schedules and workforce is increased for speedy completion; (iii) advance information on works to be undertaken including appropriate signages, is provided; and (iv) the diversion is done in coordination with the traffic police division for necessary rerouting of traffic and traffic management.	Design-Build Contractor and CSC

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
	Damages to utilities and services during construction	Permanent	Moderate	The contractor will be required to: (i) plan for immediate attendance by the service providers to any damages to utilities during construction; (ii) replace (or compensate for) public and private physical structures damaged due to construction or vibration; and (iii) provide prior public information about the likely disruption of services. In consultation and with support from DWASA, the contractor will provide alternative arrangements for water supply in the event of disruption beyond a reasonable time, for instance, through tankers.	Design-Build Contractor and CSC
	Loss or impairment of private property	temp	mod	written compensation arrangement and consent between property owner and contractor	Design-Build Contractor and CSC
All construction sites	Impact on construction site / work camp / borrow areas	temp	mod	The contractor will prepare site restoration plans for approval by the CSC. The plan will be implemented by the contractor prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish properly disposed by authorized contractor, excreta or other disposal pits or trenches filled in and effectively sealed off, and the site left clean and tidy, at the contractor's expense. The site will be restored to pre-project conditions through the removal of all extraneous material on site. During the site clearance and earthwork, it the necessary to be careful about the following: • No soil erosion occurs, plantation can be done to protect soil erosion • No landslides occur • No siltation occurs at the disposal site of soil and debris. • Application of geotextile (200mm thick grout-filled mattress) will be used for stabilization of the embankment at borrow areas	Design-Build Contractor and CSC
	Impact on soil and topography due to abstraction of construction material / due to construction activities	perm	mod	Responsibility of the contractor to- (13) obtain approval of implementing agency if new quarries and borrow sites are necessary, abstract construction material like gravel and sand from licensed quarries only (ii) store stripped materials as not to disrupt natural drainage and protect them to prevent erosion and migration of soil particles into surface waters; (iii) provide temporary ditches and/or settling basins to collect run-off water and to prevent erosion and contamination of surface water; (iv) plant exposed areas with suitable vegetation at the earliest opportunity and prevent ponding of water through temporary drains discharging to natural drainage channels; (v) restore sites after construction activities by stabilizing contours and slopes, spreading stripped materials to promote percolation and re- growth of vegetation, and draining any standing water. Land utilized for quarry sites access roads will also be restored,	Design-Build Contractor and CSC

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
	Disposal of bituminous wastes / construction waste / debris / cut material / hazardous substances	temp	mod	For project components involving demolition of structures, the contractor will prepare and implement a waste management plan. Safe disposal of the extraneous material will be ensured in the pre-identified disposal locations. To enable minimization of waste disposal and do this in an environmentally safe manner, the waste management plan will cover the following: (i) store used oil and lubricants in adequate storage facilities, reuse or remove from the site; (ii) manage solid waste according to the following preference hierarchy: reuse, recycle, or dispose of in designated areas; reuse bituminous waste generated in road construction, based on its suitability for reuse, to the maximum extent possible. Cut material generated because of construction will be utilized as filling material. Remaining material if any will be disposed of safely at the disposal sites; (iv) remove all wreckage, rubbish, or temporary structures that are no longer required; and (v) restore pre-project environmental conditions through the implementation of environmental restoration work.	Design Build Contractor and CSC
	Impacts due to excavation and generation of surplus soil	temp	mod	surplus soil for beneficial purposes such as in construction or to raise the ground-level of low lying sites	Design Build Contractor and CSC
	Erosion due to excavation/refilling	temp	mod	• Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer • •Avoid scheduling of excavation work during the monsoon season • Confine construction area including the material storage (sand and aggregate) so that runoff from upland areas will not enter the site • Ensure that drains are not blocked with excavated soil	Design Build Contractor and CSC
	Stripping, stocking, and preservation of topsoil	temp	mod	The topsoil from productive agricultural lands, borrow areas, and areas to be permanently covered will be stripped to a specified depth of 200 mm and stored in stockpiles. The stockpile will be designed such that the slope does not exceed 1:2 (vertical to horizontal), and the height of the pile will be restricted to 2 m. Stockpiles will not be surcharged or otherwise loaded, and multiple handling will be kept to a minimum to ensure that no compaction will occur. The stockpiles will be covered with gunny bags or tarpaulin. It will be ensured by the contractor that the topsoil will not be unnecessarily trafficked, either before stripping or when in stockpiles. Such stockpiled topsoil will be returned to cover the disturbed area and cut slopes.	Design-Build Contractor and CSC
	impact on khals and on ponds	perm	mod	Trenching and backfilling operations at the stream crossings will be carried out in the lean seasons when the flow will be minimum. In case of crossings at existing	Design-Build

Location	Potential Impact	Duration / Extent	Mag	Mitigation Measures	Responsibility
				minor bridges and culverts, the contractor will ensure that there is no impact/ disturbance to the bridges/culverts due to the crossing of the water pipelines.	Contractor and CSC
	Impact on water quality and flow at the Shitalakhya and Balu Rivers by micro-tunnelling	perm	mod	The construction activities at the river crossings will be carried out in conformance with the conditions laid down by the BIWTA in the permit for river crossings. The vertical shafts shall be located outside the watercourse or riverbed to minimize migration of contaminated soil or water into the river. The contractor shall identify suitable locations for disposal of the soil and water from the tunnel. Precautionary measures will be taken by the contractor to ensure that there is no disposal of construction wastes/materials into the river or on the shores. The construction activities and operations for the river crossings will be planned to ensure that interference of cargo boats, navigation—including fishermen, and passenger movements — are minimal. Advance notices of disruption, if any, will be disclosed. The construction activities and laying of pipes will be carried out in such a manner that the dredging activities of the river are not affected.	Design-Build Contractor and CSC

Abb.: temp – temporary; mod – moderate; perm – permanent

Table 21: Operation Phase – Environmental Impacts and Mitigation Measures

Location	Potential impact	Duration / Extend	Mag	Mitigation Measures	Responsibility
P2 area	Environmental conditions	perm	mod	DWASA will undertake seasonal monitoring of air, water, noise, and soil quality through an approved monitoring agency. The parameters to be monitored, frequency and duration of monitoring, as well as the locations to be monitored will be as per the monitoring plan prepared.	DWASA, O&M Contractor
P2 area	Check for blockage and leakage problems reducing the water losses	temp	mod	leak detection and water auditing to reduce the water losses	DWASA

Table 22: Construction Stage Environmental Monitoring Plan

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Cost and Source of Funds
Construction disturbances, nuisances, public and worker safety	All work sites	Implementation of dust control, noise control, traffic management, and safety measures. Site inspection checklist to review implementation is appended at Appendix13	Weekly during construction	Supervising staff and safeguards specialists	No costs required
Ambient air quality	13 locations (to be selected during implementation to represent the overall project area)	PM10, PM2.5 Nox, SO2, CO	Once before start of construction Quarterly (yearly 4-times) during construction (2-year period considered)	Contractor	part of construction costs
Ambient noise	13 locations (same as air quality monitoring)	Day time and night time noise levels (24 hours)	Once before start of construction Quarterly (yearly 4-times) during construction (2-year period considered)	Contractor	Part of construction costs
Water quality (River crossings required for the transmission lines at the Sitalakhya and Balu Rivers by micro-tunnelling)	Gandhabpur (Shitalakshya River), Murapara (Shitalakshya River), Balu River At At 150 m downstream of river / stream crossings and intake location	TDS, TSS, pH, Hardness, BOD and Feacal Coliform)	Once before start of construction. Twice a year (pre monsoon and post monsoon) for the entire period of construction	Design-Build Contractor to be monitored through approved monitoring agency and PMU (DWASA and SC)	Part of construction costs

9.3 Implementation Arrangements

DWASA is the Executing and Implementing Agency for the DESWSP, responsible for management, coordination and execution of all activities funded under this project. PMU, established within the DWASA, will implement the project. PMU will be headed by a Project Director (PD). PMU with the support of MDSC Consultant will be responsible for planning, implementation, monitoring, supervision, and coordination of all activities under the DESWSP.

The DWASA will be responsible for day-to-day monitoring of project activities and will ensure compliance with the statutory and legal requirements of the Government, and ADB policy. The DWASA will prepare and submit an updated IEE and Project Monitoring Reports to ADB. The DBO contractor will bring responsibility of implementation of EMP. EMP implementation will be the part of the DBO contract document. All cost for implementing EMP will be the part of the civil works contract and to be quoted by the contractor in their proposal as per this IEE.

This IEE will be the part of the contract document. Environmental monitoring will be done during construction in three levels; namely:

- monitoring development of project performance indicators done by the Environmental Specialist of the Design Supervision Consultant
- monitoring implementation of mitigation measures done by the Contractor
- and overall regulatory monitoring of the environmental issues done by Environmental Officer of the DWASA.

The environmental monitoring plan for the Project is presented in Table 22. The table shows proposed monitoring of all relevant environmental parameters, with a description of the sampling stations, frequency of monitoring, applicable standards and responsible agencies. The monitoring of the environmental attributes in the first season (first year of implementation) will be carried out prior to the start of implementation works at the site and shall form a baseline for the environmental parameters. Monitoring will be the responsibility of civil works contractors who would likely outsource this responsibility.

9.4 Capacity Building

At DWASA, the present capacity on safeguards planning and implementation is not adequate to handle safeguard issues. To ensure effective implementation of environmental aspects as outlined in this IEE, a DWASA environmental safeguard officer/responsible person is already on board to oversee Environment Management Plan (EMP) implementation. The Design Supervision Consultant's Environmental Specialists is also on board, and working intermittently (as per project requirement). Further, he will train and assist the DWASA according to the training program outlined below, to ensure smooth implementation and monitoring of the EMP.

The proposed capacity building program will include (i) sensitization of DWASA staff and stakeholders on environmental management, including on the ADB, and Government of Bangladesh requirements on environment; (ii) capacity building programs to improve the capability of environment staff at all levels in carrying out/monitoring and implementing environmental management measures for the Project; and (iii) capacity building programs on environmental issues including quality monitoring. The Environmental Specialist of the Project Management Design and Supervision Consultant (PMDSC) will provide the basic training required for environmental awareness followed by specific aspects of infrastructure improvement projects along with environmental implications for projects. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Program and the requirements of the Project. The entire training would cover basic principles of environmental assessment and management mitigation plans and programs,

implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in Table 23.

9.5 Environmental Budget

The IEE costs include monitoring costs during construction and capacity building costs on environmental management of which are absorbed into contractor's work packages. The costs for training proposed include the costs incurred toward site visits, travel to the training program by participants, printing of training materials, and other logistic arrangements. The costs involved towards preparation of training material and training are covered in the consultancy budget for the Design Supervision Consultant. The budget for the environmental management costs for the Project is presented in Table 23 below.

The cost estimates mentioned in Table 23 is an indicative price. The bidder can provide their own reasonable quoted rate. The bidder will include the detail cost of EMP in the Summary Cost Table.

Further to note, this budget (USD 16,668.75, indicated in Table-24 of IEE) should be reviewed by the Contractor, and used for implementing the EMP.

As such, these costs must be included in the Contract Document along with a copy of IEE. The EMP implementation integrated in PAM, and in bid and contract document should be reviewed by Contractor (Appendix-M).

Table 23: Training Modules for Environmental Management

Program	Description	Participants	Form of Training	Duration	Trainer /Agency
Introduction And sensitization to environment issues	Sensitization on Environmental Concerns Environmental impacts of urban infrastructure improvement projects Environmental regulations of the Government and ADB environmental regulations Coordination between departments for implementation of environmental issues	DWASA engineers / management team, officials responsible for implementing the Project, and other DWASA Officials, environmental inspectors	Workshop	One-day workshop during construction	Project Management, Design and Supervision Consultant's Environmental Specialist/ DWASA
Project training on hazards, health, safety and environmental issues pertaining to the Project	Sensitization and training for engineering and Management professionals, to be involved in on-site execution and operation of the proposed facilities.	DWASA engineers/ management Team, environmental inspectors	Workshops, site visits	Three days before and during construction	Tailor made training programs by the Safety Board of Bangladesh (ISBB), College Engineering Staff etc. organized by Contractors
EMP implementation	Implementation of EMP Identification of environment impacts Monitoring and reporting for EMP Public interactions and consultations Coordination for consents with various departments Monitoring formats	DWASA engineers, officials responsible for implementing the Project, and other DWASA / Design Supervision	Lectures and field visit	Two-day session at construction stage	Project Management, Design and Supervision Consultant's Environmental Specialist

Program	Description	Participants	Form of Training	Duration	Trainer /Agency
	filling and review of impacts	Consultant staff			

Table 24: Cost Estimates to Implement the EMP

Sl. No.	Particulars	Stages	Unit	Total number	Rate (BDT)	Cost (BDT)	Costs covered by
• Mitigation Measures							
A 1	Environmental mitigation / enhancement measures integrated into the designs and costs included as part of civil works	Construction					DB Contractor (Design Build Contractor)
	Sub-Total (A)					400,000.00	
• Monitoring Measures							
B 1	Air Quality monitoring	Construction	Per location	12	20,000.00	240,000.00	DB Contractor
B 2	Noise level	Construction	Per location	12	7,500.00	90,000	DB Contractor
B 3	Noise level	Operation	Per location	1	7,500.00	7,500.00	DWASA
B 4	Water Quality monitoring	Construction	Per location	4	8,000.00	32,000	DB Contractor
B 5	Water Quality monitoring	Operation	Per location	3	8,000.00	24,000.00	DWASA
B 6	Adequacy of solid waste management system	Post construction & operation	Per visit	9	10,000.00	90,000.00	DWASA
B 7	Survival Rate of Plantation and landscaping	Operation	Per location	4	25,000.00	100,000.00	DWASA
B 8	Socioeconomic monitoring	Operation	Per location	4	25,000.00	100,000.00	DWASA
	Sub-Total (B)					683,500.00	
C	Capacity Building						
C 1	Introduction and sensitization to environmental issue	Pre-construction	LS	-	-	50,000.00	DB Contractor
C 2	Project training on hazards, health, safety, and environmental issues	Pre-construction	LS	-	-	100,000.00	DB Contractor
C 3	EMP implementation	Construction	LS	-	-	100,000.00	DB Contractor
	Sub-Total (C)					250,000.00	
	Total (A+B+C)					13,33,500.00	
	Total (in USD) @ 80.0 Taka					16,668.75	

10 Conclusion and Recommendations

The proposed P2 project will not have any significant adverse impacts on the environment since the project activities will be limited within the pipeline corridor of land which is already acquired by the Government. The impacts of the project are site-specific, reversible and are confined within the property. The site is not an ecologically sensitive area.

Most of the adverse impacts are likely to occur during the construction phase and are considered as temporary in nature. The anticipated adverse environmental impacts are manageable and can be mitigated through proper design and consideration of the proposed mitigation measures.

The impacts during the construction of the P2 pipeline are primarily due to the trenching and clearing of the solid wastes, and are briefly described in the following paragraphs:

There will be water pollution, sanitation, and health hazards due to presence of workers camp. Adequate water supply and toilet facilities will be established at the construction camp as mitigation measure.

A construction health and safety plan shall be required from the contractor, including provision of first-aid facilities to provide measures and procedures in addressing occupational health and safety at the construction site.

Based on the analysis conducted in this assessment it is concluded that overall the project will result in significant positive socio-economic benefits, and those potential negative environmental impacts that have been identified are small-scale and local and can be minimized adequately through good design and the appropriate application of mitigation measures. It is therefore recommended that the project be supported by ADB, subject to the implementation of the commitments contained in the EMP and allocation of appropriate technical, financial and human resources by implementing agencies such as DWASA, Construction Supervision Consultant and Contractors to ensure these commitments are effectively and expediently implemented.

Appendices

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A. Minutes of Public Consultation

Organized by

Development Organization of the Rural Poor (DORP)

Dhaka Environmentally Sustainable Water Supply Project
Area Office, Gandharbpur, Rupganj, Narayanganj

Date: 13.02.2018, Time: 10:30, Place of Meeting: Gandharbpur Ansar Camp

Subject: Impact of the Project, its Mitigation and APs Entitlements

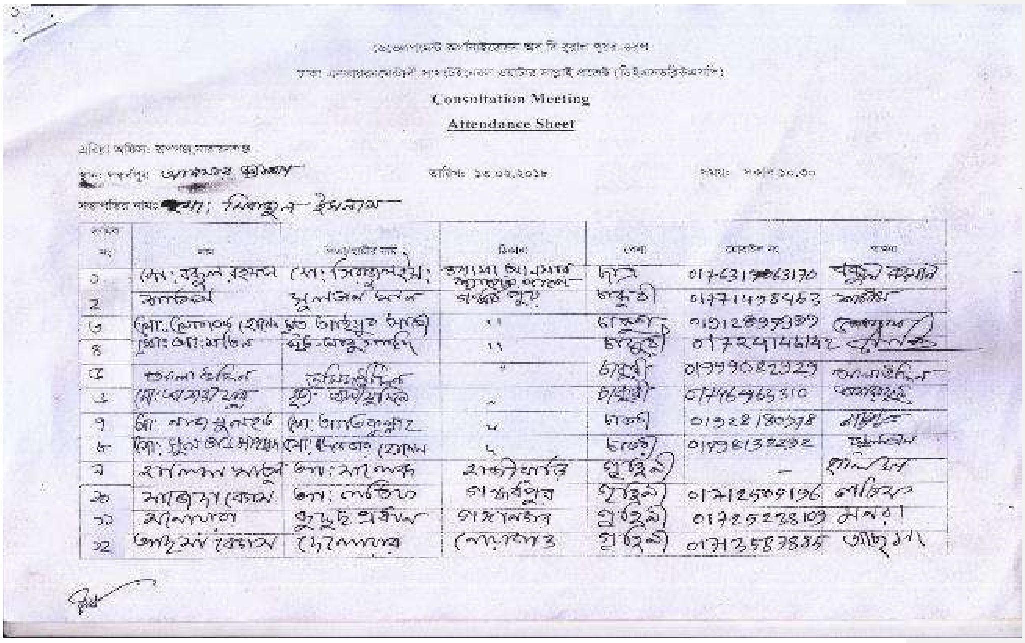
1.Name of the chairperson preside over the meeting (From affected HH)	Md. Abdul Gani Molla
2. Greeting speech was made by Md. Iqbal Hossain, Area Manager, Rupgonaj DORP Mainly he shared overall project impact, its consequences and mitigation procedure in the meeting.	Today, on 13 February 2018 (Tuesday) at about 10.30 am a meeting was held in section-3. In the meeting there were present by the participants from PAPS, Elites and local community people including service holders, Entrepreneur, homemakers DORP staff and Personnel from MDSC. The meeting was coordinated by DORP Area Manager Md. Iqbal Hossain. The meeting was chaired by Md. Serajul Islam Miah the very accepted and be loving person by all of the PAPs. The chairman of the meeting expressed his gratitude to participants for being present in the meeting by leaving their important and urgent business. DORP Area Manager briefed about the project.
3. Md. Imtiazul Haque described about the project, its goal, objective and LIRP of the project.	He expressed detail on project description and its objectives in the way that in mega city of Dhaka, here lives an uncounted number of population, in order to meet up with the present insufficient water supply and increasing demand for it, the Dhaka Water Supply and Sewerage Authority through the Dhaka Environmentally Sustainable Water Supply Project has been taken to provide treated water to Dhaka city dwellers through DWASA distribution system. The project will extract surface water from the River *Meghna* at Shomvupura *Mouza* of Arihazar *Upazila* where a reservoir will be constructed. This surface water will be delivered through 22 km pipeline to the Water Treatment Plant at Gandharbpur in Rupganj *Upazila.* The treated water will then be delivered through 13 km pipeline to the distribution network of Dhaka city near US Embassy in Baridhara. **This project aims to reduce abstraction of ground water by 150 million liter per day (MLD).** He further added that due to implementation of the project the affected persons will be entitled to receive compensation for

	their losses. In addition, the affected persons will be provided income generating training and will be involved with the income generating activities, so the standard of their lives does not deteriorate from the pre- project level.
4. Dr. Syed Latif discussed on Environmental impact of the project.	He actually committed to the community on the issue of environmental degradation, the community people as well as WASA and DORP will be vigilance to protect in any kind of mishaps and mischievous on environment, especially during construction work, he uttered it will be not permitted in any way depletion or effect on trees and biodiversity.
5. Dr, Thomas Balling discussed on the negative and positive side of the project.	Dr, Thomas Balling gave his thanks to all of the participants in the meeting. He discussed about negative and positive side of the implementation of the project. Dr. Thomas Balling felt the need of pure drinking water for the people of Dhaka city as well as population of surrounding cities as quite indispensable. In 1980, population of Dhaka city was quite a few in numbers, and now the numbers increased incredibly enormous. With the increase of population number in Dhaka city the demand of pure drinking water has been increased accordingly. He added that ensuring pure drinking water for the city dwellers will reduce water borne diseases.
6. Dr. Rafeza Akter (Resettlement Expert, MDSC) discussed on Affected Persons Entitlements, LIRP and Role in Gender.	At the commencing of her speech Dr. Rafeza convey her heartiest thanks and gratitude to all of the participants. Dr. Rafeza discussed elaborately and clearly on 1) objective of the project, 2) Resettlement Activities 3) Implementation of Resettlement Activities. She said that those who are residing in Dhaka, in some way they are the relatives of ours. So, it is our moral obligation to support them in ensuring pure drinking water for them. She mentioned that the affected persons will be compensated fairly whatever they lost. According to ADB Safe Guard Policy Statement (SPS) 2009 All types of affected persons (irrespective titled or non-titled) will receive resettlement benefits for loss assets such as: land, trees, residential structures, business structures etc. For easy and tranquil payment for the APs DORP and MDSC will help/assist them in all respect. She assured the PAPs that they will get fair resettlement benefits, the business man, employees of the business will receive benefit of income loss from business and employees/workers will receive grant for wage loss. Tenant, will receive their due resettlement benefits. In addition of the above benefits vulnerable HHs and those HHs fully loss of agriculture based livelihoods will be entitled to receive some other grants like for vulnerable HHs they will receive subsistence allowance and one-time training grant. The vulnerable HHs and HHs fully loss of their agriculture based livelihoods will be resettled through involving them in income generating activities. She added that in this regard DORP and MDSC will assist them, confidently she committed to them that she would fight with DC office and DWASA for ensuring their rights in receiving all sorts

	of eligible benefits. She urged them to co-operate the JVC team in verifying the affected persons list and their losses and PVAC team in determining of lost assets value. She told that by no means the life standard of the affected persons, especially of the poor (as they maintained before the pre- project time) would not be aggravated, rather it will be tried to enhance their socio-economic condition at a better of condition. After that she asked the participants if they have anything to clarify.
The name of the attendants asked questions: 1. Md. Delower Hossain	Md. Delower Hossain wanted to know that after acquisition of his land what will be the management of the rest of his land in the alignment area. In reply Dr. Rafeza informed to Delower Hossain that if he wishes he could use the rest of his land or he will receive compensation for the rest of his land
2. Md. Abdul Hye and Ahmed Miah	Md. Abdul Hye and Ahmed Miah are interested to know when the project activities will be started and notice under section 4 will be provided. Dr. Rafeza replied that within a short span of time they will receive notice under section 4
3. Md Samsul Haque Miah	Md. Samsul Haque Miah intend to know whether MDSC would help them in their need. Dr. Rafeza replied that certainly MDSC and DORP will always assist them in their need
4. Md. Taher Ali	The question of Md. Taher Ali was that due to establishment of the pipe line whether the water body will be affected or polluted. In Reply on this question Dr. Rafeza replied that there will be no any harm or detrimental anything in establishing the pipe line, the pipe line will be established keeping the bog at its original shape
5. Mannan Bhuiyan and Md. Serajul Islam Miah	Mannan Bhuiyan and Serajul Islam Miah wanted to know how their land value will be paid. In this regard Dr. Rafeza replied that the land value will be compensated from DC office in line with ARIPA (Acquisition Requisition of Immovable Property ACT 2017). Lastly in concluding speech Dr. Rafeza thanked to the participants for cooperation in conducting question answer session successfully. Dr. Rafeza once again thanked to the participants for sharing their valuable opinions and suggestions. She expressed her gratitude for all and urged them to cooperate in future for smooth implementation of the project. She assured that she will be available in their needs and will share their suggestions to project related authority.
6. The closing note of the chair of the meeting	The chair listened all the discussions of the meeting very carefully and expressed his satisfaction for sharing their opinions and expectations to MDSC and DORP. He requested to MDSC as well as DORP to disseminate their matters to the concern authority. As there were no any other discussions the chair closed the meeting with thanks to everybody attended in the meeting.

Chair of the meeting
Md. Serajul Islam Miah

List of Participants and their signature in Bangla Language



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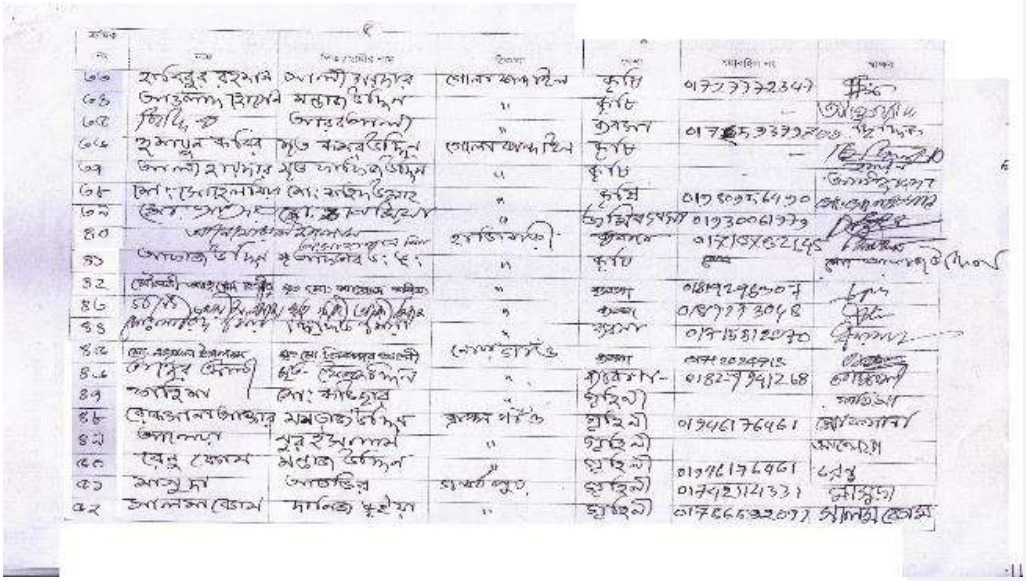

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B. Recommendations for Tender Documents

CONSTRUCTION SUPERVISION AND O&M CONTRACT

MDSC, DESWSP

The physical works of Package 1, Package 2 and Package 3 are being designed by an engineering consultant (MML), who is also preparing the tender documents. Construction will be carried out by a contractor selected by international competitive bidding (ICB) in accordance with the Asian Development Bank's (ADB) rules for procurement of works. The Bank's Standard Bidding Documents for Works have a specific format, agreed between many of the multilateral development banks and based on the well-known standard documents developed over the years by the International Federation of Consulting Engineers (FIDIC).

As such, this Annex provides guidance on environmental and social topics which should be considered for incorporation into the project contracts (Bid and Contract Documents.

In order to protect the sensitive environment, accelerate the flow of benefits and to establish a high-quality example for project sites and other buffer areas to follow, it is recommended that the following points should be included in this document:

The Clauses need to be included in the tender documents are:

1. The Contractor shall follow the Environmental Management Plan (EMP). The Contractor can access EMP on request.

2. In order to ensure the compliance with proposed mitigation and monitoring measurements required under the EMP, the Contractor shall closely liaise and coordinate with the Consultant's Environmental and Social Safeguard Specialists.

3. Environmental and Social Officers / EHS Supervisor (at least qualified Graduate in environmental science/ engineer with relevant experience / a competent and qualified construction/occupations health and safety officer will be appointed to supervise the implementation of OHS plan.) as per field requirement shall be appointed by the Contractor, who will act as a nodal person to ensure environmental safeguards.

4. The Contractor shall ensure compliance with the labor laws and pertinent occupational health and safety regulation of Bangladesh, and ADB. The Contractor shall ensure that all workers are supplied with and use the relevant protection, safety equipment on the construction site. Abstain from employing child labor.

5. The Contractor shall obtain «Permit for emissions into the environment» in accordance with the Environmental Code at regional local executive bodies.

6. The Contractor is responsible for the fulfillment of the conditions stated in the «Permit for emissions into the environment and EMP.

7. If applicable, Contractor should obtain “Permit for trees felling” at regional local executive bodies.

8. Monitoring: The O&M contractor is likely to be in the best position to elaborate and implement the necessary physical monitoring programs:

8.1 Soil and water quality - essential for tracking parameters such as soil salinity (this would cover water quality (e.g. Meghna River Intake Point water, treated water, groundwater depth and quality).

C. General Requirements for Workers Health and Safety

The key salient features of the general requirements for the workers' health and safety are presented in Table-A2.1.

Table-A2.1: General Requirements for Workers Health and Safety

Issues	***Requirements***
Health and Hygiene	• Cleanliness • Proper ventilation and temperature • Protection against dust • Disposal of wastes and effluents • Proper illumination • Provision of adequate latrines and urinals • Sufficient spittoons and dustbins.
Safety	• Safety for building and equipment • Precautions in case of fire • Fencing of machinery • Precautions during work on or near machinery in motion • Monitoring against carrying of excessive weights
Compensation for accidents at work	• Contractor's responsibility for compensation • Amount of compensation • Report on fatal accident and treatment • Compensation on contract and contract registration • Scope for appeal
Dust and Fumes	• For any dust or fumes or other impurities likely to be injurious to the workers, effective measures shall be taken to prevent its accumulation and its inhalation by workers.
Latrines and urinals	• Sufficient latrines and urinals shall be provided • Shall be maintained in clean and sanitary condition • Shall be adequately lighted and ventilated.
Precautions in case of fire	• Firefighting apparatus should be provided and maintained.
First aid	• First aid facility should be provided and maintained. • Shall be kept with a responsible trained person who shall be available during the working hours
Disposal of wastes and effluents	• Provide with proper disposal system for solid waste and effluents.
Compensation	• If personal injury is caused to workmen by accident arising in the course of employment, employer (Contractor) shall be liable to pay compensation • Monthly payment as compensation for temporary disablement should be considered in a reasonable way.

D. Archaeological Chance Find Procedure

The purpose of this Annex is to address the possibility of archaeological deposits becoming exposed during ground altering activities (Excavation of Vatara Injection Point, trenches for underground primary, secondary pipelines, and P2 works) or archaeological items mixed with construction materials, and brought within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological item and sites are documented and protected as required.

Archaeological sites are protected by The Law on preservation and use of historical-cultural heritage objects of Bangladesh, Archaeological objects or sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, and local communities. Impacts to archaeological objects or sites must be avoided or managed by development proponents of DESWSP interventions. The objectives of this 'Archaeological Chance Find Procedure' are to promote preservation of archaeological data while minimizing disruption of construction scheduling. It is recommended that due to the low to moderate archaeological potential of some areas within the project areas (3 Packages), all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Relevant Legislation

The Legislation protects all archaeological sites, whether on government or private land, burial sites are protected regardless of age and is guided by the following legislative acts:

1. ACT NO. XIV OF 1968, *12th December 1968*

Archaeological Chance Find Procedure

If the DESWSP Project activities encountered any archaeological materials, stop work in the area and follow the procedure below:

- All construction activity in the vicinity of the remains is to cease immediately.
- The find location will be recorded, and all remains will be left in place.
- The Contractor's Environmentalist and Archaeology Department of Bangladesh will be contacted.
- Potential significance of the remains will be assessed and mitigative options will be identified.
- If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, then the Contractor's Environmentalist in consultation with the Archaeology Department and local administration (Union Parishad) will determine the appropriate course of action.
- In the case of human remains, if the remains are assessed to be archaeological, then the Archaeology Department and local administration will be consulted to determine how to handle them.

E. Set Up and Management of Contractors Camp

1. Camp Set Up and Management

Careful planning and a concern for health, safety and the environment are essential for good project management under MDSC of DESWSP. The Contractors' field camps should provide adequate working, eating and sleeping arrangements for field personnel and should be appropriately equipped to encourage employees to work safely and efficiently.

Consider the following factors when selecting a camp site:

a) Time of residence: Will the camp be in operation for a field season or year-round?
b) Duration: Temporary or a permanent establishment
c) Accessibility: Transportation access may impact the site selection
d) Required permits:

2. Risks and Hazards Associated with Contractor Camps

The following are the possible risks associated with the camp.

- Fires caused by improper fuel storage, fuel use, and fueling practices; faulty equipment or failure to turn off equipment; exploding fuel tank; clothes draped above heaters or on electrical wires; failure to extinguish open fires or cooking fires;
- Illnesses spread by contaminated water, food or sewage contaminated drinking water;
- Diseases spread by local mosquitoes, insects, parasites, and vermin.
- Electrocution, electric shock, or burns caused by inadequate or improper wiring, lack of qualified personnel to install or repair electrical equipment, and lack of adequate employee training;
- Cuts, burns caused by spilled hot food or liquids, misuse of kitchen equipment, hot equipment (generators, heating stoves/ovens);
- Injuries or occupational illness caused by exposure to hazardous materials.

3. Alcohol and Drug Policies

Contractors should have a clear and concise policy to address alcohol and drugs at project and camp sites. The policy should conform to regulations of the Government of Bangladesh. The Contractors should respect the wishes of local communities, especially when working in or near a "clustered" community. There should be a provision for employees to sign off that they understand the policy and regulations.

4. Workplace Hazardous Materials Information System (WHMIS)

Usually less obvious hazardous products are those used in camp kitchens such as cleaning agents (oven cleaner) and chlorine bleach, chemicals required for water treatment (not always applicable if the pipe supply exist). The degree of risk depends on the quantity, toxicity, concentration, whether the material is flammable, explosive or under pressure.

Site location: Consider the arrangement of the camp in relation to the required setback from water bodies, the organization and optimum space requirements for storage, water and sewage systems, fuel storage area, road access, core handling areas, as required.

Fire: Assess the potential fire hazards, whether for lightning strike. Consider the prevailing wind direction and the requirements of emergency evacuation plans when organizing the site layout. Include an examination of Material Safety Data Sheets (MSDS) for controlled products that may pose a fire risk.

Wind: Pay special attention to wind direction and the possibility of (1) the spread of fire to or from fuel storage areas, (2) blowing dust from road, (3) the potential cooling effect of wind in warm climates. Locate vehicles, fuels, waste disposal areas etc., downwind from camps. Avoid windswept areas such as ridges or gullies to minimize wind damage.

Waste Management

Proper waste management is fundamental to camp safety. Project management should determine how waste products are ultimately handled – whether they are recycled or subject to various treatment and disposal options. Depending on the regulations, it may be advisable to seek expert advice to develop a waste management program. It is essential to eliminate potential camp sewage discharge or spills that may contaminate surface and ground water, eliminate potential disease-causing organisms and smells from accumulations of waste deposits that attract wildlife, including vermin.

General tips regarding waste management.

- Secure required permits and follow all applicable regulations of the Environment Department of Bangladesh, waste classification, management and disposal, including for any hazardous waste products that may be produced at the site.

Waste storage areas:

- All waste storage areas should have restricted access to limit entry by employees, the public and animals.
- Provide fly-tight garbage containers in convenient locations. Maintain containers so they do not become foul smelling, unsightly or breeding place for flies.

Camp sewage: Treat and maintain camp sewage as appropriate for the site and size of camp. A proper sewage and/or latrine system is necessary to control potential water contamination, odors and diseases. Construct and maintain latrines (when permitted) where chemical or water flush or other types of toilets are not used.

- Construct and maintain all camp sewage toilets correctly;
- Prevent flies, insects, and rats from gaining access to waste materials;
- Prevent surface or ground water from entering the pit or vault;
- Prevent waste material in the privy from contaminating any water supply;
- Self-closing seat covers are advisable and should be in operation at all times.

If latrines are permitted, latrines must conform to public health standards or to any conditions stipulated in work permits. Locate a latrine at least 100 m from any stream or shoreline. It should be downwind from camp and at least 30 to 40 meters away from the kitchen area. Locate hand washing facilities between the latrine and camp to promote hygiene. A good place is at the beginning of the access path to the latrine.

F. Traffic Management Plan

1. INTRODUCTION

This Traffic Management Plan (TMP) provides the traffic management procedures to be followed by the vehicle users of Contractors' while implementing the construction/reconstruction works of ESWSP activities. The vehicle operators should be careful that, road users are not limited to motorists - they include pedestrians, such as school children and people with disabilities, cyclists and emergency vehicles.

2. Traffic Management Objectives and Strategies

The objectives of the TMP are to:

- Provide for a safe environment for all road users;
- Provide protection to Contractors' operators and the general public from traffic hazards that may arise as a result of the driving of vehicles;
- Minimize the disruption, congestion and delays to all road users;
- Ensure access to adjacent private/commercial premises is maintained at all times.

To achieve the above objectives, the Traffic Management Plan will:

- Ensure whenever possible, that a sufficient number of traffic lanes to accommodate vehicle traffic volumes are provided.
- Ensure that delays and traffic congestion are kept to a minimum and within acceptable levels
- Ensure that appropriate/sufficient warning and information signs are installed and that adequate guidance is provided to delineate the travel paths through the event site.
- Ensure that the roads are free of hazards and that all road users are adequately protected from activities of road users
- Ensure that all needs of road users, motorists, pedestrians, cyclists, public transport passengers and people with disabilities are accommodated at and through the site of the event.

A Traffic Management Plan is a key workplace document that has legal standing. As such it is critical that the structure and content of the Plan is sufficient to explain the potential hazards, the assessed risks and the proposed treatments for the proposed work activities and work site. The TMP should include all of the following. Where any of the following sections are not applicable, the TMP should indicate this accordingly.

<u>Introduction</u>

- Purpose and Scope,
- Objectives and Strategies.

<u>Project Overview</u>

- Project Location,
- Project Details and Site Constraints/Impacts

<u>Project Representatives</u> (Principal for the Works; Principal Contractor)

<u>Safety Plan</u>

- Occupational Safety and Health;
- Competencies;

- Responsibilities- Role, responsibility and authority of key personnel, management hierarchy including site representatives and contact details of the responsible personnel;
- Communicating TMP requirements;
- Prior approvals (if any) granted by the RHD (Roads and Highways department), City Corporation or Municipality with relevant reference number.

Trip Hazards & Environmental Conditions

- Weather;
- Vegetation;
- Existing signage;
- Structures.

Worksite Access

- Pedestrians;
- Cyclists;
- Works vehicles;
- Emergency vehicles;
- Public Transport;
- Property Access;
- School crossings;
- Impact on adjoining Road Network;
- Heavy and Oversized Vehicles and Loads;
- Legal and Other Requirements.

Emergency Arrangements and Contingencies

- Emergency Services;
- Dangerous Goods;
- Damage/Failure to Services (Traffic signals, street lighting, power, gas);
- Contingency Planning (Road crash or vehicle breakdown, serious injury or fatality);
- Emergency Contacts.

G. Record Keeping and Documentations

Project site document control system shall be put in place or designed to ensure the following;

- Effective communications and correspondence procedures are effectively implemented and relevant records are kept for current and future references.
- All workmanship is inspected, appropriately tested, documented and approved by the concerned Engineer or his designates.
- Comprehensive measurement and test records shall be kept for payment purposes and for later reference if it becomes necessary in the Contractor's evaluation by the Engineer of his claims or poor performance of completed works.
- Records are maintained of the quantities certified for payment so that it will always be possible to establish exactly which work has been paid for on any interim or final payment certificate.

It is always important for the Consultant and Contractor to agree at any time with regard to any records that will be maintained by the Contractor at the project site.

Records Maintained Policy at Project Site

The Contractor and Consultant shall effectively maintain the following records on the site:

- Correspondences between the Contractor, Consultant, Employer,(PMU), and ADB.
- Copies of contract documents issued to the Contractor
- Copies of all relevant construction standards
- Copies of all construction and financial records, progress reports, etc.
- Equipment status Records
- Daily Weather Report
- Testing and Material Records
- Weekly and Monthly Reports
- Minutes of Progress and Site Meetings
- Construction Records
- Progress records, photographs and video records (if required).
- Survey records
- Monitoring records (ambient air, noise, water quality)
- Health and safety instructions
- Site Instructions/Site order book
- Confirmation of Verbal Instructions
- Request for Inspection and Measurement Survey
- Non-Conformance Notices (NCN's)
- Records for labor and materials on site
- Measurement Calculations and records of the quantities certified for payment
- Drawings (drawings, calculations, etc., including temporary works)
- Method Statements, Work Procedures
- Accident Reports
- Any other requirements that may arise during work implementation
- Daily site work diary

Weekly Progress Reports

The Weekly Progress Report summary shall be submitted to the Employer DESWSP-DWASA electronic copy. Comments on the safety aspects of the Contractor's performance shall be included in the reports. Engineer should establish weekly progress meeting.

Monthly Progress Report

Engineer's office will conduct Monthly Progress Meeting each month. The Monthly Environmental Progress Report and final Progress Report must be completed and in the hands of the Employer office of DESWSP-DWASA, Dhaka within seven days of the month's end.

Progress Photographs

Site Photographs may be used to show irregular or unique construction techniques, illustrate application of environmental safety and engineering principles, controversial situations, and "before and after" views of non-compliance, failures or damage claims.

H. Compliance with DoE EIA Guideline

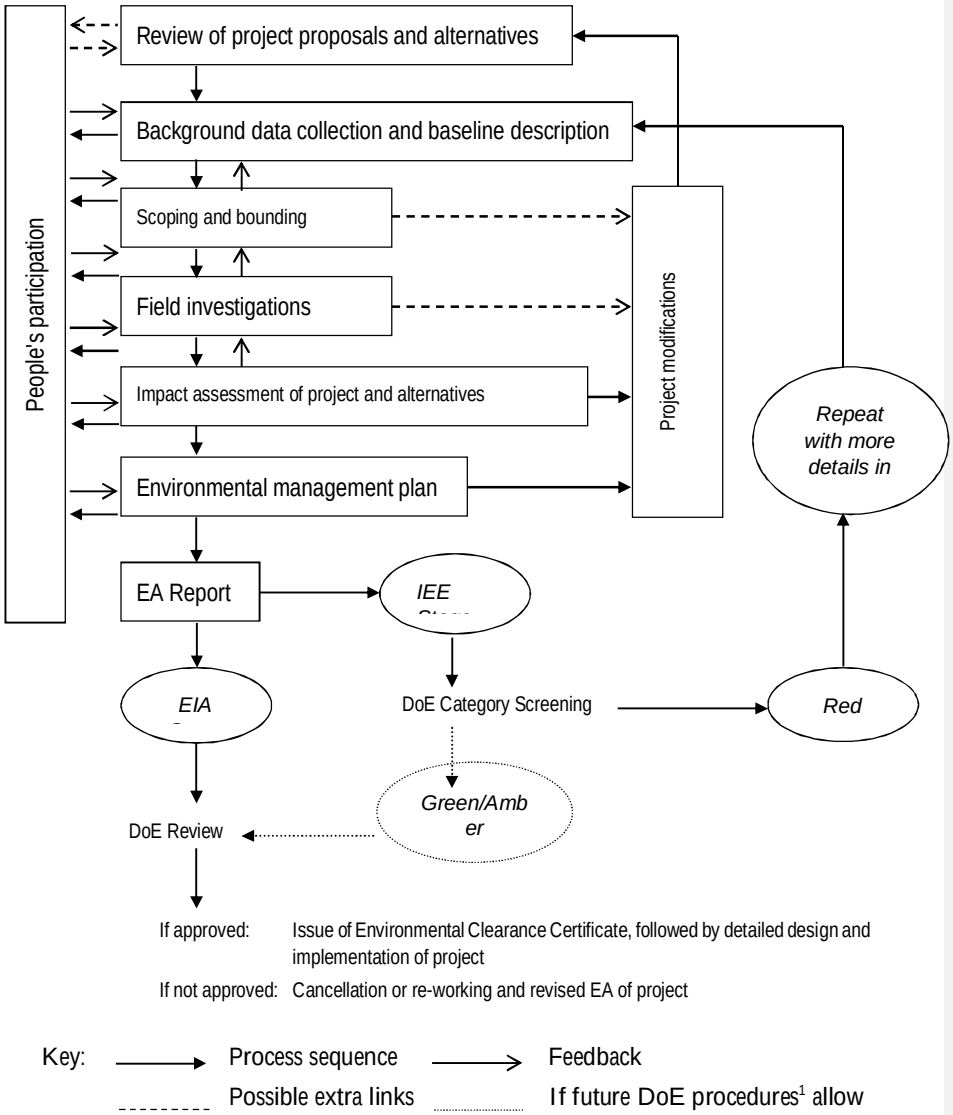
The DoE has issued EIA Guidelines for Industries (this document was released in December 1997) and addresses the IEE and EIA for several industrial sectors and development projects. Each Project Proponent shall conduct an EIA and is expected to consult and follow the DoE Guidelines.
In this case, it is necessary for DWASA to obtain site clearance followed by environmental clearance for this project (EIA as Red Category) considering submission of following documents.

a) Feasibility Study Report of the project;
b) EIA report including environmental management plan (EMP) and emergency response plan for the mitigation of adverse environmental impacts (Submitted Updated EIA prepared by EnviroConsult Ltd);
c) An NOC (No Objection Certificate) from the local authorities concerned;
d) Outline of relocation plans (where applicable) and;
e) Other information as deemed necessary

As per ECR 1997 DESWSP falls under the red category of project. The following Figure 1 presents key steps in the environmental assessment process and DOE Clearance, Figure 2 displays DOE environmental clearance procedure

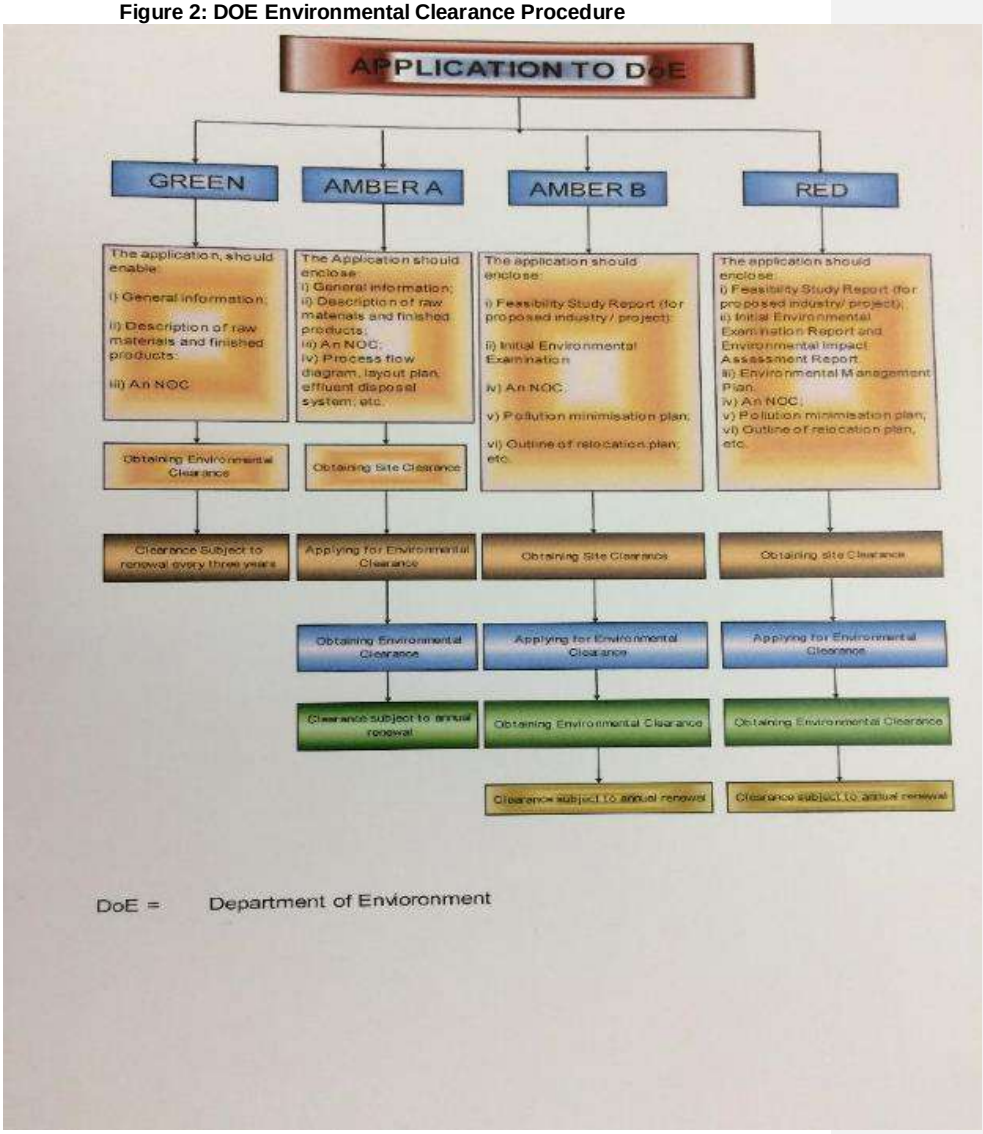
Key Steps in the Environmental Assessment Process & DOE Clearance

Figure:1 Key Steps in the EA Process



Note: 1. DoE procedures (Appendix B here) currently classify all FCD/I projects in the Red Category
2. This diagram is only indicative of the processes involved. The actual activities and sequence may vary slightly, depending on the size, complexity and likely impacts of the proposed components. Similarly, the number of consultations under the people's participation programme, and their place in the planning process, may also vary.

Figure 2: DOE Environmental Clearance Procedure



I. Public - Consultation Meeting (Section-6)

Development Organization of the Rural Poor (DORP)
Dhaka Environmentally Sustainable Water Supply Project
Area Office, Gandharbpur, Rupganj, Narayanganj

Consultation Meeting (Section-6)

Date: 29.09.2018, Time: 03:30, Place of Meeting: Beraide Bazar Club Office

Subject: Impact of the Project and APs Entitlements

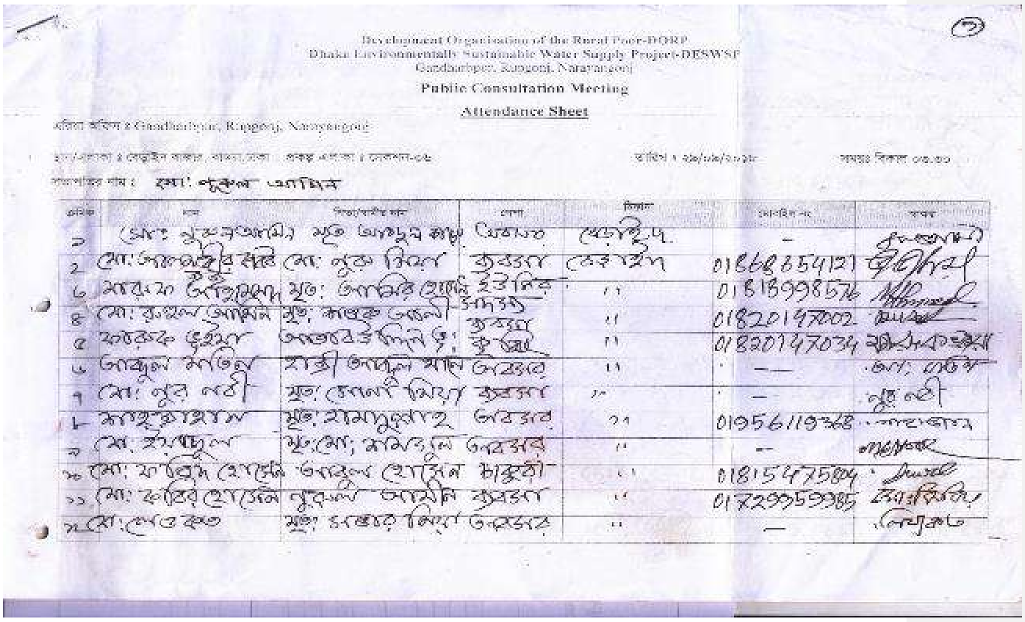
1.Name of the chair person preside over the meeting (From affected HH)	Md. Nurul Amin Miah
2. Greeting speech was made by Md. Iqbal Hossain, Area Manager, Rupganj DORP Mainly he briefed about the project in the meeting.	Today, on 29th September 2018 (Saturday) at about 03.30 pm a meeting was held in section-6. The meeting was chaired by Md. Nurul Amin Miah the most reverend and accepted person by all of the PAPs. Md. Iqbal Hossain expressed his gratitude to participants for being present in the meeting by leaving their important and urgent business. He briefed about the project.
4. Md. Quaisarul Islam, Deputy Team leader of MDSC described about the project, its goal and objectives.	He expressed detail on project and its objectives in the way that in mega city of Dhaka, here lives an uncounted number of population, in order to meet up with the present insufficient water supply and increasing demand for it, the Dhaka Water Supply and Sewerage Authority through the Dhaka Environmentally Sustainable Water Supply Project has been taken a philanthropic initiative to provide treated water to Dhaka city dwellers through DWASA distribution system. The project will extract surface water from the River Meghna at Shomvupura *Mouza* of Arihazar *Upazila* where a reservoir will be constructed. This surface water will be delivered through pipeline to the Water Treatment Plant at Gandharbpur in Rupganj Upazila. The treated water will then be delivered to the distribution network of Dhaka city. He seeks everyone's cooperation and suggestions.
3. Md. Imtiajul Haque described about the technical aspect of the project	He said, to meet up the increasing water demand DWASA takes initiative to provide treated water to city dwellers through pipeline which contains 7 feet width 4 pipes. It will extract surface water from the River Meghna. This surface water will be delivered through 22 km pipeline to the Water Treatment Plant at Gandharbpur in Rupganj Upazila. The treated water will then be delivered through 13 km pipeline to the Baridhara injection point of DWASA. He also said that, Sophisticated machine will be used to implement the project. It will reduce the risk of air pollution and sound pollution.
4. Dr. Syed Latif discussed on Environmental impact of the project.	He actually committed to the community on the issue of environmental degradation, the community people as well as WASA and DORP will be vigilance to protect in any kind of mishaps and mischievous on environment, especially during construction work, he uttered it will be not permitted in any way of depletion or effect on trees and biodiversity.
5. Dr. Rafeza Akter (Resettlement Expert, MDSC) Discussed on Affected Persons	At the very commencing of her speech Dr. Rafeza Akter convey her heartiest thanks and gratitude to all of the participants. Dr. Rafeza Akter discussed elaborately and clearly on 1) objective of the project, 2) Resettlement Activities 3) Implementation of Resettlement Activities. She said that those who are residing in

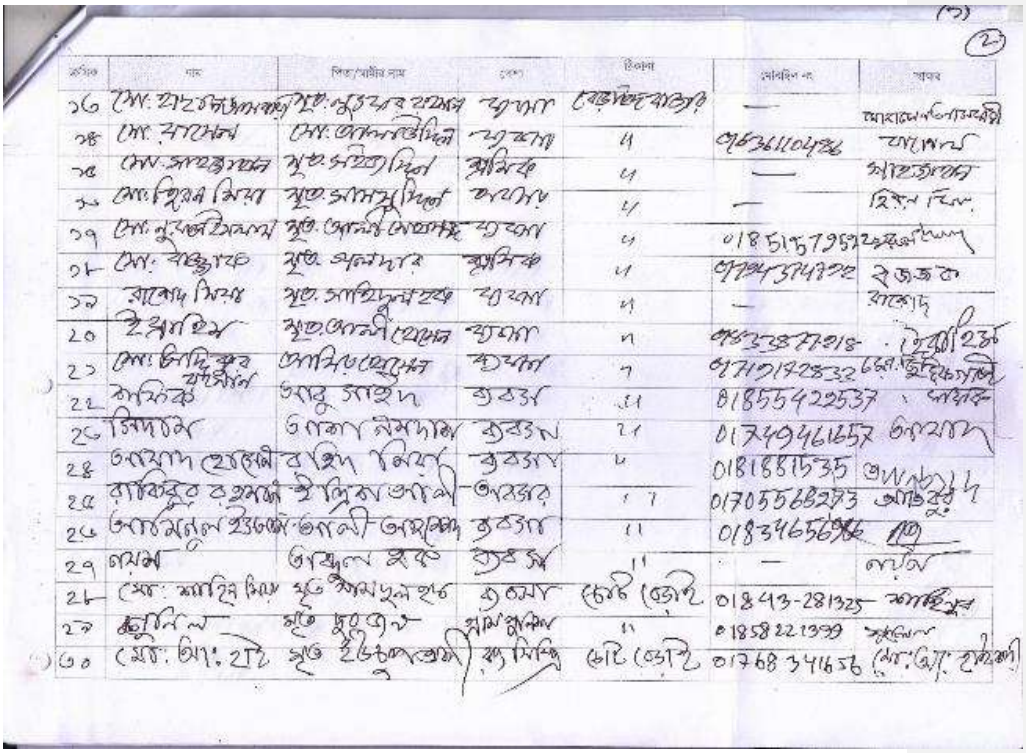
Entitlement and Role in Gender.	Dhaka, in some way they are the relatives of ours. So it is our moral obligation to support them in ensuring pure drinking water for them. She mentioned that the affected persons will be compensated fairly whatever they lost. According to ADB Safeguard Policy Statement (SPS) 2009, all types of affected persons (irrespective titled or non-titled) will receive resettlement benefits for loss assets such as: land, trees, residential structures, business structures etc. For easy and tranquil payment for the APs DORP and MDSC will help/assist them in all respect. She assured the PAPs that they will get fair resettlement benefits, the business man, employees of the business will receive benefit of income loss from business and employees/workers will receive grant for wage loss. Tenant, will receive their due resettlement benefits. In addition of the above benefits vulnerable HHs and those HHs fully loss of agriculture based livelihoods will be entitled to receive some other grants like for vulnerable HHs they will receive subsistence allowance and one time training grant. The vulnerable HHs and HHs fully loss of their agriculture based livelihoods will be resettled through involving them in income generating activities. She added that in this regard DORP and MDSC will assist them, confidently she committed to them that she would fight with DC office and DWASA for ensuring their rights in receiving all sorts of eligible benefits. She urged them to co-operate the JVC team in verifying the affected persons list and their losses and PVAC team in determining of lost assets value. She told that by no means the life standard of the affected persons, especially of the poor (as they maintained before the pre project time) would not be aggravated, rather it will be tried to enhance their socio economic condition at a better of condition. She also said that, aggrieved person can complain to the GRC Committee if they think that will not did not get the proper compensation. Apart from that, according to the ADB Resettlement Rules, every affected person will be compensated, for instance, land, vegetables, household, business even the tenants will be reimbursed. For receiving reimbursements, all the procedures will be followed. MDSC and INGO workers will help throughout the project period. He also mentioned that, there is a JVC for determining the actual losses of the property and verifying the affected persons list. In this Committee, there are members/representatives from DC Office, WASA, MDSC, INGO, including representative of local Government, representatives from local people along with the affected people will be present. This Committee will invigilate all the affected areas and keep a note of it. She urged the participants to assist the activities of all of the committees. He stated that everyone will receive the justified reimbursements according to the resettlement law. Side by side, businessmen, tenants and even the employees and workers will be compensated for their loss of income. She assured the participants that the affected persons will provide help and support in every way, so that the living standard of the affected people does not go down as compared to before. If any AP think that he/she did not receive the justified amount of compensation, he/she can lodge complaint at GRC. Through the GRC process if the complaint considered as justified the claimant will receive the due compensation against his/her complaint amount. At the end she requested everyone to ask her questions if they have any queries or wanted to know anything else, she will try to answer all the questions.
Questions from the Active Participants Md. Alamgir Kabir Judge Mia	He wanted to know, when the work of acquisition of land will be started and when the project work will begin. Dr. Rafeza Akter replied that within a short possible time they will be notified about it, and the tender will begin in October and by the mid of 2019, the work will start.
Md Maruf Ahammed Miah (Present UP member)	He wanted to know that the value of the land/property is very high here, so will the government provide them the fair value at current market rate? Again Dr. Rafeza Akter assured that, they will receive the fair amount. But still, if anyone thinks that they will not receive the justified amount, they can raise the issue at GRC.

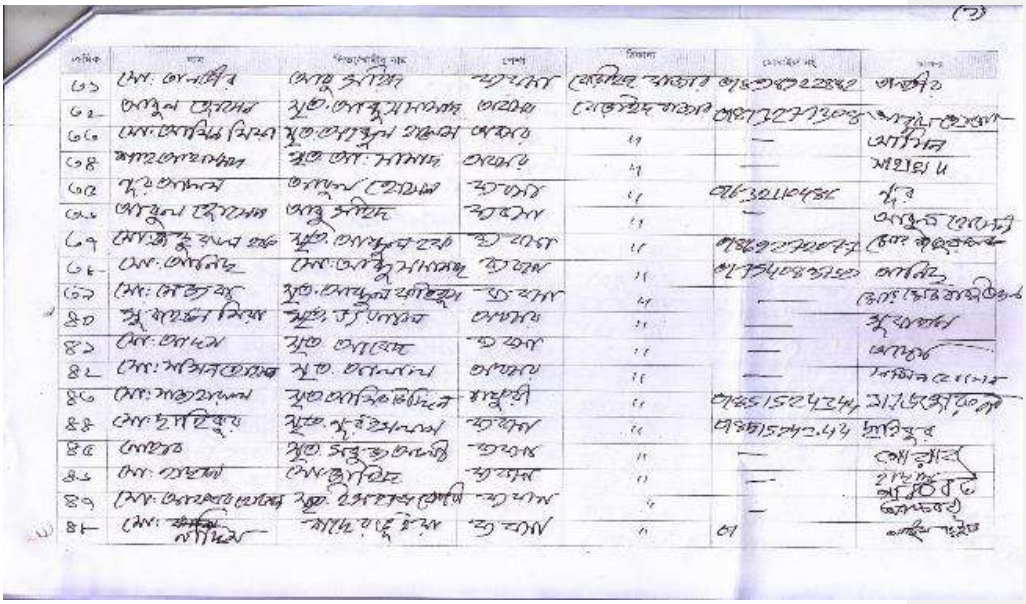
Md Imran Hossain	He wanted to know if INGO and MDSC will stand beside the affected people and support them. Dr. Rafeza Akter assured him that, both INGO and MDSC will be always with the affected people in their need throughout the project period.
Md Farid Hossain	He wanted to know if they will get water connection from the pipeline. Dr. Rafeza Akter replied to the question that through this pipeline water will be supplied to the main line.
Md Nur Alam	He wanted to know the payment process of the project. In reply, Dr. Rafeza Akter informed that according to the Land Acquisition Law, the reimbursement will be given from the DC Office. Participants gave thanks to Dr, Rafeza for providing clear and detail information regarding the project to them. The participants seek various support and information that they will need to complete this project successfully. Dr. Rafeza assured them that INGO and MDSC will be always beside them and as well she will inform the higher authority about their opinion and suggestions that the project to provided PAPs, with this Dr. Rafeza conclude her speech.
Presiding Member's Concluding Speech	The chair listened to the entire discussions and conversations with great interests and sharing of each other, the demand, requirements of the participants as well. The chair requested Dr. Rafeza to put up all the discussions and decisions on behalf of the PAPs to the higher authority. Having no any other discussions the chair thanked everyone participated in the meeting and closed the activities of the meeting.

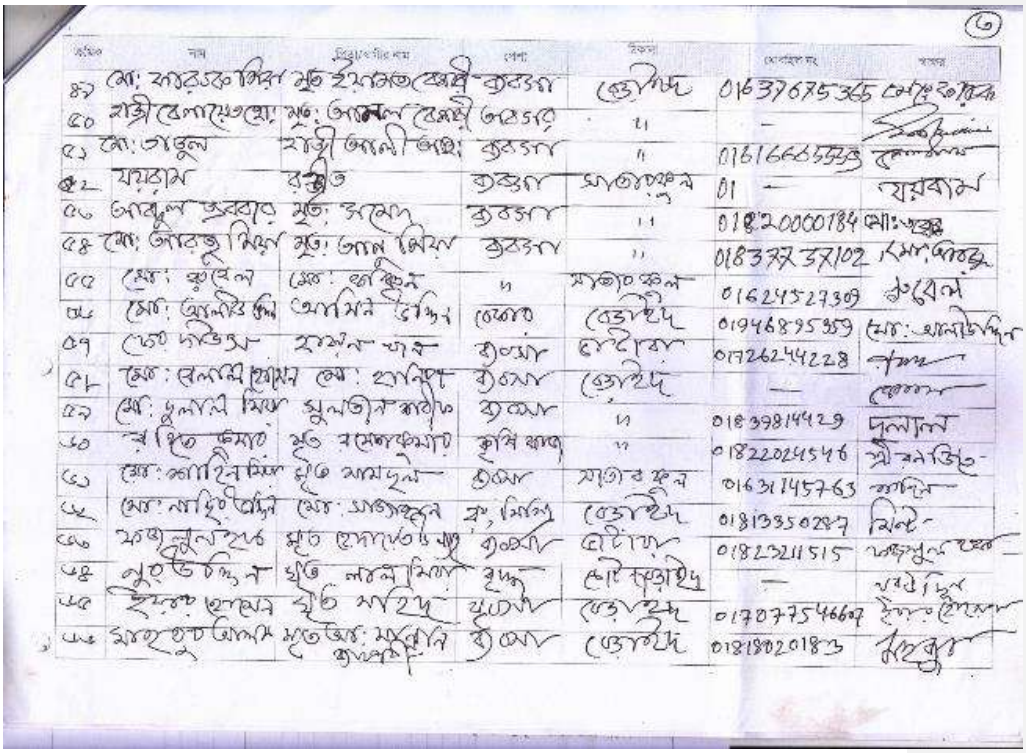
Chair of the meeting
Md Nurul Amin Mia
29-09-2018

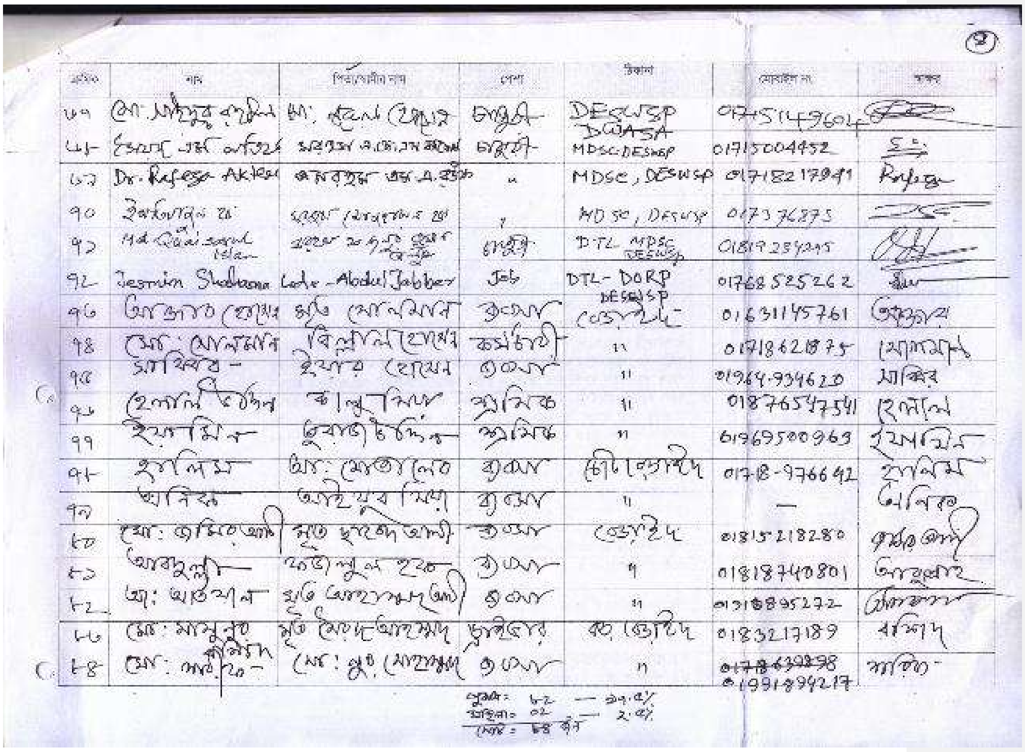
List of Participants: PC meeting on 29/09/2018


Development Organisation of the Rural Poor-DORP
Dhaka Environmentally Sustainable Water Supply Project-DESWSP
Gandharbpur, Rupganj, Narayanganj
Public Consultation Meeting
Attendance Sheet









ক্রমিক	নাম	পিতা/স্বামীর নাম	পেশা	ঠিকানা	মোবাইল নং	স্বাক্ষর
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৬৯	Dr. Rafeza Akter	[illegible]	"	MDSC, DESWSP	01718217941	Rafeza
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৭১	Md. [illegible] Islam	[illegible]	[illegible]	DTL MDSC DESWSP	01819284295	[illegible]
৭২	Jesmin Shabana	Late-Abdul Jabber	Job	DTL-DORP DESWSP	01768525262	[illegible]
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৭৫	[illegible]	[illegible]	[illegible]	"	01964-934620	[illegible]
৭৬	[illegible]	[illegible]	[illegible]	"	01876547541	[illegible]
৭৭	[illegible]	[illegible]	[illegible]	"	01969500969	[illegible]
৭৮	[illegible]	[illegible]	[illegible]	[illegible]	0178-976642	[illegible]
৭৯	[illegible]	[illegible]	[illegible]	"	—	[illegible]
৮০	[illegible]	[illegible]	[illegible]	[illegible]	01815218280	[illegible]
৮১	[illegible]	[illegible]	[illegible]	"	01818740801	[illegible]
৮২	[illegible]	[illegible]	[illegible]	"	01718895272	[illegible]
৮৩	[illegible]	[illegible]	[illegible]	[illegible]	0183217189	[illegible]
৮৪	[illegible]	[illegible]	[illegible]	"	~~0178639898~~ 01991894217	[illegible]

List of Participants: PC meeting on 17/04/2017

ATTENDANCE SHEET OF PUBLIC CONSULTATION MEETING
Initial Environmental Examination (IEE) Study of

Geotechnical Investigation Study of P2 Component of Dhaka Environmentally Sustainable Water Supply Project (DESWSP)

Venue : Gandharbpur, Rupgonj, Narayangonj

Date: 17.04.2017

SL No	Name	Address	Mobile no.	Profession/ Designation	Signature
1	Abdul Lotf	Gondovpur		Farmer	[illegible]
2	Md. Mojammel Hoq	Gondovpur		Farmer	[illegible]
3	Md. Jasim uddin	DO		Business	[illegible]
4	Md. Alauddin	DO		Farmer	[illegible]
5	Md. Abal Hasem	DO		Farmer	[illegible]
6	Md. Abul Hasem	DO		Farmer	[illegible]
7	Md. Yeakub Ali	DO		Farmer.	[illegible]
8	Md. Kabin Hossain	DO		Farmer	[illegible]
9	Md. Anower Hossain	DO		Job	[illegible]
10	Md. Mahmudul Islam	PD, DESWSP.	DWASA	PD	[illegible]
11	Md. M.A Mannan	DO		(Rtd)	[illegible]
12	Md. Abdul Hi	DO		Farmer	[illegible]
13	Md. Abdus Sattar	DO		Teacher	[illegible]
14	Md. Ebrahim	DO		Farmer	Ebrahim
15	Dr. J.C. Saha	EN. Expert MDSC		EN. Expt MDSC	[illegible]
16	Sujrat Ali	Gondorpur,		Farmer	[illegible]
17	Md. Ismail Hossain.	A.M. Rupgonj		JOB	[illegible]
18	Md. Rubel Alam	R.O Rupgonj		Job	Rubel
19	Md. Ramjan Hossain	Surveyor		Job	[illegible]
20	MD SAIDUR RAHMAN	"		JOB	[illegible]
21	MD IBRAHIM	C.O Rupg		JOB	[illegible]
22	Md. Monirul I:	R.O		Job	[illegible]
23	Mahbuba Akter	CO		Job	[illegible]
24	Syeda Zahara	L.F		Job	[illegible]
25	Visu Sarker	S.R.V		Job	[illegible]

Photographs

Photo-1: Introductory speech by Mr Md Quaisarul Islam, Deputy Team Leader, 29 September 2018

Photo-2: Project Introduction by Mr Iqbal, DORP, 29 September 2018

Photo-3: Overview of Package 2 by Engr. Imtiazul Haque, 29 September 2018

Photo-4: Environmental issues of Package 2 by Syed Latif, 29 September 2018

Photo-5: Social, LAR issues of Package 2 by Dr Rafeza, 29 September 2018

Photo-6: Public consultation meeting, 17 April, 2017

Photo-7: Public consultation meeting, 17 April, 2017

Photo-8: Public Consultations at Gandharbpur WTP, 17 April, 2017

J. Approval Letter of EIA Report for DESWSP, DWASA

Government of the People's Republic of Bangladesh
Department of Environment
Head Office, Paribesh Bhaban
E-16 Agargaon, Dhaka-1207
www.doe.gov.bd

Memo No: DoE/Clearance/5231/2013/264 Date: 21 /05/2015

Subject: Approval of Environmental Impact Assessment (EIA) Report for Water Treatment Plant under Dhaka Environmentally Sustainable Water Supply Project of Dhaka WASA.

Ref: 1) Application dated 05/02/2015.

With reference to the above, the Department of Environment (DOE) is pleased to approve Environmental Impact Assessment Report for Water Treatment Plant at Gandharbpur, Rupganj under Dhaka Environmentally Sustainable Water Supply Project of Dhaka WASA .This approval authorizes and regulates the following activities:

1. Project Proponent may undertake activities for land development and infrastructural development of the said Sub-Component;
2. Project Proponent may open L/C (Letter of Credit) for importing machineries for the Sub-Component which shall also include machineries relating to pollution control devices;
3. Activities must be carried out in a competent manner. This includes:
   (a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
   (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.
4. Construction works shall be restricted to day time hours so as to avoid/mitigate the disturbance of local lives as well as implementation schedules of the works shall be notified in advance to nearby residents.
5. Storage area for soils and other construction materials shall be carefully selected to avoid disturbance of the natural drainage.
6. Proper construction practices shall be followed that minimize loss of habitats & nursery sites.
7. In order to control noise pollution, vehicles & equipment shall be maintained regularly; working during sensitive hours and locating machinery close to sensitive receptor shall be avoided.
8. Proper and adequate on-site precautionary measures and safety measures shall be ensured so that no habitat of any flora and fauna would be demolished or destructed.
9. All the required mitigation measures suggested in the EIA report are to be strictly implemented and kept operative/functioning on a continuous basis.

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10. Any heritage sight, ecological critical area, and other environmentally and/or religious sensitive places shall be avoided during construction phase.
11. Resettlement plan should be properly implemented and people should be adequately compensated, where necessary.
12. Construction material should be properly disposed off after the construction work is over.
13. The Environmental Management and Mitigation Plan included in the EIA report shall strictly be implemented and kept functioning on a continuous basis.
14. Comprehensive Environmental Performance report, upon completion of the project shall have to be submitted to the Narayanganj District Office of DOE at Narayanganj with a copy to the Head Office of DOE in Dhaka describing actual intervention and rehabilitation at the project site.
15. Violation of any of the above conditions shall render this approval void.
16. The project authority shall apply for Environmental Clearance along with NOCs from other relevant agencies for operational activity to the Narayanganj District Office of DOE at Narayanganj with a copy to the Head Office of DOE in Dhaka.
17. This EIA Approval has been issued with the approval of the appropriate authority.

21.05.2015

(Syed Nazmul Ahsan)
Director (Environmental Clearance,c.c)
Phone # 8181778

Project Director
Dhaka Environmentally
Sustainable Water Supply Project
Dhaka WASA
WASA Bhaban(8th Floor), Room # 906
98, Kazi Nazrul Islam Avenue
Kawran Bazar, Dhaka-1215

Copy Forwarded to :

1. The Secretary, Ministry of Environment and Forests, Bangladesh Secretariat, Dhaka.
2. Director, Department of Environment, Dhaka Regional Office, Dhaka.
3. Deputy Director /Office In-charge, Department of Environment, Narayanganj District Office, Narayanganj.
4. Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka.

2

K. No Objection Certificates

Table 25: List of no objection certificates for P 2

Certificate	Date	Authority	Status of Application
Road crossing at Bhulta of Dhaka-Sylhet Road	08 February 2017	Executive Engineer, RHD Narayanganj Road Division	Obtained Permission with conditions
Use of ROW of Madani Avenue from Balu River to Vatara (Baridhars)	21 December 2016	RAJUK	Obtained Permission from RAJUK to use ROW with conditions
LGED Road Cutting	25 January 2017	LGED, Narayanganj	Obtained Permission for Road cutting from LGED with conditions
RHD Road cutting permission	26 January 2017	Sub-Divisional Engineer, RHD, Narayanganj Road Sub-Division-1	Obtained Permission for road cutting with conditions
Micro Tunnelling and pipe route installation for DESWSP at Shitalakhya and Balu	17 January 2017	BIWTA	Approval for Micro Tunnelling and pipe route installation for DESWSP till 31 December 2018

Letter FROM MD WASA for Land Acquisition TO Secretary, LGRD.

(PC)

ঢাকা পানি সরবরাহ ও পয়ঃ নিষ্কাশন কর্তৃপক্ষ
ব্যবস্থাপনা পরিচালক এর কার্যালয়
ওয়াসা ভবন, ঢাকা ওয়াসা
৯৮, কাজী নজরুল ইসলাম এভিনিউ, কাওরান বাজার, ঢাকা।

স্মারক নং- ৪৬.১১৬.৪২৮.০০.০০ ৬-৭(৮-২)/DESWSP/2566 DATE: তারিখ- 9.2.17

সচিব
স্থানীয় সরকার বিভাগ
স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বাংলাদেশ সচিবালয়, ঢাকা।

SECRETARY LGRD

দৃষ্টি আকর্ষণঃ অতিরিক্ত সচিব (পানি), স্থানীয় সরকার বিভাগ। ATTENTION ADD SECRETARY, LGRD

বিষয়ঃ ঢাকা এনভায়রনমেন্টালী সাসটেইনেবল ওয়াটার সাপ্লাই প্রজেক্ট, ঢাকা ওয়াসা এর অনুকূলে ৫৫.৯২ একর ভূমি অধিগ্রহণ প্রসঙ্গে। SUB: 55.92 ACRES OF LAND ACQUISITION FOR DESWSP.

সূত্রঃ (১) ভূমি মন্ত্রণালয়ের অধিশাখা-১, স্মারক নং-৩১.০০.০০০০.০৪৭.৪৭.০৩০.১৬-১৫৮, তাং-২১/০৩/২০১৬ খ্রিঃ
(২) জেলা প্রশাসক, নারায়ণগঞ্জ এর স্মারক নং-০৫.৪১.৬৭০০.০০২.১৪.০২২.১৬-২৫৩, তাং-২৭/০৭/২০১৬ খ্রিঃ
(৩) ভূমি মন্ত্রণালয়ের অধিশাখা-১, স্মারক নং-৩১.০০.০০০০.০৪৭.৪৭.০৩০.১৬-২৪৮, তাং-২৪/০১/২০১৬ খ্রিঃ
(৪) স্থানীয় সরকার বিভাগের স্মারক নং-৪৬.০৪৫.০১৬.০১.০০.০২০.২০১৬.৭০৬, তাং [illegible]/০৯/২০১৬ খ্রিঃ

উপর্যুক্ত বিষয় ও সূত্রের প্রেক্ষিতে জানানো যাচ্ছে যে, ওয়াসা কর্তৃক বাস্তবায়নাধীন ঢাকা এনভায়রনমেন্টালী সাসটেইনেবল ওয়াটার সাপ্লাই প্রজেক্ট এর পানি শোধনাগার নির্মাণ কাজের লক্ষ্যে নারায়ণগঞ্জ জেলার রূপগঞ্জ [illegible] ৫৫.৯২ একর ভূমি অধিগ্রহণের ক্ষেত্রে ৩ ও ৪ নং সূত্রে বর্ণিত স্মারকের প্রেক্ষিতে অন্য সংস্থা কর্তৃক অধিগ্রহীত সম্পত্তি ব্যবহারের বা রাস্তা ক্রসিং করার অনুমতিপত্র সংগ্রহপূর্বক প্রেরণের জন্য অনুরোধ করা হয়েছে। ইতোমধ্যে নিম্নবর্ণিত সংস্থাসমূহ হতে প্রাথমিক ছাড়পত্র/মতামত পাওয়া গিয়েছে:

১. রাজউকের ছাড়পত্র স্মারক নং-২৫.৩৯.০০০০.০৬৮.২৬.০৪৫.১৬-৫৭৮-প্লাঃ, তাং-২১/১২/২০১৬ (সংলাগ-'ক')।
২. স্থানীয় সরকার প্রকৌশলী অধিদপ্তরের ছাড়পত্র এলজিইডি/প্রঃ/নারায়ঃ/আর-০১/২০১৭/২৫১, তাং-২৫/০১/২০১৭ (সংলাগ-'খ')।
৩. পানি উন্নয়ন বোর্ডের জমি ব্যবহারের জন্য ছাড়পত্র/মতামত (সংলাগ-'গ')।
৪. সড়ক ও জনপথ বিভাগের রাস্তা ক্রসিং করার ছাড়পত্র (সংলাগ-'ঘ')।

Finished, 1. RAJUK [illegible] 2. LGED 3. BWDB 4. RHD

এমতাবস্থায়, ঢাকা ওয়াসা'র ঢাকা এনভায়রনমেন্টালী সাসটেইনেবল ওয়াটার সাপ্লাই প্রজেক্টের প্রস্তাবিত পানি শোধনাগারের ট্রান্সমিশন মেইন স্থাপনের এ্যালাইনমেন্ট বরাবর রূপগঞ্জ এলাকায় অধিগ্রহণের জন্য প্রস্তাবিত ৫৫.৯২ একর জমি, 'স্থাবর সম্পত্তি অধিগ্রহণ ম্যানুয়েল ১৯৯৭' এর ১৯ নং অনুচ্ছেদের নির্দেশনা মোতাবেক ইতোপূর্বে প্রেরিত প্রস্তাবটি "কেন্দ্রীয় ভূমি বরাদ্দ কমিটির" অনুমোদনের লক্ষ্যে উপস্থাপনের জন্য ভূমি মন্ত্রণালয়কে অনুরোধ করার জন্য সবিনয়ে প্রেরণ করা হ'ল।

সংযুক্তঃ বর্ণনানুযায়ী।

MOTT MACDONALD
MDSC, DESWSP
Received: 13/02/2017

Name	I	A	Sign
MAT/AZ	✓		
NO	✓		
LUIS	✓		

File: 346152/D

প্রকৌশলী তাকসিম এ খান
ব্যবস্থাপনা পরিচালক
ঢাকা ওয়াসা।
ফোনঃ ৮১৮৯৬২৬

অনুলিপি সদয় অবগতির জন্যঃ
১। জেলা প্রশাসক, নারায়ণগঞ্জ। /TL, MDSC
২। অতিরিক্ত সচিব মহোদয়ের ব্যক্তিগত কর্মকর্তা, ভূমি মন্ত্রণালয় (অতিরিক্ত সচিব মহোদয়ের সদয় অবগতির জন্য)।

Received from PD

রাজধানী উন্নয়ন কর্তৃপক্ষ
রাজউক ভবন, ঢাকা।

স্মারক নং-২৫.৩৯.০০০০.০৬৮.২৬.০৪৪.১৬-৫৭৬-ড়ি, তারিখ ঃ ২১/১২/২০১৬ইং
21.12.16

বিষয় ঃ বালুনদী থেকে ভাটারা পর্যন্ত মাদানী এভিনিউ তে পানির ট্রান্সমিশন পাইপ স্থাপনের অনুমোদন প্রসঙ্গে।

সূত্র ঃ স্মারক নং-৪৬.১১৩.৬০১.০০.০০.G-28/DESWSP/2156, তারিখ ঃ ২২/০৯/২০১৬ ইং।

উপর্যুক্ত বিষয় ও সূত্রের পরিপ্রেক্ষিতে জানানো যাচ্ছে যে, বালুনদী থেকে ভাটারা (বারিধারা) পর্যন্ত পানির ট্রান্সমিশন পাইপ স্থাপনের লক্ষ্যে মাদানী এভিনিউ এর Right of way ব্যবহারের বিষয়টি চেয়ারম্যান মহোদয় নিম্নেবর্ণিত শর্তে অনুমোদন করেছেন।

শর্তসমূহ ঃ

১) খনন ও পাইপ স্থাপনের সকল নক্সা নির্বাহী প্রকৌশলী, কেন্দ্রীয় ঢাকা (রাজউক) বিভাগ বরাবর দাখিল করতে হবে।

২) পানির পাইপ লাইন স্থাপনের পূর্বে রাস্তা মেরামতের জন্য রাজউক কর্তৃক নির্ধারিত প্রয়োজনীয় অর্থ চেয়ারম্যান, রাজউক বরাবর জমা প্রদান করে রাস্তা খননের অনুমতি পত্র গ্রহণ করতে হবে।

৩) বর্ণিত কাজ বাস্তবায়নের জন্য ওয়াসার প্রস্তাবমতে একটি MOU স্বাক্ষর করতে হবে।

এমতাবস্থায়, আলোচ্য রাস্তার ভূমি অধিগ্রহণ নক্সা ও As built নক্সা পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহণার্থে এতদসঙ্গে প্রেরণ করা হলো।

সংযুক্তঃ বর্ণনামতে।

PERMISSION FROM RAJUK
TO USE ROW, WITH CONDITION
1. DRAWINGS TO BE SUBMITTED
2. ROAD RESTORATION COST TO BE PAID BY DWASA.
3. MOU TO SIGN.

প্রকৌশলী তাকসিম এ খান
ব্যবস্থাপনা পরিচালক
ঢাকা ওয়াসা, ঢাকা।

(সুশান্ত চাকমা)
সচিব
রাজধানী উন্নয়ন কর্তৃপক্ষ
ঢাকা।

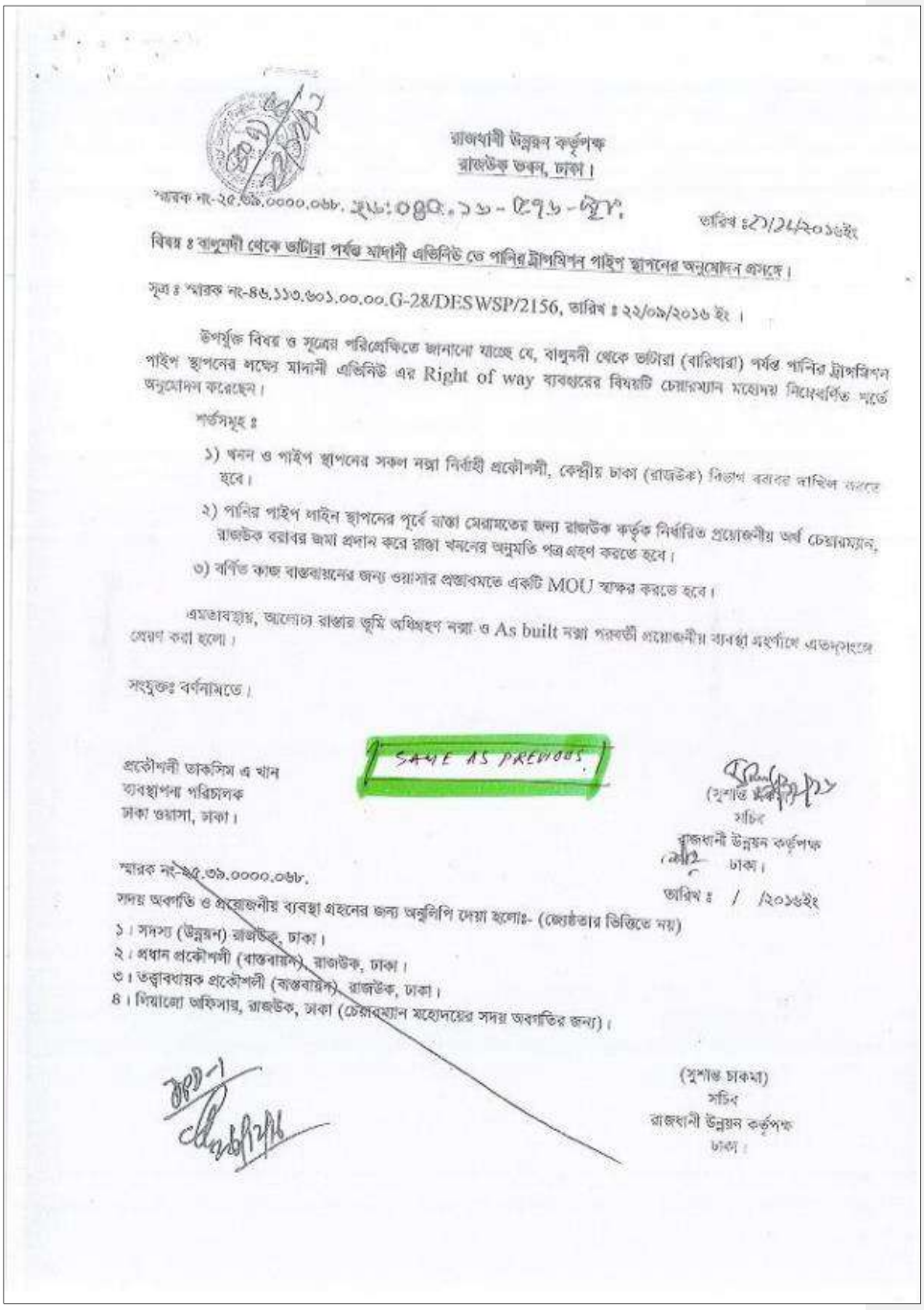
স্মারক নং-২৫.৩৯.০০০০.০৬৮.

তারিখ ঃ / /২০১৬ইং

সদয় অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য অনুলিপি দেয়া হলোঃ- (জ্যেষ্ঠতার ভিত্তিতে নয়)

১। সদস্য (উন্নয়ন) রাজউক, ঢাকা।
২। প্রধান প্রকৌশলী (বাস্তবায়ন), রাজউক, ঢাকা।
৩। তত্ত্বাবধায়ক প্রকৌশলী (বাস্তবায়ন), রাজউক, ঢাকা।
৪। লিয়াজো অফিসার, রাজউক, ঢাকা (চেয়ারম্যান মহোদয়ের সদয় অবগতির জন্য)।

(সুশান্ত চাকমা)
সচিব
রাজধানী উন্নয়ন কর্তৃপক্ষ
ঢাকা।



রাজধানী উন্নয়ন কর্তৃপক্ষ
রাজউক ভবন, ঢাকা।

স্মারক নং-২৫.৩৯.০০০০.০৬৮. ২৬.০৪৫.১৬-৫৭৬-৯৮৭. তারিখ ঃ ২৭/১১/২০১৬ইং

বিষয় ঃ বালুমদী থেকে ভাটারা পর্যন্ত মাদানী এভিনিউ তে পানির ট্রান্সমিশন পাইপ স্থাপনের অনুমোদন প্রসঙ্গে।

সূত্র ঃ স্মারক নং-৪৬.১১৩.৬০১.০০.০০.G-28/DESWSP/2156, তারিখ ঃ ২২/০৯/২০১৬ ইং।

উপর্যুক্ত বিষয় ও সূত্রের পরিপ্রেক্ষিতে জানানো যাচ্ছে যে, বালুমদী থেকে ভাটারা (বারিধারা) পর্যন্ত পানির ট্রান্সমিশন পাইপ স্থাপনের লক্ষ্যে মাদানী এভিনিউ এর Right of way ব্যবহারের বিষয়টি চেয়ারম্যান মহোদয় নিম্নোক্ত শর্তে অনুমোদন করেছেন।

শর্তসমূহ ঃ

১) খনন ও পাইপ স্থাপনের সকল নক্সা নির্বাহী প্রকৌশলী, কেন্দ্রীয় ঢাকা (রাজউক) বিভাগ বরাবর দাখিল করতে হবে।

২) পানির পাইপ লাইন স্থাপনের পূর্বে রাস্তা মেরামতের জন্য রাজউক কর্তৃক নির্ধারিত প্রয়োজনীয় অর্থ চেয়ারম্যান, রাজউক বরাবর জমা প্রদান করে রাস্তা খননের অনুমতি পত্র গ্রহণ করতে হবে।

৩) বর্ণিত কাজ বাস্তবায়নের জন্য ওয়াসার প্রস্তাবমতে একটি MOU স্বাক্ষর করতে হবে।

এমতাবস্থায়, আলোচ্য রাস্তার ভূমি অধিগ্রহণ নক্সা ও As built নক্সা পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহণার্থে এতদসংগে প্রেরণ করা হলো।

সংযুক্তঃ বর্ণনামতে।

SAME AS PREVIOUS.

প্রকৌশলী তাকসিম এ খান
ব্যবস্থাপনা পরিচালক
ঢাকা ওয়াসা, ঢাকা।

(সুশান্ত চাকমা)
সচিব
রাজধানী উন্নয়ন কর্তৃপক্ষ
ঢাকা।

স্মারক নং-২৫.৩৯.০০০০.০৬৮.
তারিখ ঃ / /২০১৬ইং

সদয় অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য অনুলিপি দেয়া হলোঃ- (জ্যেষ্ঠতার ভিত্তিতে নয়)

১। সদস্য (উন্নয়ন) রাজউক, ঢাকা।
২। প্রধান প্রকৌশলী (বাস্তবায়ন), রাজউক, ঢাকা।
৩। তত্ত্বাবধায়ক প্রকৌশলী (বাস্তবায়ন), রাজউক, ঢাকা।
৪। পিয়ালো অফিসার, রাজউক, ঢাকা (চেয়ারম্যান মহোদয়ের সদয় অবগতির জন্য)।

(সুশান্ত চাকমা)
সচিব
রাজধানী উন্নয়ন কর্তৃপক্ষ
ঢাকা।

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
স্থানীয় সরকার প্রকৌশল অধিদপ্তর
নির্বাহী প্রকৌশলীর কার্যালয়
চাঁনমারী, নারায়ণগঞ্জ
www.lged.gov.bd

স্মারক নং-এলজিইডি/নিপ্রঃ/নারাঃগঞ্জ/আর-০১/২০১৭/ ২৫১ তারিখঃ ২৫/০১/২০১৭ খ্রিঃ 25/01/2017

প্রতি

তত্ত্বাবধায়ক প্রকৌশলী ও প্রকল্প পরিচালক
DESWSP, ঢাকা ওয়াসা।

বিষয়ঃ ঢাকা ওয়াসার Dhaka Environmentally Sustainable Water Supply Project (DESWSP) শীর্ষক প্রকল্পের অধীনে রূপগঞ্জের গন্ধর্বপুর এলাকায় ৫০০ MLD ক্ষমতা সম্পন্ন পানি শোধনাগার নির্মাণের লক্ষ্যে মেঘনা নদী বিশনন্দী এলাকা হতে অপরিশোধিত পানি গন্ধর্বপুর শোধনাগার সাইটে আনার জন্য পাইপ লাইন এ্যালাইনমেন্ট হিসেবে LGED'র বিভিন্ন রাস্তা ক্রসিং এর অনুমতি প্রদান প্রসঙ্গে।

সূত্রঃ Memo No-46.113.618.00.00.G-28/DESWSP/2475. Date: 17-01-2017.

উপর্যুক্ত বিষয় ও সূত্রের প্রেক্ষিতে জানানো যাচ্ছে যে, ঢাকা মহানগরবাসীর সুপেয় পানি সরবরাহ ব্যবস্থা নিশ্চিত করণের লক্ষ্যে ঢাকা ওয়াসা'র Dhaka Environmentally Sustainable Water Supply Project (DESWSP) শীর্ষক প্রকল্পটি সরকার কর্তৃক অনুমোদিত হয়েছে মর্মে সূত্রস্থ স্মারক মূলে জানা যায়। আরও জানা যায় যে, মেঘনা নদী হতে পানি উত্তোলন করে ট্রান্সমিশন লাইনের মাধ্যমে রূপগঞ্জের গন্ধর্বপুরে এনে প্রস্তাবিত শোধনাগারে পানি পরিশোধন করে ঢাকা মহানগরীতে সরবরাহ করা হবে। বর্ণিত প্রকল্পের আওতায় বিশনন্দী হতে গন্ধর্বপুর পর্যন্ত ২৩ কিঃমিঃ Water Transmission Line নির্মাণ করা হবে। [illegible] উপজেলার এলজিইডি'র আওতাভুক্ত বিভিন্ন রাস্তা [illegible] (মেঘনা নদীর পাড়ে), [illegible] বাজার, [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible] হয়ে নিয়ে এবং রূপগঞ্জ উপজেলার [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], গন্ধর্বপুর, [illegible] ক্রসিং এর নিমিত্তে ছাড়পত্র প্রদানের জন্য অনুরোধ করা হয়েছে। উক্ত অনুরোধের প্রেক্ষিতে নিম্নবর্ণিত শর্ত সাপেক্ষে ঢাকা ওয়াসা'র প্রস্তাবিত ট্রান্সমিশন লাইন ক্রসিং করার অনুমতি বিবেচনা করা হলোঃ

১। এলজিইডি এবং ওয়াসা'র যৌথ সুপারভিশনে কার্য সম্পাদন করতে হবে। কাজের বিস্তারিত নক্সা এলজিইডি'তে সরবরাহ করতে হবে।
২। পানির লাইন স্থাপন কালে রাস্তার যানবাহন চলাচলে বিঘ্ন সৃষ্টি করা যাবে না। রাস্তার উপরে বা ঢালে কোন নির্মাণ সামগ্রী স্তুপাকারে (ইট, বালি, পাইপ, সিমেন্ট, রড [illegible] ইত্যাদি) কোন অবস্থাতেই রাখা যাবে না। প্রয়োজনে বাইপাস সড়ক নির্মাণ করতে হবে।
৩। পাইপ স্থাপনকালে বিদ্যমান রাস্তা বা কালভার্ট যাতে কোনভাবেই ক্ষতিগ্রস্থ না হয় সে বিষয়ে অত্যন্ত সতর্ক থেকে কাজ সম্পাদন করতে হবে এবং পানির পাইপ স্থাপনকালে কোন বৈধ স্থাপনা, রাস্তা বা রাস্তার ঢালের ক্ষতি হলে তা ওয়াসা কর্তৃপক্ষ নিজ দায়িত্বে মেরামত করে দিবে।
৪। পানির লাইন স্থাপনের কারণে রাস্তার কোন ক্ষয়-ক্ষতির আশংকা দেখা দিলে কিংবা অন্য কোন কারণে পানির লাইন স্থানান্তর করতে হলে ওয়াসা কর্তৃপক্ষ নিজ ব্যবস্থাপনায় ও খরচে তা সম্পন্ন করবে।
৫। পাইপ লাইন এর প্রস্তাবিত Alignment এর কারণে বিদ্যমান রাস্তা যাতে কোনভাবেই ক্ষতিগ্রস্থ না হয় সে বিষয়ে অত্যন্ত সতর্কতার সাথে উন্নত প্রযুক্তির মাধ্যমে কাজ সম্পাদন করতে হবে।
৬। বর্ষার সময় রাস্তার বাঁধের ক্ষতি হয় এমন কাজ করা যাবে না।
৭। পানির পাইপ লাইন স্থাপনের সময় মাটির উপর এবং নীচের সকল Utilities এর বিষয়ে সংশ্লিষ্ট দপ্তরের সহিত যোগাযোগ করে উহা অপসারণ/পুনর্বাসনের প্রয়োজন হলে ঢাকা ওয়াসা প্রয়োজনীয় ব্যবস্থা নিবে।
৮। এলজিইডি সদর দপ্তরের নির্দেশনা মোতাবেক ক্ষতিপূরণের দাবি নিষ্পত্তি হবে।

উপর্যুক্ত শর্ত সাপেক্ষে ঢাকা ওয়াসা'কে প্রস্তাবিত এলাকা সমূহ দিয়ে ট্রান্সমিশন পানির লাইন স্থাপনের জন্য এলজিইডি কর্তৃপক্ষ নির্মিত রাস্তা ক্রসিং করার প্রাথমিক অনুমতি দেয়া হলো।

1. DRAWING, JOINT SUPERVI[SION]
2. NO TRAFFIC DISTURBANCE, BYPASS ROAD IF NEED
3. NO DAMAGE TO CULVERT, DWASA SHOULD RESTORE.
4. EXISTING UTILITY TO BE SHIFTED BY DWASA.
5. ROADCUTTING SHOULD BE WITH MODERN TECH
6. ROAD CUTTING IN DRY SEASON TO AVOID.
7. CONTACT TO SHIFT UTILITIES WITH [illegible]
8. FOLLOW LGED INSTRUCTION

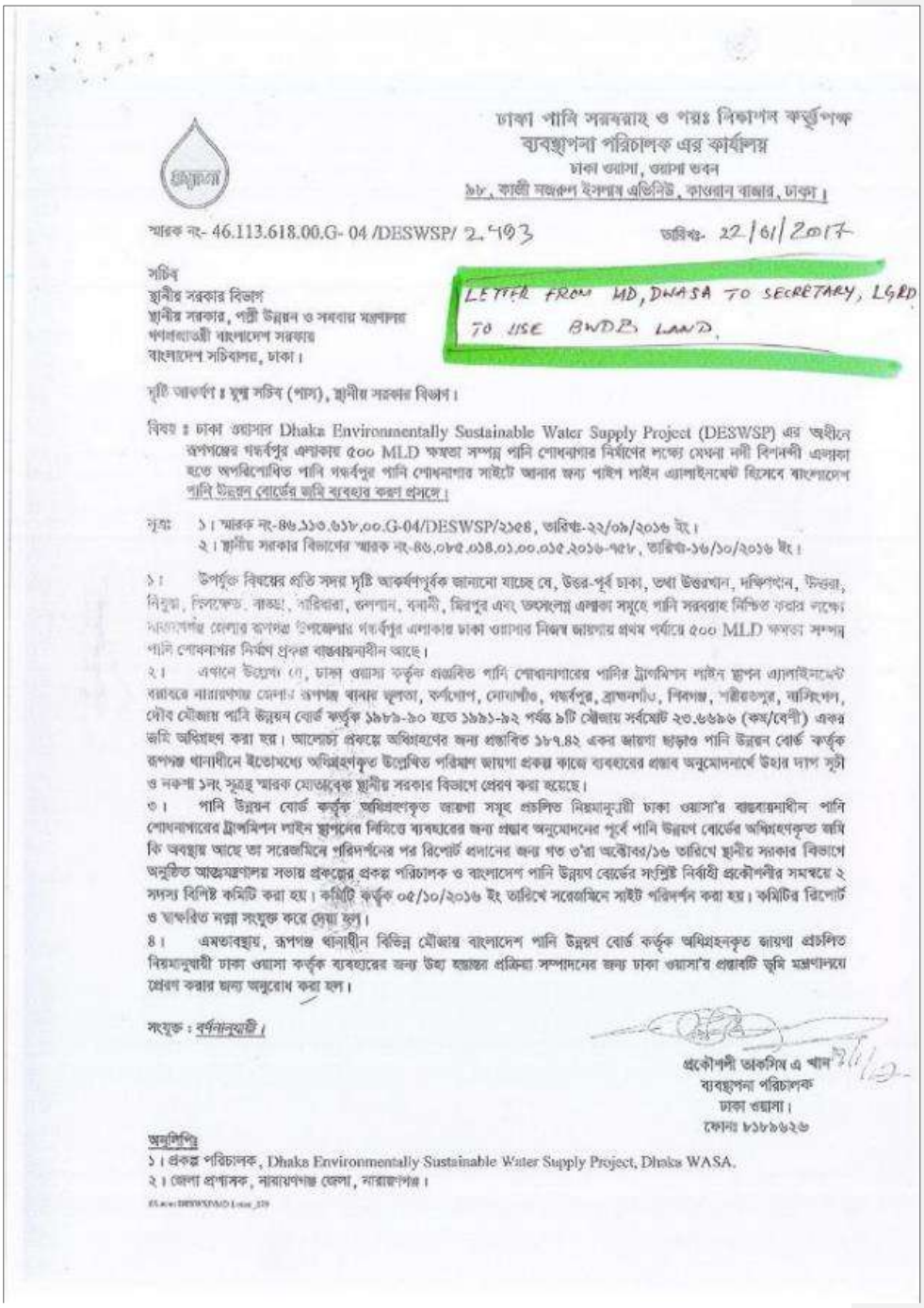
PERMISSION FOR ROAD CUTTING FROM LGED, WITH CONDITIONS

২৫/০১/১৭

(মোহাম্মদ আকরামুল কবীর)
নির্বাহী প্রকৌশলী
ফোনঃ ৭৬৪৫৬১০ (অফিস)
ই মেইলঃ xen.narayanganj@lged.gov.bd

অনুলিপিঃ
১। প্রধান প্রকৌশলী, এলজিইডি, আগারগাঁও, শেরেবাংলা নগর, ঢাকা-১২০৭।
২। অতিরিক্ত প্রধান প্রকৌশলী (নগর ব্যবস্থাপনা), এলজিইডি, আগারগাঁও, শেরেবাংলা নগর, ঢাকা-১২০৭।
৩। তত্ত্বাবধায়ক প্রকৌশলী, ঢাকা অঞ্চল, এলজিইডি, ৬২ পশ্চিম আগারগাঁও, শেরেবাংলা নগর, ঢাকা-১২০৭।
৪। উপজেলা প্রকৌশলী, এলজিইডি, উপজেলাঃ আড়াইহাজার/রূপগঞ্জ, জেলাঃ নারায়ণগঞ্জ।

Letter-1, P-24



ঢাকা পানি সরবরাহ ও পয়ঃ নিষ্কাশন কর্তৃপক্ষ
ব্যবস্থাপনা পরিচালক এর কার্যালয়
ঢাকা ওয়াসা, ওয়াসা ভবন
৯৮, কাজী নজরুল ইসলাম এভিনিউ, কাওরান বাজার, ঢাকা।

স্মারক নং- 46.113.618.00.G- 04 /DESWSP/ 2.৭৭৩ তারিখ- 22/01/2017

LETTER FROM MD, DWASA TO SECRETARY, LGED TO USE BWDB LAND.

সচিব
স্থানীয় সরকার বিভাগ
স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বাংলাদেশ সচিবালয়, ঢাকা।

দৃষ্টি আকর্ষণ ঃ যুগ্ম সচিব (পাস), স্থানীয় সরকার বিভাগ।

বিষয় ঃ ঢাকা ওয়াসার Dhaka Environmentally Sustainable Water Supply Project (DESWSP) এর অধীনে রূপগঞ্জের গন্ধর্বপুর এলাকায় ৫০০ MLD ক্ষমতা সম্পন্ন পানি শোধনাগার নির্মাণের লক্ষ্যে মেঘনা নদী বিশনন্দী এলাকা হতে অপরিশোধিত পানি গন্ধর্বপুর পানি শোধনাগার সাইটে আনার জন্য পাইপ লাইন এ্যালাইনমেন্ট হিসেবে বাংলাদেশ পানি উন্নয়ন বোর্ডের জমি ব্যবহার করা প্রসঙ্গে।

সূত্রঃ ১। স্মারক নং-৪৬.১১৩.৬১৮.০০.G-04/DESWSP/২১৫৪, তারিখ-২২/০৯/২০১৬ ইং।
২। স্থানীয় সরকার বিভাগের স্মারক নং-৪৬.০৮৫.০১৪.০১.০০.০১৫.২০১৬-৭৫৮, তারিখ-১৬/১০/২০১৬ ইং।

১। উপর্যুক্ত বিষয়ের প্রতি সদয় দৃষ্টি আকর্ষণপূর্বক জানানো যাচ্ছে যে, উত্তর-পূর্ব ঢাকা, তথা উত্তরখান, দক্ষিণখান, উত্তরা, বিমানবন্দর, খিলক্ষেত, বাড্ডা, মহাখালী, তেজগাঁও, বনানী, মিরপুর এবং তৎসংলগ্ন এলাকা সমূহে পানি সরবরাহ নিশ্চিত করার লক্ষ্যে নারায়ণগঞ্জ জেলার রূপগঞ্জ উপজেলায় গন্ধর্বপুর এলাকায় ঢাকা ওয়াসার নিজস্ব জায়গায় প্রথম পর্যায়ে ৫০০ MLD ক্ষমতা সম্পন্ন পানি শোধনাগার নির্মাণ প্রকল্প বাস্তবায়নাধীন আছে।

২। এখানে উল্লেখ্য যে, ঢাকা ওয়াসা কর্তৃক প্রস্তাবিত পানি শোধনাগারের পানির ট্রান্সমিশন পাইন স্থাপন এ্যালাইনমেন্ট বরাবরে নারায়ণগঞ্জ জেলার রূপগঞ্জ থানার ভূলতা, কর্ণগোপ, নোয়াপাড়া, গন্ধর্বপুর, ব্রাহ্মনপাড়া, শিবগঞ্জ, শক্তিরতলুর, নাসিংগল, দৌব মৌজায় পানি উন্নয়ন বোর্ড কর্তৃক ১৯৮৯-৯০ হতে ১৯৯১-৯২ পর্যন্ত ৯টি মৌজায় সর্বমোট ২৩.৬৬৯৬ (কম/বেশী) একর জমি অধিগ্রহণ করা হয়। আলোচ্য প্রকল্পে অধিগ্রহণের জন্য প্রস্তাবিত ১৮৭.৪২ একর জায়গা ছাড়াও পানি উন্নয়ন বোর্ড কর্তৃক রূপগঞ্জ থানাধীনে ইতোমধ্যে অধিগ্রহণকৃত উল্লেখিত পরিমাণ জায়গা প্রকল্প কাজে ব্যবহারের প্রস্তাব অনুমোদনার্থে উহার দাগ সূচী ও নকশা ১নং সূত্রস্থ স্মারক মোতাবেক স্থানীয় সরকার বিভাগে প্রেরণ করা হয়েছে।

৩। পানি উন্নয়ন বোর্ড কর্তৃক অধিগ্রহণকৃত জায়গা সমূহ প্রচলিত নিয়মানুযায়ী ঢাকা ওয়াসা'র বাস্তবায়নাধীন পানি শোধনাগারের ট্রান্সমিশন পাইন স্থাপনের নিমিত্তে ব্যবহারের জন্য প্রস্তাব অনুমোদনের পূর্বে পানি উন্নয়ন বোর্ডের অধিগ্রহণকৃত জমি কি অবস্থায় আছে তা সরেজমিনে পরিদর্শনের পর রিপোর্ট প্রদানের জন্য গত ৩'রা অক্টোবর/১৬ তারিখে স্থানীয় সরকার বিভাগে অনুষ্ঠিত আন্তঃমন্ত্রণালয় সভায় প্রকল্পের প্রকল্প পরিচালক ও বাংলাদেশ পানি উন্নয়ণ বোর্ডের সংশ্লিষ্ট নির্বাহী প্রকৌশলীর সমন্বয়ে ২ সদস্য বিশিষ্ট কমিটি করা হয়। কমিটি কর্তৃক ০৫/১০/২০১৬ ইং তারিখে সরেজমিনে সাইট পরিদর্শন করা হয়। কমিটির রিপোর্ট ও স্বাক্ষরিত নক্সা সংযুক্ত করে দেয়া হল।

৪। এমতাবস্থায়, রূপগঞ্জ থানাধীন বিভিন্ন মৌজায় বাংলাদেশ পানি উন্নয়ন বোর্ড কর্তৃক অধিগ্রহনকৃত জায়গা প্রচলিত বিধানানুযায়ী ঢাকা ওয়াসা কর্তৃক ব্যবহারের জন্য উহা হস্তান্তর প্রক্রিয়া সম্পাদনের জন্য ঢাকা ওয়াসা'র প্রস্তাবটি ভূমি মন্ত্রণালয়ে প্রেরণ করার জন্য অনুরোধ করা হল।

সংযুক্ত : বর্ণনানুযায়ী।

প্রকৌশলী তাকসিম এ খান
ব্যবস্থাপনা পরিচালক
ঢাকা ওয়াসা।
ফোন: ৮১৮৬৬২৬

অনুলিপি:
১। প্রকল্প পরিচালক, Dhaka Environmentally Sustainable Water Supply Project, Dhaka WASA.
২। জেলা প্রশাসক, নারায়ণগঞ্জ জেলা, নারায়ণগঞ্জ।

বিষয়ঃ ঢাকা ওয়াসা'র Dhaka Environmentally Sustainable Water Supply Project (DESWSP) শীর্ষক প্রকল্পের অধীনে রূপগঞ্জের গন্ধর্বপুর এলাকায় ৫০০ MLD ক্ষমতা সম্পন্ন পানি শোধনাগার নির্মাণের লক্ষ্যে মেঘনা নদী বিশনন্দী এলাকা হতে অপরিশোধিত পানি গন্ধর্বপুর পানি শোধনাগার সাইটে আনার জন্য পাইপ লাইন এ্যালাইনমেন্ট হিসেবে বাংলাদেশ পানি উন্নয়ন বোর্ডের কমবেশী ২৪ একর জমি ঢাকা ওয়াসা বরাবরে হস্তান্তরের জন্য বাংলাদেশ পানি উন্নয়ন বোর্ড ও ঢাকা ওয়াসা'র প্রতিনিধি কর্তৃক সরেজমিনে পরিদর্শন প্রতিবেদন।

সূত্র ঃ স্থানীয় সরকার বিভাগের স্মারক নং- ৪৬.০৮৫.০১৪.০১.০০.০১৫.২০১৬-৭৫৮, তারিখ-১৬/১০/২০১৬খ্রিঃ।

ঢাকা মহানগরবাসীর সুপেয় পানি সরবরাহ ব্যবস্থা নিশ্চিতকরণের লক্ষ্যে ঢাকা ওয়াসা'র "Dhaka Environmentally Sustainable Water Supply Project (DESWSP)" শীর্ষক প্রকল্পটি সরকার কর্তৃক অনুমোদিত হয়েছে। এ প্রকল্পের আওতায় নারায়ণগঞ্জ জেলার রূপগঞ্জ উপজেলার আওতাধীন গন্ধর্বপুরে ঢাকা ওয়াসা'র নিজস্ব জায়গায় পানি শোধনাগার (WTP) নির্মাণ করে পানি পরিশোধন করে ঢাকা শহরে সরবরাহ করা হবে। এ জন্য মেঘনা নদী হতে পানি উত্তোলন করে ট্রান্সমিশন লাইনের মাধ্যমে রূপগঞ্জের গন্ধর্বপুরে এনে প্রস্তাবিত পানি শোধনাগারে পানি পরিশোধন করে প্রকল্পের ১ম ও ২য় ফেইজে দৈনিক ৫০ কোটি লিটার করে সর্বমোট দৈনিক ১০০ কোটি লিটার সুপেয় পানি ঢাকা মহানগরীতে সরবরাহ করা হবে। উক্ত পানি শোধনাগারের জন্য আড়াই হাজারের বিশনন্দী হতে গন্ধর্বপুর পর্যন্ত ২৭ কিঃ মিঃ Raw Water Transmission Line স্থাপনের জন্য প্রস্তাবিত এলাইনমেন্ট বরাবর বাংলাদেশ পানি উন্নয়ন বোর্ড কর্তৃক অধিগ্রহণকৃত জমিতে তৈরীকৃত ঢাকা-সিলেট রোড হতে গন্ধর্বপুর পর্যন্ত ৮.৫০ কিঃ মিঃ দৈর্ঘ্যের (ভূগতা কর্ণগোপ, নাসিংগল, দেবৈ, নোয়াগাঁও, গন্ধর্বপুর, ব্রাহ্মণগাঁও, শিবগঞ্জ, পরিয়তগঞ্জ মৌজাসহ) সেচ ও ড্রেনেজ ক্যানাল হতে কমবেশী ২৪ একর জমি ব্যবহারের প্রয়োজন হবে।

প্রকল্প বাস্তবায়নের লক্ষ্যে উক্ত জমি ঢাকা ওয়াসা কর্তৃক ব্যবহারের বিষয়ে প্রয়োজনীয় ব্যবস্থা গ্রহণকল্পে ঢাকা ওয়াসা হতে স্থানীয় সরকার বিভাগে প্রস্তাব প্রেরণ করা হয়। উক্ত প্রস্তাবের আলোকে অধিগ্রহণকৃত জমির বর্তমান অবস্থা এবং প্রত্যাশি সংস্থা ঢাকা ওয়াসা'র চাহিদা আলোকপাত করা হয়। ঢাকা ওয়াসা'র প্রস্তাবের আলোকে স্থানীয় সরকার বিভাগের সম্মেলন কক্ষে এতদসংক্রান্ত এক আন্তঃমন্ত্রণালয় সমন্বয় সভা ০৩/১০/২০১৬ তারিখে অনুষ্ঠিত হয়। উক্ত সভায় এক সংস্থার অধিগ্রহণকৃত জমি অন্য সংস্থায় হস্তান্তরের প্রক্রিয়া/ নীতিমালার উপর বিস্তারিত আলোচনা হয়। ঢাকা ওয়াসা'র ঢাকা এনভায়রনমেন্টালী সাসটেইনেবল ওয়াটার সাপ্লাই (DESWSP) প্রকল্পের পানি শোধনাগারের ট্রান্সমিশন লাইন স্থাপনের স্বার্থে অধিগ্রহণকৃত জায়গার প্রয়োজনীয়তা এবং প্রকল্প বাস্তবায়নের গুরুত্ব সকলে অনুধাবন করে এবং সংশ্লিষ্ট বিভাগ ও মন্ত্রণালয় হতে আগত প্রতিনিধিগণ এ বিষয়ে নিজ নিজ অবস্থান থেকে প্রকল্প বাস্তবায়নে সহযোগিতার আশ্বাস দেয়। বাংলাদেশ পানি উন্নয়ন বোর্ডের প্রতিনিধি তত্ত্বাবধায়ক প্রকৌশলী, ঢাকা পওর সার্কেল, বাপাউবো, ঢাকা সভাকে অবহিত করেন যে, তিনি নিজেই সংশ্লিষ্ট প্রকল্প এলাকা ঘুরে এসেছেন। সভায় বিস্তারিত আলোচনান্তে ঢাকা ওয়াসা'র আলোচ্য প্রকল্প বাস্তবায়নের স্বার্থে ঢাকা ওয়াসা ও বাংলাদেশ পানি উন্নয়ন বোর্ডের প্রতিনিধি প্রস্তাবিত জমি/এ্যালাইনমেন্ট যৌথভাবে সরেজমিনে দেখে উহার বর্তমান অবস্থা বিশ্লেষণ করে রিপোর্ট প্রদান করবে এই মর্মে সিদ্ধান্ত গৃহীত হয়। অনুষ্ঠিত সভার কার্য বিবরণীতে ১৯ং অনুচ্ছেদে সিদ্ধান্ত হয় যে, ঢাকা ওয়াসা'র DESWS প্রকল্পের প্রকল্প পরিচালক এবং বাংলাদেশ পানি উন্নয়ন বোর্ডের অত্র এলাকার সংশ্লিষ্ট নির্বাহী প্রকৌশলী সরেজমিনে এলাকা পরিদর্শণ করে অধিগ্রহণকৃত জমি ঢাকা ওয়াসা কর্তৃক ব্যবহারের ব্যাপারে একটি প্রতিবেদন ৭ (সাত) দিনের মধ্যে দাখিল করবে।

চলমান পাতা-২

পাতা-২

উপরোক্ত সিদ্ধান্তের প্রেক্ষিতে ঢাকা ওয়াসা এবং বাংলাদেশ পানি উন্নয়ন বোর্ডের প্রতিনিধিবর্গ ০৫/১০/২০১৬ তারিখে ঢাকা ওয়াসা'র প্রকল্পের প্রস্তাবিত এ্যালাইনমেন্ট বরাবর বাংলাদেশ পানি উন্নয়ন বোর্ডের অধিগ্রহণকৃত জায়গা/এলাকাসমূহ যৌথভাবে পরিদর্শন পূর্বক পরিদর্শন প্রতিবেদন নিম্নে উপস্থাপন করা হলো ঃ

EXISTING CONDITION FROM DHK-SYLHET ROAD TO GANDHARPUR

ক) ঢাকা-সিলেট রোড হতে গন্ধর্বপুর পর্যন্ত অংশের বর্তমান অবস্থা ঃ

১। DESWS প্রকল্পের প্রস্তাবিত এ্যালাইনমেন্ট অর্থাৎ বাংলাদেশ পানি উন্নয়ন বোর্ড আওতাধীন এসএলডি সেচ প্রকল্প এবং এনএনআইপি (ব্লক-এ/১) সেচ প্রকল্পের জন্য অধিগ্রহণকৃত বাঁধ ও ক্যানেল/ক্যানেলের পার্শ্ববর্তী অংশবিশেষ এলাকায় অনেক আবাদী জমির উপর শিল্প/কল-কারখানা, আবাসিক বাড়ী-ঘর নির্মিত হয়েছে। ফলে সেচযোগ্য এলাকায় আবাদী জমির পরিমান কমে এসেছে।

LAND DESCRIPTION

২। উক্ত প্রকল্প ২টির আওতায় সেচ প্রদানের নিমিত্ত সেচ খাল নির্মানের জন্য বাংলাদেশ পানি উন্নয়ন বোর্ড কর্তৃক ৮০ ফুট হতে ১৪০ ফুট প্রশস্থ জায়গা/জমি অধিগ্রহণ করা হয়। বর্নিত অধিগ্রহনকৃত জমির মধ্যে ঢাকা ওয়াসা কর্তৃক ২৫ মিটার (৮২ ফুট) প্রশস্থ জায়গা/জমি ব্যবহারের প্রস্তাব করা হয়েছে (সংযুক্ত নকশা)। ঢাকা ওয়াসা কর্তৃক প্রস্তাবিত এ্যালাইমেন্ট অনুযায়ী বাপাউবো'র অধিগ্রহনকৃত জমির মধ্যে প্রায় ২.৭২৮ কিঃমিঃ ক্যানাল কর্ণগোপ মৌজায় ১.১৮৯ কিঃমিঃ, নার্সিংগল মৌজায় ০.৭১৬ কিঃমিঃ এবং দেবে মৌজায় ০.৮২৩কিঃমিঃ) বর্তমানে সেচ কাজে ব্যবহার না হওয়ায় ক্যানেলটি ঢাকা ওয়াসা কর্তৃক ব্যবহার করা হলে সেচ কার্যক্রম বিঘ্নিত হবে না। এছাড়া ঢাকা ওয়াসা কর্তৃক প্রস্তাবিত এ্যালাইমেন্ট মোতাবেক প্রায় ০.৫৫৭ কিঃমিঃ ক্যানেলটি (ভূলতা মৌজায় ০.২৮৯ কিঃমিঃ এবং গন্ধর্বপুর মৌজায় ০.২৬৮কিঃমিঃ) সেচ কাজে ব্যবহৃত হচ্ছে। তাই উক্ত অংশে জানুয়ারী হতে এপ্রিল পর্যন্ত সেচ কার্যক্রম চলাকালীন সময়ে ঢাকা ওয়াসা কর্তৃক উন্নয়ন কার্যক্রম বন্ধ রাখার প্রয়োজন হবে। তাই উক্ত সময়ে সেচ কার্যক্রম নিরবচ্ছিন্নভাবে চালু রাখার লক্ষ্যে ঢাকা ওয়াসা'র সংশ্লিষ্ট প্রকল্প পরামর্শক প্রতিষ্ঠান কর্তৃক যথাযথ কর্মপরিকল্পনা গ্রহণ করতে হবে।

EXISTING CONDITION GANDHARPUR- HURAPARA

খ) গন্ধর্বপুর হতে মুড়াপাড়া পর্যন্ত অংশের বর্তমান অবস্থা ঃ

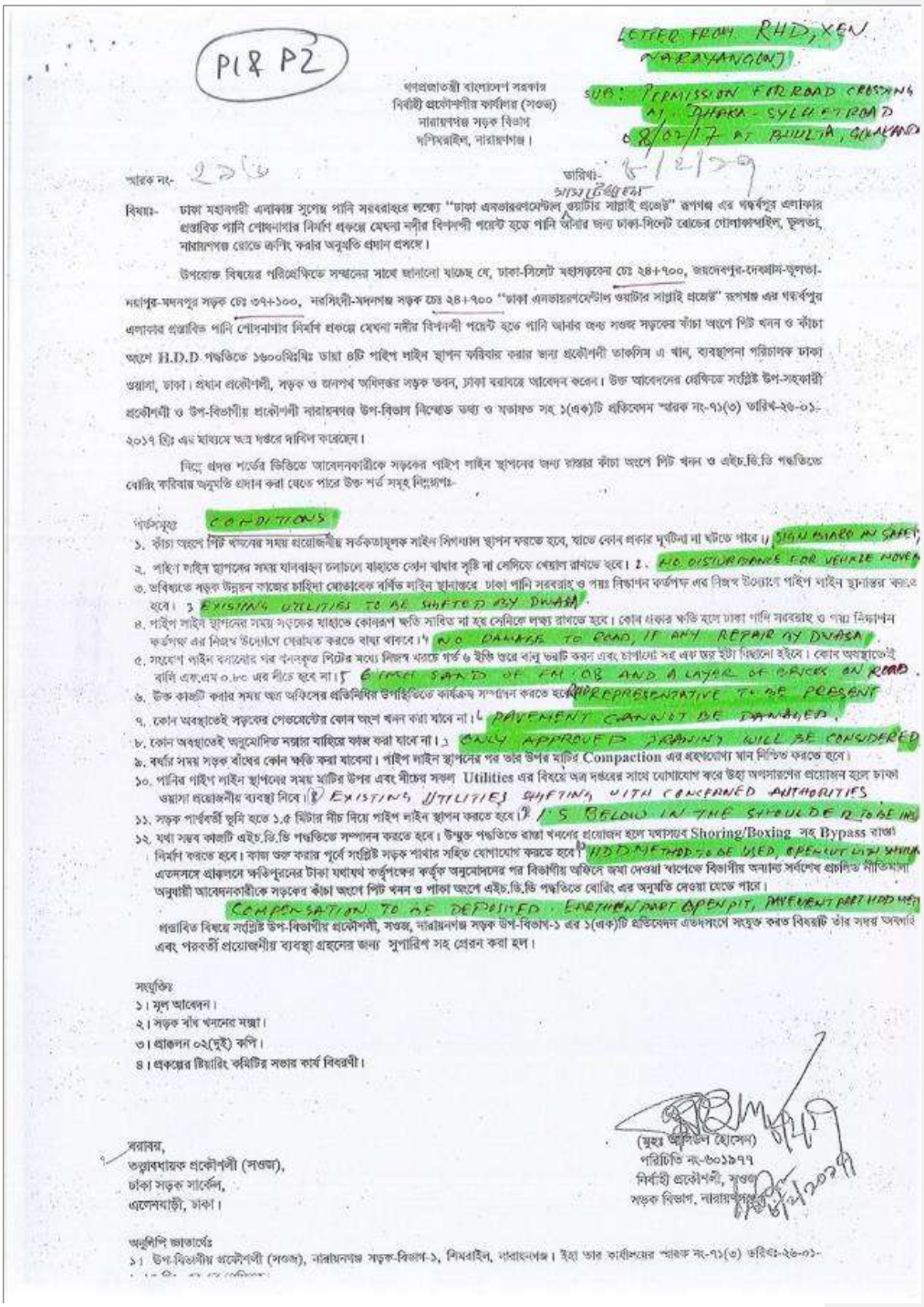
১। বাংলাদেশ পানি উন্নয়ন বোর্ড কর্তৃক বিগত ১৯৯০-৯১ সনে গন্ধর্বপুর, ব্রাহ্মণগাঁও, শিবগঞ্জ ও শরিয়তগঞ্জ মৌজায় প্রায় ৪.০০ কিঃমিঃ দৈর্ঘ্যে (গন্ধর্বপুর হতে মুড়াপাড়া পর্যন্ত) ১৮০ ফুট প্রশস্থ জায়গা/জমি অধিগ্রহণ করে বাঁধ নির্মাণ করা হয়। পরবর্তীতে এলজিডি কর্তৃক উক্ত বাঁধের উপর ৫০ ফুট প্রশস্থ রাস্তা নির্মাণ করা হয় এবং অবশিষ্ট অংশ বরোপিট হিসেবে ব্যবহৃত হচ্ছে। উক্ত বরোপিটের নীচ দিয়ে ঢাকা ওয়াসা কর্তৃক Transmission Line স্থাপন করলে প্রকল্পের সেচ কার্যক্রম ব্যহত হবে না।

এমতাবস্থায়, ঢাকা ওয়াসা'র ঢাকা এনভায়রণমেন্টালী সাসটেইনেবল ওয়াটার সাপ্লাই প্রকল্প (DESWSP) সুষ্ঠ বাস্তবায়নকল্পে বাংলাদেশ পানি উন্নয়ন বোর্ডের অধিগ্রহণকৃত কম/বেশী ২৪ একর জায়গা ঢাকা ওয়াসা কর্তৃক ব্যবহারের জন্য প্রচলিত বিধি মোতাবেক ব্যবস্থা গ্রহন করা যেতে পারে।

BY ACRE TO BE USED FROM BUDA

(মোঃ আঃ আউয়াল মিয়া)
নির্বাহী প্রকৌশলী
ঢাকা পওর বিভাগ-১
বাপাউবো, ঢাকা।

(মোঃ মাহমুদুল ইসলাম)
তত্ত্বাবধায়ক প্রকৌশলী
ও
প্রকল্প পরিচালক
ডিইএসডব্লিউএসপি
ঢাকা ওয়াসা।



P1 & P2

LETTER FROM RHD, XEN NARAYANGONJ

SUB: PERMISSION FOR ROAD CROSSING AT DHAKA - SYLHET ROAD ON 8/02/17 AT BHULTA, GOALAND

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বিভাগীয় প্রকৌশলীর কার্যালয় (সওজ)
নারায়ণগঞ্জ সড়ক বিভাগ
দলিপরাইল, নারায়ণগঞ্জ।

স্মারক নং- ২১৬

তারিখ- ৬/২/১৭

বিষয়:- ঢাকা মহানগরী এলাকায় সুপেয় পানি সরবরাহের লক্ষ্যে "ঢাকা এনভায়রনমেন্টাল ওয়াটার সাপ্লাই প্রজেক্ট" রূপগঞ্জ এর গন্ধর্বপুর এলাকার প্রস্তাবিত পানি শোধনাগার নির্মাণ প্রকল্পে মেঘনা নদীর বিপনন্দী পয়েন্ট হতে পানি আনার জন্য ঢাকা-সিলেট রোডের গোলাকান্দাইল, ভূলতা, নারায়ণগঞ্জ রোডে ক্রসিং করার অনুমতি প্রদান প্রসঙ্গে।

উপরোক্ত বিষয়ের পরিপ্রেক্ষিতে সম্মতির সাথে জানানো যাচ্ছে যে, ঢাকা-সিলেট মহাসড়কের চেঃ ২৪+৭০০, জয়দেবপুর-দেওয়ান-ভূলতা-মদনপুর-মদনপুর সড়ক চেঃ ৩৭+১০০, নরসিংদী-মদনগঞ্জ সড়ক চেঃ ২৪+৭০০ "ঢাকা এনভায়রনমেন্টাল ওয়াটার সাপ্লাই প্রজেক্ট" রূপগঞ্জ এর গন্ধর্বপুর এলাকার প্রস্তাবিত পানি শোধনাগার নির্মাণ প্রকল্পে মেঘনা নদীর বিপনন্দী পয়েন্ট হতে পানি আনার জন্য সওজ সড়কের বাঁচা অংশে পিট খনন ও কাঁচা অংশে H.D.D. পদ্ধতিতে ১৬০০মিঃমিঃ ডায়া ৪টি পাইপ লাইন স্থাপন করিবার করার জন্য প্রকৌশলী তাকসিম এ খান, ব্যবস্থাপনা পরিচালক ঢাকা ওয়াসা, ঢাকা। প্রধান প্রকৌশলী, সড়ক ও জনপথ অধিদপ্তর সড়ক ভবন, ঢাকা বরাবরে আবেদন করেন। উক্ত আবেদনের প্রেক্ষিতে সংশ্লিষ্ট উপ-সহকারী প্রকৌশলী ও উপ-বিভাগীয় প্রকৌশলী নারায়নগঞ্জ উপ-বিভাগ নিম্নোক্ত তথ্য ও যথাযথ সহ ১(এক)টি প্রতিবেদন স্মারক নং-৭১(৩) তারিখ-২৬-০১-২০১৭ খ্রিঃ এর মাধ্যমে অত্র দপ্তরে দাখিল করেছেন।

নিম্নে প্রদত্ত শর্তের ভিত্তিতে আবেদনকারীকে সড়কের পাইপ লাইন স্থাপনের জন্য রাস্তার কাঁচা অংশে পিট খনন ও এইচ.ডি.ডি পদ্ধতিতে বোরিং করিবার অনুমতি প্রদান করা যেতে পারে উক্ত শর্ত সমূহ নিম্নরূপঃ

শর্তসমূহ CONDITIONS

১. কাঁচা অংশে পিট খননের সময় প্রয়োজনীয় সর্তকতামূলক সাইন বিশপয়াল স্থাপন করতে হবে, যাতে কোন প্রকার দুর্ঘটনা না ঘটতে পারে। 1. SIGN BOARD AS SAFETY
২. পাইপ লাইন স্থাপনের সময় যানবাহন চলাচলে যাহাতে কোন বাধার সৃষ্টি না হোসিকে খেয়াল রাখতে হবে। 2. NO DISTURBANCE FOR VEHICLE MOVEM
৩. ভবিষ্যতে সড়ক উন্নয়ন কাজের চাহিদা মোতাবেক বর্ণিত লাইন স্থানান্তরে ঢাকা পানি সরবরাহ ও পয়ঃ নিষ্কাশন কর্তৃপক্ষ এর নিজস্ব উদ্যোগে পাইপ লাইন স্থানান্তর করতে হবে। 3 EXISTING UTILITIES TO BE SHIFTED BY DWASA
৪. পাইপ লাইন স্থাপনের সময় সড়কের যাহাতে কোনরূপ ক্ষতি সাধিত না হয় সেদিকে লক্ষ্য রাখতে হবে। কোন প্রকার ক্ষতি হলে ঢাকা পানি সরবরাহ ও পয়ঃ নিষ্কাশন কর্তৃপক্ষ এর নিজস্ব উদ্যোগে মেরামত করতে বাধ্য থাকবে। 4 NO DAMAGE TO ROAD, IF ANY REPAIR BY DWASA
৫. সংযোগ পাইপ বসানোর পর খননকৃত পিটের মধ্যে নিজস্ব খরচে গর্ত ৬ ইঞ্চি স্তরে বালু ভরাট করন এবং চাপাতে সহ এক স্তর ইটা বিছানো হইবে। কোন অবস্থাতেই বালি এফ.এম ০.৮০ এর নীচে হবে না। 5 EITHER SAND OF FM 1.0 AND A LAYER OF BRICKS ON ROAD
৬. উক্ত কাজটি করার সময় অত্র অফিসের প্রতিনিধির উপস্থিতিতে কার্যক্রম সম্পাদন করতে হবে। APPROPRESENTATIVE TO BE PRESENT
৭. কোন অবস্থাতেই সড়কের পেভমেন্টের কোন অংশ খনন করা যাবে না। 6 PAVEMENT CANNOT BE DAMAGED
৮. কোন অবস্থাতেই অনুমোদিত নকশার বাহিরে ফাল করা যাবে না। 7 ONLY APPROVED DRAWING WILL BE CONSIDERED
৯. বর্ষার সময় সড়ক বাঁধের কোন ক্ষতি করা যাবেনা। পাইপ লাইন স্থাপনের পর তার উপর মাটির Compaction এর গ্রহণযোগ্য মান নিশ্চিত করতে হবে।
১০. পানির পাইপ লাইন স্থাপনের সময় মাটির উপর এবং নীচের সকল Utilities এর বিষয়ে অত্র দপ্তরের সাথে যোগাযোগ করে উহা অপসারণের প্রয়োজন হলে ঢাকা ওয়াসা প্রয়োজনীয় ব্যবস্থা নিবে। 8 EXISTING UTILITIES SHIFTING WITH CONCERNED AUTHORITIES
১১. সড়ক পার্শ্ববর্তী ভূমি হতে ১.৫ মিটার নীচ দিয়ে পাইপ লাইন স্থাপন করতে হবে। 9 IS BELOW IN THE SHOULDER TO BE IN
১২. যথা সম্ভব কাজটি এইচ.ডি.ডি পদ্ধতিতে সম্পাদন করতে হবে। উক্তরূপ পদ্ধতিতে রাস্তা খননের প্রয়োজন হলে যথাসাধ্য Shoring/Boxing সহ Bypass রাস্তা নির্মাণ করতে হবে। কাজ শুরু করার পূর্বে সংশ্লিষ্ট সড়ক শাখার সহিত যোগাযোগ করতে হবে। HDD METHOD TO BE USED, OPENCUT ONLY WHEN

এতদসঙ্গে প্রাক্কলনে ক্ষতিপূরনের টাকা যথাযথ কর্তৃপক্ষের কর্তৃক অনুমোদনের পর বিভাগীয় অফিসে জমা দেওয়া স্বাপেক্ষে বিভাগীয় অন্যান্য সর্বশেষ প্রচলিত নীতিমালা অনুযায়ী আবেদনকারীকে সড়কের কাঁচা অংশে পিট খনন ও পাকা অংশে এইচ.ডি.ডি পদ্ধতিতে বোরিং এর অনুমতি দেওয়া যেতে পারে। COMPENSATION TO BE DEPOSITED. EARTHEN PART OPEN PIT, PAVEMENT PART HDD METH

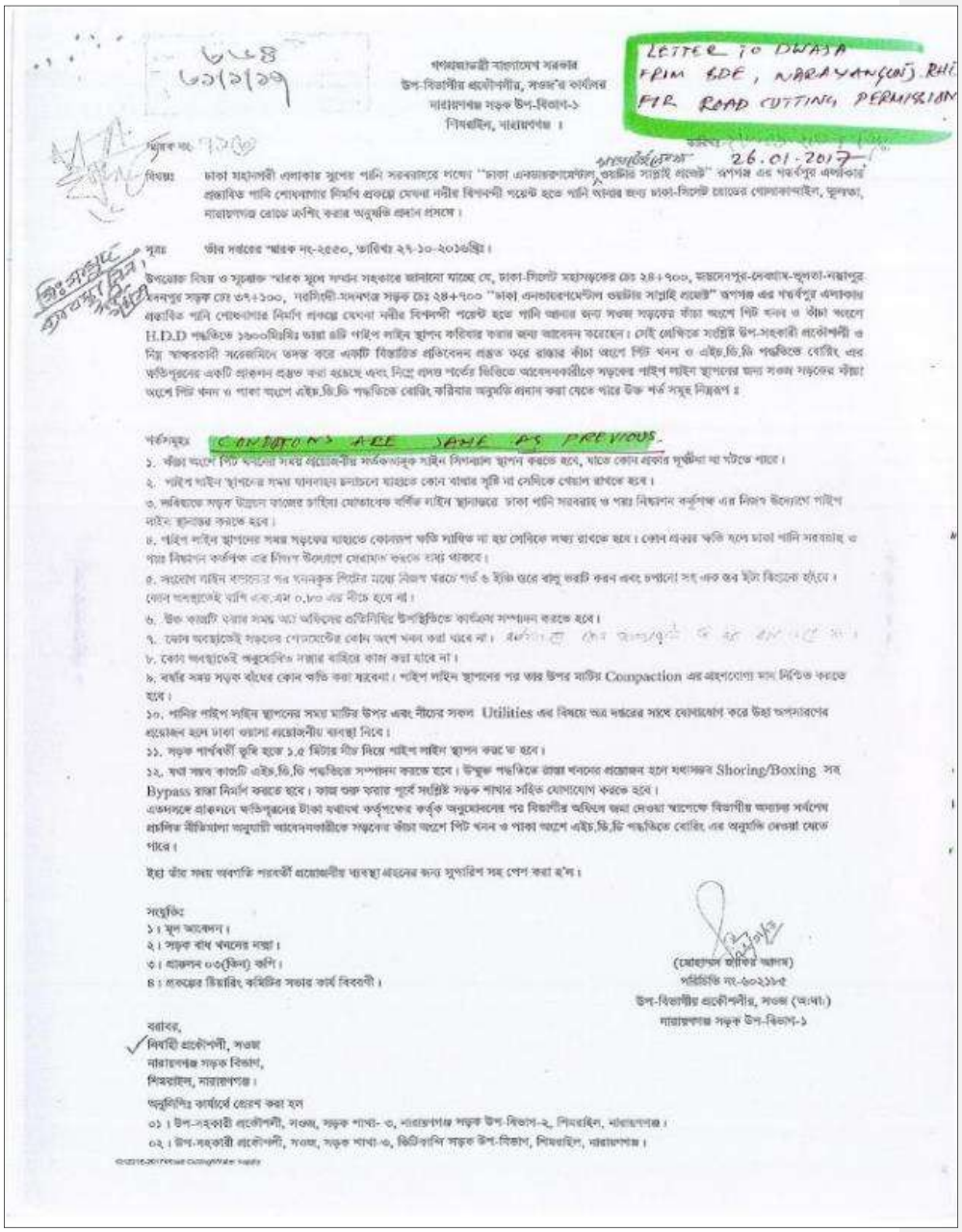
প্রস্তাবিত বিষয়ে সংশ্লিষ্ট উপ-বিভাগীয় প্রকৌশলী, সওজ, নারায়নগঞ্জ সড়ক উপ-বিভাগ-১ এর ১(এক)টি প্রতিবেদন এতদসংগে সংযুক্ত করত বিষয়টি তাঁর সদয় অবগতি এবং পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য সুপারিশ সহ প্রেরন করা হল।

সংযুক্তিঃ
১। মূল আবেদন।
২। সড়ক বাঁধ খননের নক্সা।
৩। প্রাক্কলন ০২(দুই) কপি।
৪। প্রকল্পের টিয়ারিং কমিটির সভার কার্য বিবরণী।

(মুহম্মদ জহিরুল হোসেন)
পরিচিতি নং-৩০১৯৭৭
নির্বাহী প্রকৌশলী, সওজ
সড়ক বিভাগ, নারায়ণগঞ্জ

বরাবর,
তত্ত্বাবধায়ক প্রকৌশলী (সওজ),
ঢাকা সড়ক সার্কেল,
এলেনবাড়ী, ঢাকা।

অনুলিপি জ্ঞাতার্থেঃ
১। উপ-বিভাগীয় প্রকৌশলী (সওজ), নারায়নগঞ্জ সড়ক-বিভাগ-১, দিমরাইল, নারায়নগঞ্জ। ইহা তার কার্যালয়ের স্মারক নং-৭১(৩) তারিখঃ-২৬-০১-



LETTER TO DWASA FRIM EDE, NARAYANGONJ. REG FOR ROAD CUTTING, PERMISSION

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
উপ-বিভাগীয় প্রকৌশলীর, সওজ'র কার্যালয়
নারায়ণগঞ্জ সড়ক উপ-বিভাগ-১
শিমরাইল, নারায়ণগঞ্জ ।

স্মারক নং-

তারিখঃ 26.01.2017

বিষয়ঃ ঢাকা মহানগরী এলাকায় সুপেয় পানি সরবরাহের লক্ষ্যে "ঢাকা এনভায়রনমেন্টাল ওয়াটার সাপ্লাই প্রজেক্ট" শীর্ষক এর গন্ধর্বপুর এলাকায় প্রস্তাবিত পানি শোধনাগার নির্মাণ প্রকল্পে মেঘনা নদীর বিশনন্দী পয়েন্ট হতে পানি আনার জন্য ঢাকা-সিলেট মহাসড়কের গোদনাকান্দাইল, ভূলতা, নারায়ণগঞ্জ জেলায় ক্রসিং করার অনুমতি প্রদান প্রসঙ্গে।

সূত্রঃ ডীন সাহেবের স্মারক নং-২৫৫০, তারিখঃ ২৭-১০-২০১৬ইং।

উপরোক্ত বিষয় ও সূত্রোক্ত স্মারক মূলে সদয় সহকারে জানানো যাচ্ছে যে, ঢাকা-সিলেট মহাসড়কের চেঃ ২৪+৭০০, মদনেরপুর-দেবগ্রাম-ভূলতা-নন্দাপুর বন্দরপুর সড়ক চেঃ ৩৭+১০০, সরদিগলি-মদনপুর সড়ক চেঃ ২৪+৭০০ "ঢাকা এনভায়রনমেন্টাল ওয়াটার সাপ্লাই প্রজেক্ট" শীর্ষক এর গন্ধর্বপুর এলাকায় প্রস্তাবিত পানি শোধনাগার নির্মাণ প্রকল্পে মেঘনা নদীর বিশনন্দী পয়েন্ট হতে পানি আনার জন্য সওজ সড়কের দাঁড়া অংশে পিট খনন ও তাঁরা অংশে H.D.D পদ্ধতিতে ১৯০০মিঃমিঃ ভায়া ডাই পাইপ লাইন স্থাপন করিবার করার জন্য আবেদন করেছেন। সেই লেখিতে সংশ্লিষ্ট উপ-সহকারী প্রকৌশলী ও নিম্ন স্বাক্ষরকারী সরেজমিনে তদন্ত করে একটি বিস্তারিত প্রতিবেদন প্রস্তুত করে রাস্তার কাঁচা অংশে পিট খনন ও এইচ.ডি.ডি পদ্ধতিতে বোরিং এর ভাঙাপুরনের একটি প্রাক্কলন প্রস্তুত করা হয়েছে এবং নিম্নে বর্ণিত শর্তের ভিত্তিতে আবেদনকারীকে সড়কের পাইপ লাইন স্থাপনের জন্য সওজ সড়কের পাঁকা অংশে পিট খনন ও পাকা অংশে এইচ.ডি.ডি পদ্ধতিতে বোরিং করিবার অনুমতি প্রদান করা যেতে পারে উক্ত শর্ত সমূহ নিম্নরূপ ঃ

শর্তসমূহঃ CONDITIONS ARE SAME AS PREVIOUS.

১. কাঁচা অংশে পিট খননের সময় যথেষ্ট প্রয়োজনীয় সতর্কতামূলক সাইন সিগন্যাল স্থাপন করতে হবে, যাতে কোন প্রকার দুর্ঘটনা না ঘটতে পারে।
২. পাইপ লাইন স্থাপনের সময় যানবাহন চলাচলে যাহাতে কোন বাধার সৃষ্টি না হয় সেদিকে খেয়াল রাখতে হবে।
৩. সরিষাতে সড়ক উন্নয়ন কাজের তারিখ মোতাবেক বর্ণিত লাইন স্থানান্তরে ঢাকা পানি সরবরাহ ও পয়ঃ নিষ্কাশন কর্তৃপক্ষ এর নিজস্ব উদ্যোগে পাইপ লাইন স্থানান্তর করতে হবে।
৪. পাইপ লাইন স্থাপনের সময় সড়কের যাহাতে কোনরূপ ক্ষতি সাধিত না হয় সেদিকে লক্ষ্য রাখতে হবে। কোন প্রকার ক্ষতি হলে ঢাকা পানি সরবরাহ ও পয়ঃ নিষ্কাশন কর্তৃপক্ষ তার নিজস্ব উদ্যোগে মেরামত করতে বাধ্য থাকবে।
৫. সংযোগ লাইন বসানোর পর খননকৃত লিটার মধ্যে নিজস্ব খরচে শর্ত ৬ ইঞ্চি স্তরে বালু ভরাট করণ এবং চলাচলে সংঃ এক স্তর ইট বিছানো হইবে। কোন অবস্থাতেই খাদি একাংশ ০.৮০ এর নীচে হবে না।
৬. উক্ত কাজটি করার সময় ঐ অফিসের প্রতিনিধির উপস্থিতিতে কার্যাদেশ সম্পাদন করতে হবে।
৭. কোন অবস্থাতেই সড়কের পেভমেন্টের কোন অংশ খনন করা যাবে না। [illegible]
৮. কোন অবস্থাতেই ওয়েটারিং নালার বাহিরে বাদ দেয়া যাবে না।
৯. বর্ষার সময় সড়ক বাঁধের কোন ক্ষতি করা যাবেনা। পাইপ লাইন স্থাপনের পর তার উপর মাটির Compaction এর প্রমাণগুলো মান নিশ্চিত করতে হবে।
১০. পানির পাইপ লাইন স্থাপনের সময় মাটির উপর এবং নীচের সকল Utilities এর বিষয়ে ঐ দপ্তরের সাথে যোগাযোগ করে উহা অপসারণের প্রয়োজন হলে তাহা ওয়াসা কর্তৃপক্ষের ব্যবস্থা নিবে।
১১. সড়ক পার্শ্ববর্তী ভূমি হতে ১.৫ মিটার গীত নিম্নে পাইপ লাইন স্থাপন করতে হবে।
১২. যথা সম্ভব কাজটি এইচ.ডি.ডি পদ্ধতিতে সম্পাদন করতে হবে। উল্লেখ পদ্ধতিতে রাস্তা খননের প্রয়োজন হলে যথাসম্ভব Shoring/Boxing সহ Bypass রাস্তা নির্মাণ করতে হবে। কাজ শুরু করার পূর্বে সংশ্লিষ্ট সড়ক শাখার সহিত যোগাযোগ করতে হবে।
এতদসঙ্গে প্রাক্কলনে ভাঙাপুরনের টাকা যথাযথ কর্তৃপক্ষের কর্তৃক অনুমোদনের পর বিভাগীয় অফিসে জমা দেওয়া স্বাপেক্ষে বিভাগীয় আদালত সর্বশেষ প্রচলিত নীতিমালা অনুযায়ী আবেদনকারীকে সড়কের কাঁচা অংশে পিট খনন ও পাকা অংশে এইচ.ডি.ডি পদ্ধতিতে বোরিং এর অনুমতি দেওয়া যেতে পারে।

ইহা তাঁর সদয় অবগতি পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য সুপারিশ সহ পেশ করা হ'ল।

সংযুক্তিঃ
১। মূল আবেদন।
২। সড়ক বাধ খননের নক্সা।
৩। প্রাক্কলন ০৩(তিন) ফর্দি।
৪। প্রকল্পের ডিজাইন কমিটির সভার কার্য বিবরণী।

(মোহাম্মদ জাকির হোসেন)
পরিচিতি নং-৬০২১১৫
উপ-বিভাগীয় প্রকৌশলীর, সওজ (অ:দা:)
নারায়ণগঞ্জ সড়ক উপ-বিভাগ-১

বরাবর,
নির্বাহী প্রকৌশলী, সওজ
নারায়ণগঞ্জ সড়ক বিভাগ,
শিমরাইল, নারায়ণগঞ্জ।

অনুলিপিঃ কার্যার্থে প্রেরণ করা হল
০১। উপ-সহকারী প্রকৌশলী, সওজ, সড়ক শাখা- ৩, নারায়ণগঞ্জ সড়ক উপ-বিভাগ-২, শিমরাইল, নারায়ণগঞ্জ।
০২। উপ-সহকারী প্রকৌশলী, সওজ, সড়ক শাখা-৩, ফিরিঙ্গিবাজার সড়ক উপ-বিভাগ, শিমরাইল, নারায়ণগঞ্জ।

পাতা-২

(৭) লাইসেন্স গ্রহীতা অর্থাৎ ঢাকা ওয়াসা কর্তৃক এমন কোন স্থাপনা নির্মাণ করা যাবে না যাতে নদীর স্বাভাবিক গতি প্রবাহ বাঁধগ্রস্ত হয় অথবা নৌ-চলাচলের বিঘ্ন ঘটে;

(৮) লাইসেন্স গ্রহীতা কর্তৃক দাখিলকৃত স্কেচ ম্যাপের বাইরে কর্তৃপক্ষের তীরভূমিতে/নদীর তীরে অন্য কোন অবকাঠামো তৈরি করা যাবে না। তবে প্রকল্পের স্বার্থে তথায় অবকাঠামো নির্মাণের প্রয়োজন হলে অত্র কর্তৃপক্ষের নিকট থেকে অনুমোদন গ্রহণ করতে হবে। অন্যথায় অত্র কর্তৃপক্ষ নির্মিত স্থাপনা অবৈধ হিসেবে তালিকায় অন্তর্ভুক্ত করতঃ উচ্ছেদ বা ভেঙ্গে ফেলতে বাধ্য হবে;

(৯) লাইসেন্সের মেয়াদ শেষ হওয়ার পূর্বেই পরবর্তী বৎসরের জন্য নবায়নের আবেদন করতে হবে। লাইসেন্স নবায়ন না করা হলে মেঘনা নদীর ইনটেক স্ট্রাকচার অপসারণ করে নদী মুক্ত করে দিতে ঢাকা ওয়াসা বাধ্য থাকবে;

(১০) পাইপ লাইন স্থাপন কাজ চলাকালীন সময়ে নৌ-যান চলাচলে কোনরূপ বিঘ্ন সৃষ্টি করা যাবে না। কাজ চলাকালীন সময়ে কোন নৌ-দুর্ঘটনা অথবা অন্য কোন দূর্ঘটনা সংঘটিত হলে তার সমস্ত দায় দায়িত্ব লাইসেন্স গ্রহীতাকে বহন করতে হবে।

(১১) সুষ্ঠু নৌ-চলাচলের স্বার্থে বা নৌ-দূর্ঘটনা এড়ানোর স্বার্থে মেঘনা নদীতে নির্মিতব্য ইনটেক স্ট্রাকচারের চারপার্শ্বে দিবা-রাত্রী পর্যাপ্ত সংখ্যক লাল পতাকা প্রদর্শনসহ সার্বক্ষণিক লাল বাতি জ্বালায়ে রাখতে লাইসেন্স গ্রহীতা বাধ্য থাকবে;

(১২) মহামান্য হাইকোর্টের রীট পিটিশন নং-৩৫০৩/০৯ ও ১৫৩৩৩/২০১২ এর আদেশ যথাযথভাবে প্রতিপালন করতে হবে; কোনভাবে নদী বা তীরভূমি ভরাট করা যাবে না বা এরূপ করা হলে ভরাটকৃত মাটি নিজ খরচে অপসারণ করে দিতে লাইসেন্স গ্রহীতা বাধ্য থাকবে;

(১৩) অত্র কর্তৃপক্ষের কাজের স্বার্থে/জনস্বার্থে বা রাষ্ট্রীয় স্বার্থে প্রদেয় লাইসেন্স বাতিল করা যাবে;

(১৪) লাইসেন্সে বলবৎ থাকাকালীন লাইসেন্স প্রদত্ত স্থাপনাদী বিশেষ কর্তৃপক্ষের প্রয়োজনে ০৭(সাত) দিনের নোটিশের লাইসেন্স গ্রহীতা স্থাপনাদী সরিয়ে পূর্বের অবস্থায় কর্তৃপক্ষের অনুকূলে বুঝিয়ে দিতে বাধ্য থাকবে।এ ক্ষেত্রে কোন দেনা পাওনা থাকলে তা হাবাহারি মতে সমন্বয় করা হবে;।

২। সূত্রস্থ 'ক' ও 'খ' স্মারকের ছায়ালিপি(সংলগ্নিসহ) ও কর্তৃপক্ষের নির্ধারিত ফর্মে ঢাকা ওয়াসার আবেদন এবং লাইসেন্স ফি নির্ধারনী এতদসংগে সংযুক্ত করা হলো।

৩। এমতাবস্থায়, উপরে বর্ণিত শর্তসহ কর্তৃপক্ষের প্রচলিত অন্যান্য শর্তাবলী প্রতিপালন স্বাপেক্ষে কর্তৃপক্ষের প্রাপ্যযোগ্য ১(এক) বছরের মোট লাইসেন্স ফি বাবদ ১৩,৭৫,৬৩০/- টাকা, ভ্যাট বাবাদ ১,৭৯,৪৩০/- টাকা এবং ৫% আয়কর বাবদ ৬৮,৭৮২/- টাকা অগ্রীম আদায় পূর্বক পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নির্দেশক্রমে অনুরোধ করা হলো।

সংযুক্ত ঃ বর্ণনামতে ৫(পাঁচ) পাতা।

স্বাক্ষরিত/=
(মুহাম্মদ রফিকুল ইসলাম)
অতিরিক্ত পরিচালক

অনুলিপি ঃ

১। তত্ত্বাবধায়ক প্রকৌশলী ও প্রকল্প পরিচালক, Dhaka Environmentally Sustainable Water Supply Project (DESWSP), Wasa Bhaban (9th floor), 98 Kazi Nazrul Islam avenew, kawran Bazar, Dhaka-1215.

২। নথি।

উপ-পরিচালক (বন্দর)

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বাংলাদেশ অভ্যন্তরীণ নৌ-পরিবহন কর্তৃপক্ষ

বন্দর ও পরিবহন বিভাগ

১৪১-১৪৩ মতিঝিল, বা/এ, ঢাকা-১০০০।

স্মারক নং-১৮.০২.২৬০০.০৬৩.০৬.০০০.২০১৫ (ঢাকা ওয়াসা)/ ৯৮০ তারিখঃ ২৭-১০-২০১৭ খ্রিঃ।

যুগ্ম-পরিচালক(বওপ)
নারায়ণগঞ্জ নদী বন্দর
বাঅনৌপক, নারায়ণগঞ্জ।

বিষয় ঃ ঢাকা মহানগরী এলাকায় সুপেয় পানি সরবরাহের লক্ষ্যে "ঢাকা এনভায়রণমেন্টালী সাসটেইনেবল ওয়াটার সাপ্লাই প্রজেক্ট" এর আওতায় রূপগঞ্জ এর গন্ধর্বপুর এলাকায় ঢাকা ওয়াসার প্রস্তাবিত পানি শোধণাগারের পরিশোধিত পানি ঢাকা শহরে আনার জন্য শীতলক্ষ্যা ও বালু নদীর তলদেশ দিয়ে **Micro Tunnelling** পদ্ধতিতে পাইপ লাইন স্থাপন এবং মেঘনা নদীতে ইনটেক স্থাপনের অনুমতি প্রদান প্রসঙ্গে।

সূত্র ঃ (ক) ঢাকা ওয়াসার স্মারক নং- ৪৬.১১৩.৬১৮.০০.০০G-28/DESWSP/২৮২২তারিখঃ ১৬-০৪-২০১৭খ্রিঃ।
(খ) কর্তৃপক্ষের দপ্তর আদেশ নং-২৫৩২/২০১৬ তারিখঃ ১১/০৬/২০১৬খ্রিঃ।

উপর্যুক্ত বিষয়ে সূত্রস্থ স্মারকদ্বয়ের প্রেক্ষিতে জানানো যাচ্ছে যে, ঢাকা ওয়াসার অগ্রাধিকার প্রকল্প "Dhaka Environmentally Sustainable Water Supply Project (DESWSP)" বাস্তবায়নের স্বার্থে অর্থাৎ ঢাকা শহরের জনগণের সহজে পর্যাপ্ত সুপেয় পানি প্রাপ্তির স্বার্থে (১) নারায়নগঞ্জ জেলার আড়াই হাজার উপজেলার, সন্তুপুরা মৌজার, বিশনন্দী এলাকায় (যার জেএল নং-১১৬, আর এস দাগ নং-১০৬) মেঘনা নদীর হাই-ওয়াটার বরাবর ২০০ মিটার×২.৫ মিটার ব্যাংক প্রটেকশন, ১০০মিঃ×৪মিঃ ইনটেক স্ট্রাকচারের পাইপ লাইনের প্লাটফর্ম স্ট্রাকচার এবং প্লাটফর্ম স্ট্রাকচারের হেডে ৩০ মিঃ×১২ মিঃ ইনটেক স্ট্রাকচার নির্মাণের (২) নারায়ণগঞ্জ জেলার রূপগঞ্জ উপজেলার শিবগঞ্জ মৌজার (যার জেএল নং-১২৭, আর এস দাগ নং-১১, ১২, ১৩) শীতলক্ষ্যা নদীর মুড়াপাড়া এলাকায় তীরভূমি দিয়ে প্রবেশ করে শীতলক্ষ্যা নদীর তলদেশ থেকে নূন্যতম ৮ মিটার নীচ দিয়ে ৩৫০ মিটার দৈর্ঘ্য ও ২.২০ মিটার ব্যাসের ২টি পাইপ Micro Tunneling পদ্ধতির মাধ্যমে নদীর অপর প্রান্তে নারায়ণগঞ্জ জেলার রূপগঞ্জ উপজেলার হরিনগ্রাম মৌজায় (যার জেএল নং-১১১, আর এস দাগ নং-৭৪৬, ৭৪৭, ৭৪৯, ৭৫০, ৭৫১) তীরভূমি বরাবর দিয়ে নির্গমন করার অর্থাৎ নদীর তলদেশ দিয়ে শীতলক্ষ্যা নদী অতিক্রমনের এবং (৩) নারায়ণগঞ্জ জেলার রূপগঞ্জ উপজেলার নাওড়া মৌজার নিকটবর্তী পশ্চিম নওড়া (যার জেএল নং-১০৯, এর আর এস দাগ নং- ৬১২, ৬১৩, ৬১৫) এলাকা তীরভূমি দিয়ে প্রবেশ করিয়ে বালু নদীর তলদেশ থেকে নূন্যতম ৮ মিটার নীচ দিয়ে ১৯৫ মিটার দৈর্ঘ্য ও ২.২০ মিটার ব্যাসের ২টি পাইপ Micro Tunneling পদ্ধতির মাধ্যমে নদীর অপর প্রান্তে ঢাকা জেলার বড় বেরাইদ মৌজার (যার জেএল নং-২৬/২, আর এস দাগ নং ১২২৮, ১৩৩০) তীরভূমি দিয়ে নির্গমন করার অর্থাৎ নদীর তলদেশ দিয়ে বালু নদী অতিক্রমনের বিষয়ে ঢাকা ওয়াসার অনুকূলে অনুমতি প্রদান করতঃ লাইসেন্স প্রদানের বিষয়ে যথাযথ কর্তৃপক্ষ কর্তৃক সিদ্ধান্ত গৃহীত হয়েছে ঃ-

(১) আগামি ০১-০১-২০১৮ তারিখ হতে ৩১-১২-২০১৮ তারিখ পর্যন্ত সময়ের জন্য লাইসেন্সটি বলবৎ থাকবে। লাইসেন্স এর মেয়াদ শেষ হওয়ার কমপক্ষে ১(এক) মাস পূর্বে ঢাকা ওয়াসার আবেদন ও অত্র কর্তৃপক্ষের বিবেচনা সাপেক্ষে প্রতি বছর নবায়নযোগ্য;

(২) নারায়নগঞ্জ জেলার আড়াই হাজার উপজেলার, সন্তুপুরা মৌজার, বিশনন্দী এলাকায় মেঘনা নদীর হাই-ওয়াটার বরাবর নির্মিতব্য ২০০ মিটার×২.৫ মিটার ব্যাংক প্রটেকশন হতে নদী বরাবরে সর্বোচ্চ ১০০ মিটার পর্যন্ত ৩০ মিঃ×১২ মিঃ ইনটেক স্ট্রাকচার নির্মাণ করা যাবে। কোন ভাবেই ইনটেক স্ট্রাকচারের পাইপ লাইনের প্লাটফর্ম ১০০ মিটারের বেশি নির্মাণ করা যাবে না;

(৩) ৩৫০ মিটার দৈর্ঘ্য ও ২.২০ মিটার ব্যাসের ২টি পাইপ শীতলক্ষ্যা নদীর মুড়াপাড়া এলাকায় তীরভূমি দিয়ে প্রবেশ করে নদীর তলদেশ থেকে নূন্যতম ৮ মিটার নীচ দিয়ে Micro Tunneling পদ্ধতির মাধ্যমে নদীর অপর প্রান্তে নারায়ণগঞ্জ জেলার রূপগঞ্জ উপজেলার হরিনাগ্রাম মৌজায় তীরভূমি বরাবর দিয়ে নির্গমন করাতে হবে। এই নির্দিষ্ট স্থানের বাইরে শীতলক্ষ্যা নদীর তলদেশ দিয়ে পাইপ লাইন স্থাপন করা যাবে না;

(৪) ১৯৫ মিটার দৈর্ঘ্য ও ২.২০ মিটার ব্যাসের ২টি পাইপ বালু নদীর পশ্চিম নওড়া এলাকায় তীরভূমি দিয়ে প্রবেশ করে নদীর তলদেশ থেকে নূন্যতম ৮ মিটার নীচ দিয়ে Micro Tunneling পদ্ধতির মাধ্যমে নদীর অপর প্রান্তে ঢাকা জেলার বড় বেরাইদ মৌজার (যার জেএল নং-২৬/২, আর এস দাগ নং ১২২৮, ১৩৩০) তীরভূমি দিয়ে নির্গমন করাতে হবে। এই নির্দিষ্ট স্থানের বাইরে বালু নদীর তলদেশ দিয়ে পাইপ লাইন স্থাপন করা যাবে না;

(৫) লাইসেন্স বলবৎ থাকাকালীন লাইসেন্স ফি বৃদ্ধি পেলে বর্ধিত হারে লাইসেন্স-ফিসহ অন্যান্য সরকারী রাজস্ব বা শুল্ক (প্রযোজ্য ক্ষেত্রে) লাইসেন্স গ্রহীতা পরিশোধ করতে বাধ্য থাকবে;

(৬) নৌ-পথগুলো সারা বছর নাব্য রাখার স্বার্থে ড্রেজিং কার্যক্রম পরিচালনাকালীন সময়ে ঢাকা ওয়াসা কর্তৃক স্থাপিত পাইপ লাইনের কোনরূপ ক্ষতি হলে তার দায়িত্ব ঢাকা ওয়াসাকেই বহন করতে হবে;

চলমান পাত-২

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পাতা-২

(৭) লাইসেন্স গ্রহীতা অর্থাৎ ঢাকা ওয়াসা কর্তৃক এমন কোন স্থাপনা নির্মাণ করা যাবে না যাতে নদীর স্বাভাবিক গতি প্রবাহ বাঁধাগ্রস্ত হয় অথবা নৌ-চলাচলের বিঘ্ন ঘটে;

(৮) লাইসেন্স গ্রহীতা কর্তৃক দাখিলকৃত স্কেচ ম্যাপের বাইরে কর্তৃপক্ষের তীরভূমিতে/নদীর তীরে অন্য কোন অবকাঠামো তৈরি করা যাবে না। তবে প্রকল্পের স্বার্থে তথায় অবকাঠামো নির্মাণের প্রয়োজন হলে অত্র কর্তৃপক্ষের নিকট থেকে অনুমোদন গ্রহণ করতে হবে। অন্যথায় অত্র কর্তৃপক্ষ নির্মিত স্থাপনা অবৈধ হিসেবে তালিকায় অন্তর্ভুক্ত করতঃ উচ্ছেদ বা ভেঙ্গে ফেলতে বাধ্য হবে;

(৯) লাইসেন্সের মেয়াদ শেষ হওয়ার পূর্বেই পরবর্তী বৎসরের জন্য নবায়নের আবেদন করতে হবে। লাইসেন্স নবায়ন না করা হলে মেঘনা নদীর ইনটেক স্ট্রাকচার অপসারণ করে নদী মুক্ত করে দিতে ঢাকা ওয়াসা বাধ্য থাকবে;

(১০) পাইপ লাইন স্থাপন কাজ চলাকালীন সময়ে নৌ-যান চলাচলে কোনরূপ বিঘ্ন সৃষ্টি করা যাবে না। কাজ চলাকালীন সময়ে কোন নৌ-দূর্ঘটনা অথবা অন্য কোন দূর্ঘটনা সংঘটিত হলে তার সমস্ত দায় দায়িত্ব লাইসেন্স গ্রহীতাকে বহন করতে হবে।

(১১) সুষ্ঠু নৌ-চলাচলের স্বার্থে বা নৌ-দূর্ঘটনা এড়ানোর স্বার্থে মেঘনা নদীতে নির্মিতব্য ইনটেক স্ট্রাকচারের চারপার্শ্বে দিবা-রাত্রী পর্যাপ্ত সংখ্যক লাল পতাকা প্রদর্শনসহ সার্বক্ষণিক লাল বাতি জ্বালায়ে রাখতে লাইসেন্স গ্রহীতা বাধ্য থাকবে;

(১২) মহামান্য হাইকোর্টের রীট পিটিশন নং-৩৫০৩/০৯ ও ১৫৩৩৩/২০১২ এর আদেশ যথাযথভাবে প্রতিপালন করতে হবে; কোনভাবে নদী বা তীরভূমি ভরাট করা যাবে না বা এরূপ করা হলে ভরাটকৃত মাটি নিজ খরচে অপসারণ করে দিতে লাইসেন্স গ্রহীতা বাধ্য থাকবে;

(১৩) অত্র কর্তৃপক্ষের কাজের স্বার্থে/জনস্বার্থে বা রাষ্ট্রীয় স্বার্থে প্রদেয় লাইসেন্স বাতিল করা যাবে;

(১৪) লাইসেন্সে বলবৎ থাকাকালীন লাইসেন্স প্রদত্ত স্থাপনাদী বিশেষ কর্তৃপক্ষের প্রয়োজনে ০৭(সাত) দিনের নোটিশের লাইসেন্স গ্রহীতা স্থাপনাদী সরিয়ে পূর্বের অবস্থায় কর্তৃপক্ষের অনুকূলে বুঝিয়ে দিতে বাধ্য থাকবে;এ ক্ষেত্রে কোন দেনা পাওনা থাকলে তা হারাহারি মতে সমন্বয় করা হবে;।

২। সূত্রস্থ 'ক' ও 'খ' স্মারকের ছায়ালিপি(সংলগ্নিসহ) ও কর্তৃপক্ষের নির্ধারিত ফর্মে ঢাকা ওয়াসার আবেদন এবং লাইসেন্স ফি নির্ধারনী এতদসংগে সংযুক্ত করা হলো।

৩। এমতাবস্থায়, উপরে বর্ণিত শর্তসহ কর্তৃপক্ষের প্রচলিত অন্যান্য শর্তাবলী প্রতিপালন স্বাপেক্ষে কর্তৃপক্ষের প্রাপ্যযোগ্য ১(এক) বছরের মোট লাইসেন্স ফি বাবদ ১৩,৭৫,৬৩০/- টাকা, ভ্যাট বাবাদ ১,৭৯,৪৩০/- টাকা এবং ৫% আয়কর বাবদ ৬৮,৭৮২/- টাকা অগ্রীম আদায় পূর্বক পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নির্দেশক্রমে অনুরোধ করা হলো।

সংযুক্ত ঃ বর্ণনামতে ৫(পাঁচ) পাতা।

স্বাক্ষরিত/=
(মুহাম্মদ রফিকুল ইসলাম)
অতিরিক্ত পরিচালক

অনুলিপি ঃ

১। তত্ত্বাবধায়ক প্রকৌশলী ও প্রকল্প পরিচালক, Dhaka Environmentally Sustainable Water Supply Project (DESWSP), Wasa Bhaban (9th floor), 98 Kazi Nazrul Islam avenew, kawran Bazar, Dhaka-1215.

২। নথি।

১৫/১০/১৫
উপ-পরিচালক (বন্দর)

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ENGLISH TRANSLATION OF THE MEMORANDUM OF MICRO TUNNELLING PERMISSION

Bangladesh Inland Water Transport Authority

Port and Transport Division

141-143 Motijheel, C/A, Dhaka - 1000

Memo No. – 18.02.2600.063.06.000.2015 (Dhaka WASA) 1880 Date: 17-10-2017

Joint-Secretary (BaOPa)

Narayangong River Port

BIWTA, Narayangon

Sub: In relation to give permission for installation of pipeline using Micro Tunneling System through under the rivers of Shitalakhya and Balu to bring treated water from the proposed water treatment plant at Gandharbpur, Rupgonj under "Dhaka Environmentally Sustainable Water Supply Project" for supplying potable water to Dhaka City

Ref: (Ka) DWASA Memo No. – 46.113.618.00.00G-28/DESWSP/2822, dated: 16-4-2017AD

(Kha) Office Order No. – 2532/201, dated: 11/06/2016AD

In reference to the above-mentioned memos about the subject mentioned, this is to inform, the authority has decided to issue the license having been granting permission in favour of DWASA for the interest of implementation of DWSA first tracked project "Dhaka Environmentally Sustainable Water Supply Project" that means for the interest of getting sufficient potable water by the people of Dhaka City (1) For construction of 200m x 2.5m river bank protection along the high-water of the Meghna River, 100m x 4m Platform for pipeline for Intake Structure and 30m x 12m Intake Structure at the head of Pipeline Platform at Bishnandi area in Shamvupur Mouza (JL No.-116, RSA Plot No.-106) under Araihazar Upazila, Narayangonj Zila; (2) For installation of 2 pipes of 350m long and 2.20m diameter using Micro Tunneling System through under the river bed of Shitalakhya at a minimum depth of 8m, entering at the Shitalakhya river bank at Murapara area in Shibgonj Mouza (JL No.-127, RS Plot No.-11, 12 13), Rupgonj Upazila, Narayangonj Zila and coming out crossing the river and pass through the opposite bank of the river at Horinagram Mouza (JL No.- 111, RS Plot No.- 746, 747, 749, 750, 751) under Rupgonj Upazla, Narayangonj Zila; and (3) For installation of 2 pipes of 195m long and 2.20m diameter using Micro Tunneling System through under the river bed of Balu at a minimum depth of 8m, entering at the Balu river bank at West Naora in Naora Mouza (JL No.-109, RS Plot No.-612, 613, 615), Rupgonj Upazila, Narayangonj Zila and coming out crossing the river and pass through the opposite bank of the river at Beraid Mouza (JL No.- 26/2, RS Plot No.- 1228, 1330) under Dhaka Zila.

(1) This license will be valid for the period of 01-01-2018 to 31-12-2018. The license is renewable every year on application by DWASA 1 (one) month prior to the expiration of the License and consideration of the Authority;
(2) 200m x 2.5m river bank protection along the high-water of the Meghna River, 100m x 4m Platform for pipeline for Intake Structure and 30m x 12m Intake Structure at the head of Pipeline Platform at Bishnandi area in Shamvupur Mouza under Araihazar Upazila, Narayangonj Zila can be constructed. Under no circumstances the pipeline platform of the Intake Structure can be constructed more than 100m;
(3) Entering 2 pipes of 350m long and 2.20m diameter using Micro Tunneling System through under the river bed of Shitalakhya at a minimum depth of 8m at the Shitalakhya river bank at Murapara area in Shibgonj Mouza, Rupgonj Upazila, Narayangonj Zila shall have to be taken out crossing the river and pass through the opposite bank of the river at Horinagram Mouza under Rupgonj Upazla, Narayangonj Zila. The pipeline cannot be constructed beyond this area under the Shitalakhya river;
(4) Entering 2 pipes of 195m long and 2.20m diameter using Micro Tunneling System through under the river bed of Balu at a minimum depth of 8m at the Balu river bank at West Naora in Naora Mouza, Rupgonj Upazila, Narayangonj Zila shall have to be taken out crossing the river and pass through the opposite bank of the river at Beraid Mouza under Dhaka Zila. The pipeline cannot be constructed beyond this area under the Balu river;
(5) The License holder shall be bound to pay the increased amount due to any increase in license fees including other taxes or duties (in applicable cases);
(6) DWASA shall have to take responsibility of any damage of the installed pipeline during routine dredging for the interest of maintaining whole-year navigability of rivers;
(7) The License holder, meaning DWASA shal not construct any structure that obstruct the normal flow of or navigation through river;
(8) No other structure can be constructed beyond the submitted sketch maps by the license holder along the bank of the river. But, necessary permission have to be obtained in case of necessity of construction of any other structure for the interest of the project. Otherwise the Authority will be compelled to abolish or demolish the constructed structure listing them as unauthorized construction;
(9) Prior to the expiry of the license, application for renewal shall have to be submitted. If the license is not renewed, DWASA will be bound to remove the Meghna river Intake Structure to free the river.
(10) During the construction of the pipeline no obstruction in navigation shall be made. License holder shall bear the whole responsibility of any accident of river transport or any other during the construction work;
(11) The license holder shall be bound to show enough red flags and lit red lamps all the time during day and night for the interest of proper navigation or for avoiding any accident of river transport;
(12) The Order of the High Court Writ Petition No.- 3503/09 and 15333/2012 shall be followed in an appropriate manner; Un no circumstances the river bank can be filled in or if it is done so the license holder shall be bound to remove the same at their own expense;
(13) The issued license may be cancelled for the work interest of the Authority/Public or the State;
(14) During the period of validity of the license, the license holder shall be bound to remove the licensed structure and bring back it to original state for the

requirement of Special Authority within a 7 (seven) day notice and handover to the Authority; In that case any cost shall be adjusted on proportionate basis.

2. Copies of referred Ka and Kha memos and DWASA application in prescribed form and estimate of license fees are attached herewith.

3. Under the circumstances, on fulfillment of the conditions as described above and applicable all other conditions, requesting to take necessary action as ordered collecting in advance the payable license fees for 1 (one) year an amount of Tk. 13,75,630.00, VAT Tk. 1,79,430.00 and 5% income tax amounting to Tk. 68,782.

Attachment: 5 pages as described.

SD/-

(Muhammad Rafiqul Islam)

Additional Director

Copy to:

1. Superintending Engineer and Project Director, Dhaka Environmentally Sustainable Water Supply Project (DESWSP), Wasa Bhaban (9th floor) 98 Kazi Nazrul Islam Avenue, Kawran Bazar, Dhaka – 1215
2. Record.

SD/-

Deputy Director (Port)

L. Grievance Redress Committee Members in PMU

Following ADB Safeguard Policy Statement (SPS), 2009 established time bound grievance committees together with procedures at three levels to address or resolve unusual incidences occurs during implementation of the project activities. The solution of incidences would be based on the complaints raised from APs and community people. In case of any unsettle dispute, GRC through submission of formal reference from DWASA will resolve the problem.

Formation of GRC

Grievance Redress Committee (GRC) constituted comprising of a panel of five members; 1st is DWASA representative, 2rd MDSC representative 3rd DWASA Representative as well as the other two are also from DWASA Safe Guard Officer (Social & Gender) as member Secretary.

The GRC under ICB Package 2 is as below:

GRC Composition

S.I	Name	Designation at GRC	Institution	Designation
1	Executive Engineer, DESWSP	Convener	DWASA	EE, DESWSP
2	Resettlement Specialist	Member	Consultant (MDSC)	Resettlement and Awareness Expert
3	Assistant Engineer	Member	DESWSP DWASA	AE DESWSP
4	Assistant Engineer (Female)	Member	DESWSP DWASA	AE DESWSP
5	Safeguard officer (Social and Gender)	Member Secretary	DESWSP DWASA	Safeguard Officer (S&G) DESWSP

The finalized GRC is below

উন্নয়নের গণতন্ত্র
শেখ হাসিনার মূলমন্ত্র

Office of the Project Director
Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Dhaka Water Supply and Sewerage Authority
WASA Bhaban, 98, Kazi Nazrul Islam Avenue (9th Floor)
Kawran Bazar, Dhaka-1215
Web site- www.deswsp-dwasa.com , Email: pddeswspgwtp@gmail.com, Fax & Tel:88-02-8189095

Memo no: 46.113.618.00.00. GN- 97/DESWSP/ 1234 Date- 22.08.2019

Office Order

Sub: Formation of Environmental Safeguard Grievance Redress Committee (GRC) for Gandharbpur Water Treatment Plant related works under DESWS Project, Dhaka WASA .

With due regards based on subject mentioned this is to notify you that Environmental Safeguard **Grievance Redress Committee (GRC)** for Gandhorbpur Water Treatment Plant related works (WTP, Intake Raw water transmission main , Finish Water transmission and distribution Feeder line) of DESWSP the PMU has formed Environmental Safeguard Grievance Redress Committee (GRC) and approved the same by the competent authority.

Environmental Safeguard Grievance Redress Committee (GRC) for Gandhorbpur Water Treatment Plant related works

Sl.	Name and Designation	Position in GRC
1.	Md. Shafiqur Rahman, DPD, DESWSP, DWASA.	Convener
2.	Mostafizur Rahman, Executive Engineer, DESWSP, DWASA.	Member
3.	Md. Al-Amin, Executive Engineer, DESWSP, DWASA.	Member
4.	National Environment Expert (Representative from MDSC), DESWSP, DWASA.	Member
5.	Md. Saidur Rahman, Safeguard Officer (Environment), DESWSP, DWASA.	Member Secretary
6.	Representative from contractor of WTP related works	Member

TOR of Environmental Safeguard Grievance Redress Committee (GRC) for Gandhorbpur Water Treatment Plant related works:

1. Environmental Safeguard Grievance Redress Committee (GRC) will be established to ensure stakeholders' participation in the implementation process and fair compensation to vulnerable affected persons (APs) for environmental safeguard issues related effects.
2. The APs can also call upon the representative of contractor/ MDSC/ PMU to assist them in presenting their grievance or queries to the GRC.
3. The GRC will receive grievance cases from the affected persons through the representative of contractor/ MDSC/ PMU.

উন্নয়নের গণতন্ত্র
শেখ হাসিনার মূলমন্ত্র

ওয়াসা

Office of the Project Director
Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Dhaka Water Supply and Sewerage Authority
WASA Bhaban, 98, Kazi Nazrul Islam Avenue (9th Floor)
Kawran Bazar, Dhaka-1215
Web site- www.deswsp-dwasa.com , Email: pddeswspgwtp@gmail.com, Fax & Tel:88-02-8189095

4. Other than disputes relating to ownership right and award of compensation by the Deputy Commissioner (DC) under the Court of Law, GRC will review grievances involving all environmental safeguard related resettlement assistances, relocation, and other supports. Grievances will be redressed within 21 days from the date of lodging the complaints. In case of complicated cases requiring additional investigations it will be resolved within a period of one month.
5. Grievance of indirectly displaced persons and/or persons displaced during project implementation due to environmental effect will also be addressed by the GRC.
6. Where relocation of structure or vacating land of cultivation will be required the GRC will facilitate resolution of complaints regarding categorization of vulnerable affected persons, type of structures, arid eligibility for compensation and assistance within the set guidelines and provisions of the resettlement plan.
7. Any complaints of ownership or other suits to be resolved by the judiciary system will not be resolved in GRC. GRC will resolve all complaints, grievance related to compensation entitled by affected persons.
8. The decisions of the GRC should be ideally be arrived at through consensus, failing which resolution will be based on majority vote. Any decision made by the GRC must be within purview of environmental policy framework of GOB, ADB's Environmental Safeguard Policy Statement.
9. A minimum of 4 (four) members shall form the quorum for the meeting of GRC.
10. If needed the GRC members may undertake field visit to verify and review the issues at dispute, including titles/share, reasons for any delay in payment or other related matters.
11. In case of resolution is not accepted by the AP, the grievances will be forwarded to the Project Director for final decision.

Working Area of the GRC: The concern committee will administer the stated ToRs.

22/8/19
Md. Mahmudul Islam
Project Director
DESWS Project, Dhaka WASA.

CC. (not order in seniority)
1. DPD-1/2, DESWS Project, Dhaka WASA
2. Executive Engineer-1/2/3, DESWS Project, Dhaka WASA
3. Assistant Engineer,.....DESWS Project, Dhaka WASA .
4. Safeguard Officer (Env)/ (S&G) ..... DESWS Project, Dhaka WASA
5. Team Leader/ DTL , MDSC, DESWS Project, Dhaka WASA
6. National Resettlement Specialist/ Environmental Expert , MDSC, DESWS Project, Dnaka WASA
7. Team Leader, DORP, DESWS Project, Dhaka WASA
8. Team Leader EMA , DESWSP DWASA
9. Contractor Representative , GWT SNC

G File P/o

Procedures of resolving grievances

Step 1

In case of any grievances, the complainant approaches to the Safeguard Implementation Unit (SIU) officials for clarification, or submits any formal complaints. The SIU will provide clarification to the displaced persons (DPs) and try to resolve the problem at the local level with the involvement of SIU social safeguards officer, If not resolved.

Step 2

The SIU will recommend that APs submit their complaints to the GRC. The SIU will assist the DPs filing the complaints and organizes hearing within 14 days of receiving the complaints.

Step 3

GRC to scrutinize applications determine whether the submitted cases are within their mandate. Cases related to compensation under the Acquisition & Requisition of Immovable Property Ordinance (ARIPO) will be referred to DC through DWASA, SIU for further review and action GRC invites representatives of APs to attend the meetings.

Step 4

If within the GRC mandate and not related to compensation under ARIPO, GRC will hold session with aggrieved APs, minutes recorded. If resolved, the project director approves. If not resolved;

Step 5

The DP may accept GRC decision; if not, he/she may file a case in the court of law for further appeal.

Step 6

The GRC minutes, approved by the project director will be received at the conveners' office.

The approved verdict is communicated to the complainant AP in writing. APs will be able to submit their grievance/complaint about any aspects of resettlement plan implementation and compensation. Grievances can be shared with DWASA verbally or in written form, but in case of verbal form, the SIU representatives in the GRC will write it down at the first instance during the meeting at no cost to APs. The AP will sign and formally submit the written report to the GRCs at the office of the SIU, PMU, and DWASA in implementing the RP. Any AP can also take their case to the court following the country legal system at any stage without going through the project GRM, if they wish to do so.

The GRCs has been activated with power to resolve resettlement and compensation issues not to be addressed under legal suit in the courts. The GRCs is ready to receive grievance cases from the affected persons through the resettlement awareness. The NGO will assist the APs in lodging their resettlement complaints in a proper format acceptable to the GRCs after they get ID cards from DWASA or are informed about their entitlements and losses.

The appeal procedure and conflict resolution:

(i) All complaints from the APs will be received at the field office of the resettlement awareness SIU the member secretary of the GRCs, with a copy for the concerned City Corporation Ward Commissioner's representatives.
(ii) The representative of the SIU in the GRCs, upon receipt of complaints, will inform the convener (DWASA representative) of the GRC and convener will organize a hearing session from the complainants in the concerned City Corporation/Word Commissioner office, where the complaint was received.
(iii) The GRC will review the proceedings and pass verdicts to convey to the concerned AP through the SIU. If there are matters relating to arbitration or compensation under the existing law, the matter will be referred to the DC and the courts. The DC has to make decision within maximum of 14 days.
(iv) The GRC will settle the disputes within a maximum of 21 days of receiving the complaints

from the APs.

(v) Resolution of the GRCs will be sent to the PD for approval, and after approval these will be adopted in the process of resettlement for issuance of ID cards, determination of loss and entitlements, and payment thereof.

In the event that the established GRM is not in a position to resolve the issue, the affected person can also use the ADB Accountability Mechanism (AM) through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB Headquarters or the ADB Bangladesh Resident Mission (BRM). The complaint can be submitted in any of the official Languages of ADB's DMCs. The ADB Accountability Mechanism information will be included in the Project Information Disclosure (PID) to be distributed to the affected communities, as part of the project GRM.

M. EMP Obligations in Contract Document

BILL PART NR 2

GENERAL AND PRELIMINARIES

Item	Item Description	Unit	Quantity	Unit Rate				Amount			
				Local Currency Portion (BDT)	Foreign Currency Portion (FOREX 1)	Foreign Currency Portion (FOREX 2)	Foreign Currency Portion (FOREX 3)	Local Currency Portion (BDT)	Foreign Currency Portion (FOREX 1)	Foreign Currency Portion (FOREX 2)	Foreign Currency Portion (FOREX 3)
a	b	c	d	e	f	g	h	i = d x e	j = d x f	k = d x g	l= d x h
2.3 HEALTH & SAFETY Allow for all costs and charges in connection with:											
2.3.1	Provision and management of Health and Safety in accordance with Appendix A to the Particular Conditions of Contract (Provisional Sum)	LS	1				-	92,400,000	0	0	0

TOTAL FOR 2.3 HEALTH & SAFETY											
Carried to Summary of Bill Part Nr 2											
2.4 ENVIRONMENTAL & SOCIAL REQUIREMENTS Allow for all costs and charges in connection with:											
2.4.1	Environmental & Social Requirements in accordance with Particular Conditions of Contract (PCC) - Safeguards Policy Statement Requirements	LS	1								
TOTAL FOR 2.4 ENVIRONMENTAL & SOCIAL REQUIREMENTS											
Carried to Summary of Bill Part Nr 2											
	SUMMARY										
	TOTAL SECTION 2.1 CONDITIONS OF CONTRACT										
	TOTAL SECTION 2.2 SPECIFICATIONS										

	TOTAL SECTION 2.3 HEALTH & SAFETY				
	TOTAL SECTION 2.4 ENVIRONMENTAL & SOCIAL REQUIREMENTS				
TOTAL BILL NR 2 **Carried to Grand Summary**					

Source: Contract Document P2

For EMP and safeguard budget costs, see Annex P.

N. Waste Disposal and Transfer Sites

Waste disposal sites (Landfills) of Dhaka are usually situated outside the city boundary, this also increases the transport cost of disposing wastes. In Dhaka, Matuail is the sanitary landfill of South Dhaka and Gabtoli (Amin Bazaar) is the landfill of North Dhaka. Currently, the construction of a sanitary landfill is going on in Amin Bazaar landfill. The sanitary landfill is a result of the initiative by JICA. In the Sanitary landfill, the wastes carried by the truck are measured first and then they are dumped at the dumping platform. Subsequently, the trucks are unloaded using excavator and manually. Finally the bulldozers compact the waste at the dumping platform.

In Dhaka City, out of the two main landfills, Matuail Landfill is a semi-aerobic landfill, where methane-dioxide, oxygen and odorous gases release through pipes, so the smell of the landfill is less toxic. Matuail Landfill is under Dhaka South City Corporation (DNCC), which consists of an area of about 40 hectares. JICA had stated in the master plan that out of 40 hectares, only 20 hectares area were still unused in 2005. The DSCC official confirmed that at present all the lands are covered in waste and by 2017 the capacity of dumping will be exhausted. Currently they are dumping the waste adopting pyramid method (having a slope of 1/3). The records of the trips by trucks are documented in a computer system at *Nagar Bhaban* (Central office of DSCC) to understand the truck movements. They have garbage bracket to prevent the trucks from slipping into the water in the rainy season.

Gabtoli (Amin Bazaar) is an open dumping landfill at the moment. Even though the work of sanitary dumping site is going on, Amin Bazaar is expected to be fully exhausted and sealed by 2017- 2018. The total area of Amin Bazaar is 20 hectares.

Ultimate disposal of urban solid waste is done crudely in open dumps, lowlands or water bodies in an unsanitary manner. As a result, the surrounding environment of the dumpsites is barely hygienic. The increasing demand for landfill is also a big problem for the authority to find suitable lands for dumping wastes.

However, DoE, DWASA, MDSC and contractors have to discuss and to find out alternative options for proper waste disposal because none of the three sites (landfills, transfer station) is suitable for disposal of construction waste including spoiled soil from P2 construction sites because these disposal sites do not have capacity anymore.

Following are the photographs of disposal site

1. Matuail Site: This site has an area of 40 hectare, with an average height of 5meter, but now its height is 18 meter. JICA and DCC funded this site.

Photograph of Matuail Disposal Site

Photograph of Matuail Disposal Site

2. Gabtoli (Amin Bazar) Site:

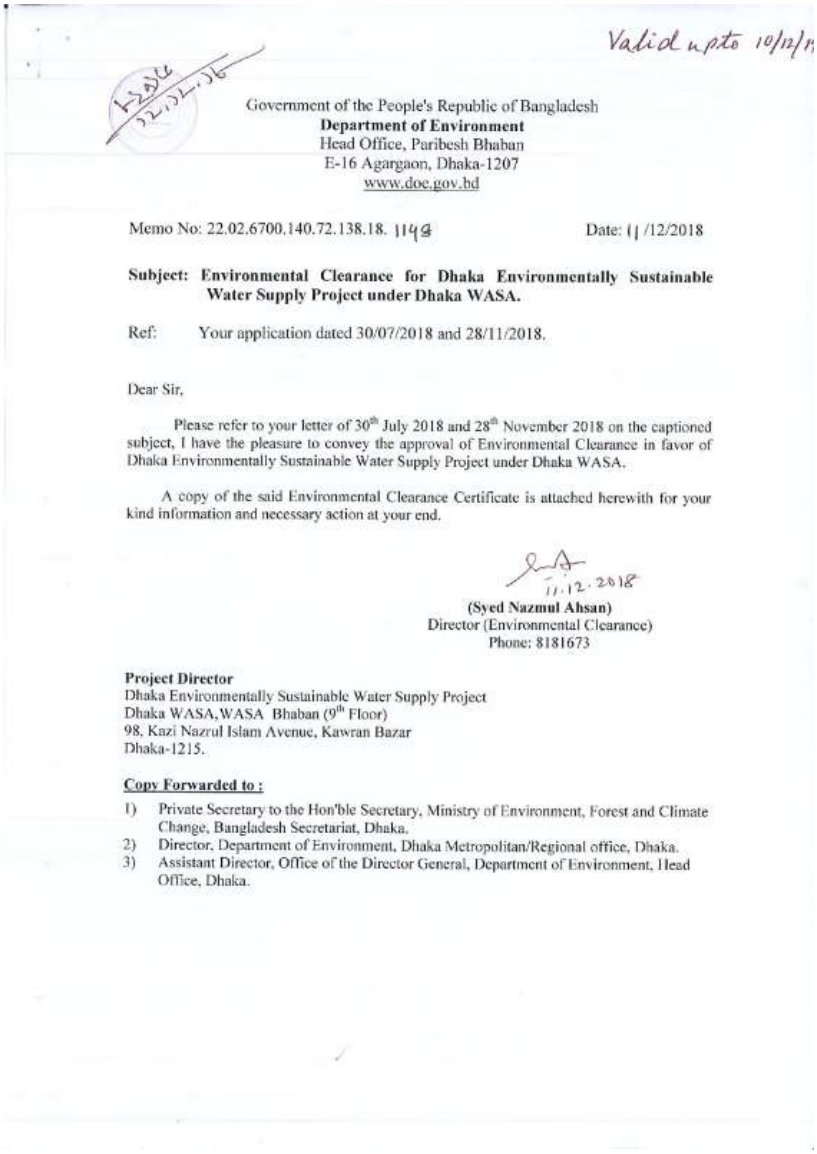
Photograph of Gabtoli (Amin Bazar) Disposal Site

Photograph of Gabtoli (Amin Bazar) Disposal Site

3. Uttara Secondary Waste Transfer Station: This area is not a dumping site, rather this is a transfer station.

Photograph of Secondary Transfer station, Uttara.

O. Environmental Clearance for DESWSP



Valid upto 10/11/1

Government of the People's Republic of Bangladesh
Department of Environment
Head Office, Paribesh Bhaban
E-16 Agargaon, Dhaka-1207
www.doe.gov.bd

Memo No: 22.02.6700.140.72.138.18. 1149 Date: 11 /12/2018

Subject: Environmental Clearance for Dhaka Environmentally Sustainable Water Supply Project under Dhaka WASA.

Ref: Your application dated 30/07/2018 and 28/11/2018.

Dear Sir,

Please refer to your letter of 30th July 2018 and 28th November 2018 on the captioned subject, I have the pleasure to convey the approval of Environmental Clearance in favor of Dhaka Environmentally Sustainable Water Supply Project under Dhaka WASA.

A copy of the said Environmental Clearance Certificate is attached herewith for your kind information and necessary action at your end.

11.12.2018

(Syed Nazmul Ahsan)
Director (Environmental Clearance)
Phone: 8181673

Project Director
Dhaka Environmentally Sustainable Water Supply Project
Dhaka WASA,WASA Bhaban (9th Floor)
98, Kazi Nazrul Islam Avenue, Kawran Bazar
Dhaka-1215.

Copy Forwarded to :

1) Private Secretary to the Hon'ble Secretary, Ministry of Environment, Forest and Climate Change, Bangladesh Secretariat, Dhaka.
2) Director, Department of Environment, Dhaka Metropolitan/Regional office, Dhaka.
3) Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka.

Government of the People's Republic of Bangladesh
Department of Environment
Paribesh Bhaban, E-16, Agargaon
Sher-e-Bangla Nagar, Dhaka-1207
www.doe.gov.bd

Environmental Clearance Certificate

Section 12 of the Environment Conservation Act, 1995 (Amended 2002)

Clearance Certificate Number: ১১৭৪

File number: 22.02.6700.140.72.138.18.

Clearance Certificate Issue Date: 11, December 2018

Renewal date not later than: ১৩, November 2018

A. Clearance Certificate Type

Environmental Clearance Certificate

B. Clearance Certificate Holder

Project Director
Dhaka Environmentally Sustainable Water Supply Project
Dhaka WASA, WASA Bhaban (9th Floor)
98, Kazi Nazrul Islam Avenue, Kawran Bazar
Dhaka-1215.

C. Premises to which this Clearance Certificate Applies

Project Director
Dhaka Environmentally Sustainable Water Supply Project
Dhaka WASA, WASA Bhaban (9th Floor)
98, Kazi Nazrul Islam Avenue, Kawran Bazar
Dhaka-1215.

D. Activities for which this Clearance Certificate Authorizes and Regulates

The following components will be implemented through Dhaka Environmentally Sustainable Water Supply Project under Dhaka WASA -
Component 1 : Water Treatment Plant (WTP) (capacity 500MLD)
Component 2 : Water Intake Structure (capacity 1050 MLD)
Component 3 : 21.7 kilometer Raw Water Transmission Pipeline
Component 4 : 13 kilometer Treated Water Transmission Pipeline
Component 5 : 23 kilometer Distribution Reinforcement within the existing network
Component 6 : 56 kilometer Distribution Reinforcement, small distribution pipe to DMA

1/4

E. Terms and Conditions for Environmental Clearance Certificate

1. **Limit Condition for Discharges to Air and Water:** The Environmental Clearance Certificate must comply with schedule 2 and 10, rule 12 of the Environment Conservation Rules, 1997.

2. **Noise Limit**: The Environmental Clearance Certificate must comply with the Noise Pollution (Control) Rules, 2006.

In case of non-coverage of ECR 1997 the World Bank Environment, Health and Safety Guideline shall be adhered to.

3. **Operating conditions:**

3.1 Activities must be carried out in a competent manner. This includes:
(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

3.2 All plant and equipment installed at the premises or used in connection with the Environmental Clearance activity:
(a) must be maintained in a proper and efficient condition; and
(b) must be operated in a proper and efficient manner.

3.3 Construction works shall be restricted to day time hours so as to avoid/mitigate the disturbance of local lives as well as implementation schedules of the works shall be notified in advance to nearby residents.

3.4 Storage area for soils and other construction materials shall be carefully selected to avoid disturbance of the natural drainage.

3.5 This shall be ensured that soil is obtained from nearby areas, which are free of invasive plants. Re-vegetation and replanting shall be undertaken if rehabilitation works involve extensive vegetation clearance.

3.6 Vegetation clearance shall be minimizing at the construction phase as to minimize soil erosion. Soils for embankments shall be properly tested and compacted to ensure stability.

3.7 Proper construction practices shall be followed that minimize loss of habitats and fish breeding, feeding & nursery sites.

3.8 Proper and adequate sanitation facilities shall be ensured in labor camps throughout the proposed project period.

3.9 In order to control noise pollution, vehicles & equipment shall be maintained regularly; working during sensitive hours and locating machinery close to sensitive receptor shall be avoided.

3.10 No solid waste can be burnt in the project area. An environment friendly solid waste management should be in place during whole the period of the project in the field.

3.11 Proper and adequate on-site precautionary measures and safety measures shall be ensured so that no habitat of any flora and fauna would be demolished or destructed.

3.12 All the required mitigation measures suggested in the EIA report are to be strictly implemented and kept operative/functioning on a continuous basis.

2/4

3.13 Any heritage sight, ecological critical area, and other environmentally and/or religious sensitive places shall be avoided during project construction phase.

3.14 Resettlement plan should be properly implemented and people should be adequately compensated, where necessary.

3.15 Construction material should be properly disposed off after the construction work is over.

3.16 The Environmental Management Plan included in the EIA report shall strictly be implemented and kept functioning on a continuous basis.

4.1 Monitoring and Recording conditions:

4.1.1 The results of any monitoring required to be conducted by this Clearance Certificate must be recorded.

4.1.2 The following records must be kept in respect of any samples required to be collected for the purposes of this Clearance Certificate:
(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

4.2 Requirement to monitor concentration of pollutants discharged

For each monitoring, the Clearance Certificate holder must monitor (by sampling and obtaining results by analysis) the following parameter: air quality, water quality and Noise.

5. **Reporting Conditions:** Environmental Monitoring Reports shall be made available simultaneously to Head quarters and Dhaka Metropolitan/Regional office of the Department of Environment on a quarterly basis during the whole period of the project.

6. **Notification of environmental harm:** The Clearance Certificate holder or its employees must notify the Department of Environment of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident.

F. Recording of pollution complaints

The certificate holder must keep a legible record of all complaints made to the certificate holder or any employee or agent of the certificate holder in relation to pollution arising from any activity to which this Environmental certificate applies. The record must include details of the following:

(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;

3/4

(e) the action taken by the certificate holder in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the certificate holder, the reasons why no action was taken.

The record of a complaint must be kept for at least 4 years after the complaint was made. The record must be produced to any authorized officer of the DOE who asks to see them.

G. Validity of the Clearance Certificate

This Environmental Clearance is valid for one year from the date of issuance and the project authority shall apply for renewal to the Head Office of DOE with a copy to Dhaka Metropolitan/Regional office at least 30 days ahead of expiry.

Violation of any of the above conditions shall render this clearance void.

17.12.2018

(Syed Nazmul Ahsan)
Director (Environmental Clearance)
Phone: 8181673

4/4

P. Mitigation & Monitoring : Budget & Activities

P1. SUPERVISION AND MONITORING OF MITIGATION MEASURES

Responsibilities for Implementation, Supervision and Monitoring of Mitigation Measures

The successful bidder upon award of contract is responsible for preparation and implementation of mitigation measures to prevent or minimize negative environmental and human health impacts as well as secure occupational safety in the area of works. The costs of mitigation measures will be included in the total project cost estimate. In developing ESHS strategy the contractor should pay due attention to following:

Construction camps and auxiliary facilities

Temporary construction camps and any auxiliary facilities will be deployed in places adjacent to the project sites as much as possible. Specific location for construction camps and auxiliary facilities (parking lots, material storage areas etc.) will be identified jointly with local authorities and community leaders/representatives. Exact size and locations of these land plots will be determined after contract award – prior to commencement of construction works. Rental and maintenance costs for these areas, including re-cultivation costs after completion of works, will be the responsibility of the Contractor. Camp territory/ working areas will be clearly marked and fenced to avoid external or unwanted elements/people trespassing and creating inconvenience or potential violence or other harassments to women/children in the camp and or working area. Should there be any such instances, the same should be immediately reported to local police and the Employer both by phone and in writing for further course of action.

The camp will have designated areas for construction machinery, repair/routine maintenance shops, as well as construction material plants/ shops, storage sites/premises for materials and equipment and other areas as needed.

Land Rehabilitation

No private land will be occupied. Land plots temporarily occupied during construction should be rehabilitated and transferred back to original users for their further use. Rehabilitation measures for these land plots will be determined by rehabilitation design (part of land survey documentation). This design will specify in detail all technological processes, their sequence about soil characteristics and locations to improve irrigation infrastructure quality and eliminate erosion processes.

Occupational and Fire Safety

Arrangement of works will also include occupational safety measures that comply with effective rules and regulations, prevention of accidents and occupational diseases as well as improvement of labor conditions. When planning the reconstruction site in the work plan, it is envisaged that requirements for required distances, passes and traffic passages width between temporary structures will be met. The construction camp site will be equipped with primary fire-fighting equipment, including fire extinguishers and fire fighting accessories boards with required equipment, fire suppression water tanks for water storage purposes and fire hydrants on water supply systems. Fire prevention measures also include adherence to storage conditions for fuel and lubricants (FL) and compliance with the rules of work using open flame, explosion hazardous substances, etc.

Women Labor

Special facilities will be provided if women labor is employed which shall include separate dwelling, toilets, transport, health, security facilities and other such facilities required to ensure safe and healthy environment for women to work without hindrance and harassment. Other workers under the contract shall ensure that there shall be no rude behavior or any physical assault on any women co-workers.

Code of Conduct to be Adhered by Contractors

The general Code of Conduct to be adhered and complied by both the Contractor and their staff including sub-contractors and temporary labor, shall include but not limited to the following

1. Compliance with applicable laws, rules, and regulations of the jurisdiction
2. Compliance with applicable health and safety requirements (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)
3. The use of illegal substances
4. Non-Discrimination (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, birth, age, disability, or political conviction)
5. Interactions with community members (for example to convey an attitude of respect and non-discrimination)
6. Sexual harassment (for example to prohibit use of language or behaviour, in particular towards women or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate)
7. Violence or exploitation (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favours or other forms of humiliating, degrading or exploitative behaviour)
8. Protection of children (including prohibitions against abuse, defilement, or otherwise unacceptable behavior with children, limiting interactions with children, and ensuring their safety in project areas)
9. Sanitation requirements (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas)
10. Avoidance of conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favours, are not provided to any person with whom there is a financial, family, or personal connection)
11. Respecting reasonable work instructions (regarding environmental and social norms)
12. Protection and proper use of property (for example, to prohibit theft, carelessness or waste)
13. Duty to report violations of this Code
14. Non-retaliation against workers who report violations of the Code, if that report is made in good faith.

Budget + work in P2 contract BoQ for Contractor's Environmental Safeguards:

Item	Item Description	Unit	Quantity	Unit Rate	Amount
				Local Currency Portion (BDT)	Local Currency Portion (BDT)
a	b	c	d	e	f= dx e
2.3 HEALTH & SAFETY Allow for all costs and charges in connection with:					
2.3.1	Provision and management of Health and Safety in accordance with Appendix A to the Particular Conditions of Contract (Provisional Sum)	LS	**1**		92,400,000
TOTAL FOR 2.3 HEALTH & SAFETY					
Carried to Summary of Bill Part Nr 2					92,400,000
2.4 ENVIRONMENTAL & SOCIAL REQUIREMENTS Allow for all costs and charges in connection with:					
2.4.1	Environmental & Social Requirements in accordance with Particular Conditions of Contract (PCC) - Safeguards Policy Statement Requirements, including drafting the Environmental Management Plan (EMP) and keeping it updated.	LS	**1**		
2.4.2	Environmental Mitigation Measures in accordance with IEE (Provisional Sum)	LS	**1**		400,000
2.4.3	Environmental Monitoring Measures in accordance with IEE (Provisional Sum)	LS	**1**		362,000
2.4.4	Environmental Capacity Building in accordance with IEE (Provisional Sum)	LS	**1**		250,000
TOTAL FOR 2.4 ENVIRONMENT AL & SOCIAL REQUIREMENTS					
Carried to Summary of Bill Part Nr 2					1,012,000

In addition to the Provisional Sum amounts listed above, the engineer's cost estimate, which is used for DWASA + ADB project budgeting, includes BDT 2,000,000 for item 2.4.1, which is a competitive item, so is intentionally blank in the BoQ.

P2. CHECKLIST FOR ENVIRONMENTAL MITIGATION

1. General Environmental Compliance

Check compliance with design and construction commitments in environmental assessment and Environmental Management Plan (EMP);

- Check that work does not cause environmental impacts that were not predicted in environmental assessment documentation;
- Check compliance with environmental requirements and prohibitions of DOE legislation, and ADB Guidelines particularly with respect to Environmental Management Plan (EMP);
- Check compliance with environmental permits or approval;
- Check that work is not undertaken that requires environmental permits or approvals have not been obtained.

2. Use of Waste Products or Materials in the Work

- Check that waste and product dust suppressants meet material and construction requirements of the contract;
- Check that any use replacement of reclaimed excess concrete, asphalt pavement, etc, as aggregate , embankment material, slope flattening material or fill in compliance with the material and construction requirements of the Environmental Management Plan (EMP);

3. Management and Disposal of Excess Material

- Check that excess materials from the work are stored, re-used and disposed of as specified in the Environmental Management Plan (EMP);
- Check that standard forms regarding disposal of excess material are submitted prior to disposal of excess materials off site;
- Record location of disposal or management areas and source of excess material being disposed of.

4. Work in, Adjacent to, and over Water bodies

- Check that sediment and other deleterious material is not gaining entry to water courses, other water bodies;
- Check that work specified in watercourse, water bodies and their banks is in compliance with that specified in the Environmental Management Plan (EMP) and environmental documentation, and as may be authorized through environmental permits or approvals;
- Check that temporary water passages systems, temporary water body crossings, cofferdams and turbidity curtains are installed, maintained and removed in compliance with the Environmental Management Plan (EMP);
- Check that disturbance, damage to water course or water body beds, banks and bank vegetation is limited to that specified in the contract and environmental documentation, and as may be authorized through environmental permits or approvals.

5. Work in, Adjacent to Areas of trees not Designated for Removal

- Check that sediment and other deleterious material is not gaining entry to areas of trees not designated for removal;
- Check that work specified limits of grading are not exceeded in and adjacent to areas of trees not designated for removal, and that damage or removal of trees is limited to that specified in the Environmental Management Plan (EMP); and environmental documentation;
- Check that entry of equipment, construction materials and excess materials to areas of trees not designated for removal is limited to that specified in the Environmental Management Plan (EMP); and environmental documentation.

6. Control of Dust from the Work

- Check that dust from exposed work, and from construction operations such as grading, concrete cutting, grinding, abrasive blast cleaning of concrete and steel, and road sweeping does not cause a nuisance to pedestrian and vehicular traffic with in the Right of Way (ROW), and adjacent residential, commercial, institutional properties.

7. Maintenance of Local Traffic Access Patterns

- Check that local traffic access to residential, commercial, institutional areas is not modified, redirected unless otherwise specified in the contract;
- Check that any modification, redirection of local traffic access to residential, commercial institutional areas comply with time constraints specified in contracts.

The required level of checking or inspection once or twice per day until Contractor demonstrates satisfactory performance of activities.

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