

Semi-Annual Environmental Monitoring Report

Project Number: 49107-006

Period: May–October 2019

Submission Date: December 2019

IND: West Bengal Drinking Water Sector Improvement Project (PART A)

Prepared by Project Management Unit, Government of West Bengal for Asian Development Bank. This document is made publicly available in accordance with ADB's Access to Information Policy and does not necessarily reflect the views of ADB.

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, management, or staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of this website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



**WEST BENGAL DRINKING WATER SECTOR
IMPROVEMENT PROJECT (WBDWSIP)**

PROJECT MANAGEMENT UNIT

2nd

**SEMI ANNUAL ENVIRONMENT MONITORING REPORT
ADB Loan 3696-IND
(Period May to October 2019)**

December 2019

**PUBLIC HEALTH ENGINEERING DEPARTMENT
GOVT. OF WEST BENGAL**

TABLE OF CONTENTS

I. INTRODUCTION	5
II. COMPLIANCE STATUS WITH NATIONAL/ STATE/ LOCAL SATATUTORY ENVIRONMENTAL REQUITREMENTS.....	20
III. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS.....	37
IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT PLAN	41
V. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT	109
VI. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS .	110
VII. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS	133

LIST OF APPENDICS

APPENDIX 1:	PHOTO ILLUSTRATION
APPENDIX 2:	SAMPLE PUC CERTIFICATES
APPENDIX 3:	LABOUR LICENSE
APPENDIX 4:	SCANNED COPY OF CONTRACTOR'S INSURANCE FOR WORKERS AND ALL RISK POLICY
APPENDIX 5:	NOC RECEIVED AND APPLICATION TREE FELLING NOC
APPENDIX 6:	NOC FROM SUNDARBAN BIOSPHERE RESERVE
APPENDIX 7:	SITE ENVIRONMENTAL MANAGEMENT PLAN – SAMPLE
APPENDIX 8:	SAMPLE SITE INSPECTION REPORT
APPENDIX 8A:	SAMPLE MONTHLY ENVIRONMENTAL COMPLIANCE MONITORING RECORDS
APPENDIX 9:	SAMPLE EMP IMPLEMENTATION CHECKLIST
APPENDIX 10:	MONITORING RESULTS
APPENDIX 11:	FIELD LEVEL TRAININGS CONDUCTED DURING REPORTING PERIOD
APPENDIX 12:	SAMPLE ACCIDENT / FIRST AID RECORD
APPENDIX 13:	TIE UP LETTER WITH HOSPITAL AND MEDICAL HEALTH CHECK UP FOR WORKERS
APPENDIX 14:	GRC NOTIFICATIONS AND COMMITTEE
APPENDIX 15:	SAMPLE GRIEVANCE REGISTRATION FORM
APPENDIX 16:	LIST OF GRIEVANCES
APPENDIX 17:	PUBLIC CONSULTATION AT FIELD LEVEL
APPENDIX 18:	DETAIL OF THE ENVIRONMENT SAFEGUARD WORKSHOP CONDUCTED BY ADB AND PMC
APPENDIX 19:	FOCUS GROUP DISCUSSION – ENVIRONMENT & SOCIAL
APPENDIX 20:	PERMISSION LETTERS & NOCS OBTAINED FOR WBDWSIP

ABBREVIATIONS

AC	- Asbestos Cement
ADB	- Asian Development Bank
BOD	- Biochemical Oxygen Demand
COD	- Chemical Oxygen Demand
CPCB	- Central Pollution Control Board
CTE	- Consent to Establish
CTO	- Consent to Operate
DBO	- Design Build Operate
DSC	- District Steering Committee
DG	- Diesel Generator
DO	- Dissolved Oxygen
DSISC	- Design, Supervision and Institutional Support Consultants
EA	- Executing Agency
EARF	- Environmental Assessment and Review Framework
EHS	- Environment, Health & Safety
EIA	- Environmental Impact Assessment
EMP	- Environmental Management Plan
EMR	- Environment Monitoring Report
ESSR	- Environment and Social Safeguard Unit
GESI	- Gender Equality and Social Inclusion
GLSR	- Ground Level Storage Reservoir
GRC	- Grievance Redressal Committee
GRM	- Grievance Redress Mechanism
HDPE	High Density Poly ethylene
HSGO	- Head Safeguards Gender Officer
IEE	- Initial Environmental Examination
LOA	- Letter of Acceptance
LPG	- Liquefied Petroleum Gas
MoEFCC	- Ministry of Environment and Forest & Climate Change, Government of India
NGO	- Non-Government Organization
NTP	- Notice to Proceed
OHR	- Overhead Reservoir
O&M	- Operation and Maintenance
PHED	- Public Health Engineering Department
PIU	- Project Implementation Unit
PMC	- Project Management Consultant
PMU	- Project Management Unit
PM _x	- Particulate Matter with size x micron
PUC	Pollution Under Control
RF	- Resettlement Framework
RP	- Resettlement Plan
SBR	- Sundarban Biosphere Reserve
SEMP	- Site Environment Management Plan
SGS	- Safeguard and Gender Cell

SPS	-	Safeguard Policy Statement
TMP	-	Traffic Management Plan
USD	-	US Dollar
WBDWSIP	-	West Bengal Drinking Water Sector Improvement Project
WBPCB	-	West Bengal Pollution Control Board
WTP	-	Water Treatment Plant

I. INTRODUCTION

A. Background – Overall Project Description and Objective

1. Public Health Engineering Department (PHED), Govt of West Bengal (the Executing Agency) through its Project Management Unit and Project Implementing Unit is implementing the “**West Bengal Drinking Water Sector Improvement Project**” (WBDWSIP). The Loan for WBDWSIP (ADB Loan 3696- IND) was signed on 3rd October 2018 between Government of India and the Asian Development Bank. Government of India has agreed to make the proceeds of the loan available to the Government of West Bengal upon terms and conditions satisfactory to the Asian Development Bank.

2. WBDWSIP will be implemented over years between 2018 and 2024. In order to provide safe and sustainable drinking water as per the standards set by the Government of India, the Government of West Bengal through Government of India has requested Asian Development Bank for financing to create infrastructure and strengthen institutions of the PHED and the institutions of the identified districts, blocks, and villages for piped water supply. The selected areas identified are affected with arsenic, fluoride, and salinity in the districts of Bankura, North 24 Parganas and Purba Medinipur of West Bengal where around 1.65 million people are residing.

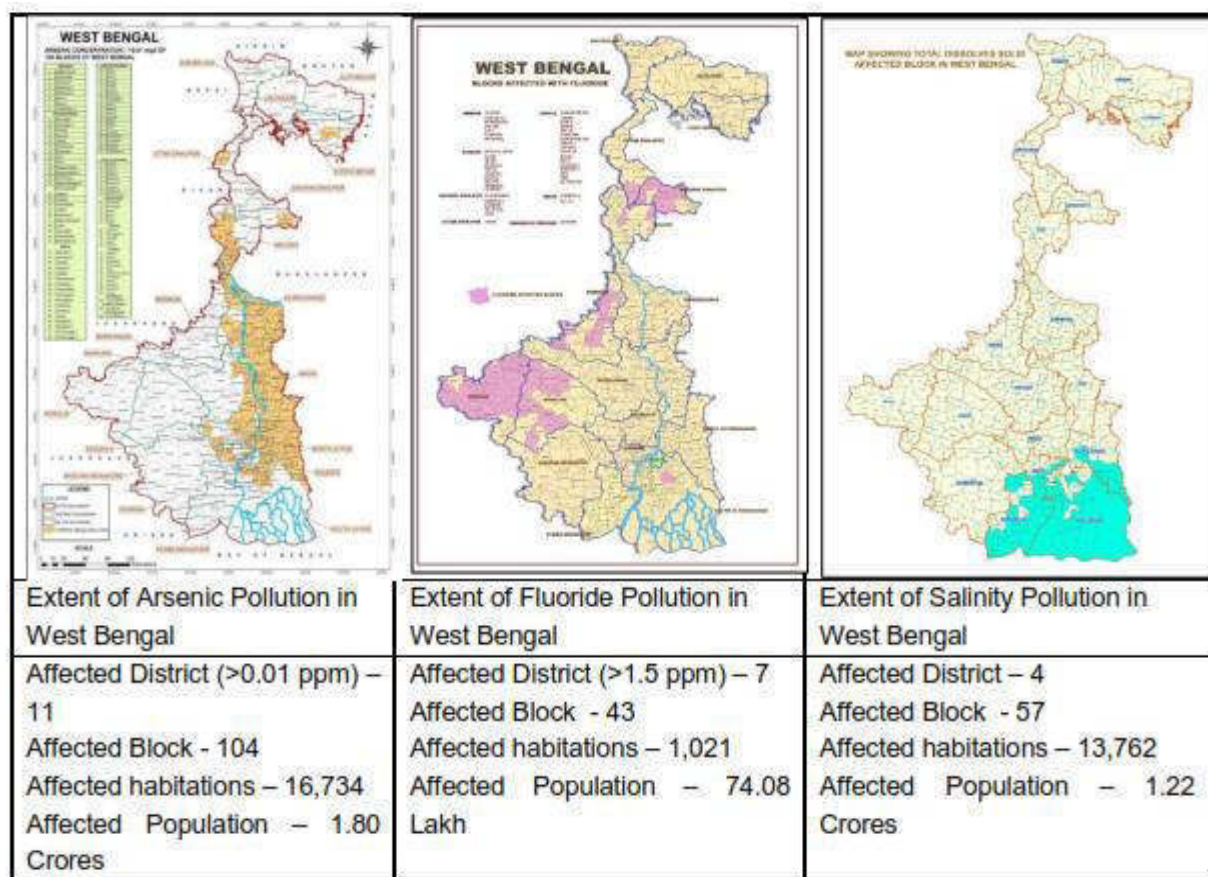
3. The project will adopt a sector approach. All subprojects will be selected and proposed for funding adhering to the agreed subproject selection criteria for the project. The subprojects proposed under the project stem from a district-wide comprehensive water quality and sustainability planning and completion of the Drinking Water Quality Action Plan for the concerned district. The Drinking Water Quality Action Plan for the project districts supported by the project were prepared by the executing Contractor, the Public Health Engineering Department of the Government of West Bengal, with support of project preparatory consultants from the Asian Development Bank, and has been adopted by Public Health and Engineering Department to guide present and future drinking water improvement in the districts.

4. Total WBDWSIP investment envisaged is USD 349 million and based on 70% ADB financing. ADB's loan would be USD (240+3) million ADB funding (Ordinary Capital Resources +Trust Fund) and 30% counterpart funding by Government of West Bengal would be around USD 106 million. The implementation period of WBDWSIP is from 2018 to 2024.

5. The impact of the project would ensure drinking water security in West Bengal as envisioned in Vision 2020 and national sub-mission on Arsenic and Fluoride to have an outcome of safe, sustainable, and inclusive drinking water service received in project districts. The outputs of the project are,

- ✓ **Output 1:** Climate resilient drinking water infrastructure constructed.
- ✓ **Output 2:** Institutions and capacity of stakeholders for drinking water service delivery strengthened

6. The following figures show the area covered under WBDWSIP works and the works proposed under WBDWSIP.



Extent of Arsenic, Fluoride and Salinity Pollution in West Bengal

Figure 1: Arsenic, Fluoride and Salinity affected area

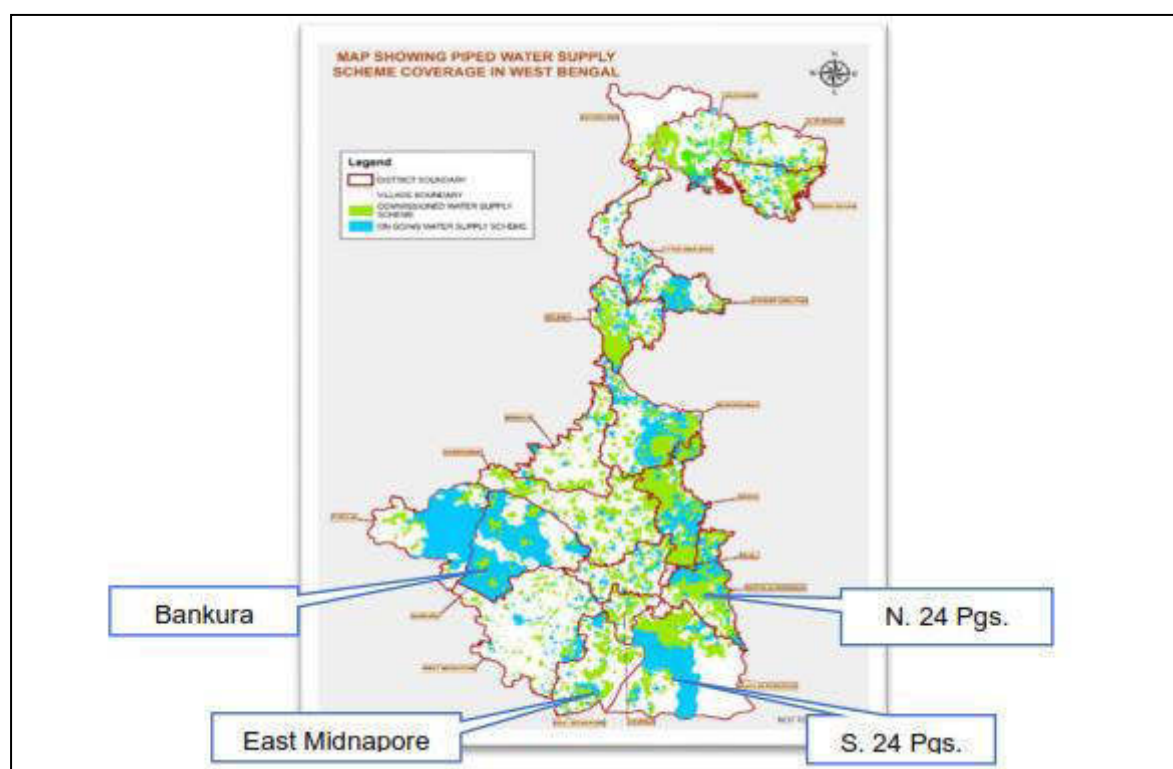


Figure 2: Location of District under the project





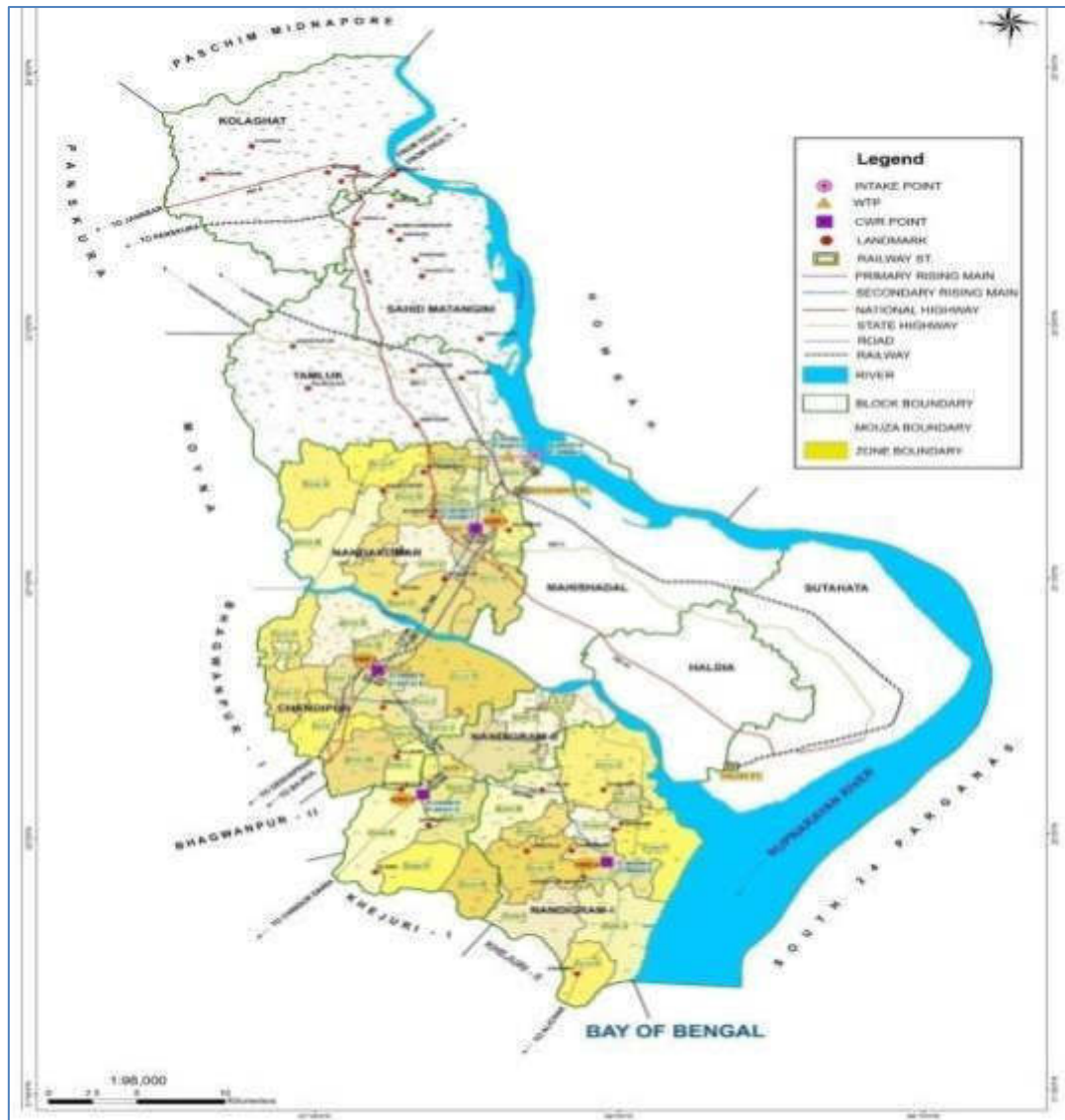


Figure 5: Water Supply infrastructure planned in East Midnapore District

B. Environmental category as per ADB Safeguard Policy Statement, 2009

7. Sub Projects under **WBDWSIP** has been classified by ADB as environmental assessment Category B (some negative impacts but less significant than category A) and the impacts of subprojects were assessed through Initial Environmental Examination (IEE), prepared according to ADB Safeguard Policy (SPS 2009).

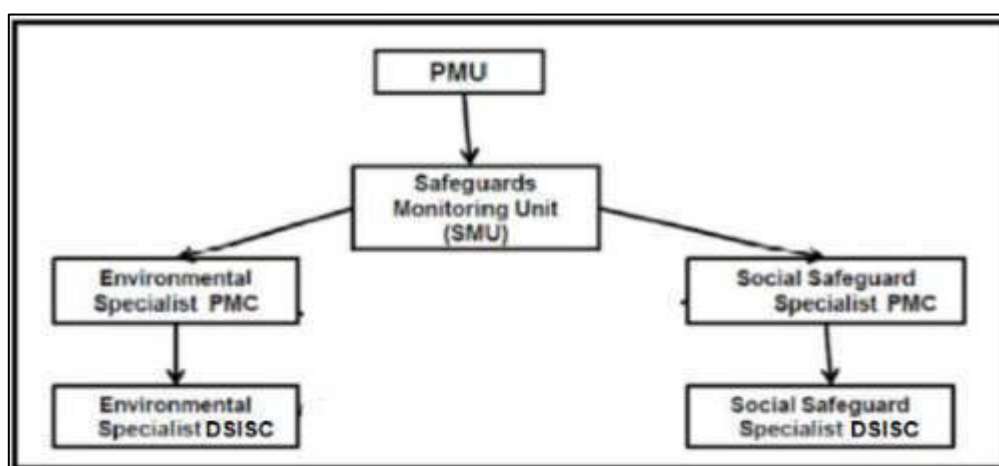
C. Environmental category of each subproject as per national laws and regulations

8. None of the 10 subprojects under WBDWSIP are included in the list of projects requiring Environmental Clearance, therefore EIA and Environmental Clearance is not required. Under National rules no categorization is considered for water supply project.

D. Project Safeguards Team**Table 1: Project Safeguard Team**

Name	Designation/Office	Email Address	Contact Number
1. PMU			
Mr. Sudip Ghosh	EE-I Head Safeguards Gender Officer (HSGO), Safeguard Gender Cell (SGC)	ee1.pmu.adb@wbphed.gov.in	9434404400
2. PIUs			
North 24 Parganas			
Mr. Sourav Bose	AE-III Safeguard Officer (SO), Environmental and Social Safeguard Unit (ESSU)	ae3.piun24p.adb@wbphed.gov.in	9434468635
Bankura			
Mr. Suman Pramanik	A.E. –II -HQ Safeguard Officer (SO), Environmental and Social Safeguard Unit (ESSU)	ae1.piubankura.adb@wbphed.gov.in	9002169739
Mr. Dhiraj Mondal	A.E. – I	ae2.piubankura.adb@wbphed.gov.in	9038517645
East Medinipur			
Sk. Mojammel Hk.	AE-I Safeguard Officer, Environmental and Social Safeguard Unit (ESSU)	smhaque1968@gmail.com	6291880569
3. Consultants			
PMC			
Dr. Ardhendu Mitra	Environment Specialist	ardhendumitra@gmail.com	9830415953
DSISC			
North 24 pgs			
Mr. Swarnabha Bandyopadhyay	Env. Specialist	swarnabhab@gmail.com	8017668861
Mr. Rohan Kumar	Support Environment Safeguard, - Junior Env. Scientist	rohangbu2011@gmail.com	7364804746
Bankura			
Mr. Ranjan Kumar Mallick	Environmental Specialist, DSISC	mallickdevelopment@gmail.com	9438200113
Mr. Chandan Kr. Majee	Support Environment Safeguard	majee.dgp54@gmail.com	8918611629
East Medinipur			
Mr. Partho Sarathi Mukherjee	Environmental Specialist	parthosarathi05@rediffmail.com	7003881499
Mr. Arpan Shome	Support Environmental Safeguard	arpan.shome7@gmail.com	8017925978

9. Safeguard management system for the project is shown below.



Note: PMU – Project Management Unit; PMC – Project Management Consultant; DSISC – Design, Supervision and Institutional Support Consultant

Figure 6: Safeguard Management system

E. Overall project and sub-project progress and status

10. There are 10 work sub project packages under WBDWSIP. Summary of work contracts including type of contract (upto 31st October 2019) is shown below.

Parameters	DBO Type Contract	Item Rate Contract
Total Number of Packages	4	6
Contracts Executed/Completed	0	0
Contracts under Implementation	3	6
Bidding under Progress	1	0
Planning and Design	0	0

11. Other than that, of 10 civil work packages, there are 2 small packages of \$2 million as grant from the Japan Fund for Poverty Reduction. Package (JFPR). They are (i) SAN/01: Pilot Faecal Sludge and Septage Management Plant and (ii) STWM/01 (Smart Water Management : Gram Panchayat level smart water management equipment These 2 packages are under Smart Water Management for “Institutions and capacity of stakeholders for drinking water service delivery strengthened”. Till report period work is not awarded.

12. **Table 2** shows the sub projects and the work packages including the status of award of contracts **as on 31st October 2019**. The contract agreements for 8 packages have been signed and project work has started for 3 packages at North 24 pgs. In all the 5 packages of Bankura [(BK/01BK/02A, BK/02B, BK/03 and BK/04)] preliminary activities are going on at site and actual physical work will start shortly. ‘Letter of Acceptance’ has been issued for 9 packages whereas ‘Notice to Proceed’ has been issued and agreement process has been completed for 8 packages.

Table 2: Summary status of Subprojects under WBDWSIP (on 31st October, 2019)

Sr. No.	Package No.	Packages	Status
1	WBDWSIP/DWW/ N-24P/NCB/01/2017-18	Design, Construction and Operation of Water Treatment Plant, Reservoirs, Transmission Mains and Pumping Stations works in Haroa, Rajarhat, and Bhangar II.	Tendering process completed. Agreement done on 14.12.2018 NTP issued on 11.01.2019 Design for Reservoirs, Transmission Mains and

Sr. No.	Package No.	Packages	Status
			Pumping Stations ongoing. Civil Works - WTP Preliminary investigations started.
2	WBDWSIP/DWW/N-24P/ NCB/02A/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Haroa Block.	Tendering process completed. Agreement done on 11.10.2018 NTP issued on 05.12.2018 Design – On-going. Zone-wise Civil Works - Preliminary investigations started.
3	WBDWSIP/DWW/NCB/ N-24P/02B/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Bhangar II Block.	Tendering process completed. Agreement done on 11.10.2018 NTP issued on 05.12.2018 Design - On-going. Zone-wise Civil Works -Preliminary investigations started
4	WBDWSIP/DWW/NCB/ BK/01/2017-18	Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Reservoir, Transmission Main for Indpur and Taldangra block in Bankura.	Tendering process completed. Agreement done on 22.01.2019 NTP issued on 24.01.2019 Design - Ongoing Civil Works – Not started
5	WBDWSIP/DWW/NCB/ BK/02A/2018-19	Design and Construction of Intermediate Pumping Station, ground storage reservoirs, overhead reservoirs, water distribution network and metering works in Indpur block.	Tendering process completed. Agreement done on 10.04.2019 NTP issued on 27.05.2019 <u>Design - On-going. Zone-wise Civil Works – Preliminary investigations started</u>
6	WBDWSIP/DWW/NCB/ BK/02B/2018-19	Design and Construction of Intermediate Pumping Station, Secondary transmission mains, overhead reservoirs including water distribution network and metering works in Taldangra Block.	Tendering process completed. Agreement done on 10.04.2019 NTP issued on 27.05.2019 <u>Design - On-going. Zone-wise Civil Works – Not started</u>
7	WBDWSIP/DWW/NCB/ BK/03/2018-19	Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for Mejhia and Gangajalghati Block in Bankura.	Tendering process completed. Agreement done on 10.04.2019 NTP issued on 27.05.2019 <u>Design - On-going. Civil Works – Not started</u>
8	WBDWSIP/DWW/NCB/ BK/04/2018-19	Design and Construction of Overhead Reservoir including Water Supply Distribution Network and Metering Works in Mejhia and Gangajalghati Blocks including Rehabilitation of Existing Schemes.	Tendering process completed. Agreement done on 10.04.2019 NTP issued on 27.05.2019 <u>Design - On-going. Zone-wise Civil Works –Not started</u>
9	WBDWSIP/DWW/ICB/ EM/01/2018-19	Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for Nandakumar, Chandpur, Nandigram-I and II blocks in East	Technical bid submission on 08.07.2019 done. Bid evaluation done. Selection of contractor in progress.

Sr. No.	Package No.	Packages	Status
		Medinipur.	
10	WBDWSIP/DWW/ICB/EM/02/2018-19	Construction of Intermediate Pumping Station, Secondary transmission mains, overhead tanks including water distribution network and metering works in Nandigram-I and Nandigram-II block in East Medinipur.	Contractor selected LOA issued on 12.09.2019 Agreement to be signed and NTP to be issued

{Note: Package - SAN/01, Pilot Fecal Sludge and Septage Management Plant and Package STWM (Smart Water Management)/ 01, Gram Panchayat level smart water management equipment under JFPR not awarded. Package components not yet developed}

13. For all awarded packages, contractors have been mobilized and works are in different stages of implementation. Photo illustration of project activities including training and consultations as well as good work practices are shown in **Appendix 1**.

F. Description of subprojects (package-wise) and status of implementation

14. **Table 3** below shows implementation status of awarded sub project packages. List of submitted zone-wise SEMP's for the packages where final design has been completed are furnished in **Table 3A**.

Table 3: Status of Implementation of Sub project

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
				% Physical Progress	Expected Completion Date
WBDWSIP/DWW/N-24P/NCB/01/2017-18	<p>Design, Construction and Operation of Water Treatment Plant, Reservoirs, Transmission Mains and Pumping Stations works in Haroa, Rajarhat, and Bhangar II.</p> <ul style="list-style-type: none"> Construction of WTP of 100 MLD (22 MGD) within existing WTP complex at New Town, Rajarhat Clear water transmission main of 4.9 km (1200 mm DI pipe) from WTP to clear water reservoir at booster pumping station Intermediate booster pumping station cum 1 GLSR of capacity 4600 cum at Rajarhat, within existing pumping station campus Boosting station cum GLSRs of capacity 5000 cum and 3200 cum at Bhangar II and Haroa respectively SCADA Smart water management 	<p>Detailed design for some part on going</p> <p><i>Preliminary activity continued</i></p> <ul style="list-style-type: none"> Soil test – geotechnical completed System Design of Hydraulic flow layout completed Design of unit sizing ongoing Pile layout/pile design calculation completed – piling ongoing 	Contract awarded	1% Physical Progress	10.01.2022 + O & M period*
WBDWSIP/DWW/N-24P/NCB/02A/2017-18	<p>Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Haroa Block.</p> <p>Construction of overhead storage</p>	<p>Detailed Design zone wise continued and construction On-going</p> <ul style="list-style-type: none"> Construction of overhead reservoir (OHR) ongoing at 5 Zones i.e. 1,12,15,17,18 (Mostly 	Contract awarded	7 % Physical Progress	04.12.2021 + O & M period*

¹ If on-going construction, include %physical progress and expected date of completion

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
				% Physical Progress	Expected Completion Date
	reservoir 21 nos. (capacity 250 to 1000 m ³) <ul style="list-style-type: none"> Distribution network 851 km DI and HDPE pipes of dia 63 – 400 Household service connection. .No.. of household approx. - 60000 SCADA Smart water management 	pilling work or pile load test) <ul style="list-style-type: none"> Pipe laying continued at 13 zones (1,4,5,6,12,13,14,15,16,17,18, and 21) <i>200 km out of 851 km of pipe laying has been completed.</i> Approval of design, drawing and soil test continued for other zones 			
WBDWSIP/DWW/NCB/N-24P/02B/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Bhargar II Block <ul style="list-style-type: none"> Construction of overhead storage reservoir 18 nos.. (capacity 300 to 1000 m³) Distribution network 910 km HDPE Household service connection .No.. of household approx. - 60000 SCADA Smart water management 	Detailed Design zone wise continued and construction On-going <ul style="list-style-type: none"> Construction of overhead reservoir (OHR) ongoing at 4 Zones i.e. 4,10,12 and 13 (Mostly pilling work or pile load test) Pipe laying continued at 7 zones (4,9,10,12,13,14 and 16) <i>140 km out of 910 km of pipe laying has been completed.</i> Approval of design, drawing and soil test continued for other zones 	Contract awarded	5 % physical progress	04.12.2021 + O & M period*
WBDWSIP/DWW/NCB/BK/01/2017-18	Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Reservoir, Transmission Main for Indpur and Taldangra block in Bankura. <ul style="list-style-type: none"> Construction of Intake of 44MLD Raw water pumping main from intake to WTP of 	Detailed Design and Preliminary activity continued <ul style="list-style-type: none"> Bathymetric Survey is completed for construction of intake at Mukutmanipur Reservoir Topography Survey is completed. Finalization of Intake Well Location is under process Design and Engineering of intake 	Contract awarded	.0% physical progress	23.01.2022 + O & M period*

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
				% Physical Progress	Expected Completion Date
	approx.. 3 km <ul style="list-style-type: none"> Construction of conventional WTP of 44 MLD at Khatra block Primary clear water rising main of 21 km SCADA Smart water management 	well cum pump house is under progress <ul style="list-style-type: none"> Design and Engineering of WTP is under progress Design and Engineering of GLSR is under progress Resistivity Survey is completed. Geotechnical Survey is completed 			
WBDWSIP/DWW/NCB/BK/02A/2018-19	Design and Construction of Intermediate Pumping Station, ground storage reservoirs, overhead reservoirs, water distribution network and metering works in Indpur block. <ul style="list-style-type: none"> Construction of Intermediate booster pumping station at Gobindapur in Indpur block Construction of Intermediate booster pumping station cum Ground level storage reservoirs (IBPS cum GLSR-II- 1400 KL) at Raghunathpur in Indpur block Laying of transmission main of approx. 88.62 km Construction of 19 overhead reservoirs (OHRs) and associated works within the OHR premises Water supply distribution network of approx. 700 km Providing of Household service connection 	Detailed Design and Preliminary activity continued <ul style="list-style-type: none"> Topography survey 70% completed, rest ongoing Geotechnical investigation 18% completed, rest ongoing Design for transmission main partly submitted, which under review 	Contract awarded	.0% physical progress	26.05.2022+ O & M period*

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
				% Physical Progress	Expected Completion Date
WBDWSIP/DWW/NCB/BK/02B/2018-19	<p>Design and Construction of Intermediate Pumping Station, Secondary transmission mains, overhead reservoirs including water distribution network and metering works in Taldangra Block.</p> <ul style="list-style-type: none"> Intermediate booster pumping station cum ground level storage reservoir (GLSR of capacity 1200 KL) at Chenchurya Design of Transmission mains including laying of (rising) mains IBPS cum GLSR at Water supply distribution network at 24 zones 24 Overhead reservoirs (OHR) and associated works within the OHR premises in Taldangra Block Providing of Household service connection 	<p>Detailed Design and Preliminary activity continued</p> <ul style="list-style-type: none"> Topography survey 70% completed, rest ongoing Geo technical investigation 55% completed, rest ongoing Soil test continued 	Contract awarded	0 % Physical progress	26.05.2022+ O & M period*
WBDWSIP/DWW/NCBBK/03/2018-19	<p>Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for Mejhia and Gangajalghati Block in Bankura.</p> <ul style="list-style-type: none"> Raw water intake of 36 MLD capacity will be constructed at Nutangram mouza of Barjora Block with arrangement for housing 	<p>Detailed Design and Preliminary activity continued</p> <ul style="list-style-type: none"> Bathymetric Survey is completed for construction of intake Topography Survey is completed. Geotechnical Investigation is completed (100%) for Intake & WTP. Raising Main yet to start. Pipeline route survey- Submitted by the contractor 	Contract awarded	0% physical progress	26.05.2022+ O & M period*

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
				% Physical Progress	Expected Completion Date
	<p>pumping machineries</p> <ul style="list-style-type: none"> Raw water transmission Main of 16.4 Km will be laid from Intake to Proposed WTP at Basudebpur mouza of Gangajalghati Block. Water Treatment Plant (WTP) of 36 Mld capacity with booster pumping facilities upto design period 2050 would constructed at Basudebpur mouza of Gangajalghati Block. Clear Water Main of approx. 146 km will be laid from WTP to 34 nos. OHT of Mejhia & Gangajalghati Block 	<ul style="list-style-type: none"> Layout plan of WTP approved. 			
WBDWSIP/DWW/NCB/BK/04/2018-19	<p>Design and Construction of Overhead Reservoir including Water Supply Distribution Network and Metering Works in Mejhia and Gangajalghati Blocks including Rehabilitation of Existing Schemes</p> <ul style="list-style-type: none"> Construction of 30 overhead reservoirs (OHRs) in Mejia and Gangajalghati Blocks Laying of 1460 km distribution network Provision of domestic water meters for household water connections with water meters. 	<p>Detailed Design and Preliminary activity continued</p> <ul style="list-style-type: none"> Topography survey 80% completed Geotechnical investigation at reservoir sites – completed 	Contract awarded	0% physical progress	26.05.2022+ O & M period*
WBDWSIP/DWW/ICB/EM/01/2018-19	<p>Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for</p>		Under Bidding	0% physical progress	

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
				% Physical Progress	Expected Completion Date
	Nandakumar, Chandpur, Nandigram-I and II blocks in East Medinipur.				
WBDWSIP/DWW/ICB/EM/02/2018-19	Construction of Intermediate Pumping Station, Secondary transmission mains, overhead tanks including water distribution network and metering works in Nandigram-I and Nandigram-II block in East Medinipur.		Contract yet to awarded LOA issued to contractor	0% physical progress	

Table 3A: Zone-wise Submitted SEMP Status for North 24 Parganas and Bankura Packages

North 24 Pgs: Pakage N24P/01 – Water Treatment Plant		
Zone	Description	Location
1	Water Treatment Plant	Rajarhat, New Town
North 24 Pgs : Packageg-N24P/02A:– HAROA BLOCK		
Overhead Reservoir	Gram Panchayat	Name of Village
Zone -1	Gopalpur-II	Amta
Zone -12	Bokjuri	Parchandpur
Zone -15	Salipur	Jinkia
Zone -17	Salipur-Borjuri	Salipur
Zone -18	Gopalpur-I, Haroa- Gopalupur-II	Gopalpur
Distribution Network	Gram Panchayat	
Zone -1	Gopalpur-II	
Zone -4	Kulti	
Zone -5	Kulti	
Zone -6	Kulti	
Zone -12	Bokjuri	
Zone -13	Salipur	
Zone -14	Salipur	
Zone -15	Salipur	
OHR-16	Salipur	
Zone -17	Salipur-Borjuri	
Zone -18	Gopalpur-I, Haroa- Gopalupur-II	
Zone -21	Khasbalanda-Haroa	
North 24 Pgs: Package-N24P/02B – BHANGAR II BLOCK		
Overhead Reservoir	Gram Panchayat	Name of Village
Zone -4	Polerhat-I	Sastyangachhi
Zone -10	Shanpukur	Shanpukuria
Zone -12	Bhogali-II	Bankochua
Zone -13	Bhogali-II	Baniara
Distribution Network	Gram Panchayat	
Zone -4	Polerhat-I	
Zone -9	Bhogali-I	
Zone -10	Shanpukur	
Zone -12	Bhogali-II	
Zone -13	Bhogali-II	
Zone -14	Bhagabanpur	
Zone -16	Chaltaberia	
Bankura: Package BK/02B- TALDANGRA BLOCK		
Overhead Reservoir	Gram Panchayat	Name of Village
Zone 10	Saharghati	Saharghati
Zone 18	Hamasra	Hamasra
Bankura: Package BK/04 MEJIA-GANGAJALGHATI BLOCK		
Overhead Reservoir	Gram Panchayat	Name of Village
Zone 20	Banasuriya	Choto Nabagram
Zone 27	Ardhadgram	Mohona

II. COMPLIANCE STATUS WITH NATIONAL/ STATE/ LOCAL SATATUTORY

ENVIRONMENTAL REQUIREMENTS

15. For implementation of the project both national and state rules & regulations need to be followed. **Table 4** below indicates environment legal compliance status for the awarded projects under WBDWSIP. After award of 2 contract at East Medinipur both national and state rules & regulations will be provided
16. Before and during implementation of the project, compliance with environmental policy, law and legislation is necessary.
17. Present status of Environment, forest and other clearances are mentioned below.

Table 4: National/State/Local Statutory Environmental Requirements

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
WBDWSIP/DWW/ N-24P/NCB/01/2017-18	Design, Construction and Operation of Water Treatment Plant, Reservoirs, Transmission Mains and Pumping Stations works in Haroa, Rajarhat, and Bhargar II	The EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impact	The sub project is not covered in the ambit of the EIA notification, as this is not covered under either Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the state or the central Government is not triggered. Environmental Clearance is not required for the proposed project	N.A.	None	Not applicable
		Water (Prevention and Control of Pollution) Act of 1974, Rules of 1975, and amendments During implementation (construction phase) compliance will be required Consent to Establish (CTE) has to be received from West Bengal Pollution Control Board (WBPCB) for new WTP	Application has been sent to West Bengal Pollution Control Board for obtaining CTE Final stage for getting CTE – under progress	To be updated in next SEMR when the consent is obtained.	Follow up for getting CTE	To be updated in next SEMR when the consent is obtained.
		The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and The Air (Prevention and	No establishment of diesel generator/s, Hot mix plants, wet mix plants,		CTE & CTO will be collected as per requirement	To be updated in next SEMR when the consent is obtained.

² Specify (environmental clearance? Permit/consent to establish? Forest clearance? Etc.)³ Specify if obtained, submitted and awaiting approval, application not yet submitted⁴ Example: Environmental Clearance requires ambient air quality monitoring, Forest Clearance/Tree-cutting Permit requires 2 trees for every tree, etc.

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		Control of Pollution) Rules, 1982 During implementation (construction phase) compliance will be required CTE and CTO for diesel generator/s, Hot mix plants, wet mix plants, stone crushers, batching plant etc. if installed for construction. Pollution under control certificate (PUC) to be obtained by the contractor for all vehicles and equipment engaged in the project	stone crushers, batching plant till report period PUC obtained (sample attached in Appendix 2)	PUC validity period is upto November 2019	and with advancement of project PUC certificate will be collected for new vehicle-equipment if any. Also, renewal will be required as per validity	
		Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009	Construction activities are being carried out in compliance with the requirements	N.A.	None	NA
		The Indian Forest Act, 1927; Forest (Conservation) Act, 1980, amended 1988; Forest (Conservation) Rules, 1981 amended 1992 and 2003 West Bengal Trees (Protection and Conservation in Non- Forest Areas) Act, 2006- Tree felling permission In case of tree felling NOC needs to be obtained from Forest dept./ concerned dept.	No forest land is involved. No tree felling till date	To be updated if any tree felling required	Tree felling NOC - if required as per final design and advancement of work	NA
		Wild Life (Protection) Act 1972, Amendment Act, 1993 and 2002 and Wildlife (Protection) Rules,	No Wildlife protected area within or nearby the project area	NA	None	NA

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		1995				
		The Ancient Monument and Archaeological Sites and Remains (Amendment and Validation) Act 2010	No protected area within or nearby the project area. But chance find protocol will be maintained	NA	Chance find protocol to be maintained	NA
		Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Complied Labour licence obtained and enclosed as Appendix 3	Valid upto 18.05.2020	To comply with the requirements as specified in the issued license.	N.A.
		Labour compensation insurance	Complied Worker compensation insurance policy obtained and attached as Appendix 4	Valid upto 31.03.2020	To ensure all potential risks are covered.	N.A.
WBDWSIP/DWW/N-24P/ NCB/02A/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Haroa Block.	The EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impact	The sub project is not covered in the ambit of the EIA notification, as this is not covered under either Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the state or the central Government is not triggered. Environmental Clearance is not required for the proposed project	N.A.	None	Not applicable
		The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and The Air (Prevention and	CTE & CTO will be collected as per requirement and with		CTE to be obtained prior to	- To be updated in next SEMR when the consent is obtained.

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		Control of Pollution) Rules, 1982 During implementation (construction phase) compliance will be required CTE and CTO for (i) diesel generator/s and (ii) hot mix plants, wet mix plants, stone crushers, batching plant etc. if installed for construction. Pollution under control certificate (PUC) to be obtained by the contractor for all vehicles and equipment engaged in the project	advancement of project Diesel Generator less than 5 kVA, - CTE & CTO not required PUC certificate has been collected (sample attached as --- Appendix 2)	Validity period varied from November 2019 to May 2020	start of construction. CTO to be obtained before commencement of operations. Timely renewal will be required	
		Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009	Construction activities are being carried out in compliance with the requirements	N.A.	None	NA
		The Indian Forest Act, 1927; Forest (Conservation) Act, 1980, amended 1988; Forest (Conservation) Rules, 1981 amended 1992 and 2003 West Bengal Trees (Protection and Conservation in Non- Forest Areas) Act, 2006- Tree felling permission In case of tree felling NOC needs to be obtained from Forest dept./ concerned dept.	No forest land is involved. Tree felling NOC obtained for Gopalpur OHR site (See Appendix 5)	Tree felling permission for 11 nos. trees accorded on 03.06.2019	Tree felling NOC for other sites if required as per final design and advancement of work	<ul style="list-style-type: none"> Submission of report on completion of plantation to DFO Maintaining of proposed plantation for five years Assess possibility of transplanting of trees
		Wild Life (Protection) Act 1972, Amendment Act, 1993 and 2002 and Wildlife (Protection) Rules, 1995	No Wildlife protected area within or nearby the project area	N.A.	None	N.A

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		Protection of land under Sundarban Biosphere Reserve (SBR)	NOC received from Director Sundarban Biosphere Reserve on 5 th March 2019 indicating non requirement of any clearance from SBR authority since no forest area involved under the package (Copy attached as Appendix 6)	-N.A.	None	-N.A
		The Ancient Monument and Archaeological Sites and Remains (Amendment and Validation) Act 2010	No protected area within or nearby the project area. But chance find protocol will be maintained	N.A.	Chance find protocol to be maintained	N.A.
		Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Complied. Labour licence obtained and enclosed as Appendix 3	Valid upto 04.12.2019	To comply with the requirements as specified in the issued license.	N.A.
		Labour compensation insurance	Complied. Worker compensation insurance policy obtained and attached as Appendix 4	Valid upto 03.02.2020	To ensure all potential risks are covered.	N.A.
WBDWSIP/DWW/NCB/N-24P/02B/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Bhangar II Block.	The EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impact	The sub project is not covered in the ambit of the EIA notification, as this is not covered under either Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from	N.A.	None	NA

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
			the state or the central Government is not triggered. Environmental Clearance is not required for the proposed project			
		The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and The Air (Prevention and Control of Pollution) Rules, 1982 During implementation (construction phase) compliance will be required CTE and CTO for (i) diesel generator/s and (ii) hot mix plants, wet mix plants, stone crushers, batching plant etc. if installed for construction. Pollution under control certificate (PUC) to be obtained by the contractor for all vehicles and equipment engaged in the project	CTE & CTO will be collected as per requirement and with advancement of project . Diesel Generator less than 5 kVA, - CTE & CTO not required PUC certificate has been collected (sample attached as --- Appendix 2)	PUC Validity period is from November 2019 to May 2020	CTE to be obtained prior to start of construction. CTO to be obtained before commencement of operations. Timely renewal will be required	To be updated in next SEMR when the consent is obtained.
		Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009	Construction activities are being carried out in compliance with the requirements	N.A.	None	NA
		The Indian Forest Act, 1927; Forest (Conservation) Act, 1980, amended 1988; Forest (Conservation) Rules, 1981 amended 1992 and 2003 West Bengal Trees (Protection and Conservation in Non- Forest	No forest land is involved. No tree felling required till date	- N.A.	Tree felling NOC for other sites if required as per final design and advancement of work	To be updated tree felling status and NOC in next SEMR as per requirement

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		Areas) Act, 2006- Tree felling permission In case of tree felling NOC needs to be obtained from Forest dept./ concerned dept.				
		Wild Life (Protection) Act 1972, Amendment Act, 1993 and 2002 and Wildlife (Protection) Rules, 1995	No Wildlife protected area within or nearby the project area	N.A.	None	N.A
		Protection of land under Sundarban Biosphere Reserve (SBR)	NOC received from Director Sundarban Biosphere Reserve on 5 th March 2019 indicating non requirement of any clearance from SBR authority since no forest area involved under the package (Copy attached as Appendix 6)	-N.A.	No action required	-N.A
		The Ancient Monument and Archaeological Sites and Remains (Amendment and Validation) Act 2010	No protected area within or nearby the project area. But chance find protocol will be maintained	N.A.	Chance find protocol to be maintained	N.A.
		Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Complied Labour licence obtained and enclosed as Appendix 3	Valid upto 26.12.2019	To ensure all potential risks are covered.	N.A.
		Labour compensation insurance	Complied Worker compensation insurance policy obtained and	Valid upto 03.02.2020	To ensure all potential risks are covered.	N.A.

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
			attached as Appendix 4			
WBDWSIP/DWW/NCB/ BK/01/2017-18 & WBDWSIP/DWW/NCB/ BK/03/2018-19	Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Reservoir, Transmission Main for Indpur and Taldangra block in Bankura & Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for Mejhia and Gangajalghati Block in Bankura.	The EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impact	The sub project is not covered in the ambit of the EIA notification, as this is not covered under either Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the state or the central Government is not triggered. Environmental Clearance is not required for the proposed project	N.A.	None	Not applicable
WBDWSIP/DWW/NCB/ BK/01/2017-18	- DO -	Water (Prevention and Control of Pollution) Act of 1974, Rules of	For both the packages - Application has been sent	- To be updated in next	Follow up for getting CTE	To be updated in next SEMR when the consent is

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
& WBDWSIP/DWW/NCB/ BK/03/2018-19	- DO -	1975, and amendments During implementation (construction phase) compliance will be required CTE has to be received from West Bengal Pollution Control Board (WBPCB) for new WTP	to West Bengal Pollution Control Board for getting CTE for Water Treatment Plant	SEMR when the CTE is obtained.		obtained.
		The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and The Air (Prevention and Control of Pollution) Rules, 1982 During implementation (construction phase) compliance will be required CTE and CTO for (i) diesel generator/s and (ii) hot mix plants, wet mix plants, stone crushers, batching plant etc. if installed for construction. Pollution under control certificate (PUC) to be obtained by the contractor for all vehicles and equipment engaged in the project	CTE & CTO will be collected as per requirement and with advancement of project PUC certificate for vehicle and equipment to be obtained	To be updated in next SEMR when the consent is obtained.	Collection of PUC certificates before start of construction	To be updated in next SEMR when the consent is obtained.
		Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009	Construction activities are being carried out in compliance with the requirements	N.A.	None	NA
		The Indian Forest Act, 1927; Forest (Conservation) Act, 1980, amended 1988; Forest (Conservation) Rules, 1981 amended 1992 and 2003 West Bengal Trees (Protection	No forest land is involved . WBDWSIP/DWW/NCB/ BK/03/2018-19: Tree felling is required for construction of WTP- Application submitted	Tree felling NOC awaited	Tree felling NOC for other sites if required as per final design and advancement of work Follow up is	<ul style="list-style-type: none"> Submission of report on completion of plantation to DFO Maintaining of proposed plantation for

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		and Conservation in Non- Forest Areas) Act, 2006- Tree felling permission In case of tree felling NOC needs to be obtained from Forest dept./ concerned dept.	(Appendix 5) and NOC is awaited		required for getting NOC of Tree felling. Work will be started after getting NOC and required tree felling	five years <ul style="list-style-type: none">Assess possibility of transplanting of trees
		Wild Life (Protection) Act 1972, Amendment Act, 1993 and 2002 and Wildlife (Protection) Rules, 1995	No Wildlife protected area within or nearby the project area	NA	None	N.A
		The Ancient Monument and Archaeological Sites and Remains (Amendment and Validation) Act 2010	No protected area within or nearby the project area. But chance find protocol will be maintained	N.A.	Chance find protocol to be maintained	NA
		The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and The Air (Prevention and Control of Pollution) Rules, 1982 During implementation (construction phase) compliance will be required CTE and CTO for (i) diesel generator/s and (ii) hot mix plants, wet mix plants, stone crushers, batching plant etc. if installed for construction. Pollution under control certificate (PUC) to be obtained by the contractor for all vehicles and equipment engaged in the project	CTE & CTO will be collected as per requirement and with advancement of project WBDWSIP/DWW/NCB/ BK/01/2017-18 – Collection under process WBDWSIP/DWW/NCB/ BK/03/2018-19 - PUC certificate has been collected partly (sample attached as ---Appendix 2)	- PUC Validity upto April 2020	CTE to be obtained prior to start of construction. CTO to be obtained before commencement of operations. Timely renewal will be required Follow up for submission Collection of PUC for new vehicles and equipment	To be updated in next SEMR when the consents and NOCs are obtained.
		Labour licence under The Contract Labour (Regulation &	WBDWSIP/DWW/NCB/ BK/01/2017-18	Valid upto 08.06.2020	To comply with	To comply with the

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Complied Labour licence obtained and enclosed as Appendix 3 WBDWSIP/DWW/NCB/BK/03/2018-19 Complied Labour licence obtained and enclosed as Appendix 3	Valid upto 11.08.2020	the requirements as specified in the issued license	requirements as specified in the issued license
		Labour compensation insurance	WBDWSIP/DWW/NCB/BK/01/2017-18 Complied Worker compensation insurance policy attached as Appendix 4 WBDWSIP/DWW/NCB/BK/03/2018-19 Complied Group Insurance WC policy. Obtained and enclosed (Appendix 4)	Valid upto 29.04.2020 Valid upto 30.3.2020	To ensure all potential risks are covered.	N.A.
WBDWSIP/DWW/NCB/BK/02A/2018-19	Design and Construction of Intermediate Pumping Station, ground storage reservoirs, overhead reservoirs, water distribution network and metering works in Indpur	The EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impact	The sub project is not covered in the ambit of the EIA notification, as this is not covered under either Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from	N.A.	None	Not applicable

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
<p>WBDWSIP/DWW/NCB/BK/02B/2018-19</p> <p>WBDWSIP/DWW/NCB/BK/04/2018-19</p>	<p>block.</p> <p>Design and Construction of Intermediate Pumping Station, Secondary transmission mains, overhead reservoirs including water distribution network and metering works in Talda Design and</p> <p>Construction of Overhead Reservoir including Water Supply Distribution Network and Metering Works in Mejhia and Gangajalghati Blocks including Rehabilitation of Existing Schemes.ngra Block.</p>		<p>the state or the central Government is not triggered.</p> <p>Environmental Clearance is not required for the proposed project</p>			
<p>WBDWSIP/DWW/NCB/BK/02A/2018-19</p> <p>&</p> <p>WBDWSIP/DWW/NCB/</p>	<p>- DO –</p> <p>- DO –</p> <p>- DO -</p>	<p>The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and The Air (Prevention and Control of Pollution) Rules, 1982</p> <p>During implementation (construction phase) compliance</p>	<p>CTE & CTO will be collected as per requirement and with advancement of project</p>	-	<p>CTE to be obtained prior to start of construction.</p> <p>CTO to be obtained before</p>	<p>To be updated in next SEMR when the consent is obtained.</p>

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
BK/02B/2018-19 & WBDWSIP/DWW/NCB/ BK/04/2018-19		will be required CTE and CTO for (i) diesel generator/s and (ii) hot mix plants, wet mix plants, stone crushers, batching plant etc. if installed for construction. Pollution under control certificate (PUC) to be obtained by the contractor for all vehicles and equipment engaged in the project	WBDWSIP/DWW/NCB/ BK/02A/2018-19 Collection under process WBDWSIP/DWW/NCB/ BK/02B/2018-19 Received partly for the package WBDWSIP/DWW/NCB/ BK/04/2018-19 Collection under process	PUC Validity for Pkg 02B upto March 2020	commencement of operations. Follow up is required for early collection Timely renewal will be required	
		Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009	Construction activities are being carried out in compliance with the requirements	N.A.	None	NA
		The Indian Forest Act, 1927; Forest (Conservation) Act, 1980, amended 1988; Forest (Conservation) Rules, 1981 amended 1992 and 2003 West Bengal Trees (Protection and Conservation in Non- Forest Areas) Act, 2006- Tree felling permission In case of tree felling NOC needs to be obtained from Forest dept./ concerned dept.	No forest land is involved. No tree felling required till date for all the 3 packages	-NA	Tree felling NOC for other sites if required as per final design and advancement of work	To be updated tree felling status and NOC in next SEMR as per

Package No.	Subproject Name	Statutory Environmental Requirements ²	Status of Compliance ³	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁴
		Wild Life (Protection) Act 1972, Amendment Act, 1993 and 2002 and Wildlife (Protection) Rules, 1995	No Wildlife protected area within or nearby the project area	N.A.	None	N.A.
		The Ancient Monument and Archaeological Sites and Remains (Amendment and Validation) Act 2010	No protected area within or nearby the project area. But chance find protocol will be maintained	N.A.	Chance find protocol to be maintained	N.A.
		Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Complied, Obtained for all WBDWSIP/DWW/NCB/BK/02A/2017-18 Labour licence enclosed as Appendix 3 WBDWSIP/DWW/NCB/BK02B/2018-19 Labour licence enclosed as Appendix 3 WBDWSIP/DWW/NCB/BK04/2018-19 Labour licence enclosed as Appendix 3	Valid upto 19.08.2020 Valid upto 19.08.2020 Valid upto 11.08.2020	To ensure all potential risks are covered.	N.A.
		Labour compensation insurance	Group compensation insurance policy in favour of contractors for all packages obtained (Appendix 4)	Valid upto 30.03.2020	To ensure all potential risks are covered.	N.A.

(Screening on **National/State/Local Statutory Environmental Requirements** of 2 packages for East Medinipur will be provided after award of contracts)

18. Status of land clearances are given below. Details are discussed in Social safeguard monitoring report.

Table 5: Land Clearances status

District	Major Work components	Status
North 24 pgs	Water storage reservoir lands – various stages	41 nos. land under different stages- Placed Before District Land Purchase Committee or Land already Purchased or under purchase process In some cases, application not send for purchase of land
	Water Treatment plant and Intermediate Booster pumping station (IBPS)	Both WTP and IBPS lands are within the existing campus of West Bengal Housing Infrastructure Development Corporation Ltd. of GoWB and lands have been transferred in the name of PHED, Possession of WTP land already obtained.(Appendix 20 –A) .Booster PS – under process
Bankura	Water storage reservoir lands –	79 nos. water storage reservoirs land under different stages of procurements. Some are placed before District Land Purchase Committee, few lands already purchased or under - process
	Intake (BK/01) from Mukutmanipur dam	NOC from Irrigation & Waterways Department, GoWB obtained for water withdrawal from Mukutmanipur Reservoir (Appendix 20-B) . Permissive possession obtained from I & W Department for construction of Intake well. Land for electric sub-station yet to be allotted
	WTP land for BK/01	NOC / Permissive possession / obtained from Irrigation Department for WTP land (Appendix 20 –B) Land not transferred yet.
	Intake (BK/03) Durgapur Barrage	Permission for water withdrawal is under consideration fom DVRRC (Appendix 20 –C)
	WTP land for BK/03	NOC/ Permissive possession obtained for WTP land from the Land Revenue Department (Appendix 20 –C)
	GLSR land at Govindapur	In Progress
	IBPS land at Raghunathpur	InProgress
	IBPS land at Taldangra	In Progress
East Medinipur	Water storage reservoir lands – various stages	29 nos. water storage reservoirs land under different stages of procurements. – Some are placed before District Land Purchase Committee, some lands are already procured/purchased or in progress
	Intake – Electric substation	In progress

	WTP land	NOC not obtained; Land is not transferred yet. Process continued
	GLSR and IBPS- lands	NOC obtained for one GLSR-IBPS land but land transfer is under process not obtained; process continued
Overall status Total Land – 159 nos. Govt: land – 64 nos. Possession obtained 33 nos., Under PHED: 13 nos., Inter departmental Transfer: 16 nos., Under LR: 1 no., Under IWD: 1 no. Private Land – 95 nos. – Purchased: 9 nos., under process PHED land: 3; under land purchase committee: 78, Yet to apply: 5		

III. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

19. The loan agreement for WBDWSIP was signed on 3rd October 2018 and details are available in ADB website (<http://www.adb.org/projects/documents/ind-49107-006-lna>). **Table 6** provides a summary of compliance to the loan covenants related to environmental safeguards.

Table 6: Compliance of Loan Covenants – Environment part

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues	Action required
Environment			
6	The Borrower shall ensure or cause the EA to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project, and all projects' facilities comply with (a) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety; (b) the Environmental Safeguards; (c) the EARF; and (d) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Under compliance Document is prepared/ or under preparation by complying all relevant State and National Laws, Safeguard Policy Statement (SPS 2009) of ADB, Environment Assessment Review Framework (EARF) Draft Initial Environmental Examination (IEE), Environment Management Plan (EMP) report prepared and approved by ADB. Updation of IEEs under going for all packages along with finalization of design. All rules and regulations are considered during preparation of documents All measures as mentioned in Environment Management Plan (EMP) and Site Environment Management plan (SEMP) has been followed in running packages, which under implementation – N 24pgs/01, N 24 pgs/02A and 02B. Corrective or preventive action	Since design completed for few zones IEE under updation for those zones. With development of design and possession of land IEE will be updated further IEE will be updated further in case of change in project scope and location Continuation of application of SEMP as per approved IEE and during implementation of the project and

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues	Action required
		plans reflected in Environment Monitoring Report and project implementation authority take care of such actions as per requirement	
Human and Financial Resources to Implement Safeguards Requirements			
10	The Borrower shall make available, or cause the EA to make available, all necessary budgetary and human resources to fully implement the EMP required.	<p>Under Compliance</p> <p>Budgetary provisions have been included in EMP</p> <p>Executive Engineer in-charge of Environment and Social Safeguard is in place in Project Management Unit heading Safeguard Monitoring Unit</p> <p>An Environment Specialist is in place within Project Management Consultancy (PMC)</p> <p>An Environmental Specialist of DSISC, for implementation of EMPs, is in place/ under placement for regular monitoring to secure complete compliance.</p> <p>(Personnel detail shown in Table 1)</p>	Training continued for Environment, health and safety officer of contractors for application of SEMP and necessary corrective action
Safeguards – Related Provisions in Bidding Documents and Works Contracts			
11.	<p>The Borrower shall ensure, or cause the EA to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>(a) comply with the measures and requirements relevant to the contractor set forth in the IEE, the EMP, the RP and the IPP (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report;</p>	<p>Under compliance</p> <p>EMP, BOQ line items, reinstatement to pre-project conditions included in the contract agreement.</p> <p>(a) Approved IEE, EMP is attached in Bidding documents. This process will be followed for all the projects</p> <p>In case of any change of scope, revised IEEs with EMP(s) will be prepared and corrective measures will be disclosed to the contractor and same will be reflected in the "Environment Monitoring Report".</p> <p>Contractors done base line pre construction monitoring and survey of pre- works condition. Budget has been allocated for EMP application and</p>	<p>In case of any change of scope, revised IEEs with EMP(s) will be prepared and corrective measures will be disclosed to the contractor</p> <p>In this context, it may be noted that work in Zone-1, 2 and 18 of Bhangar-II block has been put on hold since the location is within East Kolkata Wetland Management Area. New locations outside the EKW area have been identified for construction of OHRs and actions for possession of the sites are under progress. For</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues	Action required
	<p>(b) make available a budget for all such environmental measures;</p> <p>(c) provide the EA with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RP or the IPP;</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>(e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>	<p>monitoring. Pre construction documents submitted by contractors for those packages {N 24 pgs/02A and 02B) and N 24 pgs/01} where actual physical construction started. Also pre construction monitoring done partly for packages – BK/01, BK/02A, BK/02B, BK/03 and BK/04, where construction will be started shortly.</p> <p>(b) IEE includes budgetary provisions for implementation of EMP for all the packages. Contractors submit monitoring budget</p> <p>(c) During implementation of any project if additional impacts/risks arise due to change in scope/area that will be reflected in the revised IEEs, EMPs and Environment Monitoring Report and accordingly project Executing Contractor will inform the Construction Contractor for taking relevant corrective measures. Till date no as such situation create for the packages 02A and 02B of North 24 pgs which under implementation.</p> <p>(d) Haul roads have marked properly (by avoiding residential and agricultural land) before commencement of transportation of materials.</p> <p>(e) Pathways, and land which are affected for varying periods during implementation of the sub project restored by concerned construction Contractor before acceptance of the work. Restoration status has reflected in post construction monitoring report.</p> <p>Since the pipe laying work continued in villages, no as such underground infrastructure noted</p>	<p>the section where pipeline passes through the area, required NOC and in consultation with EKWMA application has been submitted to to allow pipe laying work..</p> <p>Presently, pipeline trenches are filled up and initial road restorations are completed on the same day. Whenever incomplete restoration is observed appropriate corrective and preventive actions are taken.</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues	Action required
Safeguards Monitoring and Reporting			
12	<p>The Borrower shall cause the EA to do the following:</p> <p>(a) submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEEs, the EMPs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) report any breach of compliance with the measures and requirements set forth in the EMPs, promptly after becoming aware of the breach.</p>	<p>Under compliance</p> <p>(a) Last semi-annual environment monitoring report submitted for the period November 2018- April 2019. Disclosure of that report – pending. Present report (2nd SEMR) for the period May to October 2019</p> <p>(b) During implementation of any project, if additional impacts/risks arise due to change in scope/area, those will be reflected in revised IEEs with EMPs and accordingly Executing Contractor (EA) will inform the ADB such change along with corrective action plan which will be reflected in the subsequent Monitoring Reports.</p> <p>IEE reports under updation – if any change will be reflected in the report</p> <p>(c) in case of any breach of compliance with the measures and requirements set forth in the EMP, EA will promptly inform ADB and suitable corrective action program will be planned/initiated.</p> <p>Till date no as such breach of compliance</p>	<p>Semi Annual Environment Monitoring Report will be submitted as per schedule</p> <p>IEE/ EMP will be revised in case of inclusion of additional impact and change in location/ scope for the project</p>
Prohibited List of Investments			
13	<p>The Borrower shall ensure or cause the State to ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.</p>	<p>Complied</p> <p>There is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5.</p>	None
Labour Standards			
14	<p>The EA shall ensure that civil works contracts under the Project follow all applicable labourer laws</p>	<p>Under compliance</p> <p>Provision are included (as per</p>	<p>HIV- AIDS training for other construction packages which</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues	Action required
	of the Borrower and the State, and that these further include provisions to the effect that contractors: (a) carry out HIV/AIDS awareness programs for labourer and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (b) follow and implement all statutory provisions on labourer (including not employing or using children as labourer, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the contractors.	<p>EMP & BID document) to carry out HIV/AIDS awareness programs for construction contractor, application of all relevant labour laws for health and safety including child labour law and engagement of local labours (preferably from economically backward group) covering women labours.</p> <p>No child labour engaged in the packages</p> <p>Labour license and health related WC policy for workers available for all the awarded packages where construction started or to be started (Attached as Appendix 3 and 4)</p> <p>HIV- AIDS training program conducted for package N 24 pgs/02 A and 02B (sample document attached as Appendix 11).</p> <p>HIV/ AIDS awareness program to be conducted shortly for other contracts</p> <p>Induction training continued for the awarded packages, where actual physical work started.</p> <p>In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken.</p> <p>All activities including awareness program reflected in "Monitoring Report".</p>	awarded and where actual physical work to be started

IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT PLAN

20. There are 8 environment sensitive packages under implementation. Site Environment plans including site specific EMPs (SEMP) were submitted by the contractors before starting of each construction package. SEMP were prepared and are being prepared zone wise based on final detailed design. **Appendix 7** shows sample SEMP for a zone of North 24 Pgs package. SEMP for other zones (for which design completed and work started, Ref Table 3A) are available with contractor, DSISC and PIU for implementation and monitoring of application of mitigation measures. Compliance status of SEMP are also available with

DSISC and PIU and are also reflected in sample SEMP (Appendix 7). **Table 7** shows package wise EMP implementation status.

Table 7: Package wise EMP Implementation Status

Package No	Components	Design status (Preliminary Design Stage/ Detailed Design Completed	Final IEE based on Detailed Design				Site specific EMP (or construction EMP) approved by Project Director (Yes/ No)	Remarks
			Not yet due (detailed design not yet completed)	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractors (Yes/No)		
WBDWSIP/DWW/ N-24P/ NCB/01/2017-18	Design, Construction and Operation of Water Treatment Plant, Reservoirs, Transmission Mains and Pumping Stations works in Haroa, Rajarhat, and Bhangar II.	DBO contract: Detailed design to be completed.	Final IEE is under preparation.	Final IEE is being prepared zone wise (where design completed) will be submitted in December 2019 along with updated SEMP.	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee)	Draft disclosed IEE only provided to contractor	Prepared and approved by PIU Updation under process as per new format suggested by ADB (Refer Table 3A).	Nil
WBDWSIP/DWW/N- 24P/ NCB/02A/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Haroa Block.	Detailed design continued zone wise. Partly completed and work ongoing	Final IEE under finalization along with updated SEMPs zone wise.	Final IEE for zone wise (where design completed) under progress to be submitted on December 2019 along with SEMP	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee)	Draft disclosed IEE only provided to contractor	Prepared and approved by PIU Updation under process as per new format and detail design. The list of SEMP's that have been approved are provided in Table 3A.	-Nil

Package No	Components	Design status (Preliminary Design Stage/ Detailed Design Completed	Final IEE based on Detailed Design				Site specific EMP (or construction EMP) approved by Project Director (Yes/ No)	Remarks
			Not yet due (detailed design not yet completed)	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractors (Yes/No)		
WBDWSIP/DWW/N-24P/ NCB/02B/2017-18	Design and Construction of Overhead Reservoir including design, supply and laying of Water Supply Distribution Network in Bhangar II Block.	Detailed design continued zone wise. Partly completed and work ongoing	Final IEE under preparation along with updated SEMP's zone wise.	Final IEE for zone wise (where design completed) under progress to be submitted on December 2019 along with SEMP	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee)	Draft disclosed IEE only provided to contractor	Prepared and approved by PIU Updation under process as per new format. The list of SEMP's that have been approved are provided in Table 3A.	-Nil
WBDWSIP/DWW/N CB/ BK/01/2017-18	Design, Construction and Operation-Maintenance of Raw Water Intake Well, Water Treatment Plant, Reservoir, Transmission Main for Indpur and Taldangra block in Bankura.	For DBO contract detailed design to be completed.	Final IEE under preparation along with SEMP.	To be submitted by January 2020 after completion of design	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee-1)	Draft disclosed IEE only provided to contractor	Prepared and approved by PIU Updation under process as per new format	-Nil
WBDWSIP/DWW/N CB/ BK/02A/2018-19	Design and Construction of Intermediate Pumping Station, ground	Detailed design under progress zone wise	Final IEE under preparation along with SEMP's.	To be submitted by January 2020 after completion of design	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee-1)	Draft disclosed IEE only provided to contractor	To be submitted zone wise from December 2019 and onwards	-Nil

Package No	Components	Design status (Preliminary Design Stage/ Detailed Design Completed	Final IEE based on Detailed Design				Site specific EMP (or construction EMP) approved by Project Director (Yes/ No)	Remarks
			Not yet due (detailed design not yet completed)	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractors (Yes/No)		
	storage reservoirs, overhead reservoirs, water distribution network and metering works in Indpur block., Bankura				49107-006-iee-1)			
WBDWSIP/DWW/N CB/ BK/02B/2018-19	Design and Construction of Intermediate Pumping Station, Secondary transmission mains, overhead reservoirs including water distribution network and metering works in Taldangra Block.	Detailed design under progress zone wise	Final IEE under preparation along with SEMP.	To be submitted by January 2020 after completion of design	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee-1)	Draft disclosed IEE only provided to contractor	To be submitted zone wise from December 2019 and onwards The list of SEMP.s that have been approved are provided in Table 3A.	-Nil
WBDWSIP/DWW/N CB/ BK/03/2018-19	Design, Construction and Operation- Maintenance of Raw Water	For DBO contract detailed design under progress.	Final IEE under preparation along with SEMP.	To be submitted by January 2020 after completion of design	Draft IEE disclosed in ADB website (https://www.adb.org/projects/doc	Draft disclosed IEE only provided to contractor	Prepared and approved by PIU Updation under process as per new format	-Nil

Package No	Components	Design status (Preliminary Design Stage/ Detailed Design Completed	Final IEE based on Detailed Design				Site specific EMP (or construction EMP) approved by Project Director (Yes/ No)	Remarks
			Not yet due (detailed design not yet completed)	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractors (Yes/No)		
	Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for Mejhia and Gangajalghati Block in Bankura				uments/ind- 49107-006-iee- 1)			
WBDWSIP/DWW/N CB/ BK/04/2018-19	Design and Construction of Overhead Reservoir including Water Supply Distribution Network and Metering Works in Mejhia and Gangajalghati Blocks including Rehabilitation of Existing Schemes., Bankura	Detailed design under progress zone wise	Final IEE under preparation along with SEMP.	To be submitted by January 2020 after completion of design	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee-1)	Draft disclosed IEE only provided to contractor	To be submitted zone wise from December 2019 and onwards The list of SEMP's that have been approved are provided in Table 3A.	-Nil
WBDWSIP/DWW/IC B/ EM/01/2018-19	Design, Construction and Operation- Maintenance of Raw Water	Not Awarded	Final IEE will be done after finalization of design and along with SEMP	Expected to be submitted by February 2020	Draft IEE disclosed in ADB website (https://www.adb.org/projects/doc	Draft IEE to be provided to contractor after award	No. Work not awarded	-Nil

Package No	Components	Design status (Preliminary Design Stage/ Detailed Design Completed	Final IEE based on Detailed Design				Site specific EMP (or construction EMP) approved by Project Director (Yes/ No)	Remarks
			Not yet due (detailed design not yet completed)	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractors (Yes/No)		
	Intake Well, Water Treatment Plant, Raw and Clear Water Transmission Main for Nandakumar, Chandpur, Nandigram-I and II blocks in East Medinipur.				uments/ind- 49107-006-iee- 7)			
WBDWSIP/DWW/IC B/ EM/02/2018-19	Construction of Intermediate Pumping Station, Secondary transmission mains, overhead tanks including water distribution network and metering, East Mednipur	Not Awarded Only LOA issued	Final IEE will be done after finalization of design along with SEMPs	Expected to be submitted by February 2020	Draft IEE disclosed in ADB website (https://www.adb.org/projects/documents/ind-49107-006-iee-5)	Draft IEE to be provided to contractor after award	No. Work not awarded	-Nil
WBDWSIP Project website link: https://wbdwsip.org/safeguard-documents - Disclosed IEEs available								

A. Implementation Arrangement

21. Public Health Engineering Department (PHED) of Government of West Bengal is the executing and implementing agency of the WBDWSIP, responsible for management, coordination and execution of all activities funded under the loan. A project management unit (PMU), exclusively established in PHED, assist the PHED in implementation of WBDWSIP. PMU supported by district level Project Implementation Units (PIUs). PMU is headed by a Project Director in the rank of Chief Engineer. Each PIU is headed by a Superintending Engineer, reporting to the Project Director. PMU with the support of PIUs is responsible for planning, implementation, monitoring and supervision, and coordination of all activities under the WBDWSIP. Project Implementation Unit for North 24 Parganas, Bankura and East Medinipur district has already been established.

22. PMU is supported by Project Management Consultant (PMC) to supervise, monitor and oversee the implementation. Each PIU is supported by a Design, Supervision and Institutional Support Consultant (DSISC); there are three DSISCs supporting 3 PIUs respectively in North 24 Parganas, Bankura and East Medinipur districts. PIUs will appoint construction contractors to build infrastructure.

23. A Steering Committee, headed by Chief Secretary, will provide strategic guidance, and oversee the implementation of the investment project. District Steering Committee, headed by the respective District Magistrate, established for monitoring program implementation at districts level. Steering committee is already established (**Appendix 14**).

B. Safeguard Implementation Arrangement

24. **Project Management Unit.** A Safeguard and Gender Cell (SGC) established in PMU with the overall responsibility of ensuring compliance with ADB SPS. SGC is headed by a Head Safeguards Gender Officer (HSGO) and will report to the Project Director directly. The HSGO have overall responsibility in implementation of the RF, EARF, RPs, EMPs, SEMP, GESI action plan, and appropriate monitoring and reporting responsibilities. Key environmental safeguard tasks and responsibilities at the PMU level are as follows:

- Ensure subprojects confirms to exclusion criteria and project selection guidelines as stipulated in the EARF;
- Approve subproject environmental category;
- Approve IEEs; ensure that updated IEEs/EMPs reflect final project designs;
- Ensure that EMPs are included in bidding documents and civil works contracts;
- Ensure proper implementation of EMPs by contractors;
- Facilitate and ensure compliance with all government rules and regulations regarding site and environmental clearances, as well as any other environmental requirements (e.g. location clearance certificates, environmental clearance certificates), as relevant;
- Oversee public consultation and disclosure;
- Approve quarterly EMP implementation reports;
- Review and approve semi-annual monitoring reports prepared by PMC; and submit to ADB;
- Oversee grievances redress process and ensure timely redress;
- Undertake regular review of safeguards related loan covenants, and the compliance in program implementation; and

- Organize periodic capacity building and training programs for WBDWSIP stakeholders, PHED, PMU and PIU staff on safeguards.

25. The SGC will be supported by environmental, social and gender safeguard specialists in the PMC. Key safeguard tasks and responsibilities of Environmental Specialist of the PMC on environmental safeguards are as follows:

- Review and finalize REA checklist and classify the project;
- Review and confirm project selection/ design; ensure compliance with exclusion criteria and project environmental selection guidelines;
- Review and finalize IEE reports including EMPs prepared/updated by PIUs/DSISCs;
- Oversee public consultation and information disclosure activities; ensure timely disclosure;
- Provide advise/support in obtaining government clearance/ approvals;
- Review and confirm that IEEs/EMPs are included in bids and contracts;
- Review and confirm SEMP prepared by contractor;
- Oversee the implementation of SEMP by contractors and ensure corrective actions, where necessary;
- Review and approve quarterly environmental monitoring reports submitted by PIU/DSISCs;
- Conduct site visits of project facilities and work sites to oversee implementation;
- Prepare semi-annual environmental monitoring reports and submit to PMU SGC HSGO;
- Oversee grievance redress process; advise on critical grievance related to environmental issues and concerns; and
- Organize training and capacity development programs.

26. **Project Implementation Unit.** At each PIU, an Assistant Engineer is given additional responsibilities of safeguard tasks and designated as Assistant Safeguards Officer. The Safeguards Officer will oversee the safeguards implementation at PIU level, coordinate public consultations, information disclosure, regulatory clearances and approvals, RP implementation, EMP implementation and grievance redressal. Key environmental safeguard tasks and responsibilities of Safeguards Officer are as follows:

- Coordinate public consultation and information disclosure;
- Liaise with local offices of regulatory agencies in obtaining clearances /approvals; assist PMU for clearances obtained at state level;
- Review and approve contractors SEMPs;
- Oversee day-to-day implementation of SEMPs by contractors including compliance with all government rules and regulations;
- Take necessary action for obtaining rights of way;
- Ensure continuous public consultation and awareness;
- Coordinate grievance redress process and ensure timely actions by all parties;
- Review monthly contractor's SEMP Monitoring Reports;

- Review and forward quarterly monitoring reports to PMU; and
- Inform PMU of unanticipated impacts and formulate corrective action plan; and
- Recommend issuance of work construction work completion certification to the contractor upon verification of satisfactory post-construction clean-up.

27. The PIUs will be assisted by DSISC teams which includes an Environmental Specialist and a Social Safeguards Specialist. Following are the key tasks of Environmental Specialist of DSISC:

- Assist PIU in identifying projects/components in compliance with the project exclusion criteria and selection guidelines stipulated in EARF;
- Prepare environmental screening checklists and submit to PMU for categorization; update checklist and category as and when required to reflect project changes, and report to PMU;
- Work closely with PIU and design teams to include environmental considerations in project location, design and technical specifications;
- Identify statutory clearance / permissions / approvals required for subproject; assist PIU in obtaining them;
- Assist in including standards/conditions, if any, stipulated in regulatory clearances, consents in the project design;
- Update IEE and EMP to reflect any changes in subproject during detail design / implementation; IEE shall reflect the final project design;
- Lead / assist PIU in public consultation in compliance with the EARF; reflect inputs from public consultation in IEEs, EMPs, and project design;
- Advise / assist PIU in disclosing relevant information on safeguards to stakeholders, affected people etc.;
- Assist / ensure all EMP measures related project design and location and included in the detailed designs;
- Integrate EMP into the bid and contract documents (for DBO contracts, include full IEE including EMP in bids);
- Advise contractor in preparation of SEMP as per the final design, prior to start of construction;
- Ensure that all necessary clearances/permission (including those required by Contractor) are in place prior to start of construction;
- Monitor implementation of SEMP;
- Ensure Contractors including subcontractor's, if any, comply with the measures set forth in the EMP;
- Assist PIU in establishing GRM for the Project:
- Assist PIU in grievance redress, advise the contractor on appropriate actions on grievances, ensure timely resolution and proper documentation;
- Identify, if any, non-compliance or unanticipated impacts; initiate corrective actions, report to PMU;
- Review and approve monthly monitoring reports submitted by Contractor; consolidate and prepare quarterly Environmental Monitoring Reports (EMR) and submit to PMU; and

- Conduct training and capacity building activities (workshops, hands-on trainings, visits etc.,) in EMP implementation.

28. **Civil Works Contracts and Contractors.** The contractor appoints an Environment, Health and Safety (EHS) Officer to implement EMP. The EHS Officer will update the EMP and submit a SEMP for approval of PIU. Contractors will carry out all environmental mitigation and monitoring measures outlined in EMP, approved SEMP and their contracts. Key responsibilities of the EHS supervisor are:

- a. Prepare SEMP and submit to PIU for approval prior to start of construction;
- b. Conduct orientation and daily briefing sessions to workers on environment, health and safety;
- c. Ensure that appropriate worker facilities are provided at the work place and labour camps as per the contractual provisions;
- d. Records accidents and undertake remedial actions;
- e. Implement SEMP measures and report to PIU/DSISC if any new impacts are surfaced; seek guidance from as required in EMP implementation;
- f. Conduct environmental monitoring (air, noise etc.,) as per the monitoring plan
- g. Ensure conduct of water quality surveillance program;
- h. Prepare monthly EMP monitoring reports and submit to PIU;
- i. Work closely with PIU Safeguards Officer and consultants to ensure communities are aware of project-related impacts, mitigation measures and GRM; and
- j. Address any public compliance and grievances effectively and in timely manner.

29. Environment Specialist and Environment support staff of DSISC visited all construction sites every week and arranged onsite training program for contractors and supervisory staff and instructed contractors for application of corrective action measures to mitigate impacts. Environment Specialist of PMC visited work sites atleast once in a month to audit application of EMP and assess shortfall if any. **Table 8** shows detail of safeguard personal from contractor. **Table 1** shows project safeguard Team.

Table 8: Details of Contractor's safeguard officer for WBDWSIP

Designation	Name and Contact Details
North 24 Parganas	
Contractor- NCC, North 24 Pgs ,Safeguard Manager,	Name: Sharan Kumar Basu Phone: 7365003066 Email: sharankumarbose@gmail.com
Contractor- NCC ,North 24 Pgs ,Package: N-24P/NCB/02A/2017-18, Safeguard Officer,	Name: Mr. Saradindu Gain Phone: 9775459487 Email: gain.saradindu@gmail.com
Contractor- NCC ,North 24 Pgs, Package:N-24P/NCB/02B/2017-18, Safeguard Officer,	Name: Nitin Sartape Phone: 8971107720 E mail: nitinsolapur@gmail.com

Designation	Name and Contact Details
Contractor- Furnace Fabrica (India) Ltd.- North 24 Pgs, Package:N-24P/NCB/01/2017-18, Safeguard Officer, Bankura	Name: Subhankar Chattopadhyaya Phone: 6290016411, 9649986813 Email:shubhankar_chattopadhyay@rediffmail.com
Contractor- Techno Fab Engineering Ltd. and S N Envirotech Pvt. Ltd. Jv, Bankura, Package: BK/NCB//01/2017-18, Safeguard Officer,	Name: Mr. Prasanta Panda Phone: 7684097086 Email: prasantapanda7@gmail.com
Contractor- L & T Ltd, . Package: BK/NCB/02A/2018-19, Safeguard officer,	Name: Mr. Tirthraj Gupta Phone: 9939691579 Email: tirthraj@Intecc.com
Contractor- L & T Ltd. Package: BK/NCB/02B/2018-19, Safeguard officer,	Name: Not yet mobilized Phone: NA Email: NA
Contractor- L & T Ltd BK/NCB/03/2018-19, Safeguard officer,.	Name: Mr. Mukesh Kumar Phone: 8637860268 Email: k-mukesh@Intecc.com
Contractor- L & T Ltd. BK/NCB/04/2018-19, Safeguard officer,	Name: Mr. Sujan Goswami Phone: 7837175749 Email: sujangoswami@Intecc.com

(For Two East Medinipur - packages- Contract not awarded till date)

30. **Figure 7** shows institutional arrangement for safeguard implementations for the project.

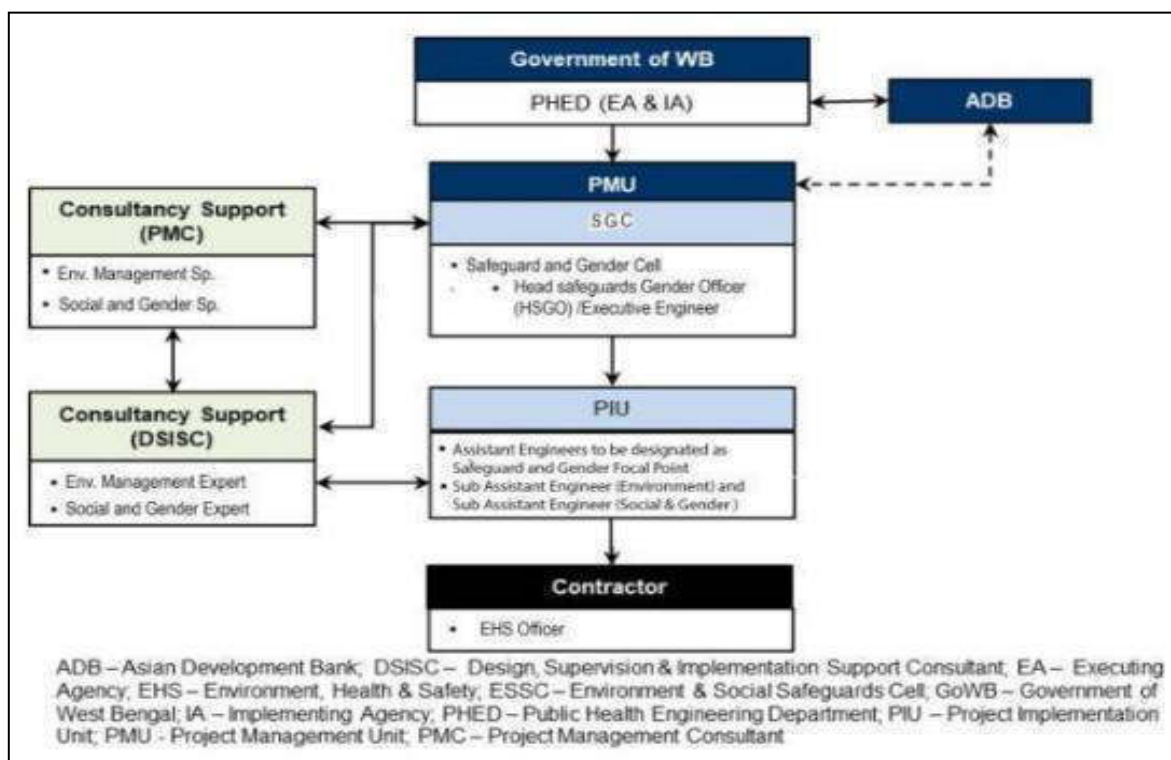


Figure 7: Overall Institutional Arrangement – Safeguards

C. EMP implementation - Application of Mitigation measures

31. Environment Specialist from DSISC and PMC carried out periodic monitoring of EMP implementation through desk review of contractor's records as submitted monthly and site inspections. Sample site inspection report as prepared by DSISC is shown in **Appendix 8**. Further, sample monthly environmental compliance monitoring with photographic evidences are presented in **Appendix 8A**. Package wise status of Environment Monitoring for North 24 Parganas are shown in **Table 9** (Package:N-24P/ NCB/01/2017-18), **Table 10** (Package: N-24P/NCB/02A/2017-18) and **Table 11** (Package:N-24P/NCB/02B/2017-18). Contractors are regularly submitting monthly environment monitoring reports and daily and weekly checklists. Sample monthly EMP monitoring checklist is enclosed as **Appendix 9**.

32. Survey work and final designing are being continued for packages under Bankura PIU [BK/NCB/01/2017-18, BK/NCB/02A/2018-19, BK/NCB/02B/2018-19, BK/NCB/03/2018-19 and BK/NCB/04/2018-19]. Field level monitoring as per EMP provisions will be started shortly for these packages. Contractors has already complied pre construction requirements like collection of PUC certificate (**Appendix 2**), labour license (**Appendix 3**), Workman Compensation Policy (**Appendix 4**) and also done base line monitoring (**Appendix 10**).

Table 9: Summary of Environmental Monitoring Activities for the Package WBDWSIP/DWW/NCB/N24P/01/2017-18: BULK WATER SUPPLY

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Design Phase							
Source sustainability and efficiency	<ul style="list-style-type: none"> Discontinuation of current unsafe and unsustainable groundwater sources and creating a new comprehensive surface water (river) based water supply system Recovering wash water from treatment process to optimize the water use Treatment and reuse of sludge from treatment process Designing the entire system to maintain optimal flow and terminal pressure, and optimizing the overall energy usage Reducing the incidence of water borne diseases by providing 100% population including urban poor with potable water supplies Preparation and implementation of a water quality surveillance program including development of a laboratory as part of the project by DBO contractor to ensure that supplied water meets the drinking water standards Development of laboratory with all necessary environment, health and safety measures and adopting international standard procedures for water quality testing Using low-noise and energy efficient pumping systems Installing the noise-producing pumps and motors etc., in enclosed buildings with noise reducing walls, and also maintaining adequate buffer to the nearby inhabited areas. Provision of appropriate personal protection equipment to the workers and staff 	<ul style="list-style-type: none"> Design philosophy Treatment scheme Project QA/QC plan 	Document review and LOP Survey	All project locations	Before Commencement and during final design	Environment Specialist of DSISC, PIU and PMU/PMC	Detailed design under process, necessary points as mentioned in IEE are considered during finalization of design
Chlorine handling and application risk – health and safety risk to workers and general public	<ul style="list-style-type: none"> Provide the following measure at the chlorine application unit: Chlorine neutralization pit with a lime slurry feeder Chlorine absorption and neutralization facility Proper ventilation, lighting, entry and exit facilities Visible and audible alarm facilities to alert chlorine gas leak Facility for isolation in the event of major chlorine leakage Eye wash and shower facility Personal protection and safety equipment for the operators in the 	<ul style="list-style-type: none"> Project emergency management plan Project safety and PPE plan Training plan 	Document review	WTP and Booster pumping site	Before Commencement and during final design	Environment Specialist of DSISC and PIU	Detailed design under process, necessary safety during storage and use of chlorine is

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> chlorine plant (masks, oxygen cylinders, gloves, etc.,) Provide training to the staff in safe handling and application of chlorine; this shall be included in the contract of Chlorinator supplier Supplier of Chlorinator equipment shall provide standard operating manual for safe operation and as well as maintenance and repairs; preferably these shall be provided both in English and Bengali Languages 						considered during designing of WTP
Tree cutting	<ul style="list-style-type: none"> Minimize removal of trees by adopting to site condition and with appropriate layout design of GLSRs Obtain prior permission for tree cutting Plant and maintain 5 trees for each tree that is removed 	Tree felling requirement and afforestation after final design	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Project locations	Before Commencement and during final design	Environment Specialist of DSISC and PIU	As of now, tree felling requirement is not envisaged.
Disturbance to natural drainage	<ul style="list-style-type: none"> Construction GLSR at Haroa away from the flood plain of Bidyadhari river Integrate measures into GLSR design to avoid risk of flooding. 	<ul style="list-style-type: none"> Location map Design philosophy 	<ul style="list-style-type: none"> Document review Visual inspection of sites 	GLSR sites	Before Commencement and during final design	Environment Specialist of DSISC, PIU and PMU/PMC	Under compliance-during final designing
Pre-Construction Phase							
Telephone lines, electric poles and wires, water lines within proposed project area	<ul style="list-style-type: none"> Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and Require construction contractor to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services. Require contractors to prepare spoils management plan and traffic Management plan 	List of affected utilities if any and operators	Observation and document checking	Specific project location	Before commencement of construction	Environment Specialist of DSISC and PIU	Transmission main pipe line design not yet finalized. Alignment selection continued. Spoil management and traffic management plan for pipe line laying locations will be submitted

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
							after finalization of design/ alignment
Conflicts with local community; disruption to traffic flow and sensitive receptors	<ul style="list-style-type: none"> ○ Prioritize areas within or nearest possible vacant space in the project location; ○ 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. ○ Not to consider residential areas. ○ Take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community. ○ For excess spoil disposal, ensure (a) site shall be selected preferably from barren, infertile lands. In case agricultural land needs to be selected, written consent from landowners (not lessees) will be obtained; (b) debris disposal site shall be at least 200 m away from surface water bodies; (c) no residential areas shall be located within 50 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like settlements ponds/lakes or other water bodies 	<ul style="list-style-type: none"> • List of selected project location and proposed pipeline alignment plan • Involvement of traffic dept. • Road closure planning 	<ul style="list-style-type: none"> • Site observation • Review of documents • Grievance Register 	Specific project location	Before commencement of final design and commencement of construction	Environment Specialist of DSISC and PIU	Pilling work for WTP just started within fixed campus. No impact on property. Pipe laying will be done after finalization of design and alignment
Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water	<ul style="list-style-type: none"> ○ Obtain construction materials only from government approved quarries with prior approval of PIU; ○ PIU to review, and ensure that proposed quarry sources have all necessary clearances/ permissions in place prior to approval ○ Contractor to submit to PIU on a monthly basis documentation on material obtained from each source (quarry/ borrow pit) ○ Avoid creation of new borrow areas, quarries etc., for the project; if unavoidable, contractor to obtain all clearances and permissions as required under law, including Environmental Clearance prior to approval by PIU 	<ul style="list-style-type: none"> • List of approved quarry sites and sources of materials • Construction Contractor documentation 	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Project sites	Before commencement of construction	DSISC Construction Management and Environmental Safeguard Team	All materials procured from licensed vendors after approval of PIU

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
pollution.							
Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	<ul style="list-style-type: none"> Obtain all necessary consents, permits, clearance, NOCs, etc. prior to award of civil works. Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. Include in detailed design drawings and documents all conditions and provisions if necessary 	List of applicable legislation	Checking of documents	All project locations	Before commencement of construction	Environment Specialist of DSISC, PIU and PMU/PMC	CTE for the WTP has been applied. Land for WTP under possession of EA. Other relevant NOC will be obtained as per requirement and with progress of design
Health risk due to exposure to asbestos materials	<ul style="list-style-type: none"> Obtain details on location of underground asbestos cement materials Lay the new pipes carefully to avoid encountering asbestos cement pipes If found, leave the asbestos cement pipes undisturbed in the ground. 	asbestos cement materials	Site inspection	Specific project location	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager and Environment Team of DSISC of operational sites.	DSISC Construction Management and Environmental Safeguard Team	Till date no asbestos cement material has been found on site
Construction Phase							
Irreversible impact to the environment, workers, and community	Project manager and all key workers will be required to undergo training on EMP implementation including spoils/waste management, Standard operating procedures (SOP) for construction works; occupational health and safety (OHS), core labor laws, applicable environmental laws, etc.	Induction & Awareness Trainings Toolbox Talks Safeguard Trainings	Review of Training records Site Inspections	Project Locations	-	Environment Specialist of DSISC and PMU	Complied; Site Environmental Safety training and awareness

58

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> Control access to work area, prevent unnecessary movement of vehicle, public trespassing into work areas; limiting soil disturbance will minimize dust generation Ensure that all the construction equipment, machinery is fitted with pollution control devices, which are operating correctly, and have a valid pollution under control (PUC) certificate <p>Pipeline works</p> <ul style="list-style-type: none"> Barricade the construction area using hard barricades (of 2 m height) on both sides and provide dust/wind screen (such geo textile fabric) up to 3 m height (1m above the hard barricading) Initiate site clearance and excavation work only after barricading of the site is done Confine all the material, excavated soil, debris, equipment, machinery (excavators, cranes etc.), to the barricaded area Limit the stocking of excavated material at the site; remove the excess soil from the site immediately to the designated disposal area Undertake the work section wise: 100 – 200 m section should be demarcated and barricaded 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, use the freshly excavated soil for back filling, this will avoid stocking of material, and minimize the dust. 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. 						will be arranged. For pipe line work, barricading, removal of earth, backfilling will be done as per SEMP
Mobilization of settled silt materials, and chemical	<ul style="list-style-type: none"> All earthworks be conducted during the dry season to prevent the problem of soil run-off during monsoon season; Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; 	<ul style="list-style-type: none"> Areas for stockpiles, storage of fuels and 	Site inspection Public grievance	All project locations	Daily visit by construction supervisor of DSISC. Weekly	DSISC Construction Management and	Work just started. Silt trap arranged,

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
contamination from fuels and lubricants during construction can Contaminate nearby surface water quality. Ponding of water in the pits /foundation excavations	<ul style="list-style-type: none"> ○ Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, only designated disposal areas shall be used; drainage leading to the water bodies; ○ Place storage areas for fuels and lubricants away from any drainage leading to water bodies; ○ Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling ○ Dispose any wastes generated by construction activities in designated sites; and ○ Conduct surface quality inspection according to the Environmental Management Plan (EMP). ○ Create a temporary drainage channel around the work area to arrest the entry of runoff from upper areas into the work area ○ 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 ○ Consider safety aspects related to pit collapse due to accumulation of water 	lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies • Entry routes of pollutant in nearby waterbodies	register		visit by Construction Manager, Visit by Environment Safeguard Team.	Environmental Safeguard Team	fuel lubricants yet to purchase, designated site for waste disposal under consideration . All safety aspect maintained.
Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	<ul style="list-style-type: none"> ○ Plan activities in consultation with PIU so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; ○ Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; ○ 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; and ○ Maintain maximum sound levels not exceeding 80 decibels (dBA) when measured at a distance of 10 m or more from the 	Day time and night time noise levels.	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Monitoring is expected to be conducted at 5 locations. However, as the GLSR lands has not been purchased yet, pre-construction	Once before start of construction Quarterly (yearly 4-times) during construction (2-year period considered) Monitoring conducted on 16-05-2019 17-05-2019 and 23-10-2019 Daily visit by	DSISC Construction Management and Environmental Safeguard Team	Complied; pre-construction baseline data has been collected. There is no as such noise generated from equipment. Stipulated condition as

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>vehicle/s.</p> <ul style="list-style-type: none"> Identify any buildings at risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; 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. 			monitoring has been conducted at WTP and Booster pumping station only.	construction supervisor of DSISC. Weekly visit by Construction Manager and Environment Team of DSISC of operational sites.		per SEMP is followed
Impacts due to excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers, spoils, oils, lubricants, and other similar items.	<ul style="list-style-type: none"> Prepare and implement a Construction Waste Management Plan 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., Stockpiles, lubricants, fuels, and other materials should be located away from steep slopes and water bodies; Avoid stockpiling any excess spoils at the site for long time. Excess excavated soils should be disposed off to approved designated areas immediately; If disposal is required, the site shall be selected preferably from barren, infertile lands; site should be located away from residential areas, forests, water bodies and any other sensitive land uses 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 Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by local authorities/WBPCB; Prohibit burning of construction and/or domestic waste; 	<ul style="list-style-type: none"> Waste Management List Stockpile Management Complaints from Sensitive receptors PMU/ PIU/ DSISC to report inwriting that the necessary environmental restoration work has been done 	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC, PIU and PMU/PMC	Complied Excess earth would be mostly for backfilling Domestic solid waste collection bin arranged No as such stock piling allowed for spoil

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> Ensure that wastes are not haphazardly dumped thrown within and around the project site and adjacent areas; provide proper collection bins, and create awareness to use the dust bins. Conduct site clearance and restoration to original condition after the completion of construction work; PIU to ensure that site is properly restored prior to issuing of construction completion certificate 						
Disruption of service and Damage to existing infrastructure at specified project location	<ul style="list-style-type: none"> Prepare a list of affected utilities and operators if any; Prepare a contingency plan to include actions to be done in case of unintentional interruption of service 	<ul style="list-style-type: none"> List of affected utilities if any and operators Public grievance 	Observation And document checking	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC, PIU and PMU/PMC	Complied as Per requirement. Consultation with utility dept.as and when required; pipeline laying has not yet started
Loss of vegetation and tree cover	<ul style="list-style-type: none"> Minimize removal of vegetation and disallow cutting of trees; If tree-removal will be required, obtain tree-cutting permit and Plant 5 native trees for every one that is removed. 	Tree felling requirement and afforestation after final design	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC, PIU and PMU/PMC	As of now, tree felling requirement is not envisaged.
Traffic problems and conflicts near project locations and haul road	Hauling (material, waste/debris and equipment) activities <ul style="list-style-type: none"> Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites Schedule transport and hauling activities during non-peak hours; Locate entry and exit points in areas where there is low potential 	<ul style="list-style-type: none"> Traffic Management Plan Public grievance Number of 	Site visit and document review	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction	Environment Specialist of DSISC and PIU	Complied; WTP location is within the PHED campus, no traffic

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> for traffic congestion; Drive vehicles in a considerate manner 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 <ul style="list-style-type: none"> (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. Proper barricading should be provided; avoid material/surplus soil stocking in congested areas – immediately removed from site/ or brought to the as and when required. Leave spaces for access between mounds of soil to maintain access to the houses / properties Provide pedestrian access in all the locations; provide wooden/metal planks over the open trenches at each house to maintain the access. Inform the affected local population 1-week in advance about the work schedule Plan and execute the work in such a way that the period of disturbance/ loss of access is minimum. Keep the site free from all unnecessary obstructions; Coordinate with Traffic Police for temporary road diversions, where necessary, and for provision of traffic aids if transportation activities cannot be avoided during peak hours 	signages placed at subproject location			Manager, Visit by Environment Safeguard Team.		management is required. As of now no pipeline work has started and no grievance has been registered. During pipe laying all Traffic Management rules will be followed
Generation of temporary employment and increase in local revenue	<ul style="list-style-type: none"> Employ local labor force as far as possible Comply with labor laws 	Employment record	Checking of records	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC, PIU and PMU/PMC	Direct and indirect employment for local population

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Occupational hazards which can arise during work	<ul style="list-style-type: none"> Comply with all national, state and local core labor laws (see Appendix 7 of this IEE) 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 like helmet, gumboot, safety belt, gloves, nose musk and ear plugs; (c) OHS Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; Provide medical insurance coverage for workers; Secure all installations from unauthorized intrusion and accident risks; Provide supplies of potable drinking water; Provide clean eating areas where workers are not exposed to hazardous or noxious substances; 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; Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; Ensure moving equipment is outfitted with audible back-up alarms; Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. 	<ul style="list-style-type: none"> Site-specific Health and Safety (H&S) Plan Equipped first-aid stations; Medical insurance coverage for workers Number of accidents Supplies of potable drinking water; Record of H&S orientation trainings Personal protective equipment Sign boards for hazardous areas such as energized electrical devices and lines, service rooms 	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC; PIU and PMU/PMC	<p>Complied. Work just started. Site-specific Health and Safety (H&S) Plan under implementation. OHS plan submitted by contractor and approved by DSISC and PIU. That document is available with DSISC and PIU</p> <p>Induction and tool box training arranged by contractor and first aid training arranged by DSISC (sample shown in Appendix 11) Use of PPEs noted mostly.</p>

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and</p> <ul style="list-style-type: none"> Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. 						<p>Visibility vest also used.</p> <p>Drinking water and first aid box available at site.</p> <p>Medical Insurance arranged for the labourer (see Appendix 4). Medical tie up and health checking of workers pending. No as such noise producing equipment available at site</p> <p>Accident register is maintained at site. Till date no accident recorded.</p>
Health risk due to exposure to asbestos	<ul style="list-style-type: none"> Obtain details on location of underground asbestos cement materials Lay the new pipes carefully to avoid encountering asbestos 	asbestos cement materials	Site inspection	Specific project location	Daily visit by construction supervisor of	DSISC Construction Management	Till date no asbestos cement

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
materials	<ul style="list-style-type: none"> cement pipes If found, leave the asbestos cement pipes undisturbed in the ground. 				DSISC. Weekly visit by Construction Manager and Environment Team of DSISC of operational sites.	and Environmental Safeguard Team	material has been found on site
Traffic accidents and vehicle collision with pedestrians during material and waste transportation	<ul style="list-style-type: none"> Restrict construction vehicle movements to defined access roads and demarcated working areas (unless in the event of an emergency) Enforce strict speed limit (20-30 kmph) for playing on unpaved roads, construction tracks Night-time haulage will be by exception only, as approved by the PIU to minimize driving risk and disturbance to communities Adopt standard and safe practices for micro tunneling Temporary traffic control (e.g. flagmen) and signs will be provided where necessary to improve safety and provide directions All drivers will undergo safety and training Public access to all areas where construction works are on-going will be restricted through the use of barricading and security personnel Warning signs, blinkers will be attached to the barricading to caution the public about the hazards associated with the works, and presence of deep excavation The period of time when the pipeline trench are left open will be minimized through careful planning Control dust pollution – implement dust control measures as suggested under air quality section Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. Provide road signs and flag persons to warn of on-going trenching activities. 	Public grievance	Review of documents	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC and PIU	Preliminary work started within WTP campus. No pedestrian accident has been recorded till date No traffic control and application of traffic management plan is required. Only during transportation, entry of vehicle at construction site controlled by concerned construction supervisor

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants Unsanitary and poor living conditions for workers	<ul style="list-style-type: none"> Ensure that a proper compound wall is provided, and erect a wind/dust screen around Camp site shall not be located near (100 m) water bodies, flood plains flood prone/low lying areas, or any ecologically, socially, archeologically sensitive areas Separate the workers living areas and material storage areas clearly with a fencing and separate entry and exit Provide proper temporary accommodation with proper materials, adequate lighting and ventilation, appropriate facilities for winters and summers; ensure conditions of livability at work camps are maintained at the highest standards possible at all times; Consult PIU before locating project offices, sheds, and construction plants; (viii)Minimize removal of vegetation and disallow cutting of trees Ensure conditions of livability at work camps are maintained at the highest standards possible at all times; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be allowed as accommodation for workers Camp shall be provided with proper drainage, there shall not be any water accumulation Provide drinking water, water for other uses, and sanitation facilities for employees Prohibit employees from cutting of trees for firewood; contractor should be provided proper facilities including cooking fuel (oil or gas; fire wood not allowed) Train employees in the storage and handling of materials which can potentially cause soil contamination Recover used oil and lubricants and reuse or remove from the site Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; provide a compost pit for biodegradable waste, and non-biodegradable / recyclable waste shall be collected and sold in 	<ul style="list-style-type: none"> Public grievance Accommodation Water and sanitation facilities for employees Housekeeping – regular disposal of solid waste 	Site inspection and review of documents	Construction camps	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC and PIU	Partially Complied. Housekeeping, toilet facility, testing of drinking water, provision of fuel (kerosene or LPG) for cooking, provision of solid waste and wastewater disposal are some of the aspects requiring improvement. No rubbish generated

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> local market Remove all wreckage, rubbish, or temporary structures which are no longer required At the completion of work, camp area shall be cleaned and restored to pre-project conditions, and submit report to PIU; PIU to review and approve camp clearance and closure of work site 						
There are no protected properties in the subproject sites. However, in case of chance finds, contractors will be required to follow a protocol as defined in the mitigation measures.	<ul style="list-style-type: none"> Consult Archaeological Survey of India (ASI) or West Bengal State Archaeology Department to obtain an expert assessment of the archaeological potential of the site. Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available. In case of chance finds, works must be stopped immediately until such time chance finds are cleared by experts 	Site inspection records	Site inspection and review of documents	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Safeguard Team.	Environment Specialist of DSISC and PMU/PMC	No chance finds to date.
Unsatisfactory compliance to EMP	<ul style="list-style-type: none"> Appointment of (I) Environment, Health and Safety (EHS) Supervisor to ensure EMP implementation Timely submission of monitoring reports including pictures 	Appointment letter Monitoring records	Review of records	-	-	Environment Specialist of DSISC and PIU	Partially complied More training is required for safety officer on Environment aspect
Damage due to debris, spoils, excess construction materials	<ul style="list-style-type: none"> Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and All excavated roads shall be reinstated to original condition. All disrupted utilities restored All affected structures rehabilitated/compensated The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these 	Stockpile Management Spoil Management Restoration of sites	Review of documents and site inspections	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment	Environment Specialist of DSISC and PIU	Complied; Spoil Management Plan has been submitted for the WTP construction

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>shall be cleaned up.</p> <ul style="list-style-type: none"> All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regrassed using the guidelines set out in the revegetation specification that forms part of this document. The contractor must arrange the cancellation of all temporary services. quest PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work. 				Safeguard Team.		No pipe laying work started.
Operational Phase							
Public health, safety and environmental impacts	<ul style="list-style-type: none"> Operate as per the Operational Manual following Standard Operating Procedures as per the WTP design Undertake preventive and periodic maintenance activities as required Ensure periodic training to staff in WTP operation, especially in chemical handling and dosing, filter backwash, etc., replace pumps, motors and other parts as per the operating life prescribed by manufacturer Maintain the mechanical parts as per the maintenance plan to avoid any hazards. Ensure that all safety apparatus at WTP including personal protection equipment are in good condition all times; and are at easily accessible and easily identifiable place; periodically check the equipment, and conduct mock drills to deal with emergency situations Ensure that backwash recirculation system and sludge management system are operated as per the manual 	Health records Facility inspection records Incident reports	Review of records	Project facilities	-	Environment specialist of DSISC; PIU and PMU/PMC	NA at the present project stage
Loss of water, increased demand and Inconvenience to consumers and general public	Effectiveness of leak detection and water auditing to reduce the water losses.	DCS system water balance	Review of data	Bulk Distribution network	-	Environment specialist of DSISC; PIU and PMU/PMC	NA at the present project stage
Health, social and economic	<ul style="list-style-type: none"> Provide appropriate PPE and training on its proper use and maintenance. 	Facility inspection	Review of data	Project locations,	-	Environment specialist of	NA at the present

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
impacts on the workers	<ul style="list-style-type: none"> Use fall protection equipment when working at heights. Maintain work areas to minimize slipping and tripping hazards. Implement a training program for operators who work with chlorine regarding safe handling practices and emergency response procedures. Prepare escape plans from areas where there might be a chlorine emission. Install safety showers and eye wash stations near the chlorine equipment and other areas where hazardous chemicals are stored or used. Prohibit eating, smoking, and drinking except in designated areas. 	records Incident register		especially WTP site		DSISC; PIU and PMU/PMC	project stage
Water pollution, and impacts on public health and environment	Sanitation and sewerage/septage facilities needs to be improved/provided in the project area to suit the increased sewage generation	Health records increase in sewage facility	Review of records	Project influenced area	-	Environment specialist of DSISC; PIU and PMU/PMC	NA at the present project stage

Table 10: Summary of Environmental Monitoring Activities for the Package WBDWSIP/DWW/NCB/N24P/02A/2017-18: Water Supply Distribution at Haroa Block

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Design Phase							
Source sustainability and efficiency	(i) Gravity distribution system: designing the entire system to maintain optimal flow and terminal pressure, and optimizing the overall energy usage (ii) Implementation of a water quality surveillance program including development of a laboratory as part of the project to ensure that supplied water meets the drinking water standards	<ul style="list-style-type: none"> Design philosophy Project QA/QC plan Selection methodology for distribution 	Document review and LOP Survey	All project locations	Before commencement of final design	Environment Specialist of DSISC; PIU and PMC	Complied; Distribution network finalized for: Zone-1 (Amta), Zone-4 (Laugachi), Zone-5 (Tegharia), Zone-6 (Puratan)

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	(iii)Minimizing water losses from pipelines by perfect jointing and alignments using appropriate techniques (iv) Reducing the incidence of water borne diseases by providing 100% population including urban poor with potable water supplies	network					Kamarganti), Zone12(Parchandpur), Zone-13(Chauhata), Zone-14(Khalisadi), Zone-15(Jhikia), Zone-16(Haripur) Zone-17(Salipur), Zone-18(Gopalpur), Zone-19(Khoda Chandpur), Zone-21(Haroa) Rest under on-going.
Socio economic impact – loss fishery area	(i) Avoid using low-lying lands / ponds for construction of OHRs; alternative private lands may be explored within the vicinity; (ii)Review the applicability of West Bengal Inland Fisheries Act, 1984, whether the site falls under the definition of fisher area; obtained permission from Fisheries Department if required prior to start of construction	List of selected location for OHRs	Site survey	All sites OHR	Before commencement of final design	Environment Specialist of DSISC and PMC	Complied; No low-lying lands or ponds are being filled for construction.
Tree cutting	(i) Minimize removal of trees by adopting to site condition and with appropriate layout design of OHRs within the sites (ii)Avoid cutting of trees by adopting suitable alignment changes as required during laying of pipelines; (iii)In unavoidable cases, obtain prior permission for tree cutting (iv)Plant and maintain 5 trees for each tree that is removed	<ul style="list-style-type: none"> Tree felling requirement – site layout plan NOC – paper documents from line agency 	Site survey and review of site layout/ pipeline alignment plan	All project locations	Before commencement of final design	Environment Specialist of DSISC; PIU and PMC	Complied; except Zone 18: Gopalpur no other sites requirement for tree felling has been envisaged till date. NOC obtained and tree felling done for that site
Pre-Construction Phase							
Telephone lines, electric	(i) Identify and include locations and operators of these utilities in the detailed design documents to prevent	List of affected utilities if any and	Observation and	Specific project	Before commencement of	Environment Specialist of	Complied; about 200 km of pipeline

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
poles and wires, water lines within proposed project area	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. (iii) Require contractors to prepare spoils (waste) management plan and traffic management plan	operators	document checking	location	construction	DSISC and PIU	has been laid (sample Spoil Management Plan & Traffic Management Plan for one zone available with SEMP, Appendix 7)
Conflicts with local community; disruption to traffic flow and sensitive receptors	(i) 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) For excess spoil disposal, ensure (a) site shall be selected preferably from barren, infertile lands. In case agricultural land needs to be selected, written consent from landowners (not lessees) will be obtained; (b) debris disposal site shall be at least 200 m away from surface water bodies; (c) no residential areas shall be located within 50 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like settlements, ponds/lakes or other water bodies.	<ul style="list-style-type: none"> List of selected location for OHRs Involvement of traffic dept. Road closure planning 	<ul style="list-style-type: none"> Site observation Review of documents Grievance Register 	Specific project location	Before commencement of final design and commencement of construction	Environment Specialist of DSISC; PIU and PMC	Complied No disruption noted. Area selected nearby vacant place No excess spoil generated. Excess earth utilized for back filling. No complete road closure expected. Partial closure noted, which mentioned in traffic management plan
Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in	(i) Obtain construction materials only from government approved quarries with prior approval of PIU; (ii) PIU to review, and ensure that proposed quarry sources have all necessary clearances/ permissions in place prior to approval (iii) Contractor to submit to PIU on a monthly basis documentation on material obtained from each source (quarry/ borrow pit) (iv) Avoid creation of new borrow areas, quarries etc., for	<ul style="list-style-type: none"> List of approved quarry sites and sources of materials Construction Contractor documentation 	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Quarries and material source areas	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager and Environment	DSISC Construction Management and Environmental Safeguard Team	Complied; Royalty receipt checked. Approval obtained from DSISC, PIU before procurement.

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
natural drainage patterns, ponding and water logging, and water pollution.	the project; if unavoidable, contractor to obtain all clearances and permissions as required under law, including Environmental Clearance prior to approval by PIU				Team of DSISC at operational sites.		
Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	(i) Obtain all necessary consents, permits, clearance, NOCs, etc. prior to award of civil works. (ii) Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction (iii) Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. (iv) Include in detailed design drawings and documents all conditions and provisions if necessary	List of applicable legislation	Checking of documents	All project locations	Before commencement of construction	Environment Specialist of DSISC and PMC	Complied and to be continued as per requirement
Health risk due to exposure to asbestos materials	(i) Obtain details on location of asbestos cement materials (ii) Lay the new piper carefully to avoid encountering AC pipes (ii) Leave the AC pipes undisturbed in the ground.	Asbestos cement materials	Site inspection	Specific project location	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager and Environment Team of DSISC of operational sites.	DSISC Construction Management and Environmental Safeguard Team	Complied. Till date no rubbish containing asbestos cement has been found
Construction Phase							
Irreversible impact to the environment, workers, and	(i) Project manager and all key workers will be required to undergo training on EMP implementation including spoils/waste management, Standard operating procedures (SOP) for construction works; occupational	Induction & Awareness Trainings Toolbox Talks Safeguard Trainings	Review of Training records Site	Project Locations	-	Environment Specialist of DSISC: PIU and	Under compliance; Site Environmental Safety training and

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring of	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
community	health and safety (OHS), core labor laws, applicable environmental laws, etc.		Inspections			PMC	awareness arranged by contractor on regular basis (Sample attached as Appendix 11) Awareness program cum training arranged by DSISC which shown in Appendix 11
Emissions from construction vehicles, equipment, and machinery used for installation of pipelines resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons.	For all construction works (i) Comply with the air pollution / dust control measures for construction activities stipulated by the “Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009” (ii) Damp down the soil and any stockpiled material on site by water sprinkling; (iii) Use tarpaulins to cover the loose material (soil, sand, aggregate etc.,) when transported by trucks; (iv) Provide a dust screen/high compound wall around the construction sites (OHRs) (v) Clean wheels and undercarriage of haul trucks prior to leaving construction site/quarry (vi) Control dust generation while unloading the loose material (particularly aggregate, soil) at the site by sprinkling water and unloading inside the barricaded area (vii) Stabilize surface soils where loaders, support equipment and vehicles will operate by using water and maintain surface soils in a stabilized condition (viii) Apply water prior to leveling or any other earth moving activity to keep the soil moist throughout the process (ix) Control access to work area, prevent unnecessary	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data- PM10, PM2.5, SO2, NO2, CO Heavy equipment and machinery with air pollution control Water sprinkling arrangement Cover materials 	Site inspection Public grievance register	Project locations Air-monitoring as per selected sites in ref. to SEMP	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff Air-monitoring schedule as per SEMP	Environment Specialist of DSISC; PIU and PMC	Under compliance; About 200 km pipe line laid. Water sprinkling done as per requirement. Pre-construction and during construction air quality monitoring done as per IEE (Complete result certificates available in DSISC office as back up paper and attached as Appendix 10) Most of the PUC

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>movement of vehicle, public trespassing into work areas; limiting soil disturbance will minimize dust generation</p> <p>(x) Ensure that all the construction equipment and machineries are fitted with pollution control devises, which are operating correctly, and have a valid pollution under control (PUC) certificate</p> <p>Pipeline works</p> <p>(i) Barricade the construction area</p> <p>(ii) Initiate site clearance and excavation work only after barricading of the site is done</p> <p>(iii) Confine all the material, excavated soil, debris, equipment, machinery (excavators, cranes etc.), to the barricaded area</p> <p>(iv) Limit the stocking of excavated material at the site; remove the excess soil from the site immediately to the designated disposal area</p> <p>(v) Undertake the work section wise</p> <p>(vi) 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.</p> <p>(vii) 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, use the freshly excavated soil for back filling, this will avoid stocking of material, and minimize the dust.</p> <p>(viii) 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.</p>						<p>certificate obtained for Vehicle and Equipment (Appendix 2)</p> <p>Other activities like dust suppression, covering of loose materials, dust screen arranged. .</p> <p>For pipe line work, barricading, removal of earth, backfilling done as per SEMP..</p>
Mobilization of settled silt materials, and chemical	<p>(i) All earthworks be conducted during the dry season to prevent the problem of soil run-off during monsoon season;</p> <p>(ii) Avoid stockpiling of earth fill especially during the</p>	<ul style="list-style-type: none"> Areas for stockpiles, storage of fuels and 	Site inspection Public grievance	All project locations	Daily visit by construction supervisor of DSISC. Weekly	Environment Specialist of DSISC: PIU and	Mostly Complied Earth work conducted during dry season.

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
contamination from fuels and lubricants during construction can contaminate nearby surface water quality. Ponding of water in the pits / foundation excavations	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). (ix) Create a temporary drainage channel around the work area to arrest the entry of runoff from upper areas into the work area (x) 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 (xi) Consider safety aspects related to pit collapse due to accumulation of water	lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies • Entry routes of pollutant in nearby Water bodies	register		visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	PMC	No as such requirement of disposal of spoil. Excess earth utilized for backfilling. Material never disposed in the pond located within this site. Silt traps / sediment basin should be installed prior to discharge of construction wastewater from site. Fuel storage not started. Surface water quality monitoring done. All safety aspect maintained
Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	(i) Plan activities in consultation with PIU so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; (iii) 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; and (iv) Identify any buildings at risk from vibration damage	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	○ Checkin g of records ○ Visual inspecti on of sites	All project locations Noise-monitoring as per selected sites in ref. to SEMP	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC; PIU and PMC	Mostly Complied. No such noise generating problem near the project location. Pre-construction and construction monitoring done. Monitoring will be

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	and avoiding any use of pneumatic drills or heavy vehicles in the vicinity (v) Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; (vi) 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.				Noise monitoring schedule as per SEMP		continued as per IEE. Complete result certificates available in DSISC office as back up paper and attached as Appendix 10 . However, use of ear plugs by labourer ensured during noisy activities. Honking generally avoided at work sites.
Impacts due to excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers, spoils, oils, lubricants, and other similar items.	(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) Stockpiles, lubricants, fuels, and other materials should be located away from steep slopes and water bodies; (iv) Avoid stockpiling any excess spoils at the site for long time. Excess excavated soils should be disposed of to approved designated areas immediately; (v) If disposal is required, the site shall be selected preferably from barren, infertile lands; site should be located away from residential areas, forests, water bodies and any other sensitive land uses (vi) 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	<ul style="list-style-type: none"> Waste Management List Stockpile Management Complaints from Sensitive receptors PMU/PIU/DSISC to report in writing that the necessary environmental restoration work has been done 	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC: PIU and PMC	Complied Excess earth used mostly for backfilling Excess spoils are not generally stockpiled No hazardous waste and construction waste generated.

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>of biodegradable waste; non-biodegradable / recyclable material shall be collected separately and sold in the local recycling material market</p> <p>(vii) Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by local authorities/West Bengal Pollution Control Board (WBPCB);</p> <p>(viii) Prohibit burning of construction and/or domestic waste;</p> <p>(ix) Ensure that wastes are not haphazardly dumped thrown within and around the project site and adjacent areas; provide proper collection bins, and create awareness to use the dust bins.</p> <p>(x) Conduct site clearance and restoration to original condition after the completion of construction work; PIU to ensure that site is properly restored prior to issuing of construction completion certificate</p>						
Disruption of service and damage to existing infrastructure at specified project location	<p>(i) Prepare a list of affected utilities and operators if any;</p> <p>(ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of service</p>	<ul style="list-style-type: none"> List of affected utilities if any and operators Public grievance 	Observation And document checking	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PIU	Complied as Per requirement. Consultation with utility dept. as and when required
Loss of vegetation and tree cover	<p>(i) Minimize removal of vegetation and disallow cutting of trees, by adopting best site layout and pipeline alignments</p> <p>(ii) If tree-removal will be required, obtain tree-cutting permit and</p> <p>(iii) Plant 5 native trees for every one that is removed.</p>	Tree felling requirement and afforestation after final design	<ul style="list-style-type: none"> Checkin g of records Visual inspecti on of sites 	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by	Environment Specialist of DSISC and PMC	As of now, tree felling will be required at Zone 18: Gopalpur. NOC obtained and tree felling done

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
					Environment Specialist and Support Environment staff		
Traffic problems and conflicts near project locations and haul road	<p>Hauling (material, waste/debris and equipment) activities</p> <p>(i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites</p> <p>(ii) Schedule transport and hauling activities during non-peak hours;</p> <p>(iii) Locate entry and exit points in areas where there is low potential for traffic congestion;</p> <p>(iv) Drive vehicles in a considerate manner</p> <p>(v) Notify affected public by public information notices, providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.</p> <p>Pipeline works</p> <p>(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</p> <p>(ii) Leave spaces for access between mounds of soil to maintain access to the houses / properties</p> <p>(iii) Provide pedestrian access in all the locations; provide wooden/metal planks over the open trenches at each house to maintain the access.</p> <p>(iv) Inform the affected local population 1-week in advance about the work schedule</p> <p>(v) Plan and execute the work in such a way that the period of disturbance/ loss of access is minimum.</p> <p>(vi) Keep the site free from all unnecessary obstructions;</p>	<ul style="list-style-type: none"> • Traffic Management Plan • Public grievance • Number of signages placed at subproject location 	Site visit and document review	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC; PIU and PMC	<p>Complied; As of now about 200 km pipeline has been laid. Barricading done-partially complied. Local people informed before start of work</p> <p>No transportation of pipe/ material done during pick hours, no impact on local public movement. Access maintained in most of the cases at pipe laying areas. Work plan informed to local public atleast 1 week in advance.</p>

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	(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						
Generation of temporary employment and increase in local revenue	(i) Employ local labor force as far as possible (ii) Comply with labor laws	Employment record	Checking of records	Project locations	-	Environment Specialist of DSISC and PMC	Direct and indirect employment for local population - noted
Occupational hazards which can arise during work	(i) Comply with all national, state and local core 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 like helmet, gumboot, safety belt, gloves, nose mask and ear plugs; (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 can be 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 supplies of potable drinking water; (vii) Provide clean eating areas where workers are not exposed to hazardous or noxious substances; (viii) 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; (ix) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or	<ul style="list-style-type: none"> Site-specific Health and Safety (H&S) Plan Equipped first-aid stations; Medical insurance coverage for workers Number of accidents Supplies of potable drinking water; Record of H&S orientation trainings Personal protective equipment Sign boards for hazardous areas such as energized electrical devices 	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	<p>Site-specific Health and Safety (H&S) Plan under implementation. Copy of the approved Health and Safety plan available with DSISC., PIU H & S training done on regular basis. Sample training document is attached as Appendix 11</p> <p>Drinking water and first aid box available at site. Partial use of PPEs- noted</p> <p>Tie up letter with nearby health center in case of</p>

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;</p> <p>(x) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>(xi) Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>(xii) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate</p>	and lines, service rooms					<p>emergency obtained (Appendix13). Health check up done for worker (Appendix 13)</p> <p>Medical Insurance arranged for the labourer (see Appendix 4). Accident/ First aid register is maintained at each site (see sample copy in Appendix 12)</p>
Health risks associated with AC pipes	(i) leave AC pipes in-situ untouched	Decommissioned AC Pipes	Site inspection	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Till date no AC pipes has been found
Impact on community safety. Traffic accidents and vehicle collision with pedestrians during material	<p>(i) Restrict construction vehicle movements to defined access roads and demarcated working areas (unless in the event of an emergency)</p> <p>(ii) Enforce strict speed limit (20-30 kph) for playing on unpaved roads, construction tracks</p> <p>(iii) Night-time haulage will be by exception only, as approved by the PIU to minimize driving risk and disturbance to communities</p>	Public grievance	Review of documents	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment	Environment Specialist of DSISC; PIU and PMC	No pedestrian accident has been recorded till date. However, the ICDS Centre running at Zone 17: Shalipur should be shifted immediately to

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
and waste transportation	(iv) Adopt standard and safe practices for micro tunneling (vi) Temporary traffic control (e.g. flagmen) and signs will be provided where necessary to improve safety and provide directions (vii) All drivers will undergo safety and training (viii) Public access to all areas where construction works are on-going will be restricted through the use of barricading and security personnel (ix) Warning signs, blinkers will be attached to the barricading to caution the public about the hazards associated with the works, and presence of deep excavation (x) The period of time when the pipeline trench is left open will be minimized through careful planning (xi) Control dust pollution – implement dust control measures as suggested under air quality section (xii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. (xiii) Provide road signs and flag persons to warn of on-going trenching activities.				Specialist and Support Environment staff		prevent children being exposed to construction risk Pipe line laying work continued. All safety measures arranged. Improvement of access at few locations required. No trench will be kept open after pipe laying. Caution tape will be placed.
Impact on work camps and work site. Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	(i) As far as possible located the camp site within the work sites; if any camp to be established outside these, then select a camp site away from residential areas (at least 100 m buffer shall be maintained) (ii) Avoid tree cutting for setting up camp facilities (iii) Camp site shall not be located near (100 m) water bodies, flood plains flood prone/low lying areas, or any ecologically, socially, archeologically sensitive areas (iv) Separate the workers living areas and material storage areas clearly with a fencing and separate entry and exit (v) Provide proper temporary accommodation with proper materials, adequate lighting and ventilation, appropriate facilities for winters and summers; ensure conditions of	<ul style="list-style-type: none"> Public grievance Accommodation Water and sanitation facilities for employees Housekeeping – regular disposal of solid waste 	Site inspection and review of documents	Construction camps	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Partially Complied However, housekeeping, toilet facility, testing of drinking water, provision of fuel (kerosene or LPG) for cooking, provision of solid waste and wastewater disposal are some of the aspects requiring

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Unsanitary and poor living conditions for workers	<p>livability at work camps are maintained at the highest standards possible at all times;</p> <p>(vi) Consult PIU before locating project offices, sheds, and construction plants;</p> <p>(vii) Minimize removal of vegetation and disallow cutting of trees</p> <p>(viii) Ensure conditions of livability at work camps are maintained at the highest standards possible at all times; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be allowed as accommodation for workers</p> <p>(ix) Camp shall be provided with proper drainage, there shall not be any water accumulation</p> <p>(x) Provide drinking water, water for other uses, and sanitation facilities for employees</p> <p>(xi) Prohibit employees from cutting of trees for firewood; contractor should be providing proper facilities including cooking fuel (oil or gas; fire wood not allowed)</p> <p>(xii) Train employees in the storage and handling of materials which can potentially cause soil contamination</p> <p>(xiii) Recover used oil and lubricants and reuse or remove from the site</p> <p>(xiv) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; provide a compost pit for biodegradable waste, and non-biodegradable / recyclable waste shall be collected and sold in local market</p> <p>(xv) Remove all wreckage, rubbish, or temporary structures which are no longer required</p> <p>(xvi) At the completion of work, camp area shall be cleaned and restored to pre-project conditions, and submit report to PIU; PIU to review and approve camp clearance and closure of work site</p>						improvement.

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Unsatisfactory compliance to EMP	(i) Appointment of (I) Environment, Health and Safety (EHS) Supervisor to ensure EMP implementation (ii) Timely submission of monitoring reports including pictures	<ul style="list-style-type: none"> Appointment letter Monitoring records 	Review of records	-	-	Environment Specialist of DSISC and PMC	Safety person appointed from contractor end, but environment training is required. Monitoring report submitted on monthly basis.
Damage due to debris, spoils, excess construction materials	(i) Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and (ii) All excavated roads shall be reinstated to original condition. (iii) All disrupted utilities restored (iv) All affected structures rehabilitated/compensated (v) The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. (vi) All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of this document. (vii) The contractor must arrange the cancellation of all temporary services. (viii) Request PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.	<ul style="list-style-type: none"> Stockpile Management Spoil Management Restoration of sites 	Review of documents and site inspections	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Complied; About 200 km pipe laying has been laid. Spoil Management Plan has been submitted for the pipe laying work. No utilities affected during pipe laying at village roads. All excavated road reinstated to original condition

Table 11: Summary of Environmental Monitoring Activities for the Package WBDWSIP/DWW/NCB/N24P/02B/2017-18: Water Supply Distribution at Bhangar Block

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
Design Phase							
Source sustainability and efficiency	(i) Gravity distribution system: designing the entire system to maintain optimal flow and terminal pressure, and optimizing the overall energy usage (ii) Implementation of a water quality surveillance program including development of a laboratory as part of the project to ensure that supplied water meets the drinking water standards (iii) Minimizing water losses from pipelines by perfect jointing and alignments using appropriate techniques (iv) Reducing the incidence of water borne diseases by providing 100% population including urban poor with potable water supplies	Design philosophy Project QA/QC plan Selection methodology for distribution network	Document review and LOP Survey	All project locations	Before commencement of final design	Environment Specialist of DSISC; PIU and PMC	Design completed and Pipe laying continued at 7 zones (Zone no. 4,9,10,12,13,14 and 16)
Socio economic impact – loss fishery area	(i) Avoid using low-lying lands / ponds for construction of OHRs; alternative private lands may be explored within the vicinity; (ii) Review the applicability of West Bengal Inland Fisheries Act, 1984, whether the site falls under the definition of fisher area; obtained permission from Fisheries Department if required prior to start of construction	List of selected location for OHRs	Site survey	All OHR sites	Before commencement of final design	Environment Specialist of DSISC and PMC	Complied; No low-lying lands or ponds are being filled for construction.
Tree cutting	(i) Minimize removal of trees by adopting to site condition and with appropriate layout design of OHRs within the sites (ii) Avoid cutting of trees by adopting suitable alignment changes as required during laying of pipelines; (iii) In unavoidable cases, obtain prior permission for tree cutting (iv) Plant and maintain 5 trees for each tree that is removed	Tree felling requirement – site layout plan NOC – paper documents from line agency	Site survey and review of site layout/ pipeline alignment plan	All project locations	Before commencement of final design	Environment Specialist of DSISC; PIU and PMC	Under compliance, no tree felling has been envisaged yet In case of tree felling action will be taken for plantation of trees
Pre-Construction Phase							
Telephone lines, electric poles and	(i) Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction	List of affected utilities if any and operators	Observation and document	Specific project location	Before commencement of construction	Environment Specialist of DSISC; PIU	Under Compliance; construction of distribution network

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
wires, water lines within proposed project area	phase; and (ii) Require construction contractors to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services. (iii) Require contractors to prepare spoils (waste) management plan and traffic management plan		checking			and PMC	started. Spoil and Traffic Management plan prepared. Sample spoil management and traffic management plan included in SEMP (Appendix 7)
Conflicts with local community; disruption to traffic flow and sensitive receptors	(i) 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) For excess spoil disposal, ensure (a) site shall be selected preferably from barren, infertile lands. In case agricultural land needs to be selected, written consent from landowners (not lessees) will be obtained; (b) debris disposal site shall be at least 200 m away from surface water bodies; (c) no residential areas shall be located within 50 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like settlements, ponds/lakes or other water bodies.	List of selected location for OHRs Involvement of traffic dept. Road closure planning	Site observation Review of documents Grievance Register	Specific project location	Before commencement of final design and commencement of construction	Environment Specialist of DSISC; PIU and PMC	Complied No disruption noted. Area selected nearby vacant place No excess spoil generated. Excess earth utilized for back filling, which indicates in SEMP. No complete road closure expected. Partial closure noted at zones, 4,9,10,12,13,14 and 16- pipe laying areas
Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in	(i) Obtain construction materials only from government approved quarries with prior approval of PIU; (ii) PIU to review, and ensure that proposed quarry sources have all necessary clearances/ permissions in place prior to approval (iii) Contractor to submit to PIU on a monthly basis documentation on material obtained from each source (quarry/ borrow pit) (iv) Avoid creation of new borrow areas, quarries etc., for	List of approved quarry sites and sources of materials Construction Contractor documentation	Checking of records Visual inspection of sites	Quarries and material source areas	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager and Environment	DSISC Construction Management and Environmental Safeguard Team	Complied; Royalty receipt checked. Approval obtained from DSISC, PIU before procurement.

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
natural drainage patterns, ponding and water logging, and water pollution.	the project; if unavoidable, contractor to obtain all clearances and permissions as required under law, including Environmental Clearance prior to approval by PIU				Team of DSISC of operational sites.		
Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	(i) Obtain all necessary consents, permits, clearance, NOCs, etc. prior to award of civil works. (ii) Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction (iii) Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. (iv) Include in detailed design drawings and documents all conditions and provisions if necessary	List of applicable legislation	Checking of documents	All project locations	Before commencement of construction	Environment Specialist of DSISC and PMC	Mostly Complied except NOC from EKWMA for work in EKW. Decided – not to work within EKW zone
Health risk due to exposure to asbestos materials	(i) Obtain details on location of asbestos cement materials (ii) Lay the new pipes carefully to avoid encountering AC pipes (ii) Leave the AC pipes undisturbed in the ground.	Asbestos materials	Site inspection	Specific project location	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager and Environment Team of DSISC of operational sites.	DSISC Construction Management and Environmental Safeguard Team	Till date no rubbish containing asbestos cement has been found
Construction Phase							
Irreversible impact to the environment, workers, and community	(i) Project manager and all key workers will be required to undergo training on EMP implementation including spoils/waste management, Standard operating procedures (SOP) for construction works; occupational health and safety (OHS), core labor laws, applicable	Induction & Awareness Trainings Toolbox Talks Safeguard Trainings	Review of Training records Site Inspections	Project Locations	-	Environment Specialist of DSISC: PIU and PMC	Under compliance; Site Environmental Safety training and awareness

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	environmental laws, etc.						arranged by contractor on regular basis (Sample attached as Appendix 11) Awareness program cum training arranged by DSISC which shown in Appendix 11
Emissions from construction vehicles, equipment, and machinery used for installation of pipelines resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons.	For all construction works (i) Comply with the air pollution / dust control measures for construction activities stipulated by the “Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009” (ii) Damp down the soil and any stockpiled material on site by water sprinkling; (iii) Use tarpaulins to cover the loose material (soil, sand, aggregate etc.) when transported by trucks; (iv) Provide a dust screen/high compound wall around the construction sites (OHRs) (i) Clean wheels and undercarriage of haul trucks prior to leaving construction site/quarry (vi) Control dust generation while unloading the loose material (particularly aggregate, soil) at the site by sprinkling water and unloading inside the barricaded area (vii) Stabilize surface soils where loaders, support equipment and vehicles will operate by using water and maintain surface soils in a stabilized condition (viii) Apply water prior to leveling or any other earth moving activity to keep the soil moist throughout the process (ix) Control access to work area, prevent unnecessary movement of vehicle, public trespassing into work areas; limiting soil disturbance will minimize dust generation	Location of stockpiles Complaints from sensitive receptors Monitoring data- PM10, PM2.5, SO2, NO2, CO Heavy equipment and machinery with air pollution control Water sprinkling arrangement Cover materials	Site inspection Public grievance register	Project locations Air – monitoring station as per SEMP and site condition	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff Frequency of environment quality monitoring as per approved SEMP	Environment Specialist of DSISC and PMC	Under compliance; About 140 km pipe line laid. Water sprinkling done as per requirement. Pre-construction and during construction air quality monitoring done as per IEE (Complete original result certificates available in DSISC office as back up paper and attached as Appendix 10) Most of the PUC certificate obtained

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>(x) Ensure that all the construction equipment and machineries are fitted with pollution control devises, which are operating correctly, and have a valid pollution under control (PUC) certificate</p> <p>Pipeline works</p> <p>(i) Barricade the construction area</p> <p>(ii) Initiate site clearance and excavation work only after barricading of the site is done</p> <p>(iii) Confine all the material, excavated soil, debris, equipment, machinery (excavators, cranes etc.), to the barricaded area</p> <p>(iv) Limit the stocking of excavated material at the site; remove the excess soil from the site immediately to the designated disposal area</p> <p>(v) Undertake the work section wise</p> <p>(vi) 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.</p> <p>(vii) 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, use the freshly excavated soil for back filling, this will avoid stocking of material, and minimize the dust.</p> <p>(viii) 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.</p>						<p>for Vehicle and Equipment (Appendix 2)</p> <p>Other activities like dust suppression, covering of loose materials, dust screen will be arranged.</p> <p>For pipe line work, barricading, removal of earth, backfilling done as per SEMP. Barricading done for pipe laying. work – partially complied.</p>
Mobilization of settled silt materials, and chemical contamination from fuels and lubricants	<p>(i) All earthworks be conducted during the dry season to prevent the problem of soil run-off during monsoon season;</p> <p>(ii) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;</p> <p>(iii) Prioritize re-use of excess spoils and materials in the</p>	<p>Areas for stockpiles, storage of fuels and lubricants and waste materials</p> <p>Number of silt traps installed along</p>	<p>Site inspection</p> <p>Public grievance register</p>	All project locations	<p>Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit</p>	<p>Environment Specialist of DSISC: PIU and PMC</p>	<p>Mostly Complied</p> <p>Earth work conducted during dry season. No as such requirement of disposal of spoil.</p>

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
during construction can contaminate nearby surface water quality. Ponding of water in the pits / foundation excavations	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). (ix) Create a temporary drainage channel around the work area to arrest the entry of runoff from upper areas into the work area (x) 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 (xi) Consider safety aspects related to pit collapse due to accumulation of water	drainages (in slope) leading to water bodies Entry routes of pollutant in nearby Water bodies			by Environment Specialist and Support Environment staff		Excess earth utilized for backfilling. Material never disposed in the pond located within this site. Silt traps / sediment basin should be installed prior to discharge of construction wastewater from site. Fuel storage not started. Surface water quality monitoring done. All safety aspect maintained
Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	(i) Plan activities in consultation with PIU so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; (iii) 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; and (iv) Identify any buildings at risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity (v) Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's	Complaints from sensitive receptors Use of silencers in noise-producing equipment and sound barriers Monitoring data	Checking of records Visual inspection of sites	All project locations – Noise monitoring station as per SEMP and site condition	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff Frequency of environment quality	Environment Specialist of DSISC; PIU and PMC	Mostly Complied. Planning of activity done in consultation with PIU. No such noise generating problem near the project location. Pre-construction and during construction monitoring done. Monitoring will be continued as

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	approach; (vi) 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.				monitoring as per approved SEMP		per IEE. Complete original result certificates available in DSISC office as back up paper and attached as Appendix 10 . However, use of ear plugs by labourer ensured during noisy activities. Honking generally avoided at work sites.
Impacts due to excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers, spoils, oils, lubricants, and other similar items.	(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) Stockpiles, lubricants, fuels, and other materials should be located away from steep slopes and water bodies; (iv) Avoid stockpiling any excess spoils at the site for long time. Excess excavated soils should be disposed of to approved designated areas immediately; (v) If disposal is required, the site shall be selected preferably from barren, infertile lands; site should be located away from residential areas, forests, water bodies and any other sensitive land uses (vi) 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	Waste Management List Stockpile Management Complaints from Sensitive receptors PMU/PIU/DSISC to report in writing that the necessary environmental restoration work has been done	Checking of records Visual inspection of sites	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Complied Excess earth used mostly for backfilling Excess spoils are not generally stockpiled No hazardous waste and construction waste generated from work

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>recycling material market</p> <p>(vii) Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by local authorities/West Bengal Pollution Control Board (WBPCB);</p> <p>(viii) Prohibit burning of construction and/or domestic waste;</p> <p>(ix) Ensure that wastes are not haphazardly dumped thrown within and around the project site and adjacent areas; provide proper collection bins, and create awareness to use the dust bins.</p> <p>(x) Conduct site clearance and restoration to original condition after the completion of construction work; PIU to ensure that site is properly restored prior to issuing of construction completion certificate</p>						
Disruption of service and damage to existing infrastructure at specified project location	<p>(i) Prepare a list of affected utilities and operators if any;</p> <p>(ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of service</p>	<p>List of affected utilities if any and operators</p> <p>Public grievance</p>	<p>Observation And document checking</p>	<p>Project locations</p>	<p>Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff</p>	<p>Environment Specialist of DSISC and PIU</p>	<p>Complied as per requirement. Consultation with utility dept. as and when required</p>
Loss of vegetation and tree cover	<p>(i) Minimize removal of vegetation and disallow cutting of trees, by adopting best site layout and pipeline alignments</p> <p>(ii) If tree-removal will be required, obtain tree-cutting permit and</p> <p>(iii) Plant 5 native trees for every one that is removed.</p>	<p>Tree felling requirement and afforestation after final design</p>	<p>Checking of records</p> <p>Visual inspection of sites</p>	<p>Project locations</p>	<p>Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and</p>	<p>Environment Specialist of DSISC and PMC</p>	<p>As of now, tree felling requirement is not envisaged.</p>

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
					Support Environment staff		
Traffic problems and conflicts near project locations and haul road	<p><u>Hauling (material, waste/debris and equipment) activities</u></p> <p>(i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites</p> <p>(ii) Schedule transport and hauling activities during non-peak hours;</p> <p>(iii) Locate entry and exit points in areas where there is low potential for traffic congestion;</p> <p>(iv) Drive vehicles in a considerate manner</p> <p>(v) Notify affected public by public information notices, providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.</p> <p><u>Pipeline works</u></p> <p>(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</p> <p>(ii) Leave spaces for access between mounds of soil to maintain access to the houses / properties</p> <p>(iii) Provide pedestrian access in all the locations; provide wooden/metal planks over the open trenches at each house to maintain the access.</p> <p>(iv) Inform the affected local population 1-week in advance about the work schedule</p> <p>(v) Plan and execute the work in such a way that the period of disturbance/ loss of access is minimum.</p> <p>(vi) Keep the site free from all unnecessary obstructions;</p> <p>(vii) Coordinate with Police for temporary road diversions, where necessary, and for provision of traffic aids if</p>	Traffic Management Plan Public grievance Number of signages placed at subproject location	Site visit and document review	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC; PIU and PMC	<p>Complied;</p> <p>As of now about 140 km pipeline has been laid.</p> <p>Barricading done - partially complied</p> <p>Local people informed before start of work</p> <p>No transportation of pipe/ material done during pick hours, no impact on local public movement.</p> <p>Access maintained in most of the cases at pipe laying areas.</p> <p>Work plan informed to local public atleast 1 week in advance. Traffic Management plan submitted.</p>

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	transportation activities cannot be avoided during peak hours						
Generation of temporary employment and increase in local revenue	(i) Employ local labor force as far as possible (ii) Comply with labor laws	Employment record	Checking of records	Project locations	-	Environment Specialist of DSISC and PMC	Direct and indirect employment for local population - noted
Occupational hazards which can arise during work	(i) Comply with all national, state and local core 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 like helmet, gumboot, safety belt, gloves, nose mask and ear plugs; (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 can be 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 supplies of potable drinking water; (vii) Provide clean eating areas where workers are not exposed to hazardous or noxious substances; (viii) 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; (ix) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; (x) Ensure the visibility of workers through their use of	Site-specific Health and Safety (H&S) Plan Equipped first-aid stations; Medical insurance coverage for workers Number of accidents Supplies of potable drinking water; Record of H&S orientation trainings Personal protective equipment Sign boards for hazardous areas such as energized electrical devices and lines, service rooms	Checking of records Visual inspection of sites	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Site-specific Health and Safety (H&S) Plan under implementation. Copy of the approved Health and Safety plan available with DSISC., PIU Use of PPEs – partial. H & S training done on regular basis. Sample training document is attached as Appendix 11 Drinking water and first aid box available at site. Tie up letter with nearby health center in case of emergency obtained (Appendix 13). Health check up

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	high visibility vests when working in or walking through heavy equipment operating areas; (xi) Ensure moving equipment is outfitted with audible back-up alarms; (xii) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate						done for workers (Appendix 13) Medical Insurance arranged for the labourer (see Appendix 4). Accident/ First aid register is maintained at each site (see sample copy in Appendix 12)
Health Risks associated with AC pipes	(i) leave AC pipes in-situ untouched	Decommissioned AC Pipes	Site inspection	Project locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Till date no AC pipes has been found
Impact on community safety. Traffic accidents and vehicle collision with pedestrians during material and waste transportation	(i) Restrict construction vehicle movements to defined access roads and demarcated working areas (unless in the event of an emergency) (ii) Enforce strict speed limit (20-30 kph) for playing on unpaved roads, construction tracks (iii) Night-time haulage will be by exception only, as approved by the PIU to minimize driving risk and disturbance to communities (iv) Adopt standard and safe practices for micro tunneling (vi) Temporary traffic control (e.g. flagmen) and signs will be provided where necessary to improve safety and	Public grievance	Review of documents	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment	Environment Specialist of DSISC; PIU and PMC	No pedestrian accident has been recorded till date. Pipe line laying work continued in Zones- 4,9,10,12,13,14 and 16. No trench will be kept open after pipe

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>provide directions</p> <p>(vii) All drivers will undergo safety and training</p> <p>(viii) Public access to all areas where construction works are on-going will be restricted through the use of barricading and security personnel</p> <p>(ix) Warning signs, blinkers will be attached to the barricading to caution the public about the hazards associated with the works, and presence of deep excavation</p> <p>(x) The period of time when the pipeline trench is left open will be minimized through careful planning</p> <p>(xi) Control dust pollution – implement dust control measures as suggested under air quality section</p> <p>(xii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.</p> <p>(xiii) Provide road signs and flag persons to warn of on-going trenching activities.</p>				staff		<p>laying. Caution tape placed – partially complied. Access mostly available.</p> <p>Traffic management plan prepared and followed. Road signage placed as per requirement.</p> <p>Dust suppression – done as per site condition and activity</p>
<p>Impact on work camps and work site. Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants</p> <p>Unsanitary and poor living conditions for workers</p>	<p>(i) As far as possible located the camp site within the work sites; if any camp to be established outside these, then select a camp site away from residential areas (at least 100 m buffer shall be maintained)</p> <p>(ii) Avoid tree cutting for setting up camp facilities</p> <p>(iii) Camp site shall not be located near (100 m) water bodies, flood plains flood prone/low lying areas, or any ecologically, socially, archeologically sensitive areas</p> <p>(iv) Separate the workers living areas and material storage areas clearly with a fencing and separate entry and exit</p> <p>(v) Provide proper temporary accommodation with proper materials, adequate lighting and ventilation, appropriate facilities for winters and summers; ensure conditions of livability at work camps are maintained at the highest standards possible at all times;</p> <p>(vi) Consult PIU before locating project offices, sheds, and construction plants;</p>	<ul style="list-style-type: none"> • Public grievance • Accommodation • Water and sanitation facilities for employees • Housekeeping – regular disposal of solid waste 	Site inspection and review of documents	Construction camps	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	<p>Partially Complied mostly. However, housekeeping, toilet facility, testing of drinking water, provision of fuel for cooking, provision of solid waste and wastewater disposal are some of the aspects requiring improvement.</p>

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
	<p>(vii) Minimize removal of vegetation and disallow cutting of trees</p> <p>(viii) Ensure conditions of livability at work camps are maintained at the highest standards possible at all times; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be allowed as accommodation for workers</p> <p>(ix) Camp shall be provided with proper drainage, there shall not be any water accumulation</p> <p>(x) Provide drinking water, water for other uses, and sanitation facilities for employees</p> <p>(xi) Prohibit employees from cutting of trees for firewood; contractor should be providing proper facilities including cooking fuel (oil or gas; fire wood not allowed)</p> <p>(xii) Train employees in the storage and handling of materials which can potentially cause soil contamination</p> <p>(xiii) Recover used oil and lubricants and reuse or remove from the site</p> <p>(xiv) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; provide a compost pit for biodegradable waste, and non-biodegradable / recyclable waste shall be collected and sold in local market</p> <p>(xv) Remove all wreckage, rubbish, or temporary structures which are no longer required</p> <p>(xvi) At the completion of work, camp area shall be cleaned and restored to pre-project conditions, and submit report to PIU; PIU to review and approve camp clearance and closure of work site</p>						
Unsatisfactory compliance to EMP	<p>(i) Appointment of (I) Environment, Health and Safety (EHS) Supervisor to ensure EMP implementation</p> <p>(ii) Timely submission of monitoring reports including pictures</p>	Appointment letter Monitoring records	Review of records	-	-	Environment Specialist of DSISC and PMU/PMC	Safety person appointed from contractor end, but environment training is required

Impacts	Mitigation Measures	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date Monitoring Conducted	Name of Person Who Conducted the Monitoring	Compliance Status/ Explanation
							Monitoring report submitted on monthly basis.
Damage due to debris, spoils, excess construction materials	(i) Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and (ii) All excavated roads shall be reinstated to original condition. (iii) All disrupted utilities restored (iv) All affected structures rehabilitated/compensated (v) The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. (vi) All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regrassed using the guidelines set out in the revegetation specification that forms part of this document. (vii) The contractor must arrange the cancellation of all temporary services. (viii) Request PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.	Stockpile Management Spoil Management Restoration of sites	Review of documents and site inspections	Project Locations	Daily visit by construction supervisor of DSISC. Weekly visit by Construction Manager, Visit by Environment Specialist and Support Environment staff	Environment Specialist of DSISC and PMC	Complied; About 140 km pipe laying has been laid. Spoil Management Plan has been submitted for the pipe laying work. No utilities affected during pipe laying at village roads. No spills of substances from camp All excavated road reinstated to original condition

D. Site Specific Issues and Present Compliance Status

- Generation of dust and suppression of dust.

33. For Bulk Distribution package – N 24 Pgs/01, this issue has not been encountered as the WTP work area is much larger and major earthworks has not yet been started in this site.

34. However, this issue is of significance particularly for the pipelaying activities in both the distribution network packages (N 24 pgs/ 02A & 02B). In order to address this issue, a water sprinkling system mounted on a trolley has been devised.



- Identification of muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads.

35. This issue was of particular concern in the pipelaying sites during monsoon. Village roads are mostly muddy road. In some of the worksites, this issue was observed and contractors were instructed for immediate corrective actions by removing the muds from the adjacent road and proper backfill of the trenches after laying of pipelines. Further, as a preventive measure, emphasis was made on same day proper backfilling of worked trenches by the contractor.



Before proper road restoration after pipelaying restoration



After proper road

- Identification of type of erosion and sediment control measures installed on sites.

36. In order to prevent erosion and release of sediment to adjacent drainage systems/ water bodies, bunds have been erected and wastewater from OHR site is passed through sediment control basin. However, this practice is not uniform across all packages and even within the same package. The issue was brought to the notice of Contractor and other concerned persons through monthly observation reports.



Silt Trap at Bhangar-II : Zone 10

- Designated areas for concrete works, chemical storage, construction materials, and refueling.

37. Areas have been identified within the OHR sites for concrete works and material storage. Except refueling of generators for running of winch, other equipment e.g. vehicles are refueled at commercial petrol pumps.



Storage of Cement at OHR site



Barricaded area for material storage

- Confirmation on spill kits on site and site procedure for handling emergencies.

38. There are some spill kits e.g. spill tray, jute bags etc. on site. However, as there is no major handling of toxic chemicals or hydrocarbons at site, emergency procedure for spill has not yet been developed.

- Chemical storage at sites

39. There is no chemical other than cement and bentonite that are stored on site. Please see picture of cement storage above.

- Management of stockpiles (construction materials, excavated soils, spoils, etc.).



40. Contractor uses inventory control to optimize the requirement for on-site storage. Stockpiles that may cause dust raisings are damped and maintained away from water bodies/ drainage channels.

- Management of solid and liquid wastes on-site



41. Solid wastes: Mostly two types of solid wastes are presently generating at the work sites – Construction debris and domestic wastes. Construction debris are reused on-site for levelling and filling purpose while domestic wastes are disposed in a common disposal location for the village.

42. Packing wastes such as empty cement bags are accumulated on-site and sent to contractor's central store for sale.

43. Construction liquid wastes e.g. curing water, washings, etc. are disposed in a locally created soak-pit. Toilet wastes are disposed in constructed pits.

- Barricades, signages, and on-site boards.

44. Signages in local languages along with caution tapes placed at work sites. Most of the village roads are narrow with 1-1.5 m width. Permanent barricading is not possible on that narrow road.



- Activities being undertaken out of working hours and how that is being managed.



45. During site inspection it was found that the planned activities for the day was delayed due to rain while a stretch of dug trench was yet to be back-filled. This was a significant safety risk for local population who uses this road. Hence, contractor planned to continue the work till all the dug trench are properly backfilled. However, they had not arranged for night-time work.

46. On insistence of DSISC's safeguard team, contractor arranged for lighting at site and completed the work. Adequate safety precautions for workers were followed for night time working.

47. Based on the foregoing observations, findings and environmental monitoring carried out from May to October 2019, it may be concluded that the subprojects have been implemented generally in compliance of the required environmental safeguards barring a few areas that have been detailed out in the report. Overall compliance level is shown in **Table 12** below.

Table 12: Overall Compliance with Environmental Management Plan

No.	Sub-project Name	EMP Part of Contract Documents (Y/N)	EMP Being Implemented (Y/N)	Status of Implementation (Excellent/Satisfactory / Partially Satisfactory, Below Satisfactory)	Action Proposed and Additional Measures Required
North 24 Pgs					
1	Package WBDWSIP/DWW/NCB/ N24P/01/2017-18: Bulk water supply	Y	Y	Satisfactory	<ul style="list-style-type: none"> There is very little activity in this package presently. The toilet facilities at site should be improved from single pit latrine system.
2	Package WBDWSIP/DWW/NCB/ N24P/02A/2017-18: Haroa Block	Y	Y	Partially Satisfactory	<ul style="list-style-type: none"> Provision should be made for site office and toilets at all work sites Improvement of facilities in Construction Camps, especially sleeping arrangements,

No.	Sub-project Name	EMP Part of Contract Documents (Y/N)	EMP Being Implemented (Y/N)	Status of Implementation (Excellent/Satisfactory / Partially Satisfactory, Below Satisfactory)	Action Proposed and Additional Measures Required
					<p>toilet facilities, provision of drinking water and fuel for cooking, waste and wastewater management</p> <ul style="list-style-type: none"> ○ The ICDS functioning inside Zone 17: Shalipur should be shifted from the worksite immediately
3	Package WBDWSIP/DWW/NCB/ N24P/02B/2017-18: Bhangar - II Block	Y	Y	Partially Satisfactory	<ul style="list-style-type: none"> ○ Provision should be made for site office and toilets at all work sites ○ Improvement of facilities in Construction Camps, especially sleeping arrangements, toilet facilities, provision of drinking water and fuel for cooking, waste and wastewater management ○ The pit latrines installed at Zone 10 and 13, may cause faecal coliform contamination to groundwater and should be replaced with better systems ○ Use of PPEs e.g. safety shoes and goggles should be ensured at all sites especially for activities like concrete braking. ○ Barricading and caution tapes should be put along pipeline trenches at all pipeline laying

No.	Sub-project Name	EMP Part of Contract Documents (Y/N)	EMP Being Implemented (Y/N)	Status of Implementation (Excellent/Satisfactory / Partially Satisfactory, Below Satisfactory)	Action Proposed and Additional Measures Required
					<p>sites.</p> <ul style="list-style-type: none"> ○ Access should be provided in front of residences and commercial establishments during pipeline trenching.

Note: For other packages – EMP implementation not started

E. Grievance Redressal Mechanism

48. A common Grievance redressal mechanism (GRM) is placed to address social, environmental, or any other project and/or subproject related grievances. The GRM has been developed in consultation with stakeholders. A public awareness campaign conducted to ensure that awareness of the project and its grievance redress procedures is generated. The campaign ensured that the poor, vulnerable, and others are made aware of grievance redress procedures and entitlements according to the project entitlement matrix, and PMU and concerned PIUs responsible for addressing their grievances.

49. GRM consists of the following three tiers, one tier at project level and two beyond project level, as shown in **Figure 8**. Each tier identifies the persons responsible for addressing grievances and provides a time limit for this.

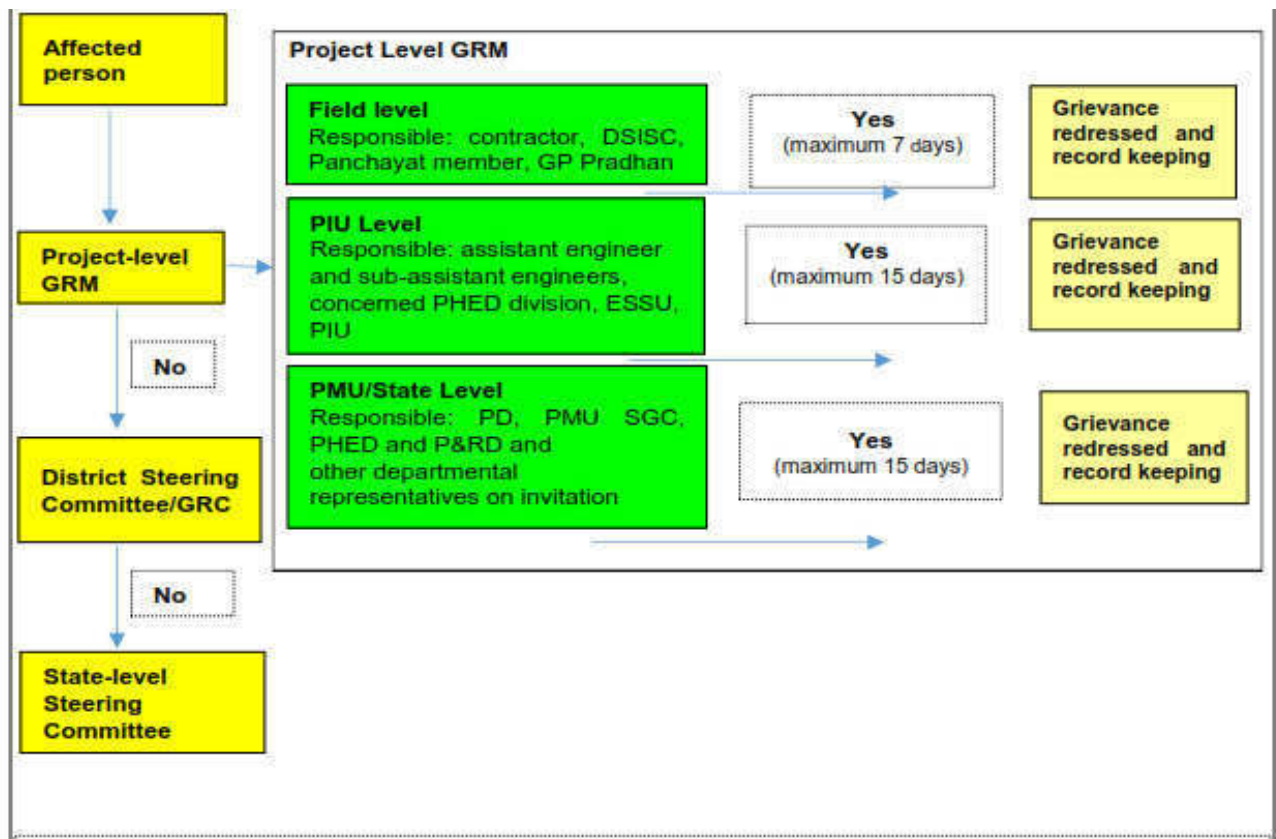
- For the project level GRM, a Grievance Redress Cell established at PIU; the safeguards officers (Assistant Engineer and Junior Engineer of PIU) of the ESSU PIU, supported by the social safeguards specialist of DSICS is responsible for conducting periodic community meetings with affected communities to understand their concerns and help them through the process of grievance redressal including translating the complaints into Bengali or English, recording and registering grievances of non-literate affected persons and explaining the process of grievance redress mechanism.
- All expedient and minor grievances is resolved at field level; should the PIU fail to resolve any grievance within the stipulated time period, the PMU will be consulted and suggested actions by PMU taken by PIU with DSISC support, within specified time. PIU is also be responsible for follow-through for each grievance, periodic information dissemination to complainants on the status of their grievance and recording their feedback (satisfaction/dissatisfaction and suggestions). In the event that certain grievances cannot be resolved at project level, they will be referred to the District Steering Committee (DSC), which will also act as grievance redress committee (GRC), particularly in matters related to land purchase/acquisition, payment of compensation, environmental pollution etc. Any higher than district level inter-departmental coordination or grievance redress required will be referred to the state level Steering Committee.

50. The GRM aims to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. All grievances – major or minor, is registered. In case of grievances that are immediate and urgent in the perception of the

complainant, the contractor, and supervision personnel from the PIU supported by DSISC will try to successfully resolve them in consultation with the Member, Panchayat and the Gram Panchayat Pradhan. In case of larger issues, they will seek the advice and assistance of the Superintending Engineer PIU. Grievances not redressed through this process within/at the project level within stipulated time period will be referred to the DSC/GRC.

51. The DSC set up to monitor project implementation in each district. In its role as a GRC, the DSC will meet every month (if there are pending, registered grievances), determine the merit of each grievance, and resolve grievances within specified time upon receiving the complaint-failing which the grievance will be addressed by the state-level steering committee. The steering committee will resolve escalated/unresolved grievances received. Grievances remaining unresolved by steering committee may be referred by affected persons to appropriate courts of law. The GRC continue to function throughout the project duration.

52. An aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM.



DSISC = design, supervision, and implementation support consultant; ESSU = environmental and social safeguards unit of the project implementation unit, GRC = grievance redress committee; GRM = grievance redress mechanism, PIU= project implementation unit, P&RD = Panchayat and Rural Development; PMU = project management unit, PHED = public health engineering department; SGC = safeguards and gender cell of the project management unit.

Figure 8: Grievance Redress Mechanism

Composition of the Grievance Redress Committee

53. The DSC, acting as GRC have District Magistrate (Chairperson), Superintending Engineer, PIU as Member Secretary, Additional Executive Officer, Zilla Parishad, Assistant (Social and Environmental) Safeguard Officers of the Environment and Social Safeguard Units (ESSU) of the PIU, Institutional Support and Capacity Building Officer, PIU, Block Development Officers from respective blocks, and representatives from the affected village panchayat and / or community, if any, eminent citizens, CBOs and NGOs.

54. The DSC/GRC must have a minimum of two women members. In case of any indigenous people impacts in future subprojects, the DSC/GRC must have representation of the affected indigenous people community, including at least one female indigenous person, the chief of the tribe or a member of the tribal council as traditional arbitrator (to ensure that traditional grievance redress systems are integrated) and an NGO working with indigenous people groups.

55. The State level Steering Committee include Chief Secretary, as chair, Principal Secretary/Additional Chief Secretary, PHED, Principal Secretary, Panchayat and Rural Development, Principal Secretary, Finance, Principal Secretary, Irrigation and Waterways Development Department, Principal Secretary, Public Works Department, Engineering in Chief, PHED, Member Secretary, and Others as invitees.

Areas of Jurisdiction

56. The areas of jurisdiction of the district level GRC, headed by the District Magistrate, will be (i) all locations or sites within the district where subproject facilities are proposed or being implemented, or (ii) their areas of influence within the district. The state-level steering committee will have jurisdictional authority across the state (i.e., areas of influence of subproject facilities beyond district boundaries, if any).

Consultation Arrangements

57. Consultations include regular group meetings and discussions by the social safeguard personnel of DSISC and PIUs with affected persons, at least twice during resettlement plan preparation. During the first year of project implementation, such meetings take place on a quarterly basis, while in subsequent years they will be held at least twice a year. The consultation arrangements thus envisaged are intended to address both general and/or specific individual grievances through a participatory approach. The consultative process is meant to be flexible to provide timely mitigation of grievances of the affected persons.

Recordkeeping

58. Records of all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were affected and final outcome will be kept by PIU (with the support of DSISC) and submitted to PMU

Information Dissemination Methods of the Grievance Redress Mechanism

59. The PIU, assisted by DSISC responsible for information dissemination to affected persons on grievance redressal procedure. Gram Panchayat/coverage area/affected area-wide public awareness campaigns ensure that awareness on grievance redress procedures is generated through the consultation and participation plan. Public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures is generated. The PIU safeguard officers (environment and social) will be assisted by DSISC

safeguards specialists with information/collateral/awareness material etc. and in conducting project awareness campaigns. The campaign will ensure that the poor, vulnerable and others are made aware of grievance redress procedures and entitlements per agreed entitlement matrix including whom to contact and when, where/ how to register grievance, various stages of grievance redress process, time likely to be taken for redressal of minor and major grievances, etc. Grievances received and responses provided will be documented and reported back to the affected persons. The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PMU and PIU offices, Gram Panchayat/concerned local panchayat notice boards and on the web, as well as reported in the semi-annual environmental and social monitoring reports to be submitted to ADB.

60. **Periodic review and documentation of lessons learned.** The PMU safeguards and gender cell periodically review the functioning of the GRM and record information on the effectiveness of the mechanism, especially on the PIU's ability to prevent and address grievances.

61. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) be borne by the PMU. Cost estimates for grievance redress are included in resettlement cost estimates.

62. Till report period State level and district level steering committee have been established. Also, PMU, PIU and Gram panchyat level GRC notification done for North 24 pgs and Bankura. All Notifications related to Grievance Redressal Committee are given in Appendix 14.. Grievance Registration Form in local language as proposed for the project is also presented in **Appendix 15.**

63. Grievance Redressal Register is maintained at each of the package working sites.

Complaints Received during the Reporting Period

64. Details of complaints received during report period and resolved status attached as **Appendix 16.** Complaints mostly related to,

- ✓ Generation of dust and requirement of dust suppression
- ✓ Filling up trenches at earliest
- ✓ Requirement of removal of excess soil from the road
- ✓ Water logging
- ✓ Non availability of wooden/ metal platform for crossing of trenches
- ✓ Non availability of access
- ✓ Non availability of caution tape, barricade at work site

65. Issues are resolved by site supervisor engineer and safety officer of contractor within same day of complaints received.

F. Training, Workshop, Public consultation and Focus group discussion

66. As per approved IEEs, consultations and disclosure will be a continuous process throughout project implementation involving public consultations and focus group discussions. Informal consultations were carried out with local people, pedestrian, etc. Field level public consultation as conducted by contractor is attached as **Appendix 17**

67. The indicative schedule for consultations and disclosure is presented in **Table 13.**

Table 13: Indicative Schedule for Consultations

Type of Consultation/ Disclosure	Target Date	Location	Target Participants	Responsible Person and Source of Funds
Local level consultation	Weekly – to be continued	At all construction locations	General public, shop keepers, pedestrian population	Construction supervisor, Environment & safety officer of contractor Project budget – continuous process
Consultation – safety issues, implementation of EMP	During November 2019 to April 2020 and continued	At WBDWSIP office and project site office	Supervisor Engineer, PIU Engineer, all safety and environment staff of contractors	Construction Manager, Environment specialist of DSISC and PMC

68. Field level training program on safety and environment has been arranged for contractors, supervisors by DSISC's Environment Specialist on regular basis.

69. There are series of informal discussions by the DSISC engineering Consultants with PIU mainly on understanding current situation and optimum design to be adopted in order to attain the safeguard objectives.

70. **Appendix 11** indicates training components on environment, Health and safety issues, including awareness programme for HIV/ AIDS as conducted by DSISC at project sites. Sample internal training documents as submitted by contractors are included in this appendix.

71. During the report period Environment and Social safeguard workshop on "Safeguard Implementation and Monitoring" conducted by ADB Safeguards consultants. Also, Workshop on Orientation on Environment Safeguard Requirements and Application of Environment Management Plan (EMP) and Environment, Health and Safety Management has been conducted by PMC at Bankura PIU office. PIU staffs, contractor's project manager, safety officers, DSISC staff attended that workshop. Review meeting cum training program on environment safeguard for DSISC, PIU and contractors are also conducted on regular basis. **Appendix 18** shows workshop minutes and sample review/ training meeting note. Focus Group discussion (FGD) on awareness of the project, social, environmental and safety issues have been highlighted. **Appendix 19** shows sample note on FGD.

V. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

72. For effective monitoring, selected environmental parameters have been identified as indicators which will be qualitatively and quantitatively measured and compared over a period of time in order to assess/ensure the compliance of Environment Management Plan (EMP). The environmental performance indicators are physical, biological and social characteristics identified as most important in affecting the environment at critical locations all along the subproject locations. The parameters identified as performance indicators are:

- Air, noise and water quality

- Compliance to EMP
- Compliance to local/state/national environmental regulations

73. Field level monitoring comprises monitoring of environmental parameters like air quality, noise level and water quality. These are monitored for understanding base line conditions at project locations and during construction monitoring for understanding level of impact on environment (in respect to those parameters) from project activity during implementation of the project. Monitoring is conducted as per monitoring plan of approved IEE.

74. Field level monitoring also carried out during pre-construction, construction and operation phases for understanding degree of impacts and mitigation measures. Corrective action plan and target date for effective implementation of mitigation measures planned accordingly. Site Environment Management Plan is the base document for implementation of EMP and application of corrective measures. This field level monitoring is continuous process and reported through weekly, monthly checklist.

75. Monitoring of applicability of local/state/national environmental regulations in respect to project activity and locations is also required for smooth progress of the project. For that site verification and desk review is essential. Starting from pre-construction to construction – operation phases screening of work areas, work components under the national, state and local statutory rules and regulations is necessary.

VI. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS

A. Brief discussion on the basis for monitoring

76. In addition to desk reviews and site inspections, monitoring of selected environmental parameters have been conducted during the reporting period. The frequencies of the environmental monitoring activities are commensurate to the type and significance of the impacts. Monitoring of ambient air quality, noise level and water quality has been conducted to establish baseline of environmental qualities in the project area and during construction impact on environment.

I. North 24 pgs District

77. In accordance with the IEE & EMP, the contractors are required to undertake environmental monitoring as per below table.

Table 14A: Environmental Monitoring Requirement (Package N 24 pgs/ 01)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
Ambient air quality	5 locations (WTP, Booster pumping station, 2 GLSRs, 1 pipe line)	PM ₁₀ , PM _{2.5} NO ₂ , SO ₂ , CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ambient noise	5 locations (WTP, Booster pumping station, 2 GLSRs, 1 pipe line)	Day time and night time noise levels	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
			winter) during construction (3-years period considered)
Surface water quality	2 locations (Bidyadhari River and Kestopur Canal)	pH, Oil and grease, Cl, F, NO ₃ , TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	Once before start of construction half yearly during construction (3-year construction period considered)

Table 14B: Environmental Monitoring Requirement (Package N 24 pgs/02A – Haroa and 02B- Bhangar II)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
Ambient air quality	5 locations (to be selected during implementation to represent the overall project area)	PM ₁₀ , PM _{2.5} NO ₂ , SO ₂ , CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ambient noise	5 locations (same as air quality monitoring)	Day time and night time noise levels (24 hours)	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Surface water quality	2 locations (to be selected during implementation)	pH, Oil and grease, Cl, F, NO ₃ , TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	Once before start of construction Half yearly during construction (3 - year construction period considered)

II. Bankura District

78. Environmental Monitoring Plan of IEE is the basis for environmental monitoring before start of the work and during implementation of the project.

Table 15A: Environmental Monitoring Requirement (Package BK/01)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
Ambient air quality	2 locations (WTP and GLSR- IBPS sites)	PM ₁₀ , PM _{2.5} NO ₂ , SO ₂ , CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ambient noise	4 locations (Intake,	Day time and night	(i) Once before start

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
	WTP and GLSR-IBPS sites)	time noise levels	of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Reservoir water quality	One location (Reservoir intake point)	pH, TDS, Oil and grease, Cl, F, NO ₃ , TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	(i) Once before start of construction (ii) Monthly (yearly 12 times) (3-year construction period considered)

Table 15B: Environmental Monitoring Requirement (Package BK/02A and BK/02B)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
Ambient air quality	5 locations (to be selected during implementation to represent the overall project area)	PM ₁₀ , PM _{2.5} NO ₂ , SO ₂ , CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ambient noise	10 locations (same as air quality monitoring)	Day time and night time noise levels (24 hours)	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Surface water quality	5 locations (to be selected during implementation)	pH, Oil and grease, Cl, F, NO ₃ , TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Soil quality	5 locations (including, construction camps, workers camps)	pH, Elect. Conductivity (at 25°C), Moisture (at 105°C), Texture (silt, clay, sand), Calcium (as CaO), Magnesium (as Mg), Permeability, Nitrogen (as N), Sodium (as Na), Phosphate (as PO ₄), Potassium (as K), Organic Matter, oil and	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
		grease	
Ground Water Quality	5 locations (including workers camp site & Construction camp/ storage yards)	As per IS10,500: 2012	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)

Table 15C: Environmental Monitoring Requirement (Package BK/03)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
Ambient air quality	2 location (WTP & Intake sites)	PM ₁₀ , PM _{2.5} NO ₂ , SO ₂ , CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ambient noise	4 locations (Intake, WTP & 2 sensitive sites like hospital /school)	Day time and night time noise levels	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Barrage water quality	One location (Reservoir intake point)	pH, TDS, Oil & grease, Cl, F, NO ₃ , TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	(i) Once before start of construction (ii) Monthly (yearly 12 times) (3 years construction period considered)

Table 15D: Environmental Monitoring Requirement (Package BK/04)

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
Ambient air quality	10 locations (to be selected during implementation to represent the overall project area)	PM ₁₀ , PM _{2.5} NO ₂ , SO ₂ , CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ambient noise	20 locations (same as air quality monitoring)	Day time and night time noise levels (24 hours)	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency
			monsoon and winter) during construction (3-years period considered)
Surface water quality	10 locations (to be selected during implementation)	pH, Oil and grease, Cl, F, NO ₃ , TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Soil quality	10 locations (including, construction camps, workers camps)	pH, Elect. Conductivity (at 25°C), Moisture (at 105°C), Texture (silt, clay, sand), Calcium (as CaO), Magnesium (as Mg), Permeability, Nitrogen (as N), Sodium (as Na), Phosphate (as PO ₄), Potassium (as K), Organic Matter, oil and grease	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)
Ground Water Quality	10 locations (including workers camp site & Construction camp/ storage yards)	As per IS10,500: 2012	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (3-years period considered)

79. For East Medinipur district monitoring plan will be finalized after award of the contracts.

B. Type and location of Environmental Parameters Monitored

80. As detailed in above tables, for both the districts, air and noise monitoring should be conducted for every quarter while surface water quality should be conducted at every half-yearly (North 24 pgs), quarterly (Bankura packages) and monthly (Barrage and reservoir of Bankura Packages). The monitoring parameters are also stated in Table above.

81. In order to determine new monitoring locations, following matrices were developed for each package.

OHT No.	Presence of Environmental Sensitivities					
	Hospital	Educational Institute	Religious Place	Dense Population	Wetland	Others
1						
2						

Zone No.	Presence of Environmental Sensitivities					
	Hospital	Educational Institute	Religious Place	Dense Population	Wetland	Others
1	Node X - Y					
2						

82. Based on outcome of above exercise air quality, noise level and surface and ground water quality monitoring locations were selected for packages.

Table 16A: Ambient Air Monitoring Station Locations - North 24 Pgs

Sl. No	Monitoring Location	GPS Co-ordinates
Package N 24 Pgs/02A: Haroa Distribution*		
1.	Near Kulti Upasasthya Kendra (Zone -5)	22°31'28.60"N, 88°41'11.90"E
2.	Near Nebutala Abad (Zone-2)	22°35'44.30"N, 88°45'3.80"E
3.	Near Haroa Market (Zone-21)	22°36'15.30"N, 88°40'40.70"E
4.	Near Paschim Bhoira (Zone-13)	22°36'56.10"N, 88°36'22.60"E
5.	Near Majanpur High School (Zone-17)	22°36'10.50"N, 88°38'46.60"E
Package N 24 Pgs/02B: Bhangra II Distribution*		
1.	Near Baniara (Zone 13)	22°32'26.90"N, 88°38'3.60"E
2.	Dharmatala Pachuria (Zone 1)	22°33'11.20"N 88°28'51.20"E
3.	Swastayan Gacchi Near School (Zone 4)	22°34'24.40"N, 88°33'20.20"E
4.	Near Bonkochua (Zone 12)	22°32'29.90"N, 88°36'14.50"E
5.	Near Paschim Majarhat Primary School (Zone 10)	22°32'17.00"N, 88°34'58.00"E
Package N 24 Pgs/01: Bulk Water Supply**		
1.	WTP at tank no.1	22°35'14.04"N, 88°26'50.27"E
2.	Boosting station 1	22°34'43.91"N, 88°28'59.95"E

* Construction phase monitoring

** Baseline monitoring

Table 16B: Surface Water Sampling Locations - North 24 Pgs

Sl. No	Monitoring Location
Package N 24 pgs/02A : Haroa Distribution*	
1.	Pond water of Nebutala Abada
2.	Pond water in zone 13
Package N 24 pgs/02B : Bhangra II Distribution*	
1.	Pond water of Swastayan Gacchi

2.	Pond water of Bonkochua
----	-------------------------

* Construction phase monitoring

Table 16C: Ambient Noise Sampling Locations - North 24 Pgs

Sl. No	Monitoring Location	GPS Co-ordinates
Package N 24 pgs/02A: Haroa Distribution*		
1.	Near Kulti Uposasthya Kendra (Zone -5)	22°31'28.60"N, 88°41'11.90"E
2.	Near Nebutala Abad (Zone-2)	22°35'44.30"N, 88°45'3.80"E
3.	Near Haroa Market (Zone-21)	22°36'15.30"N, 88°40'40.70"E
4.	Near Paschim Bhoira (Zone-13)	22°36'56.10"N, 88°36'22.60"E
5.	Near Majanpur High School (Zone-17)	22°36'10.50"N, 88°38'46.60"E
Package N 24 Pgs/02B: Bhangra II Distribution*		
1.	Near Baniara (Zone 13)	22°32'26.90"N, 88°38'3.60"E
2.	Dharmatala Pachuria (Zone 1)	22°33'11.20"N, 88°28'51.20"E
3.	Swastayan Gacchi Near School (Zone 4)	22°34'24.40"N, 88°33'20.20"E
4.	Near Bonkochua (Zone 12)	22°32'29.90"N, 88°36'14.50"E
5.	Near Paschim Majarhat Primary School (Zone 10)	22°32'17.00"N, 88°34'58.00"E
Package N 24 Pgs/01: Bulk Water Supply**		
1.	WTP at tank no.1	22°35'14.04"N, 88°26'50.27"E
2.	Boosting station 1	22°34'43.91"N, 88°28'59.95"E

* Construction phase monitoring

** Baseline monitoring

83. The monitoring locations for the projects were marked on google earth and presented below.

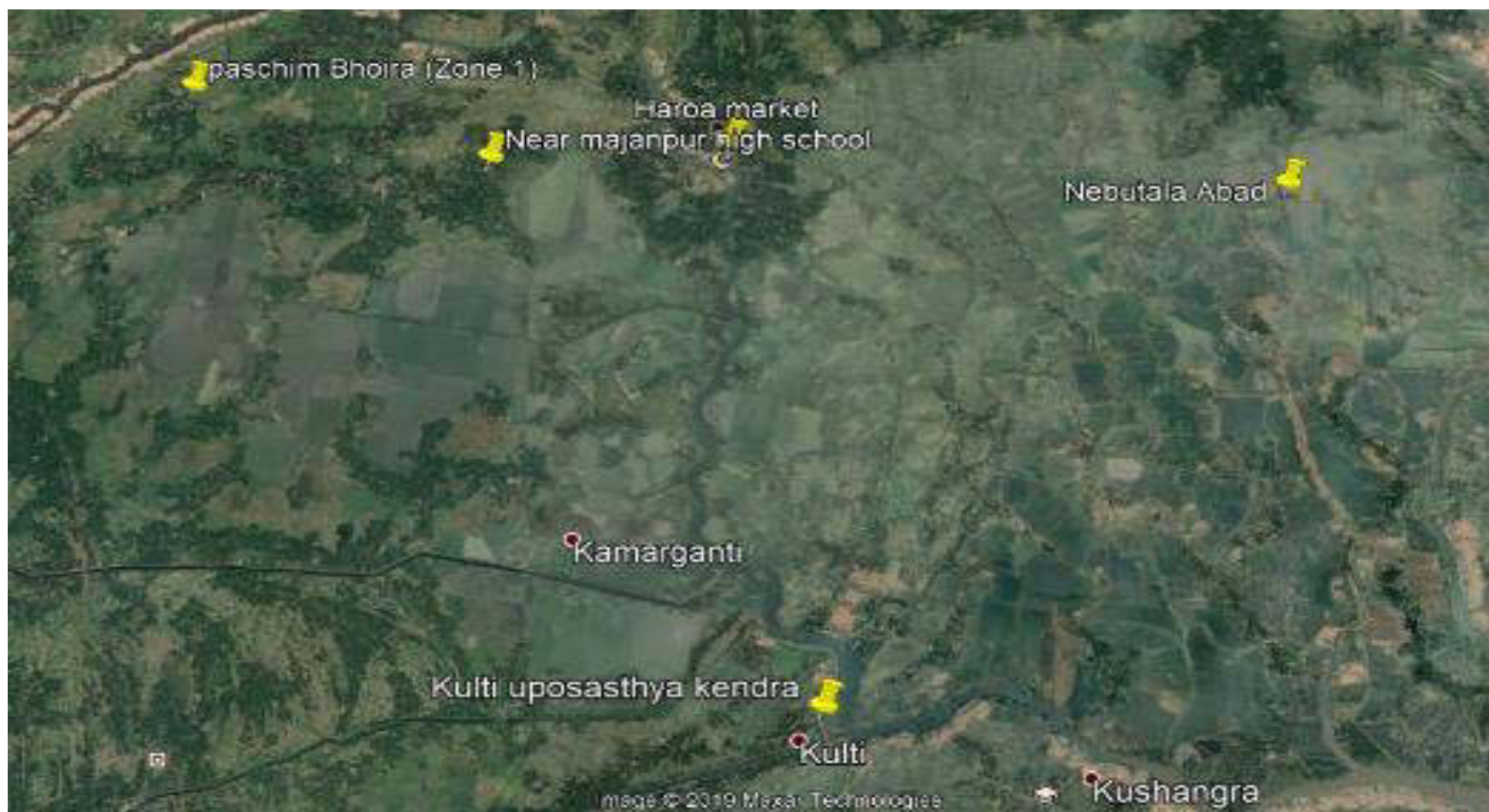


Figure 9A: Ambient Air Quality, Noise Level and Surface Water Monitoring Stations in Haroa Block (Package N 24 Pgs/02A)

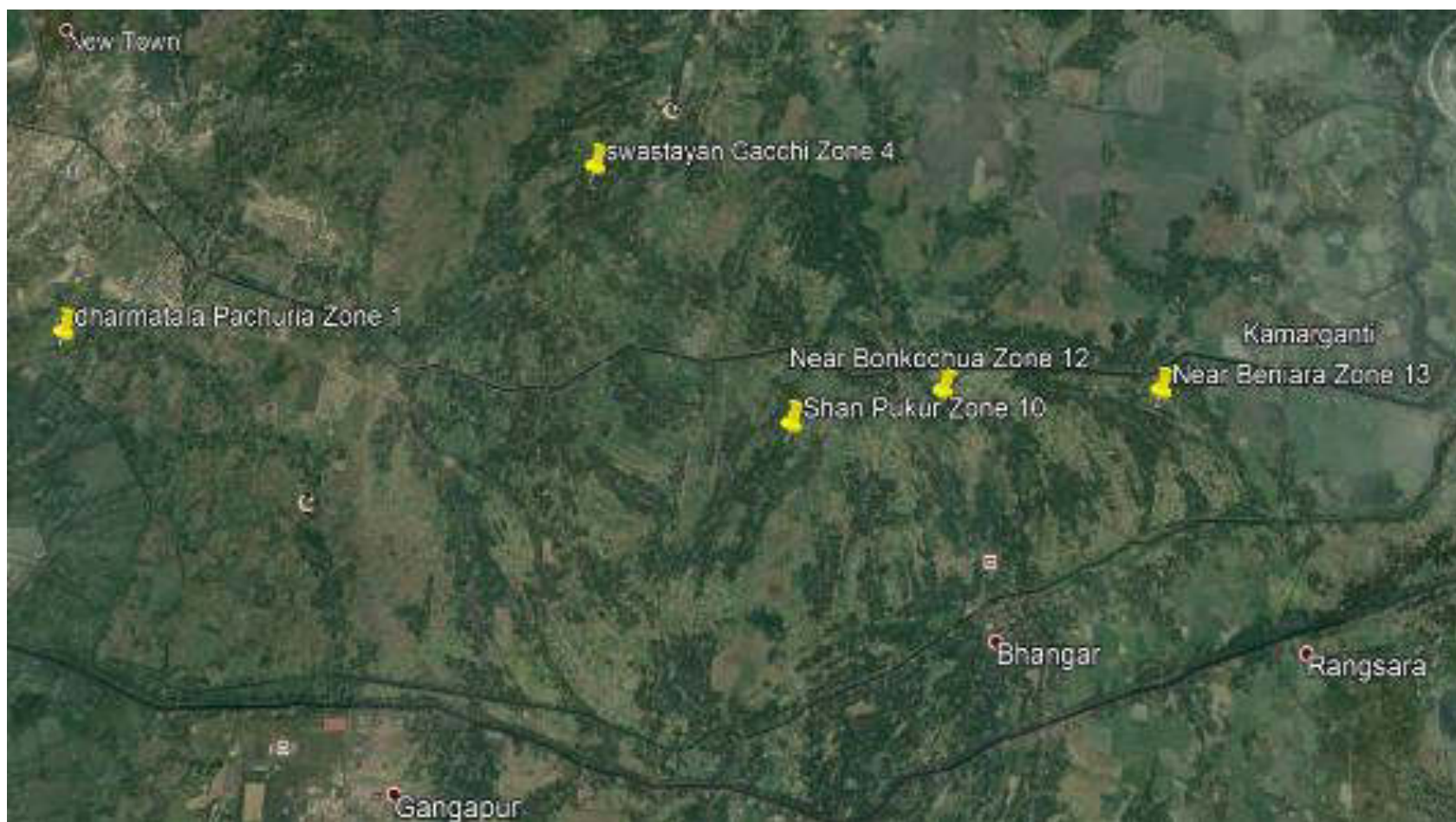


Figure 9B: Ambient Air Quality, Noise Level and Surface Water Monitoring Stations in Bhangar-II Block (Package N 24 Pgs/02B)

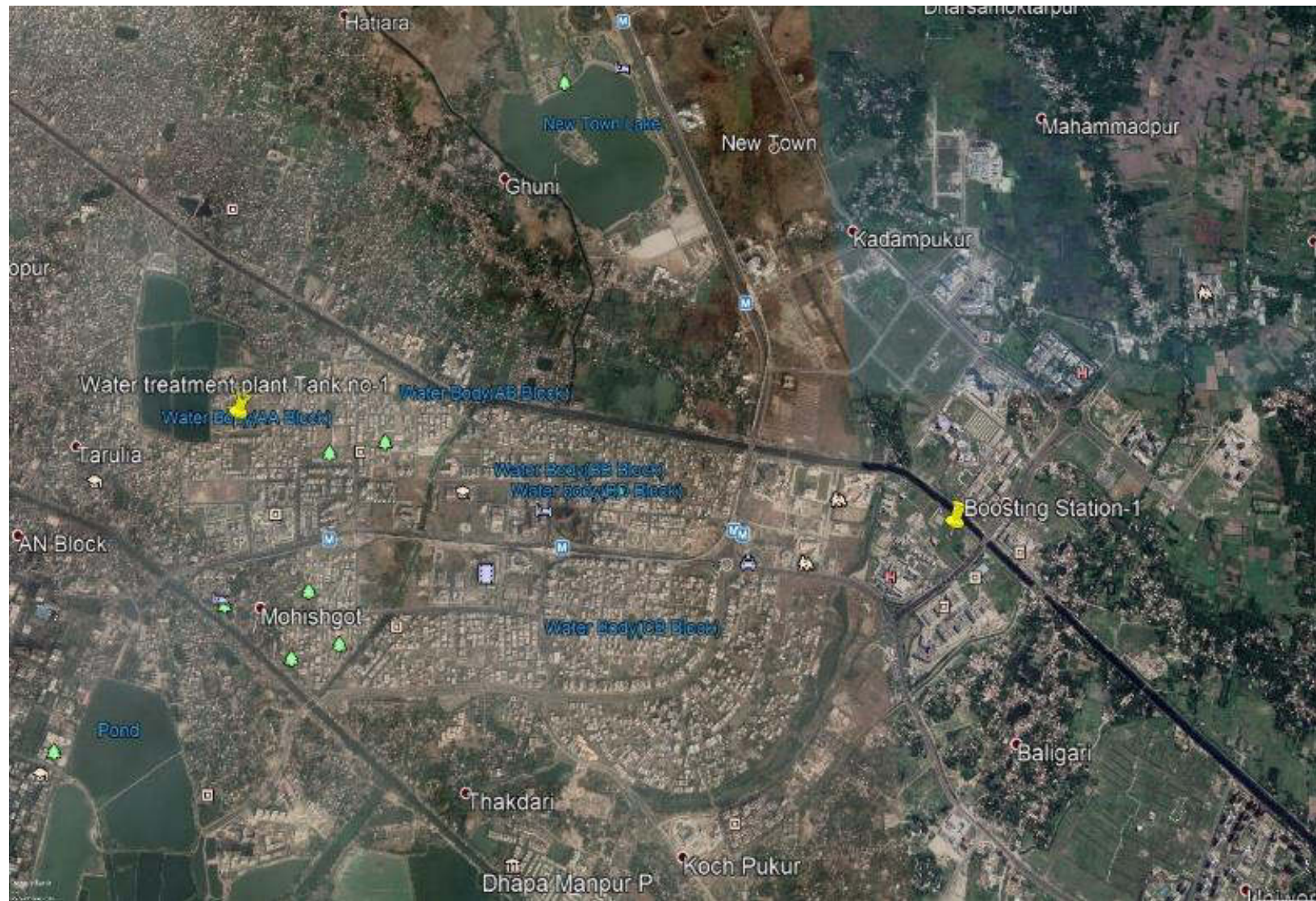


Figure 9C: Ambient Air Quality, Noise Level and Surface Water Monitoring Stations in WTP (Package N 24 Pgs /01)

84. **Monitoring Locations of Bankura Packages.** For Bankura base line monitoring has been started. After finalization of lands monitoring will be conducted for other locations. Below tables show detail of monitoring stations, where monitoring conducted during report period.

Table 17A: Ambient Air Monitoring Station Locations – Base line- Bankura

Sl. No	Monitoring Location	Co-ordinates
Package BK/01		
1.	Gobindapur- GLSR site	23.072001 ⁰ N, 86.905482 ⁰ E
2.	Loyadihi- WTP site	22.996759 ⁰ N, 86.768016 ⁰ E
Package BK/02A		
1.	Raghunathpur- GLSR site	23.153415 ⁰ N, 86.861420 ⁰ E
Package 02B		
1.	Saharghati - OHSR Site	23.02036 ⁰ N, 87.120319 ⁰ E
Package BK/03		
1	Basudevpur/ Radhamadhabpur- WTP site	23.483130 ⁰ N, 87.158481 ⁰ E
Package BK/04		
1	Desuriya - near Deuli OHSR Site, near primary school	23.450861 ⁰ N, 87.099052 ⁰ E

Table 17B: Ambient Noise Sampling Locations - Base line- Bankura

Sl. No	Monitoring Location	Co-ordinates
Package BK/01		
1.	Gobindapur- GLSR site	23.072001 ⁰ N, 86.905482 ⁰ E
2.	Loyadihi- WTP site	22.996759 ⁰ N, 86.768016 ⁰ E
3	Kumar Bohal - Intake point	22.989320 ⁰ N, 86.769297 ⁰ E
Package BK/02A		
1.	Raghunathpur- GLSR site	23.153415 ⁰ N, 86.861420 ⁰ E
Package 02B		
1.	Saharghati - OHSR Site	23.02036 ⁰ N, 87.120319 ⁰ E
Package BK/03		
1	Basudevpur/ Radhamadhabpur- WTP site	23.483130 ⁰ N, 87.158481 ⁰ E
Package BK/04		
1	Desuriya - near Deuli primary school	23.450861 ⁰ N, 87.099052 ⁰ E

Table 17C: Ground water Sampling Locations – Base line- Bankura

Sl. No	Monitoring Location	Co-ordinates
Package BK/02A		
1.	Raghunathpur	23.153415 ⁰ N, 86.861420 ⁰ E
Package 02B		
1.	Saharghati	23.02036 ⁰ N, 87.120319 ⁰ E
Package BK/04		
1	Desuriya - near Deuli OHSR Site	23.450861 ⁰ N, 87.099052 ⁰ E