



Environmental Monitoring Report

Project Number: 42266-025
April 2020
Period: July 2019 – December 2019

IND: Kolkata Environmental Improvement Investment Program - Tranche 2

Submitted by:

The Kolkata Municipal Corporation (KMC), Kolkata

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Asian Development Bank

From: Project Director KEIIP <pdkeiip@gmail.com>

Sent: Wednesday, February 12, 2020 11:39 AM

To: Sourav Majumder <smajumder@adb.org>

Cc: Pradeep Kumar Pandey <ppandey@adb.org>; Soumya Ganguly <soumya6@yahoo.com>; Narayan chandra Mondal <ncmchs@yahoo.in>; Chinmoy Chakrabarti <chin_moy@yahoo.com>

Subject: Semi Annual Environmental Monitoring Report - TR-II- Period from July 2019 to December 2019

Dear Sourav,

Please find enclosed the
Semi Annual Environmental Monitoring Report for Tr-II
from July 2019 to December 2019 for your kind perusal.

Thanking you,

Project Director
Kolkata Environment Improvement Investment Program
Kolkata Municipal Corpora



Soft copy recd. 12.02.20

Semi Annual Environmental Monitoring Report

**ADB Loan Number 3413-IND
Period Covered: July to December 2019**

February , 2020

**IND: KOLKATA ENVIRONMENTAL IMPROVEMENT
INVESTMENT PROGRAM (KEIIP) – Project 2**

Prepared by Project Management Unit, Kolkata Environmental Improvement Investment Program, Kolkata Municipal Corporation, for Asian Development Bank



**KOLKATA ENVIRONMENTAL IMPROVEMENT
INVESTMENT PROGRAM (KEIIP) – PROJECT 2**

PROJECT MANAGEMENT UNIT

6th

SEMI ANNUAL ENVIRONMENTAL MONITORING REPORT

TRANCHE 2

ADB Loan 3413-IND

(Period July to December 2019)

February 2020



KOLKATA MUNICIPAL CORPORATION

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ABBREVIATIONS

AAI	-	Airport Authority of India
ADB	-	Asian Development Bank
ASI	-	Archaeological Survey of India
BIS	-	Bureau of Indian Standards
BOD	-	Biochemical Oxygen Demand
CBO	-	Community Based Organization
COD	-	Chemical Oxygen Demand
CPCB	-	Central Pollution Control Board
CPHEEO	-	Central Public Health and Environmental Engineering Organisation
CTE	-	Consent to Establish
CTO	-	Consent to Operate
CW	-	Canal Water
DG	-	Diesel Generator
DO	-	Dissolved Oxygen
DPR	-	Detailed Project Report
DSC	-	Design and Supervision Consultants
DWF		Dry Weather Flow
KMC	-	Kolkata Municipal Corporation
EA	-	Executing Agency
EARF	-	Environmental Assessment and Review Framework
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
GRC	-	Grievance Redressal Committee
GRM	-	Grievance Redress Mechanism
GW	-	Groundwater
HC	-	Hydrocarbons
IEE	-	Initial Environmental Examination
INR	-	Indian National Rupee
KEIP	-	Kolkata Environmental Improvement Project
KEIIP		Kolkata Environmental Improvement Investment Program
KMC	-	Kolkata Municipal Corporation
KMDA	-	Kolkata Metropolitan Development Authority
LPG	-	Liquefied Petroleum Gas
MoEFCC	-	Ministry of Environment and Forest & Climate Change, Government of India
MTBM	-	Micro Tunnel Boring Machine
NIOSH	-	National Institute of Occupational Health
NGO	-	Non Government Organization
O and M	-	Operation and Maintenance

PMC	-	Project Management Consultant
PMU	-	Project Management Unit
PS	-	Pumping Station
REA	-	Rapid Environmental Assessment
ROW	-	Right of Way
RP	-	Resettlement Plan
S & D	-	Sewage & Drainage
SEIAA	-	State Level Environmental Impact Assessment Authority
SPM	-	Suspended Particulate Matter
SPS	-	Safeguard Policy Statement
STP	-	Sewage Treatment Plant
SWF	-	Storm Water Flow
SW	-	Surface Water
TDS	-	Total Dissolved Solids
TMP	-	Traffic Management Plan
TSS	-	Total Suspended Solids
UFW	-	Unaccounted For Water
USD	-	US Dollar
WBPCB	-	West Bengal Pollution Control Board
WTP	-	Water Treatment Plant

I. INTRODUCTION

A. Background

1. Kolkata Environmental Improvement Project (KEIP) was a key urban infrastructure initiative of the Kolkata Municipal Corporation (KMC) funded by Asian Development Bank (ADB) since 2000 which succeeded in improvement of the urban environment and quality of life in parts (mainly added areas) of KMC area. On completion of the project, both KMC & ADB agreed to continue their combined effort to improve further basic urban municipal infrastructures of Kolkata through a multi - tranche financing program (MFF) of US \$400 million - 'Kolkata Environmental Improvement Investment Program' (KEIIP). Figure in **Appendix 1** shows the areas of Kolkata considered to be taken up under KEIIP Tranche 1, 2 & 3. ADB has sanctioned US \$100 million for Tranche 1, US \$200 million for Tranche 2 and US \$100 million for Tranche 3 work. The total investment duration for Tranche 1, 2 & 3 is from 2014 to 2022.

2. The main objective of the Program is to improve service quality and operational sustainability of increased water supply and sewerage in 20% of the KMC area. The Investment Program also aims towards increase in operational efficiency and scale of water supply, sewerage and drainage services in 5% of KMC area.

3. The Program output comprises of:

- ✓ rehabilitation of inefficient and outdated water supply assets;
- ✓ continued extension of sewerage to newly developed areas and
- ✓ further development of financial and project management capacity.

4. The Program is being carried out by the Govt. of West Bengal (GoWB) acting through KMC as the Executing Agency (EA). Sub project location map for **Tranche 2 (Project 2)** is shown in **Figure 1**.

B. Project & Report Purpose

5. The environmental impacts of the sub projects under **Tranche 2** were assessed through Initial Environmental Examination (IEE), prepared according to ADB Safeguard Policy (SPS 2009) and has been classified as environmental assessment **category B** (some negative impacts but less significant than category A) by ADB.

6. This report is the semi annual environment monitoring report (SEMR) covering period from **July to December 2019** and describes the implementation of the environmental management plan (EMP) in respect of each subproject of Tranche 2 as laid down in the approved IEE.

II IMPLEMENTATION PROGRESS

A. Status of Subprojects under Tranche 2

7. On date **17 packages** under **Tranche 2** have been finalized. There are 8 nos. Sewerage and Drainage package and 8 nos. Water Supply packages. subpackage WS 26 B deals with water supply system instrumentation and IT upgrade. For all awarded packages, contractors have been mobilized and works are at different stages of implementation. **Table 1** show the summary of subprojects (packages) under Tranche 2 including their work components, starting date and schedule date of completion, physical progress and progress of implementation of work components as on 31th December 2019. The same is also illustrated in **Figure 2(a)** and **Figure 2(b)**. Photo illustration on progress of work for all packages has been presented in **Appendix 2**.

Table 1: Summary of Subprojects under KEIIP Tranche 2 (on 31st December 2019)

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
Construction of Sewerage and Drainage Network in Thakurpara and Purba Putiary Catchment and Construction of Keorapukur PS in Ward – 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIIP/NCB/Tr 2/SD-09/2016-17)	<ul style="list-style-type: none"> Length of proposed trunk sewer to be laid under this package is 11.7 km. For laying of pipe below canals (crossing of Western Channel & Keorapukur Canal respectively), jack pushing method is considered. Length of Gravity main (1419 mm dia.) is 40 m and proposed line to be laid by Jack pushing method (1600 mm dia) is 35. m. Construction of one combined pumping station (Keorapukur PS) within the premises of Old Keorapukur Canal pumping station including installation of 5 nos. of SWF pumps and 4 nos. of DWF pumps. Construction of 12 nos. gravity outfalls (7 nos. to Keorapukur canal & 5 nos. to Western channel) with flap gate. Construction of MS bridge for the two pumping mains (SWF & DWF) for crossing Keorapukur Canal. Length of MS bridge – 18.0 m. Laying of 620 m DWF Pumping main (500 mm dia., DI, K-9). Laying of 50 m SWF Pumping main (1400 mm dia. OD MS). 	07.02.2017-31.05.2020	39.26	<ul style="list-style-type: none"> Well construction in progress. Electrical substation completed upto roof level.
Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI (KEIIP/NCB/Tr 2/SD-10T /2015-16)	<ul style="list-style-type: none"> Length of proposed Trunk sewer to be laid is about 11.58 km. Length of proposed sewer to be laid by Jack pushing Method- 60 m Construction of RCC Box drain - 0.82 Km Construction of gravity outfall structure (1 no. to Rania canal) at the end of box drain with provision of sluice gate 	18.10.2019-16.10.2022	-	Survey started
Sewerage and Drainage Network in Vivekananda road catchment (part of ward no 113& 114) and construction of Pumping station in borough-xi (KEIIP/NCB/Tr2/SD-11T /2016-17)	<ul style="list-style-type: none"> Trunk sewer - about 9.63 km under this package Length of proposed sewer (600 mm & above) to be laid – 8.43 km Length of proposed sewer (below 600 mm dia.) to be laid – 1.20 km RCC Box drain for outfall structure – 0.03 km Construction of one combined pumping station (designated as Vivekananda Road PS) at crossing of Rania Canal and Vivekananda Road. Installation of 8 nos. SWF pumps each having 	20.11.2019-18.11.2022	-	Survey started

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
	<ul style="list-style-type: none"> capacity of 850 lps • Construction of gravity outfalls (6 nos. - 3 nos. to Rania canal & 3 nos. to Western channel) with flap gate • Laying of SWF Pumping main - 1200 mm dia. MS pipe about 2.2 km • Construction of MS Bridge for 1200 m SWF pumping main over Western Channel 			
<p>Laying of Trunk Sewer along James Long Sarani by Micro-Tunnelling Method (KEIP/NCB/Tr 2/SD-12/2015-16)</p>	<ul style="list-style-type: none"> • Length of proposed trunk sewer to be laid along western flank of James Long Sarani (from Sakher Bazar crossing to near Joka Tram depot) by Micro tunneling method is about 3.8 km. • Existing rider sewers below footpath along James long Sarani are proposed for collection of SWF & DWF to be utilized. Parts of rider sewers need to be replaced to receive connection from some lateral roads and are proposed to be implemented under Package SD 13. • Connection from western flank to be done by open cut method. • Connection from eastern flank to be done by Jack pushing method. 	<p>08.02.2017-30.04.2020</p>	<p>90.0%</p>	<p>Laying of sewer line by microtunnelling method completed upto 3880m.</p>
<p>Development of Sewerage & Drainage Network within James Long Sarani and Mahatma Gandhi Road Catchment in Borough XVI (Part of Ward no. 123 & 124) (KEIP/NCB/Tr 2/SD-13/2015-16)</p>	<ul style="list-style-type: none"> • Length of proposed sewer line to be laid 14.4 km. • Construction of 3 nos. of outfall structures including sluice gate. • Installation of Sluice gate at the outfall mouth of existing drain along eastern flank of DH road to prevent back flow from Churial canal • Replacement of part of rider sewers along both flank's of James Long Sarani to receive connections from narrow lateral roads. • Replacement of part of existing drain along eastern flank of DH Road with pipe conduit about 50 m (near Janakalyan Road) & re-sectioning of the part drain along eastern flank of DH Road about 150 m (near Behala Fire Station). • Desilting of existing rider sewers along both flanks of James Long Sarani. 	<p>05.12.2016-31.12.2020</p>	<p>27.91%</p>	<p>Laying of Sewer line completed upto 6332 m.</p>
<p>Laying of Lateral Sewers in part of Borough XIV (Ward no. 128 to 132) & De- siltation of</p>	<ul style="list-style-type: none"> • Laying of Lateral sewer for a total length of 58.4 km. • Distillation of existing box drain / conduit at Picnic Garden Road 	<p>05.12.2016-31.05.2020</p>	<p>52.97%</p>	<p>Laying of sewer line completed upto 29030.4 m.</p>

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
Box Drain at Picnic Garden Road (KEIIP/NCB/Tr 2/SD-14/2015-16)				
Construction of Underground Reservoirs & Overhead Reservoirs, Pumping Stations & Linking Pumping Station Mains for Water Supply in Joka & Adjoining Areas including operation & maintenance of the pumping station KEIIP/NCB/Tr 2 /WS 15/2015-16	<ul style="list-style-type: none"> • Construction of Under Ground Reservoir (UGR) at Prantik Ph III (ward no 143)- , 17.5 ML, PS & E&M works at Prantik Ph III • Construction of UGR at KMC land on Julpia Road (ward no 142)- 4.5 ML, PS & E&M works at KMC land on Julpia Road • Construction of Elevated Service Reservoir (ESR) at Prantik Ph III (ward no 143)- 3.1 ML • Construction of ESR at KMC land on Julpia Road (ward no 142)- 2.0 ML • Construction of ESR at N-E SSESTP (ward 122)-2.0 ML • Construction of ESR at N-W SSESTP (located at junction of ward 122 & 123)- 1.8 ML • Construction of ESR at 22 Bigha (ward 143)- 3.4 ML • Construction of ESR at WBSETCL near Joka Tram Depot. (ward 144)- 2.1 ML 	05.12.2016-30.03.2020	74.34%	<ul style="list-style-type: none"> • UGR at Julpia: 86% completed. • UGR at Prantik: 73% completed • ESR at Julpia: 91% completed. • ESR at Prantik: 80% completed. • ESR at WBSETCL: 90% completed. • ESR at NE of SSESTP: 60% completed. • ESR at NW of SSESTP: 78% completed. • ESR at 22 Bigha: 30% completed.
Laying of Transmission Main from Daspara PS to UGRs at Prantik PH-III , KMC Land on Julpia Road ; and Transmission Main from PS to zonal Reservoirs KEIIP/NCB/Tr 2/WS 16/2015-16	<ul style="list-style-type: none"> • Laying of Transmission Main from existing Daspara PS to UGRs cum PS at Prantik Phase III and KMC land on Julpia Road, length - approx. 18.4 km • Supply and laying of Transmission main from Prantik Phase III UGR cum PS to existing ESR at Prantik, and proposed ESR at NW of SSE STP, NE of SSE STP, existing ESR at Diamond Park, proposed ESR at WBSETCL command area and proposed ESR at 22 Bigha command area 	19.05.2017-31.12.2020	55.5%	<ul style="list-style-type: none"> • Progress in MS pipe laying work – 15652 m completed.
Laying of Water Supply distribution network including providing household service connection in 4 distribution service areas in Joka &	<ul style="list-style-type: none"> • Laying of water supply distribution network including house service connection for proposed Elevated service reservoirs related to Prantik Ph III, NE of SSE STP and NW of SSE STP, length - approx. 155 km • Supply and laying of water supply distribution network including 	17.06.2017-15.12.2020	24.22%	<ul style="list-style-type: none"> • Progress in DI pipe laying upto 69402 m. • Progress in MS pipe laying upto 8543 m

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
adjoining areas for the command area under proposed ESRs at Prantik Ph-III, N-E of SSE STP and N-W of SSE STP & existing ESR at Prantik KEIIP/Tr 2/WS 17A/2016-17	house service connection for existing elevated service reservoirs related to Prantik			
Laying of Water Supply distribution network including providing household service connection in 4 distribution service areas in Joka & adjoining areas for command area under proposed ESRs at Company Pukur, WBSETCL & 22 Bigha & Existing ESR at Diamond Park KEIIP/Tr 2/WS 17B/2016-17	<ul style="list-style-type: none"> Laying of water supply distribution network including house service connection for proposed ESR at Company Pukur (KMC land at Julpia road), WBSETCL, and 22 Bigha. Supply and laying of water supply distribution network including providing house service connection for existing ESR at Diamon Park. 	17.06.2017-15.12.2020	31.71%	<ul style="list-style-type: none"> Progress in DI pipe laying upto 69043 m. Progress in MS pipe laying upto 15793 m.
Laying of Transmission Main from pumping station to proposed 3ESRs at Ramkantapur, Malpara, Charaktala & Construction of the 3 ESRs including laying of Distribution Network with House service connection within the Command Area of the 3 ESRs for Water Supply in Joka and adjoining areas KEIIP/NCB/Tr 2/WS 18/ 2016-17	<ul style="list-style-type: none"> Construction of Elevated Service Reservoirs (ESRs): Ramkantapur- 2.1 ML, Malpara – 1.5 ML, Charaktala- 1.2 ML Laying of Transmission main from pumping stations to ESRs at Ramkantapur, Malpara and Charaktala, length – approx. 72 km. Laying of Distribution system and house service connection within command area of 3 ESRs. at Ramkantapur, Malpara and Charaktala 	15.05.2017-14.04.2020	52.53%	<ul style="list-style-type: none"> ESR 1 at Charaktala – 60% work completed. ESR 2 at Malpara – 52% work completed. ESR 3 at Ramkantapur – 85 piling work completed out of total 96. D.I. and M.S. pipe laying completed upto 54904 m.

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
<p>Development of S & D Network in Tolly's Nullah/ Keorapukur canal Sub-basin in part of Wards 115 & 122 including construction of a SWF pumping station in the premises of Kudghat LS – 5 and augmentation of Keorapukur MPS (KEIP/NCB/Tr 2/SD 19/ 2016-17)</p>	<ul style="list-style-type: none"> Length of proposed trunk sewer to be laid is 9.6 km. For laying of pipe below canals, jacking pushing method is considered Construction of Kudhghat SWF PS including pumping main. Installation of 4 nos. SWF pumps of 800 lps. Augmentation of existing Keorapukur MPS Installation of 2 DWF pumps of 650 lps Construction of gravity outfalls (Total 5 nos. - 1 nos. to Tollynullah & 4 nos. to Keorapukur canal) with sluice/ flap gate. Laying of SWF Pumping main from Kudghat PS to Tolly's nullah – 100 m. Laying of DWF pumping mains through bypass from Keorapukur MPS – 500 m. Fabrication and creation of one MS pipe supporting bridge over Keorapukur Canal for carrying 1200 mm dia MS SWF pumping main from Kudghat PS. De- silting of the entire length of MG road (approx. 2.5 km) and Banerjee para road (approx. 1.1 km) sewer line 	<p>18.09.2017-17.09.2020</p>	<p>28.96%</p>	<ul style="list-style-type: none"> Well construction – Bottom plugging completed Bottom plugging completed Transformer building construction in progress
<p>Development of S&D Network in Churial Extension Canal sub basin in Borough XIII & XVI (Part of Ward No. 122, 123, 124) including laying of main trunk sewer by micro-tunneling method and construction of Churial Extension Pumping Station (KEIP/NCB/Tr 2/SD-22/ 2016-17)</p>	<ul style="list-style-type: none"> Length of proposed sewer line to be laid by open cut method is 16.7 km. Length of proposed trunk sewer to be laid by Micro tunneling method below Churial canal upto MG Road is 2.367 km (2200 mm – L= 660.8 m, 2400 mm- L= 1099 m, 2600 mm – L= 607.2 m). Construction of Churial Extension PS on Churial canal by construction of 8 nos. SWF pumps (capacity 800 lps/each) Construction of gravity outfalls with installation of sluice gate to Churial canal. Laying of SWF pumping main from Churial Extension PS, Length - 730 m Extension of SWF pumping main of SSE PS, Length – 1150 m Extension of Treated effluent pumping main, Length – 1150 m Jack pushing work (2600 mm dia., total length = 30 m at four locations and 1000 mm dia., Total length = 18 m at one location) for 	<p>04.06.2018-02.06.2021</p>	<p>13.20%</p>	<ul style="list-style-type: none"> RCC pipe laying by open cut upto 13363.05 m RCC pipe laying by microtunneling upto 491.99 m. M.S. pipe laying upto 1662.5 m. D.I. pipe laying upto 941.50m Construction of inlet chamber(sinking) – bottom plugging under progress

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
	making inter connectivity between different units of pumping stations. <ul style="list-style-type: none"> • Construction of catch pits, Gully pits, Kerb channel and house connection & development of road on the Churial Extension Canal/ Churial Canal. 			
Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani KEIIP/NCB/Tr 2/WS 24/ 2016-17	Laying of water supply pipe line, length - 6.0 km by micro tunneling method	26.10.17-25.10.2020	54.58 %	Laying of 1400 dia M.S. Pipe completed upto 3032 m.
Performance Based Contract for Water Loss Management in Anandapur Area and Patuli Area under Jai Hind WTP KEIIP/NCB/TR-2/WS25/2017-18	<ul style="list-style-type: none"> • Topographic Survey including Customer Survey for Updating WS Service Connection Database. • Review of Existing WS Distribution Network and preparing of District Metered areas within the command zones. • Preparation of System Improvement Plan (SIP) • Supply and Laying of WS Distribution Network. • Supply and Installation of Flow-meters including data logging • Establishment of DMAs • Conducting Leak Detection and carrying out pipeline repairs at leakage points • Providing and Installing Household service connections (approx 35,000 nos.) • Installation of Domestic Water meters including taking meter readings. • Operation and Maintenance of the District Metered Areas (DMAs) including flow recording, monitoring and assessment of Water Loss on a regular basis. 	04.10.2018-02.10.2021	8.99%	Survey work under progress
Water Supply System Instrumentation and Information Technology	<ul style="list-style-type: none"> • Water Supply System Instrumentation and Information Technology Upgrade 	05.03.19 – 03.03.2021	-	Approval given for procurement of all instruments. Delivery at

Package Name and No.	Work components	Start date & Target date of completion	% Physical Progress as on 30 th June 2019	Status off progress of work upto 30 th June 2019
Upgrade KEIIP/NCB/TR-2/WS26B/2018-19				site is expected in the month of December 2019.
Augmentation of storage capacity and transmission main under Jai Hind WTP-clear water reservoir, service main and electro mechanical works KEIIP/NCB/TR-2/WS33/2017-18	<ul style="list-style-type: none"> • Supply and Installation of additional pumping units with accessories to existing pumping stations; • Laying of service main from pumping station, length – 9.6 km. • Construction of Ground Level Storage Reservoir (GLSR) within Jai Hind WTP premise 	24.09.18-23.09.2020	34%	<ul style="list-style-type: none"> • 2 nos. test pile completed. • 511 nos. working piles completed. • Raft UGR potion 80% completed • UGR wall 50% completed • Sump portion wall upto raft done • Pump for RW & CW for Patuli area received

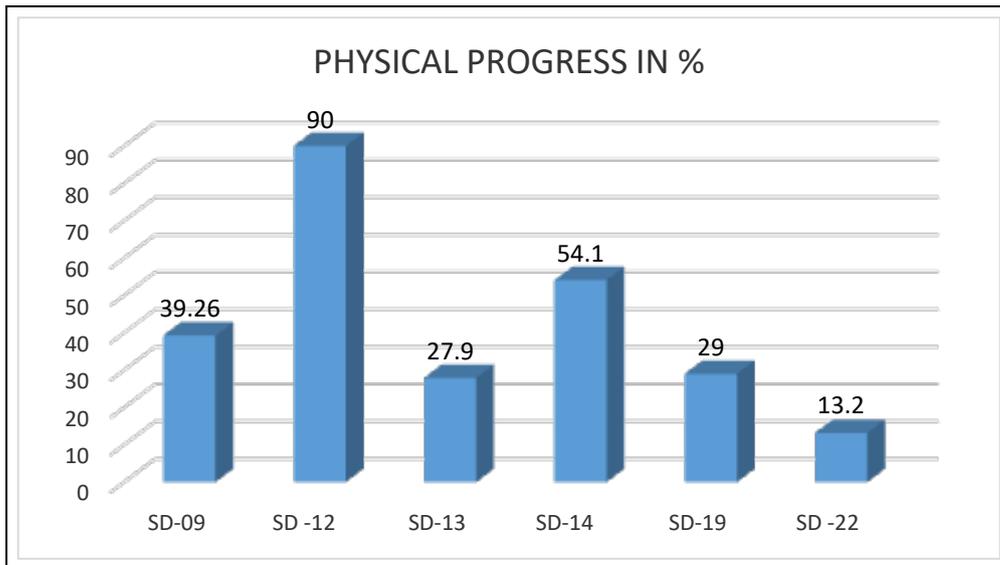


Figure 2 (a): Physical progress of Sewerage and Drainage Network of Tranche-2 up to December 2019¹

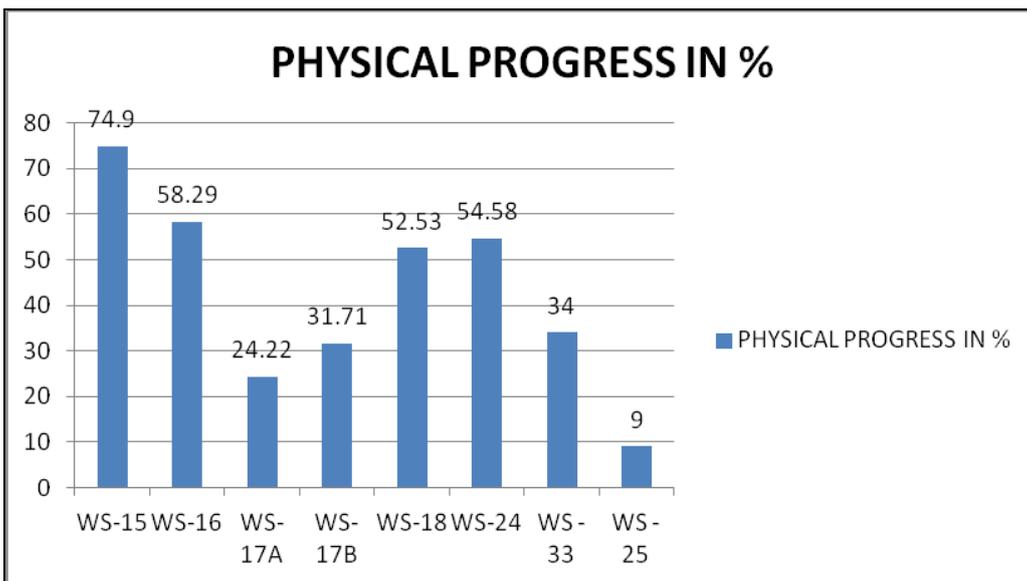


Figure 2 (b): Physical progress of Water Supply Projects of Tranche-2 up to December 2019²

¹ Subproject 10T and 11T not included in figure 2a as the sub-project has just started

² Subproject 26B not included in figure 2b as the sub-project procurement of equipment has just started

B. Compliance of Safeguard Loan Covenants

8. The loan agreement for KEIIP Project 2 was signed on 21st November 2016 and details are available in ADB website (<http://www.adb.org/projects/documents/loan-3413-ind-keiip-t2-mlo1>). **Table 2** provides a summary of compliance to the loan covenants related to environmental safeguards.

Table 2: Compliance of Loan Covenants – Environment part

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
Environment		
7	<p>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 (i) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety; (ii) the Environmental Safeguards; (iii) the EARF; and (iv) 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.</p>	<p>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) for Tranche-2 program. For Tranche 2 project Initial Environmental Examination (IEE), Environment Management Plan (EMP) report prepared and approved by ADB.</p> <p>IEE for Sewage and Drainage for Tranche 2 has been updated and that report has already been disclosed in ADB website on September 2016. Sewerage & Drainage IEE updated last on March 2018 due to revision of scope after DPR and submitted to ADB.</p> <p>IEE for water supply for Tranche 2 has already been disclosed in ADB website on April 2016. Updated version submitted to ADB on April 2017. Water Supply IEE updated last on August 2018 due to revision of scope after DPR. Updated Report disclosed on August 2018 IEE will be revised further in case of any change of scope and location.</p> <p>All measures and requirements as prescribed in IEE/EIA and EMP are being considered during implementation.</p> <p>Corrective or preventive action plans will be reflected in Environment Monitoring Report and project implementation authority will take care of such actions when required.</p>

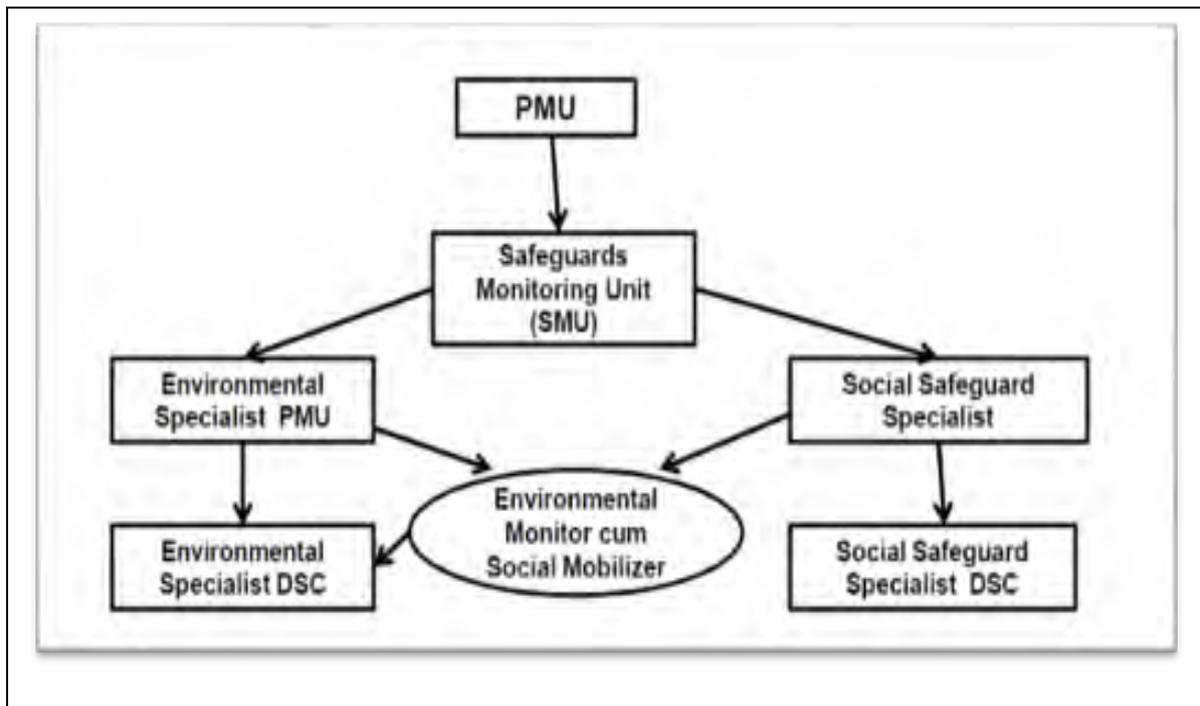
Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
Human and Financial Resources to Implement Safeguards Requirements		
11	The Borrower shall make available, or cause the EA to make available, all necessary budgetary and human resources to fully implement the EMP required.	<p>Complied</p> <p>Budgetary provisions have been included in EMP of Tranche 2 project. An Environment Specialist has been placed in Project Management Unit and heading Safeguard Monitoring Unit.</p> <p>Human resource (project consultant, i.e Environmental Specialist of DSC) for implementation of EMPs is in place for regular monitoring to secure complete compliance.</p>
Safeguards – Related Provisions in Bidding Documents and Works Contracts		
12.	<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>(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</p>	<p>Under compliance</p> <p>(a) Approved IEE, EMP for Tranche 2 project is attached in Bidding documents. This process will be followed for all the sub projects within the present Tranche. 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>IEE for Sewage and Drainage for Tranche 2 has been updated and that report has already been disclosed in ADB website on September 2016. Sewerage & Drainage IEE updated last on March 2018 due to revision of scope after DPR and submitted to ADB.</p> <p>IEE for water supply for Tranche 2 has already been disclosed in ADB website on April 2016. Updated version submitted to ADB on April 2017. Water Supply IEE updated last on August 2018 due to revision of scope after DPR. Updated Report disclosed on August 2018</p> <p>(b) IEE indicates budgetary provisions for implementation of EMP.</p> <p>(c) During implementation of any sub project if additional impacts/risks arise</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
	<p>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>due to change in scope/area that will be reflected in the revised IEEs, EMPs and Environment Monitoring Report and accordingly project Executing Agency will inform the Construction Agency for taking relevant corrective measures.</p> <p>(d) Haul roads will be marked properly (by avoiding residential and agricultural land) before commencement of transportation of materials.</p> <p>(e) Pathways, infrastructure and land which are likely to be affected for varying periods during implementation of the sub project will be restored by concerned construction agency before acceptance of the work. Restoration status will be reflected in post construction monitoring report.</p>
Safeguards Monitoring and Reporting		
13	<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) This is 6th Semi-annual safeguard monitoring report on Environment for Project 2 (Tranche 2) for the period July to December, 2019. The report will be due by end of June 2020.</p> <p>(b) During implementation of any sub project, if additional impacts/risks arise due to change in scope/area, those will be reflected in revised IEEs with EMPs and accordingly Executing Agency (EA) will inform the ADB such change along with corrective action plan which will be reflected in the subsequent Monitoring Reports.</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>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
Prohibited List of Investments		
14	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.	Complied Under Tranche -2, there is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5.
Other Social Measures		
15	The EA shall ensure that civil works contracts under the Project follow all applicable labor laws of the Borrower and the State, and that these further include provisions to the effect that contractors: (i) carry out HIV/AIDS awareness programs for labor 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 (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor, 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.	Complied in Bid documents and being complied during implementation Provision are included (as per 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. In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken. All activities including awareness program will be reflected in "Monitoring Report".

C. Implementation Arrangement

9. The institutional arrangement follows KEIIP's organizational structure and functions (**Figure 3**). The subproject is being implemented and monitored by the Project Management Unit (PMU). The KEIIP's PMU Environment Specialist is the overall in-charge on Environmental safeguard of the program. The responsibilities of the Environmental Specialist ensures that (i) environmental safeguard issues are addressed; (ii) EMP/approved Site Environment Plan (SEP) is implemented; (iii) physical and non-physical activities under the subproject are monitored; and (iv) monitoring reports are prepared on time and submitted to ADB. Safeguard Monitoring Unit (SMU) of PMU is ensuring field level monitoring and safeguard documentation.



Notes: PMU = project management unit; DSC = design and supervision consultants

Figure 3: Institutional Arrangement – Safeguard

10. PMU is supported by the Design and Supervision Consultants (DSC). An Environment Specialist is in place to ensure: (i) EMP/ approved SEP is implemented; (ii) surveys and measurements are undertaken; (iii) inspections and observations throughout the construction period are recorded to ensure that safeguards and mitigation measures are provided as intended; and (iv) statutory clearances and permits from government agencies/other entities are obtained prior to start of civil works.

11. The Safeguards Monitoring Unit will:

- (i) prepare the REA checklist, draft the EIA/IEE and arrange for disclosure of the approved EIA/IEE in the website
- (ii) Ensure that Environmental Clearance (EC), Consent to Establishment and Consent to Operate and other certificates, as required, are obtained in time from appropriate authorities and ensure compliances with conditions imposed.
- (iii) ensure incorporation of the EMP, environmental mitigation and monitoring measures into the contract documents
- (iv) monitor disclosure and public consultation arranged by DSC during IEE process and ensure that comments are reflected in the IEE report
- (v) ensure disclosure of information throughout the duration of the subproject through suitable visual means and publications
- (vi) provide necessary input for grievance redress
- (vii) approve contractor's proposed locations for construction work camps, storage areas, hauling roads, lay-down areas, and disposal areas for solid and hazardous wastes on recommendations of DSC
- (viii) guide the Contractor for drawing up of Site Environmental Management Plan

- and to approve the same
- (ix) induct the Contractor for taking up the construction following environmental and social safeguards
 - (x) facilitate scheduled monitoring during implementation of the project.
 - (xi) carry out regular onsite monitoring and guide the Contractor to adopt the required site management standard.
 - (xii) ensure the required health and safety measures at work sites
 - (xiii) obtain in time and to review the monthly monitoring report of the Contractors
 - (xiv) prepare 6-monthly monitoring and EMP implementation report, including the status of project compliance, statutory clearances and relevant loan covenants, and submit the approved 6-monthly report to ADB and seek permission to disclose the same in the investment program website
 - (xv) prepare monitoring report on post-construction activities by the contractors as specified in the EMP
12. The Contractor's responsibilities included:
- (i). Submission of Site environmental plan (SEP) covering proposed sites / locations for construction work camps, storage areas, haul roads, lay down areas, disposal areas for solid and hazardous wastes
 - (ii). Compliance with all applicable legislation and be conversant with the requirements of the EMP/ approved SEP;
 - (iii). Briefing of his staff, employees, and Labours about the requirements of the EMP/ approved SEP;
 - (iv). Ensuring that any sub-contractors/suppliers engaged within the context of the contract comply with the environmental requirements of the EMP/ approved SEP. The Contractor will be held responsible for non-compliance on their behalf;
 - (v). Providing methodology/information for all activities requiring special attention as specified and/or requested by the DSC Environment Specialist during the duration of the Contract;
 - (vi). Providing environmental awareness training to staff, employees, and Labours;
 - (vii). Bearing the costs of any damages/compensation resulting from non-adherence to the EMP/ approved SEP or written site instructions;
 - (viii). Conducting all activities in a manner that minimizes disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.
 - (ix). Ensuring that the PMU and DSC Environment Specialists are timely informed of any foreseeable activities that will require their expert input
13. Environment Specialist and Junior Environmental Scientist of DSC visited all construction sites every month and arranged onsite training program for contractors and supervisory staff and instructed contractors for application of corrective action measures to mitigate impacts. **Table 3** shows detail of environment safeguard team for KEIIP.

Table 3: Details of KEIIP Environmental Safeguard Team

Designation	Name and Contact Details
PMU, Environment Specialist Safeguard Monitors in SMU	Name: Dr. Chinmoy Chakrabarti Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700017 Phone:033 2283 0169 Email:pdkeip@gmail.com, chin_moy@yahoo.com
DSC, Environment Specialist	Name: Dr. Samar Kumar Banerjee Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700 017 Phone:033 2283 0044, 9830415953 Email:dsckeip@gmail.com, samarbanerjee1@gmail.com,
DSC, Environmental Engineer	Name: Kakoli Bhattacharyya Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700 017 Phone:033 2283 0044, 9830592875 Email:dsckeip@gmail.com, bhattacharyyakakoli123@gmail.com

III ENVIRONMENTAL PROCEDURE REVIEW

A. Environmental Legal Requirement

14. For implementation of the project both national and state rules & regulations need to be followed. **Table 4** in next section indicates environment legal requirement for the projects under KEIIP.

B. Compliance with Environmental Legal Requirements

15. Before implementation of the project, compliance with environmental policy, law and legislation is necessary.

16. Under **Tranche 2** present status of Environment, forest and other clearances are mentioned below.

Table 4: Status of Compliance with National and State Legal Requirements (up to 30th June 2019)

Package	Main package work	National and State Legal Requirement Applicable to the sub-project	Status	Conditions of the Clearance/NOCs
KEIIP/NCB/Tr 2/SD-09/2016-17	Sewerage & Drainage-Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance	Water (Prevention and Control of Pollution) Act, 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 In case of setting up diesel generator	Are being followed Types of Generator (acoustic) being used.	

Package	Main package work	National and State Legal Requirement Applicable to the sub-project	Status	Conditions of the Clearance/NOCs
	of the Pumping Station	Consent to Establish (CTE) and Consent to Operate (CTO)	Do not require CTE and CTO	
KEIIP/NCB/Tr 2/SD-10T/2015-16	Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Survey work has been started; Provisions of the acts will be implemented during construction work.	
KEIIP/NCB/Tr 2/SD-11T/2016-17	Sewerage & Drainage: Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Survey work has been started; Provisions of the acts will be implemented during construction work.	
KEIIP/NCB/Tr 2/SD-12/2015-16	Laying of Trunk sewer along James Long Sarani by Micro-tunneling method	West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006- Tree felling permission Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	NOC received from Urban Forest Dept (via certificate no. 37 (o)/Clearance/17 dated 27.02.18) for felling of 30 nos. tree. During implementation of project compliance with Air Act, Noise Rules and Water Act will be required For acoustic type of Generator - not required	Plantation of 5 times of number of tree felling i.e 150 nos. of plantation of trees over 0.25 ha land of KMC along Taratala and DH Road completed which need proper maintenance for survival.
KEIIP/NCB/Tr 2/SD-13/2015-16	Development of Sewerage & Drainage Network within James Long Sarani and Mahatma Gandhi Road catchment in Borough XVI	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution)	Are being followed	

Package	Main package work	National and State Legal Requirement Applicable to the sub-project	Status	Conditions of the Clearance/NOCs
	(Part of Ward no. – 123 & 124)	Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/Tr 2/SD-14/2015-16	Laying of lateral sewers in Borough XIV (Part of Ward no. 128 to 132)	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/ Tr 2 /WS 15/2015-16	Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations and linking Pumping station mains for water supply in Joka and adjoining areas including Operation & Maintenance of the Pumping station	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/Tr 2/WS 16/2015-16	Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/Tr 2/WS 17A/2016-17	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act,	Are being followed Types of Generator (acoustic) are being	

Package	Main package work	National and State Legal Requirement Applicable to the sub-project	Status	Conditions of the Clearance/NOCs
	areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik	1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	used. Do not require CTE and CTO	
KEIIP/Tr 2/WS 17B/2016-17	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park	Water (Prevention and Control of Pollution) Act, 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/Tr 2/WS 18/ 2016-17	Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas	Water (Prevention and Control of Pollution) Act, 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/TR-2/SD19/2016-17	Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS	Water (Prevention and Control of Pollution) Act, 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/Tr 2/SD- 22/ 2016-17	Development of S&D Network in Churial Extension Canal sub basin in Borough XIII & XVI (Part of Ward No. 122, 123, 124) including laying of main trunk sewer by micro-tunneling method and construction of	West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006- Tree felling permission Water (Prevention and Control of Pollution) Act, 1974	NOC received from Urban Forest Dept (via certificate no. 48 (FUD/19 dated 22.07.19 for felling of 12 nos. tree. During implementation of	Plantation of 5 times of number of tree felling i.e 60 nos. of plantation of trees along Churial canal which need proper

Package	Main package work	National and State Legal Requirement Applicable to the sub-project	Status	Conditions of the Clearance/NOCs
	Churial Extension Pumping Station	The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	project compliance with Air Act, Noise Rules and Water Act will be required For acoustic type of Generator - not required	maintenance for survival.
KEIIP/NCB/Tr 2/WS 24/ 2016-17	Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	
KEIIP/NCB/TR-2/WS25/2017-18	Performance Based Contract for Water Loss Management in Anandapur Area and Patuli Area under Jai Hind WTP	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Work not started yet, will be implemented during construction work.	
KEIIP/NCB/TR-2/WS33/2017-18	Augmentation of storage capacity and transmission main under Jai Hind WTP- clear water reservoir, service main and electro mechanical works	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Are being followed Types of Generator (acoustic) are being used. Do not require CTE and CTO	

IV COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

17. There are 17 environment sensitive subprojects under implementation (as on 31st December 2019) under Tranche 2. Site Environment plan including site specific EMP was submitted by the contractor before starting of each construction packages. These EMPs are generally revised semi-annually as per progress of construction work. Sample Site Specific EMP was submitted previously in last five SEMR.

18. Environment Specialist from DSC and PMU regularly monitoring EMP implementation through desk review of contractor's records and site inspections. Package wise findings for the period July to December 2019 are presented in **Tables 5 and 6**.

19. Over all, most of the sites are environmentally well managed. However, in a few running packages, there were scopes for further improvement in site management measures as mentioned below,

- Use of PPEs (particularly working shoes/ gumboots, hand gloves) by contractors' at different work locations
- Use of caution tape/ barricade at few locations of running packages
- Inclusion of emergency contact no. and project detail at display/ caution board placed at few work sites of running packages
- arrangement for dust suppression and air quality improvement in all running packages.
- Improvement of access facility and housekeeping at few locations of running packages.
- Improvement of labor camp for few running projects

20. The concerned contractors were instructed verbally and also in writing. During subsequent field visits and from monitoring reports it was observed that necessary action to minimize such deficiencies has been undertaken by the respective Contractor and site management has considerably improved.

Table 5: Summarized Compliance to EMP Implementation for S&D Packages (Package No. SD 09, SD 12, SD 13, SD 14, SD 19, SD 22)

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
Pre Construction-Design phase											
1	Site clearance	Site preparation work including necessary clearance and permission.	<ul style="list-style-type: none"> Tree felling requirement – site environment plan. NOC – paper documents from line agency. Method - Site observation and document checking. 	Environment Specialist of DSC and PMU	All Project locations, before commencement of physical work.	Complied Tree felling not required.	Total 30 no. of trees has felled. NOC received from Urban Forest Dept (via certificate no. 37(o) Clearance/17 dated 27.02.18) for felling of 30 nos. tree. 150 nos. of trees already planted along J. L. Sarani and Taratala Road.	Complied Tree felling not required.	Complied Tree felling not required.	Complied Tree felling not required.	Complied Tree felling Permission has been obtained from Department of Forest, Government of India vide permit no. 40FUD/19 dated 22.07.19. Total 60 saplings has been planted for felling of 12 nos. of trees as a part of compensatory forestation scheme
2	Access to Site	<ul style="list-style-type: none"> maintained via existing roads Involvement of local Traffic Department in the planning stages for road closure traffic diversion. 	<ul style="list-style-type: none"> Involvement of traffic dept. Road closure planning Method – Site observation 	Environment Specialist of DSC and PMU	Specific project location	Site is accessible.	Site is accessible.	Working site is accessible, but improvement required.	Site is accessible.	Working site is accessible, but improvement required.	Site is accessible.
3	Affected utilities	Shifting of affected utilities like electric and telephone lines, cable lines, pipe lines etc.	<ul style="list-style-type: none"> List of affected utilities if any, contact operators. Ed document to include requirement for a contingency plan for service interruptions. Method - Site observation and document checking. 	Environment Specialist of DSC and PMU	Specific project location	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.
4	Water supply	Health risk due to damage in water supply line	<ul style="list-style-type: none"> Schedule of closure. Delivery of KVC potable water to affected people. Method - Site observation 	Environment Specialist of DSC and PMU	Specific project location	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented.	Environment Specialist of DSC and PMU	-	Complied Traffic management plan prepared and approved from traffic/ police dept. Copy	Complied Traffic management plan prepared and approved from	Complied. Traffic management plan prepared and approved from	Complied Traffic management plan prepared and approved from	Complied Traffic management plan prepared and approved from	Complied Traffic management plan prepared and approved from

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
			Method - Site observation and document checking.			available as back up with DSC.	traffic/ police dept. Copy available as backup with DSC.	traffic/ police dept. Copy available as backup with DSC.	traffic/ police dept. Copy available as backup with DSC.	traffic/ police dept. Copy available as backup with DSC.	traffic/ police dept. Copy available as backup with DSC.
6	Setting of construction camps, hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> Planning for setting up construction camp, hot mix plants, stockpile areas, storage and disposal areas – to be submitted to DSC for prior approval. Prioritize areas within or nearest possible vacant space in the sub-project location No use of residential areas No disposal of waste in water 	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas. Method - Site observation and document checking.	Environment Specialist of DSC and FMU	Camp and other sites, before start of physical work & Continuous	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status - Complied.	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status - Complied.	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status - partially complied.	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status - Complied.	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status - partially complied.	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status - Complied.
7	Establishing Equipment Lay-down and Storage Area ³	<ul style="list-style-type: none"> Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on-site topography and water erosion potential of the soil. Storage areas shall be secure so as to minimize the risk of crime. Away from school and direct residential areas Fire prevention facilities must be present at all storage facilities Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials These storage facilities (including any tanks) must be on an impermeable surface Staff must be aware of 	List of selected location and facility. Method - Site observation and document checking.	Environment Specialist of DSC and FMU	Proposed locations considered in the package. Before start of physical work & Continuous	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.

³ Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
		their potential impacts and follow the appropriate safety measures								
8	Education of site staff on general and Environmental Conduct	<ul style="list-style-type: none"> Ensure that all site personnel have a basic level of environmental awareness training All employees must undergo safety training and wear the necessary protective clothing 	Documentation— Training and awareness. Method- Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training continued for worker and recorded properly. Copy available as backup with DSC.	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Copy available as backup with DSC. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Copy available as backup with DSC. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Copy available as backup with DSC. Photographic evidences attached as appendix-3
9	Construction Materials Management – Sourcing	<ul style="list-style-type: none"> Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. Use of Govt. approved quarry sites for procurement of materials Verify suitability of all material sources and obtain approval from PMU/DSC 	<ul style="list-style-type: none"> List of approved quarry sites and sources of materials Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. Construction Contractor documentation Method - Site observation and document checking. 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Quarries and material source areas. Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist/ Environmental Engineer.	Completed Approval obtained from PMU and DSC as per requirement.	Completed Approval obtained from PMU and DSC as per requirement.	Completed Approval obtained from PMU and DSC as per requirement.	Completed Approval obtained from PMU and DSC as per requirement.	Completed Approval obtained from PMU and DSC as per requirement.
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement Train employees in the storage and handling of materials Remove all wedges, rubbish, or temporary structures 	<ul style="list-style-type: none"> Complaints from sensitive Receptors Water and sanitation facilities for employees Housekeeping— regular disposal of solid waste. Method – site observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Campsite. Same as above.	Labour camp established at Naluh pally. Drinking water and toilet facility available at camp. Overall status – partially completed.	Completed. Rented house arranged for labours with all facility.	Labour camp arranged at rented house at Bor Bagan Area. Drinking water and toilet facility available at camp. Overall status – Completed.	Labour camp not yet established, as they are utilizing the workforce from nearby locations.	Labour camp is arranged within project premises. Drinking water and toilet facility available at camp. Overall status – Completed.

⁴ These points need to be made clear to all staff on site before the sub project begin.

⁵ Materials must be sourced in a legal and sustainable way to prevent of site environmental degradation.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
11	Landscape and Aesthetics	<ul style="list-style-type: none"> Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures Fencing of storage areas Disposal of construction debris if any as per mitigation measures Prepare and implement Waste Management List Avoid stockpiling of excess excavated soils Coordinate with KMC for beneficial uses of excess excavated soils 	<ul style="list-style-type: none"> Waste Management List Complaints from sensitive receptors FMU/UDSC to report in writing that the necessary environmental restoration work has been done. Method – checking of records, visual observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations. Same as above.	Complied mostly. Utilization of excess earth is being done as per EMP. Spoil management plan applied as per EMP. Copy available as back up with DSC.	Complied. Spoil management plan applied as per EMP. Copy available as back up with DSC.	Excess earth is being disposed in low lying area as per instruction of Local councilor. Spoil management plan is applied as per EMP a copy is available as back up with DSC.	Complied. Utilization of excess earth is being done as per EMP. Spoil management plan applied as per EMP. Copy available as back up with DSC.	Partially complied. Solid waste is being managed according to the following preference hierarchy: reuse, recycling and disposal to designated areas. Copy of Spoil management plan available as back up with DSC.	Complied. Spoil management plan applied as per EMP. Copy available as back up with DSC.
12	Dust and Air Pollution ⁶	<ul style="list-style-type: none"> Selection of materials storage area Water sprinkling at construction site for arresting dust (if any during dry period) Use tarpaulins to cover sand and other loose material- Reducing dust hazard All vehicles and equipments mobilized to construction site and producing emission, have Pollution Under Control certification No fire wood burning is allowed on site Carry out air quality monitoring 	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data Heavy equipment and machinery with air pollution control Water sprinkling arrangement Cover materials. Method – checking of records, visual observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations, same as above.	Complied. Stock piles are covered to minimize dust generation. Sprinkling of water is also adopted as per the site requirement. Construction phase air quality monitoring is done as per the EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected. (Refer appendix -4, table 7 and figure 4 to 9)	Complied. Stock piles are covered to minimize dust generation. Sprinkling of water is also adopted as per the site requirement. Construction phase air quality monitoring is done as per the EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected. (Refer appendix -4, table 7 and figure 4 to 9)	Complied. Stock piles are covered to minimize dust generation. Sprinkling of water is also adopted as per the site requirement. Construction phase air quality monitoring is done as per the EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected. (Refer appendix -4, table 7 and figure 4 to 9)	Partially Complied. Location of stockpiles selected. Covering of materials done partially. Sprinkling of water done as per requirement. During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected. (Refer appendix -4, table 7 and figure 4 to 9)	Partially Complied. Location of stockpiles selected. Covering of materials done partially. Sprinkling of water done as per requirement. During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected. (Refer appendix -4, table 7 and figure 4 to 9)	Complied. Location of stockpiles selected. Covering of materials done partially. Sprinkling of water done as per requirement. During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected. (Refer appendix -4, table 7 and figure 4 to 9)

⁶ Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
13	Noise level	<ul style="list-style-type: none"> Noise producing work needs to be concluded at day time Regular maintenance of noise producing equipment Horns not be used unless it is necessary to warn other road users Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10m or more from the vehicle/s At sensitive locations, enclosures provided around generator set or other noise producing machinery. 	<ul style="list-style-type: none"> Complaints from sensitive receptors Use of silencers in noise-producing equipment and sound barriers Monitoring data. Method - checking of records, visual observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations, same as above.	Complied. No as such noise producing machinery mobilized at site. PPE supplied to workers and being utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). (Refer appendix- 4, table 8, figure 9 to 10)	Complied. Construction activities to be restricted at reasonable working hours near any sensitive receptor. Maintenance of silencers to all machinery is ensured. Adjacent land owners will be informed about noisy activities. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). (Refer appendix- 4, table 8, figure 9 to 10)	Complied. Construction activity is restricted within reasonable working hour and all machineries are in good working condition. Use of PPE is ensured among workers. Ambient noise level was monitored at project site during construction phase. (Complete result certificates available in DSC office as back up paper). (Refer appendix- 4, table 8, figure 9 to 10)	Complied. No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). (Refer appendix- 4, table 8, figure 9 to 10)	Complied. Construction activity is restricted within reasonable working hour and all machineries are in good working condition. Use of PPE is ensured among workers. Ambient noise level was monitored at project site during construction phase. (Complete result certificates available in DSC office as back up paper). (Refer appendix- 4, table 8, figure 9 to 10)	Complied. Recorded value of maximum sound level is within 75 dbA when measured at a distance of 10m or more from the vehicles (Complete result certificates available in DSC office as back up paper). (Refer appendix- 4, table 8, figure 9 to 10)
14	Stormwater management	Arrangement of drainage of waste water and arresting of solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> Areas for stockpiles, storage of fuels and lubricants and waste materials Number of silt traps installed along drainages (in slope) leading to water bodies. Method - checking of records, visual observation. 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations, same as above.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.
15	Water Quality	<ul style="list-style-type: none"> Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river Contractor to ensure every effort is made that any chemicals or 	Non entry of pollutant in water body. Method - site observation.	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	At present there is no water source nearby the project location.	No water source near the construction location.	No water source near the construction location.	No water source near the construction location.	No water source near the construction location.	No water source near the construction location.

⁷Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and water courses are detrimental to water quality.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
16	Conservation of Natural Environment	<ul style="list-style-type: none"> Contractor to ensure removal of only trees that have been marked beforehand Contractor to immediately re-vegetate stripped areas Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites. 	<p>Tree felling requirement and afforestation after final design.</p> <p>Method—checking of records, visual observation.</p>	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	No tree cutting as per present working condition	Tree cutting done as per rule and afforestation initiated as per guideline of Department of forest, Govt. of West Bengal	No tree cutting as per present working condition	No tree cutting as per present working condition	No tree cutting as per present working condition	Tree cutting done as per rule and afforestation initiated as per guideline of Department of forest, Govt. of West Bengal
17	Materials Management	<ul style="list-style-type: none"> Contractor to ensure stockpiles do not obstruct natural water pathways. Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor to ensure all concrete mixing take place on a designated, impermeable surface. 	<p>Stockpile management.</p> <p>Method—checking of records, visual observation.</p>	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Stockpile/ storage area	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas	Complied Stockpiling of materials done at designated areas	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> Develop and implement site-specific Health and Safety (H&S) Plan Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs H&S Training for all site personnel Documentation of work-related accidents; Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU Provide specific guidance for suitable 	<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 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	<p>Site-specific HSE Plan under implementation. The plan available with DSC.</p> <p>HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site.</p> <p>Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer appendix-5)</p>	<p>Site-specific Health and Safety (H&S) Plan under implementation. HSE plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Insurance arranged for the labors. No accident recorded till report period. Tie up with nearby health center/ hospital done. Overall</p>	<p>Site-specific HSE Plan under implementation. The plan available with DSC. HSE training is arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance is arranged for the Labours.. Tie up with nearby health center/ hospital done. Overall</p>	<p>Site-specific HSE Plan under implementation. The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall</p>	<p>Site-specific HSE Plan under implementation. The plan available with DSC. Construction site particularly shafts area are already barricaded. Trained workers assigned to dangerous equipment. HSE training arranged for the labors on regular basis. Drinking water and first aid box available at site. Use of PPEs and high visibility</p>	<p>Site-specific Health and Safety (H&S) Plan under implementation. HSE plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Insurance arranged for the labors. No accident recorded till report period. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory.</p>

Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
	<ul style="list-style-type: none"> • HSE for every onsite work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. 	<ul style="list-style-type: none"> • protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms. • Method - checking of records, visual observation. 				Overall compliance is satisfactory. (Refer appendix -5)	compliance is satisfactory. (Refer appendix -5)	compliance is satisfactory. (Refer appendix -5)	vests are ensured. Site Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer appendix -5)	(Refer appendix -5)
19 Social Impacts - Community Health & safety, accessibility	<ul style="list-style-type: none"> • Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles • Consideration of public safety - as per 	<ul style="list-style-type: none"> • Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed at subproject location. • Method - checking of records, visual observation. 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	Complied. Caution tape placed around excavated and working area as and when required. Sufficient access maintained.	Complied. Caution tape placed around excavated and working area as and when required. Sufficient access maintained. Emergency contact number displayed.	Caution tape/ barricade placed around excavated area. Improvement is noted. Particularly inclusion of all emergency contact no. in display board is required.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly. Emergency contact number displayed.	Restricted activities and movement of staff to designated construction areas. Project site is barricaded to protect pedestrians.	Caution tape/ barricade placed around excavated area. Safety signage used. Emergency contact number displayed.

⁸ Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation SD09	Compliance Status/ Explanation SD12	Compliance Status/ Explanation SD13	Compliance Status/ Explanation SD14	Compliance Status/ Explanation SD19	Compliance Status/ Explanation SD22
		<p>prescribed mitigation measures</p> <ul style="list-style-type: none"> Contractors to ensure lighting on the construction site Provide protective fencing around open trenches Provide road signs and flag persons to warn Schedule transport and hauling activities during non-peak hours 									
20	Socio cultural resources	<ul style="list-style-type: none"> Strictly follow the protocol for chance archaeological finds in any excavation work Stop work immediately to allow further investigation if any finds are suspected 	Chance find protocol. Method - Checking of records	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date
21	Employment generation	<ul style="list-style-type: none"> The use of labor intensive construction measures will be used where appropriate Employ local (unskilled) labor if possible Training of labor to benefit individuals beyond completion of the subproject 	Employment record. Method - Checking of records	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	Local labours are engaged as much as possible.	At present local labours are mostly engaged.	Local labours are engaged as much as possible.	At present local labours are mostly engaged.	Local labours are engaged as much as possible.	Local labours are engaged as much as possible.

Note: Package SD 10 Tand SD 11T, NTP have been issued to contractors and contractors started surveying only – hence no environmental monitoring reported

Table 6: Summarize Compliance to EMP Implementation for WS Packages (Package No. WS 15, WS 16, WS 17A, WS 17B, WS 18, WS 24, WS 33)

Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
PreConstruction-Design phase											
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> Tree felling requirement – site environment plan. NOC – paper documents from line agency. Method - Site observation and document checking. 	Environment Specialist of DSC and FMU	All Project locations, before commencement of physical work	Complied Tree felling not required.	Complied Tree felling not required.	Complied Tree felling not required.	Complied Tree felling not required.	Complied Tree felling not required.	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> maintained via existing roads Involvement of local Traffic Department in the planning stages for road closure traffic diversion. 	<ul style="list-style-type: none"> Involvement of traffic dept. Road closure planning Method – Site observation 	Environment Specialist of DSC and FMU	Specific project location	Working site is accessible, but need improvement.	Working site is accessible.	Working site is accessible, but need improvement	Working site is accessible, but need improvement	Working site is accessible.	Working site is accessible.
3	Affected utilities	Shifting of affected utilities like electric and telephone lines, pipe lines etc.	<ul style="list-style-type: none"> List of affected utilities if any and contact operators. Bid document to include requirement for a contingency plan for service interruptions. Method - Site observation and document checking. 	Environment Specialist of DSC and FMU	Specific project location	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.	Done as per requirement with the help of concerned authority.
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> Schedule of closure Delivery of KVC of potable water to affected people. Method - Site observation and record checking. 	Environment Specialist of DSC and FMU	Specific project location	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work	Not required as per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented.	Environment Specialist of DSC and FMU	-	Not required as per present scope of work.	Complied Traffic management plan prepared and approved by traffic	Complied Traffic management plan prepared and approved by traffic	Complied Traffic management plan prepared and approved by traffic	Not required as per present scope of work.	Complied Traffic management plan prepared and approved by traffic

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
			Method - Site observation and document checking.				police dept. Copy available as back up with DSC.	police dept. Copy available as back up with DSC.	police dept. Copy available as back up with DSC.		police dept. Copy available as back up with DSC.	
6	Setting of construction camps, hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas Prioritize areas within or nearest possible vacant space in the subproject location Non use of residential area Arrangement of toilet and drinking water facility No disposal of waste in water 	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas. Method - Site observation and document checking.	Environment Specialist of DSC and FMU	Camp and other sites before start of physical work & Continuous	Setting of hot mix plant not required. Stockpile and storage area demarcated. Overall status.	Setting of hot mix plant not required. Stockpile and storage area demarcated.	Setting of hot mix plant not required. Stockpile and storage area demarcated.	Setting of hot mix plant not required. Stockpile and storage area demarcated.	Setting of hot mix plant not required. Stockpile and storage area demarcated.	Setting of hot mix plant not required. Stockpile and storage area demarcated.	Setting of hot mix plant not required. Stockpile and storage area demarcated.
7	Establishing Equipment Lay-down and Storage Area ⁹	<ul style="list-style-type: none"> Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on-site topography and water erosion potential of the soil. Storage areas shall be secure so as to minimize the risk of crime. Away from school and direct residential areas Fire prevention facilities must be present at all storage facilities Proper storage facilities for the storage of oils, paints, grease, 	List of selected location and facility. Method - Site observation and document checking.	Environment Specialist of DSC and FMU	Proposed locations considered in the package. Before start of physical work & Continuous	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.	Complied. Proper storage of fuels, lubricants done. Equipment lay-down area demarcated.

⁹ Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
		<ul style="list-style-type: none"> fuels, chemicals and any hazardous materials These storage facilities (including any tanks) must be on an impermeable surface Staff must be aware of their potential impacts and follow the appropriate safety measures 										
8	Education of site staff on general and Environmental Conduct ¹⁰	<ul style="list-style-type: none"> Ensure that all site personnel have a basic level of environmental awareness training. All employees must undergo safety training and wear the necessary protective clothing 	Documentation- Training and awareness. Method-Materials and records on awareness training program	Environment Specialist of DSC and FMU	-	Site Safety training continued for worker and recorded properly.	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3	Site Safety training continued for worker and recorded properly. Photographic evidences attached as appendix-3
Construction												
9	Materials Management - Sourcing ¹¹	<ul style="list-style-type: none"> Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. Use of Govt. approved quarry sites for procurement of materials Verify suitability of all material sources and obtain approval of Investment from 	<ul style="list-style-type: none"> List of approved quarry sites and sources of materials Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. Construction Contractor documentation Method - Site observation and document checking. 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Quarries and material source areas. Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist/ Environmental Engineer.	Complied Approval obtained from FMU and DSC as per requirement	Complied Approval obtained from FMU and DSC as per requirement	Complied Approval obtained from FMU and DSC as per requirement	Complied Approval obtained from FMU and DSC as per requirement	Complied Approval obtained from FMU and DSC as per requirement	Complied Approval obtained from FMU and DSC as per requirement	Complied Approval obtained from FMU and DSC as per requirement

¹⁰ These points need to be made clear to all staff on site before the sub project begin.

¹¹ Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement Train employees in the storage and handling of materials Remove all wreckage, rubbish, or temporary structures 	<ul style="list-style-type: none"> Complaints from sensitive Receptors Water and sanitation facilities for employees Housekeeping – regular disposal of solid waste. Method – site observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Campsite. Same as above.	Labour camp constructed at each of the working locations. Drinking water and toilet facility available at camp. Housekeeping need to be improved. Overall status – Partially Complied.	Labour camp arranged at rented house. Drinking water and toilet facility available at camp. Overall status – Complied.	Not required now, as most of the labours engaged in work are from nearby areas.	Not required now, as most of the labours engaged in work are from nearby areas.	Labour camp constructed at each of the working locations. Drinking water and toilet facility available at camp. Overall status – Complied.	Labour camp arranged at rented house near J. L Sarani. Drinking water and toilet facility available at camp. Overall status – Complied.	Labour camp arranged within the premise of Jai Hind Water Works. Drinking water and toilet facility available at camp. Housekeeping need to be improved. Overall status – Partially Complied.
11	Landscape and Aesthetics	<ul style="list-style-type: none"> Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures Fencing of storage areas Disposal of construction debris if any as per mitigation measures Prepare and implement Waste Management List Avoid stockpiling of excess excavated soils Coordinate with KVC for beneficial uses of excess excavated soils 	<ul style="list-style-type: none"> Waste Management List Complaints from sensitive receptors FMU/UDSC to report in writing that the necessary environmental restoration work has been done. Method – checking of records, visual observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations. Same as above.	Partially complied. Excess earth need to be disposed completely, at earliest. Spoil management plan applied partially as per EVP. Copy available as back up with DSC.	Complied mostly. Utilization of excess earth done as per EVP. Spoil management plan applied as per EVP. Copy available as back up with DSC.	Complied mostly. Utilization of excess earth done as per EVP. Spoil management plan applied as per EVP. Copy available as back up with DSC.	Complied mostly. Utilization of excess earth done as per EVP. Spoil management plan applied as per EVP. Copy available as back up with DSC.	Complied mostly. Utilization of excess earth done as per EVP. Spoil management plan applied as per EVP. Copy available as back up with DSC.	Complied mostly. Utilization of excess earth done as per EVP. Spoil management plan applied as per EVP. Copy available as back up with DSC.	Complied mostly. Utilization of excess earth done as per EVP. Spoil management plan applied as per EVP. Copy available as back up with DSC.
12	Dust and Air Pollution ¹²	<ul style="list-style-type: none"> Selection of materials storage area Water sprinkling at construction site for arresting dust (if any during dry 	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data Heavy 	For mitigation - contractor, for monitoring - Environment Specialist of	Project Locations, same as above.	Partially Complied. Location of stockpiles selected. Covering of materials done	Partially Complied. Location of stockpiles selected. Covering of materials done	Partially Complied. Location of stockpiles selected. Covering of materials done	Partially Complied. Location of stockpiles selected. Covering of materials done	Partially Complied. Location of stockpiles selected. Covering of materials done	Partially Complied. Location of stockpiles selected. Covering of materials done	Partially Complied. Location of stockpiles selected. Covering of materials done

¹² Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33	
	<ul style="list-style-type: none"> Use tarpaulins to cover sand and other loose material- Reducing dust hazard All vehicles and equipments mobilized to construction site and producing emission, have Pollution Under Control certification No fire wood burning is allowed onsite Carry out air quality monitoring 	<ul style="list-style-type: none"> equipment and machinery with air pollution control Water sprinkling arrangement Cover materials. Method - checking of records, visual observation 	DSC and FMU.		partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments Procured Refer table 7, appendix - 4 and figures 4 to 9	partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments produced Refer table 7, appendix - 4 and figures 4 to 9	partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments produced Refer table 7, appendix - 4 and figures 4 to 9	partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments produced Refer table 7, appendix - 4 and figures 4 to 9	partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments produced Refer table 7, appendix - 4 and figures 4 to 9	partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments produced Refer table 7, appendix - 4 and figures 4 to 9	partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments produced Refer table 7, appendix - 4 and figures 4 to 9	
13	Noise level	<ul style="list-style-type: none"> Noise producing work needs to be conducted at day time Regular maintenance of noise producing equipment Horns not be used unless it is necessary to warn other road users Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10m or more from the vehicles At sensitive locations, enclosures provided around generator set or 	<ul style="list-style-type: none"> Complaints from sensitive receptors Use of silencers in noise-producing equipment and sound barriers Monitoring data. Method - checking of records, visual observation 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations, same as above.	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)	Complied No as such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper). Refer table 8, appendix - 4 and figures 10 & 11)

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
		other noise producing machinery.										
14	Stormwater management	Arrangement of drainage of waste water and arresting of solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> • Areas for stockpiles, storage of fuels and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies. • Method – checking of records, visual observation. 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations, same as above.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.	Complied. Arrangement of drainage of waste water from construction site is maintained.
15	Water Quality ¹³	<ul style="list-style-type: none"> • Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river. • Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site. 	No entry of pollutant in water body. Method – site observation.	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	No water source near the construction location.						
16	Conservation of Natural Environment	<ul style="list-style-type: none"> • Contractor to ensure removal of only trees that have been marked beforehand • Contractor to immediately re-vegetate stripped areas 	Tree felling requirement and afforestation after final design. Method – checking of records, visual observation.	For mitigation - contractor, for monitoring - Environment Specialist of DSC and PMU.	Project Locations	No tree cutting as per present working condition	No tree cutting as per present working condition	No tree cutting as per present working condition	No tree cutting as per present working condition	No tree cutting as per present working condition	No tree cutting as per present working condition	No tree cutting as per present working condition

¹³Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and water courses are detrimental to water quality.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
		<ul style="list-style-type: none"> Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites. 										
17	Materials Management	<ul style="list-style-type: none"> Contractor to ensure stockpiles do not obstruct natural water pathways. Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor to ensure all concrete mixing take place on a designated, impermeable surface. 	Stockpile management Method—checking of records, visual observation.	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Stockpile/ storage area	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.	Complied Stockpiling of materials done at designated areas.
18	Occupational Health & safety	<ul style="list-style-type: none"> Develop and implement site-specific Health and Safety (H&S) Plan Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs H&S Training for all site personnel Documentation of work-related accidents; Designate a focal person and undertake safeguards orientation by FMU/PIU Provide specific guidance for suitable PPE for every on-site work 	<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 equipments Sign boards for hazardous areas such as energized electrical 	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory.	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer	Site-specific HSE Plan under implementation The plan available with DSC. HSE training arranged for the labours on regular basis. Drinking water and first aid box available at site. Use of PPEs partially satisfactory at site. Insurance arranged for the Labours. Tie up with nearby health center/ hospital done. Overall compliance is satisfactory. (Refer appendix 5)

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
		assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.	devices and lines, service rooms. • Method – checking of records, visual observation.			(Refer appendix -5)	satisfactory. (Refer appendix -5)	appendix -5)	(Refer appendix -5)	appendix -5)	compliance is satisfactory. (Refer appendix -5)	
19	Social Impacts ¹⁴ - Community Health & safety, accessibility	• Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets	• Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed at subproject location. • Method – checking of records, visual observation.	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly.

¹⁴ Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Environmental Issues	Mitigation Activities and Method	Parameters monitored & Monitoring method adopted	Responsible for Mitigation & Monitoring	Location & Date of Monitoring	Compliance Status/ Explanation WS15	Compliance Status/ Explanation WS16	Compliance Status/ Explanation WS17A	Compliance Status/ Explanation WS17B	Compliance Status/ Explanation WS18	Compliance Status/ Explanation WS24	Compliance Status/ Explanation WS33
		<p>where required to maintain access across for people and vehicles</p> <ul style="list-style-type: none"> • Consideration of public safety - as per prescribed mitigation measures • Contractors to ensure lighting on the construction site • Provide protective fencing around open trenches • Provide road signs and flag persons to warn • Schedule transport and hauling activities during non-peak hours 										
20	Socio cultural resources	<ul style="list-style-type: none"> • Strictly follow the protocol for chance archaeological finds in any excavation work • Stop work immediately to allow further investigation if any finds are suspected 	Chance finds protocol. Method - Checking of records	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given	Not required till date. Instruction has been given
21	Employment generation	<ul style="list-style-type: none"> • The use of labor intensive construction measures will be used where appropriate • Employ local (unskilled) labor if possible • Training of labor to benefit individuals beyond completion of the subproject 	Employment record. Method - Checking of records	For mitigation - contractor, for monitoring - Environment Specialist of DSC and FMU.	Project Locations	Local labours are engaged as much as possible.	Local labours are engaged as much as possible.	At present local labours are mostly engaged.	At present local labours are mostly engaged.	Local labours are engaged as much as possible.	Local labours are engaged as much as possible.	Local labours are engaged as much as possible.

Note: work withheld for Padegeno. WS25, hence no environmental monitoring reported

V. ENVIRONMENTAL MONITORING AND EVALUATION

21. 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. For **Tranche 2** subprojects, the parameters to be monitored are ambient air quality and noise levels and drinking water quality .

22. During report period during construction air quality and noise level monitoring has been conducted for most of the packages except SD 10, SD 11 and WS 25¹⁵.

23. Air quality monitoring results are shown in **Table 7** and comparison with standards has been presented in **Figures 4 to 9**. All test certificates are available in DSC office as back up paper.

24. Salient findings from air quality monitoring are as follows,

- In all cases concentration of SO₂ is within the prescribed standard. Value of SO₂ was maximum (15.43 µg/m³) at SD 09 package location.
- In all cases concentration of NO_x is within the prescribed standard. Concentration of NO_x found maximum (49.5 µg/m³) at SD 12 package location.
- In most of the cases concentration of PM_{2.5} is above the prescribed standard. Maximum concentration of 106.0 µg/m³ was noted for the package WS 17A. High PM_{2.5} concentration is not only due to different construction activity at that specific site but also for different vehicular movement, other anthropogenic activities and seasonal effect¹⁶. For understanding increasing or decreasing trend monitoring will be conducted throughout the construction phase. Dust generation for short period is being suppressed by adopting dust suppression measures time to time.
- In most of the cases concentration of PM₁₀ was above the prescribed standard. Maximum concentration of 177 µg/m³ was noted for the package WS 24. High PM₁₀ concentration is not only due to different construction activity at that specific site but also for different vehicular movement, other anthropogenic activities and seasonal effect. For understanding increasing or decreasing trend monitoring will be conducted throughout the construction phase. Dust generation for short period is being suppressed by adopting dust suppression measures time to time.
- In overall, base line monitoring air quality parameters (specifically particulate matter) are comparatively higher and above the standard for few packages. Those are basically generation of dust at local area.
- In all the cases concentration of Hydrocarbon is below the detection limit.
- Contractors are being advised regularly to take necessary action on dust suppression (during dry periods) by sprinkling of water whenever required.

¹⁵ SD 10 and SD 11 have been terminated and work withheld in WS -25 just started

¹⁶ Long dry summerr

Table 7: Ambient Air Quality Status at Working Sites

Construction Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters , $\mu\text{g}/\text{m}^3$				
				SO ₂	NO ₂	PM _{2.5}	PM ₁₀	HC
Construction of sewerage & drainage network in Thakurpara & Purba Putiary Catchment and Construction of Keorapukur PS in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIIP /NCB/ Tr-2/SD-09/ 2016-17)	Keorapukur Pumping Station	During Construction	31.01.20	9.0	37.6	92	164	ND
	Katpool Road	During Construction	28.01.20	9.2	39.1	82	144	ND
Laying of Trunk sewer along James Long Sarani by micro tunneling method (KEIIP/NCB/ Tr-2/SD-12 / 2015-16)	James Long Sarani	During Construction	09.12.19	17.31	46.98	36.2	89.36	ND
Development of Sewerage & Drainage Network within James Long Sarani& Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIIP/NCB/ Tr-2/SD-13 / 2015-16)	Chandicharan Road	During Construction	06.12.19	11.0	43.9	50.0	89.0	ND
	Das Para Road	During Construction	06.12.19	11.0	43.9	52.0	92.0	ND
Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIIP /NCB/ Tr-2/SD-14/ 2015-16)	Parui pacca Road	During Construction	06.12.19	8.2	41.0	45.0	90.0	ND
	L.N.Motilal road	During Construction	06.12.19	8.4	38.2	46.0	88.0	ND
Construction of underground reservoirs & overhead reservoirs, Pumping Stations and linking Pumping Station Mains for Water supply in Joka& adjoining areas including operation & maintenance of the pumping station (KEIIP/NCB/ Tr-2/WS-15)	Prantik Site	During Construction	02.12.19	4.5	45.8	25.0	65.0	ND
	North West site	During Construction	02.12.19	4.6	32.9	38.3	67.1	ND
	North East	During Construction	02.12.19	4.6	54.5	28.0	55.0	ND
	22 Bigha	During Construction	02.12.19	4.1	46.2	28.0	64.0	ND
Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIIP/NCB/Tr 2/WS 16/2015-16)	M.G. Road	During Construction	17.12.19	11.29	19.69	32.21	74.79	ND
	Kabardanga Stock Yard	During Construction	17.12.19	15.4	23.44	34.0	85.66	ND
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik	Netaji Palli	During Construction	03.01.20	10.2	37.8	51.0	96.0	ND
	Aurobinda Nagar	During Construction	03.01.20	9.8	38.7	50.0	94.0	ND

Construction Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters , $\mu\text{g}/\text{m}^3$				
				SO ₂	NO ₂	PM _{2.5}	PM ₁₀	HC
Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIIP/Tr 2/WS 17A/2016-17)								
Laying of water supply distribution network including household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIIP/Tr 2/WS 17B/2016-17)	Kalagachia main road	During Construction	06.12.19	12.4	48.8	51	96	ND
	Nabapally main road	During Construction	06.12.19	12.2	47.3	57.0	98.0	ND
Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantapur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr 2/WS 18/2016-17)	Malpara ESR	During Construction	18.12.19	15.27	21.33	29.96	75.56	ND
	Charaktala Road	During Construction	18.12.19	12.22	22.5	28.68	78.19	ND
	Ramkantapur ESR	During Construction	18.12.19	10.18	18.55	27.5	77.56	ND
	Charaktala ESR	During Construction	18.12.19	13.23	20.63	32.46	80.65	ND
Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS (KEIIP/NCB/Tr 2/SD-19/2016-17)	Banerjee Para Road	During Construction	03.01.20	10.1	36.7	46	89	ND
	Kudghat P.S.	During Construction	03.01.20	9.5	38.8	48	91	ND
Development of S& D Network in churial Extension Canal sub basin in Borough XIII & xvi (Part of Ward no. 122,123 ,124) including laying of trunk sewer by micro tunneling method and construction of Churial Extension Pumping Station (KEIIP/NCB/TR-2/SD22/2016-17)	Shaft No. 3	During Construction	26.12.19	9.3	35.2	46	82	ND

Construction Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters , $\mu\text{g}/\text{m}^3$				
				SO ₂	NO ₂	PM _{2.5}	PM ₁₀	HC
Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani (KEIIP/NCB/Tr 2/WS 24/2016-17)	Satyen Roy Road J.L Sarani(WS-24)	During Construction	03.01.20	9.5	40.6	48	87	ND
	Gour Nagar J.L sarani	During Construction	03.01.20	9.8	41	51	89	ND
Augmentation of storage capacity and transmission main under Jai Hind WTP- clear water reservoir, service main and electro mechanical works (KEIIP/NCB/TR-2/WS33/2017-18)	Jai Hind WTP Premise Near Control room (KMC office)	During Construction	12.12.19	3.2	45.37	29	71.62	
		Standard		80.0	80.0	60.0	100.0	

25. Construction stage ambient noise level data are presented in **Table 8**. During construction average noise level (both day and night) is above the standard at all the monitoring locations (Refer **Figure 10 and 11**). High noise concentration is not only due to different construction activity¹⁷ at that specific site but also for different vehicular movement, other anthropogenic activities and seasonal effect¹⁸. Baseline noises in all the sites were found higher than the national standards of the residential areas. For understanding increasing or decreasing trend monitoring will be conducted throughout the construction phase. In all the cases mitigation measures need to be applied as per site specific EMP. Particularly use of ear plugs by workers at high noise producing area is necessary. It is ensured that the contractors will strictly implement the action plan as per EMP for reduction of noise level and minimization of noise impact.

26. "During construction" air quality, noise level and water quality monitoring will be continued for the packages as per Environment Management and Monitoring Plan. All monitoring expenses will be borne by contractors from their project Health safety monitoring budget.

27. A performance monitoring fact sheet has been prepared to facilitate tracking and quick reference on environmental monitoring of Tranche 2 subproject packages (**Tables 9 and 10**).

Table 8: Noise Level Monitoring Data at Working Sites

Package No.	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
Construction of sewerage & drainage network in Thakurpara & Purba Putiary Catchment and Construction of Keorapukur PS in Ward 114, Borough XI including Operation & Maintenance of	Keorapukur Pumping Station	During Construction	28.01.20	63.8	54.1
	Katpool Road	During Construction	28.01.20	62.0	53.7

¹⁷ No major construction noise producing activities at sites and mostly no activity at night, Generators in use are mostly green and acoustic generators .

¹⁸ Winter season

Package No.	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
the Pumping Station (KEIIP /NCB/ Tr-2/SD-09/2016-17)					
Laying of Trunk sewer along James Long Sarani by micro-tunneling method (KEIIP/NCB/ Tr-2/SD-12 / 2015-16)	James Long Sarani	During Construction	09.12.19	64.7	60.3
Development of Sewerage & Drainage Network within James Long Sarani & Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIIP/NCB/ Tr-2/SD-13/ 2015-16)	Chandicharan Road	During Construction	06.12.19	64.5	53.8
	Daspara road	During Construction	06.12.19	64.5	54.8
Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIIP /NCB/	Parui pacca Road	During Construction	06.12.19	63.9	53.0
	L.N.Motilal road	During Construction	06.12.19	64.0	50.8
Construction of underground reservoirs & overhead reservoirs, Pumping Stations and linking Pumping Station Mains for Water supply in Joka & adjoining areas including operation & maintenance of the pumping station (KEIIP/NCB/ Tr-2/WS-15/ 2015-16)	22 Bigha	During Construction	02.12.19	72.9	-
	Noth west site	During Construction	02.12.19	70.7	-
	Prantik Site	During Construction	02.12.19	71.3	
	North East site	During Construction	02.12.19	73.5	
Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIIP/NCB/Tr-2/WS-16/2015-16)	Kabardanga Stock Yard	During Construction	17.12.19	56.66	-
	M.G. Road	During Construction	17.12.19	65.95	-
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIIP/Tr 2/WS-17A/2016-17)	Kalitola Road	Baseline	19.12.17	52.6	43.2
	Bakulbithi	During Construction	09.04.19	60.6	53.0
	Srijoni	During Construction	09.04.19	64.4	52.3
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia	Satyen park	Baseline	19.12.17	51.9	42.0
	Bakrahat Road	During Construction	08.04.19	64.4	52.3
	Diamond Park	During Construction	08.04.19	64.9	54.3

Package No.	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIIP/Tr 2/WS-17B/2016-17)					
Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr-2/WS-18/2016-17)	Malpara ESR	During Construction	17.12.19	61.84	-
	Charaktala ESR	During Construction	17.12.19	56.36	-
	Charaktala road	During Construction	17.12.19	63.13	-
	Ramkantapur ESR	During Construction	17.12.19	57.82	
Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS (KEIIP/NCB/Tr-2/SD-19/2016-17)	Banerjee para road	During Construction	03.01.20	61.7	53.4
	Kudghat P.S.	During Construction	03.01.20	62.9	53.1
Development of S& D Network in churial Extension Canalsub basin in Borough XIII & xvi (Part of Ward no. 122,123 ,124) including laying of trunk sewer by micro tunneling method and construction of Churial Extension Pumping Station (KEIIP/NCB/TR-2/SD-22/2016-17)	Shaft no. 3	During Construction	24.12.19	62.4	-
Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani (KEIIP/NCB/Tr-2/WS-24/2016-17)	Satyen Roy road, J.L sarani (WS – 24)	During Construction	03.01.20	64	53.9
	Gour Nagar J.L sarani(WS – 24)	During Construction	03.01.20	63.9	54.0
Augmentation of storage capacity and transmission main under Jai Hind WTP- clear water reservoir, service main and electro mechanical works (KEIIP/NCB/TR-2/WS33/2017-18)	Jai Hind WTP Premise Near Control room (KMC office)	During construction	12.12.19	52.56	-

Package No.	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
		Standard			
				R- Residential, C- Commercial, I- Industrial Standard Day time: Industrial area:75 Commercial: 65 Residential area: 55 Night time: Industrial area:70 Commercial: 55 Residential area: 45	

Table 9: Drinking water quality Monitoring Data at Working Sites

Construction Package	Monitoring location	Monitoring stage	Date of monitoring	Water quality parameters				
				pH	Fe mg/l	As mg/l	Total coliform (MPN/100) ml	Faecal coliform (MPN/100) ml
Construction of sewerage & drainage network in Thakurpara & Purba Putiary Catchment and Construction of Keorapukur PS in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIIP/NCB/ Tr-2/SD-09/ 2016-17)	Keorapukur Pumping Station	During Construction	28.01.20	7.4	0.14	<0.01	ND	ND
Laying of Trunk sewer along James Long Sarani by micro tunneling method (KEIIP/NCB/ Tr-2/SD-12 / 2015-16)	-	-	-	-	-	-	-	-
Development of Sewerage & Drainage Network within James Long Sarani& Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIIP/NCB/ Tr-2/SD-13 / 2015-16)	Chandicharan Road	During Construction	06.12.19	7.0	0.32	<0.01	ND	ND
	Das Para Road	During Construction	06.12.19	7.2	0.19	<0.01	ND	ND
Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIIP /NCB/ Tr-2/SD-14/ 2015-16)	Parui pacca Road	During Construction	06.12.19	7.7	0.18	<0.01	ND	ND
	L.N.Motilal road	During Construction	06.12.19	8.2	0.24	<0.01	ND	ND
Construction of underground reservoirs & overhead reservoirs, Pumping Stations and linking Pumping Station Mains for Water supply in								

Construction Package	Monitoring location	Monitoring stage	Date of monitoring	Water quality parameters				
				pH	Fe mg/l	As mg/l	Total coliform (MPN/100) ml	Faecal coliform (MPN/100) ml
Joka & adjoining areas including operation & maintenance of the pumping station (KEIIP/NCB/ Tr-2/WS-15)	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIIP/NCB/Tr 2/WS 16/2015-16)	M.G. Road	During Construction	17.12.19	7.0	0.28	<0.01	ND	ND
	Kabardanga Stock Yard	During Construction	17.12.19	8.1	0.33	<0.01	ND	ND
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIIP/Tr 2/WS 17A/2016-17)	Netaji Palli	During Construction	24.12.19	7.16	0.16	<0.01	ND	ND
	Aurobinda Nagar	During Construction	24.12.19	7.46	0.14	<0.01	ND	ND
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIIP/Tr 2/WS 17B/2016-17)	Kalagachia main road	During Construction	29.11.19	7.8	0.21	<0.01	ND	ND
	Nabapally main road	During Construction	29.11.19	8.1	0.19	<0.01	ND	ND
Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr 2/WS 18/2016-17)	Malpara ESR	During Construction	18.12.20	7.02	-	<0.01	ND	ND
Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115	Banerjee Para Road	During Construction	28.12.19	7.36	0.16	<0.01	ND	ND

Construction Package	Monitoring location	Monitoring stage	Date of monitoring	Water quality parameters				
				pH	Fe mg/l	As mg/l	Total coliform (MPN/100) ml	Faecal coliform (MPN/100) ml
and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS (KEIIP/NCB/Tr 2/SD-19/2016-17)								
Development of S& D Network in churial Extension Canal sub basin in Borough XIII & xvi (Part of Ward no. 122,123 ,124) including laying of trunk sewer by micro tunneling method and construction of Churial Extension Pumping Station (KEIIP/NCB/TR-2/SD22/2016-17)	-	-	-	-	-	-	-	-
Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani (KEIIP/NCB/Tr 2/WS 24/2016-17)	Gour Nagar J.L sarani (WS-24)	During Construction	23.12.19	7.7	0.18	<0.01	ND	ND
	Satyen Roy road	During Construction	23.12.19	7.43	0.08	<0.01	ND	ND
Augmentation of storage capacity and transmission main under Jai Hind WTP- clear water reservoir, service main and electro mechanical works (KEIIP/NCB/TR-2/WS33/2017-18)	Jai Hind WTP Premise Near Control room (KMC office)	During Construction	12.12.19	7.2	0.26	<0.01	ND	ND
		Standard**		6.5 to 8.5	0.3	0.05	ND	ND

** As per 10,500, 2012

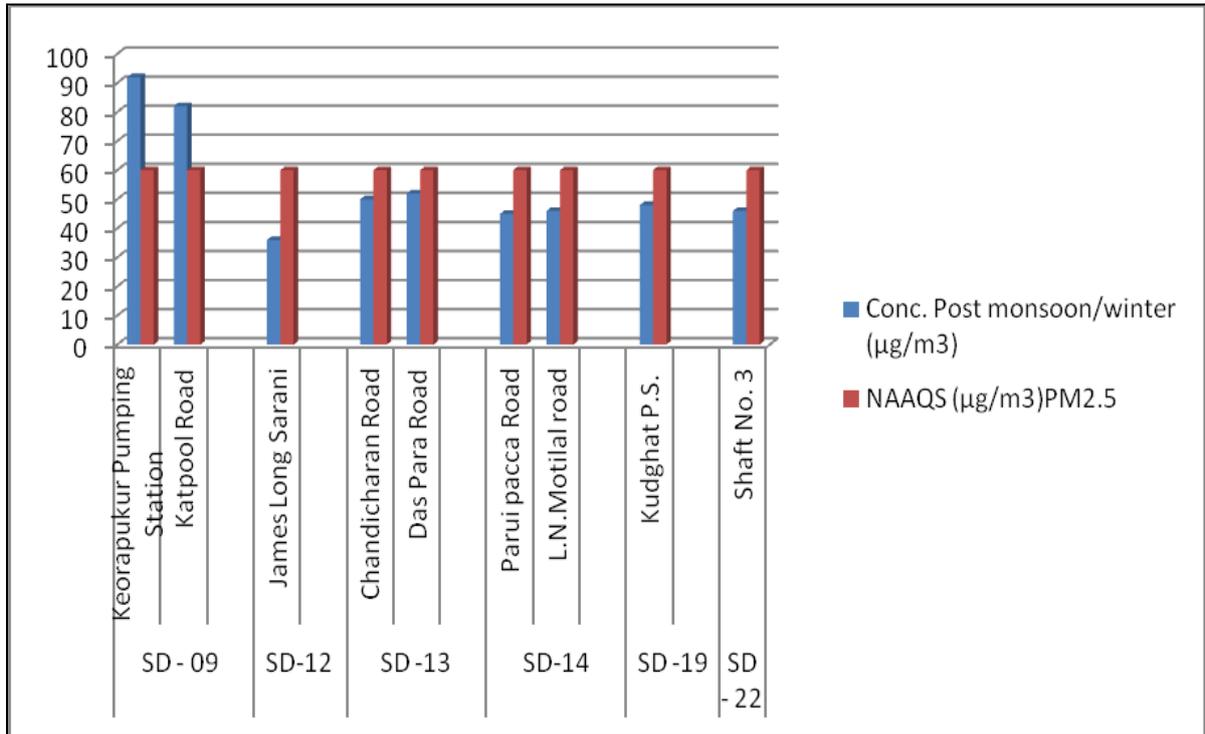


Figure 4: Status of PM2.5 in S&D network packages of Tranche-2

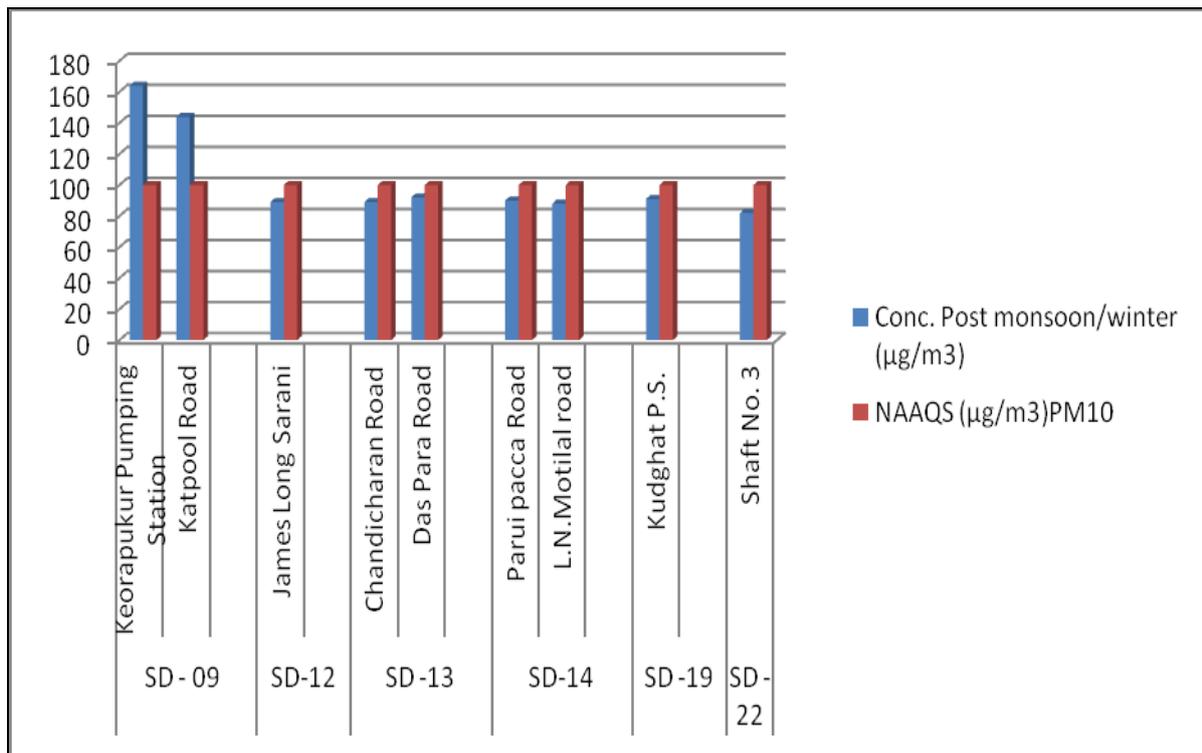


Figure 5: Status of PM10 in S&D network packages of Tranche-2

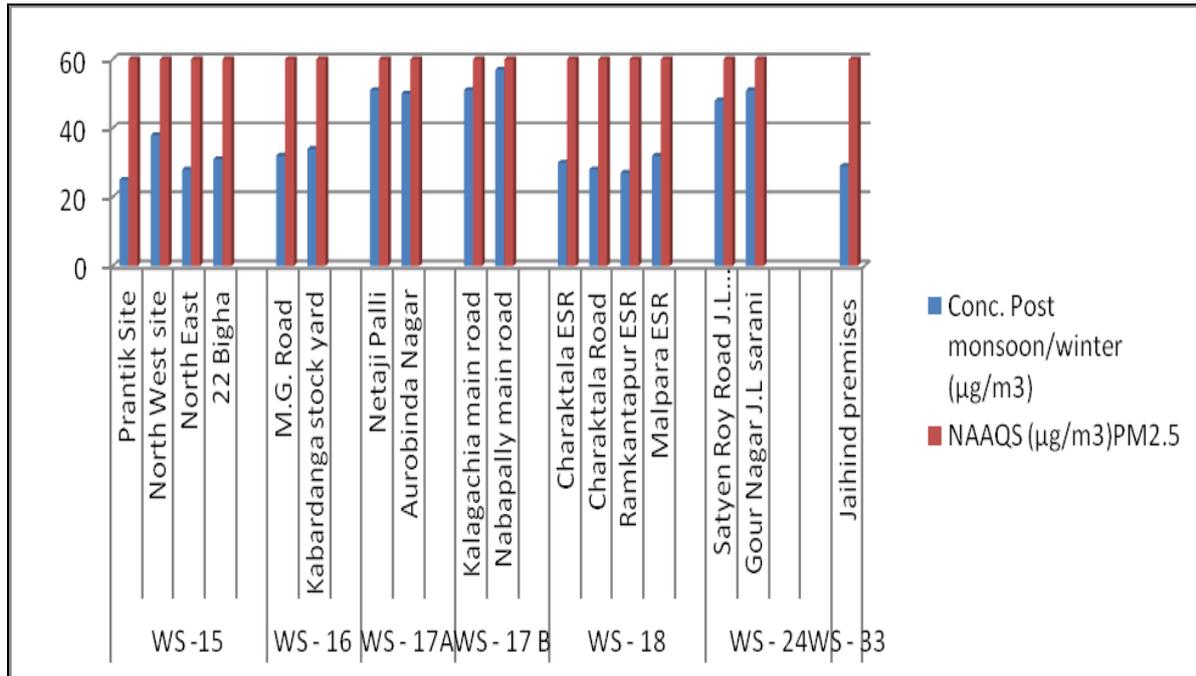


Figure 6: Status of PM2.5 in WS network packages of Tranche-2

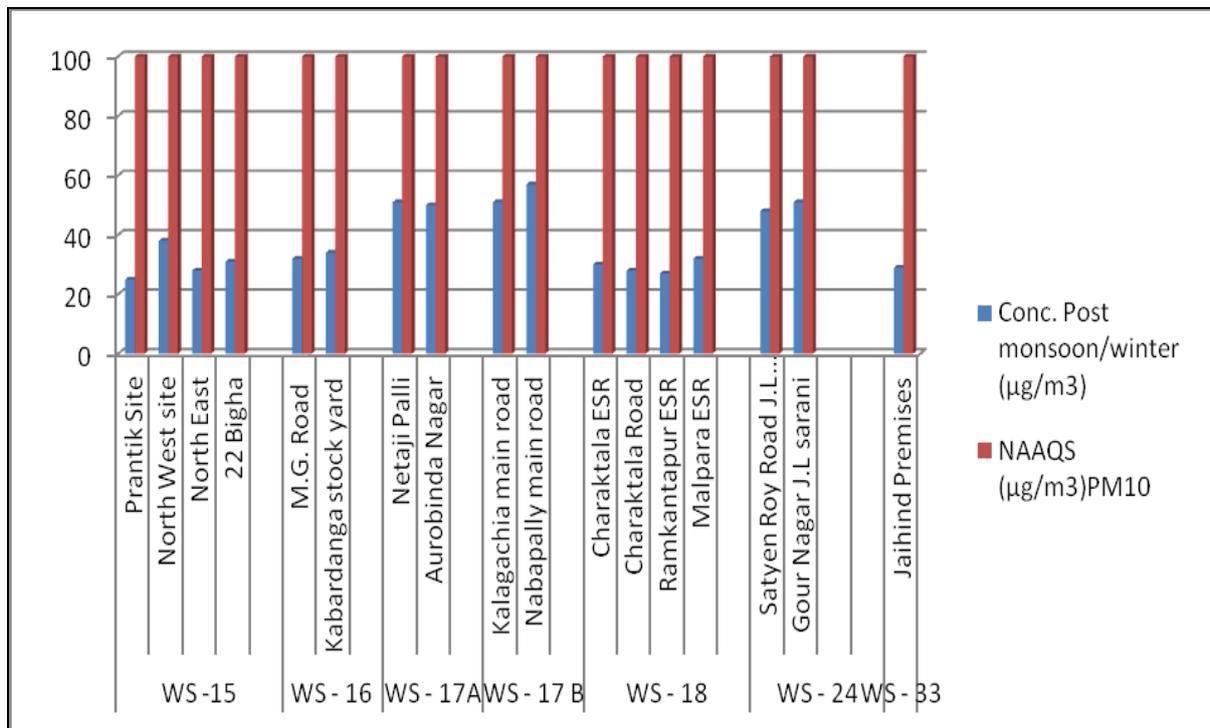


Figure 7: Status of PM10 in WS network packages of Tranche-2

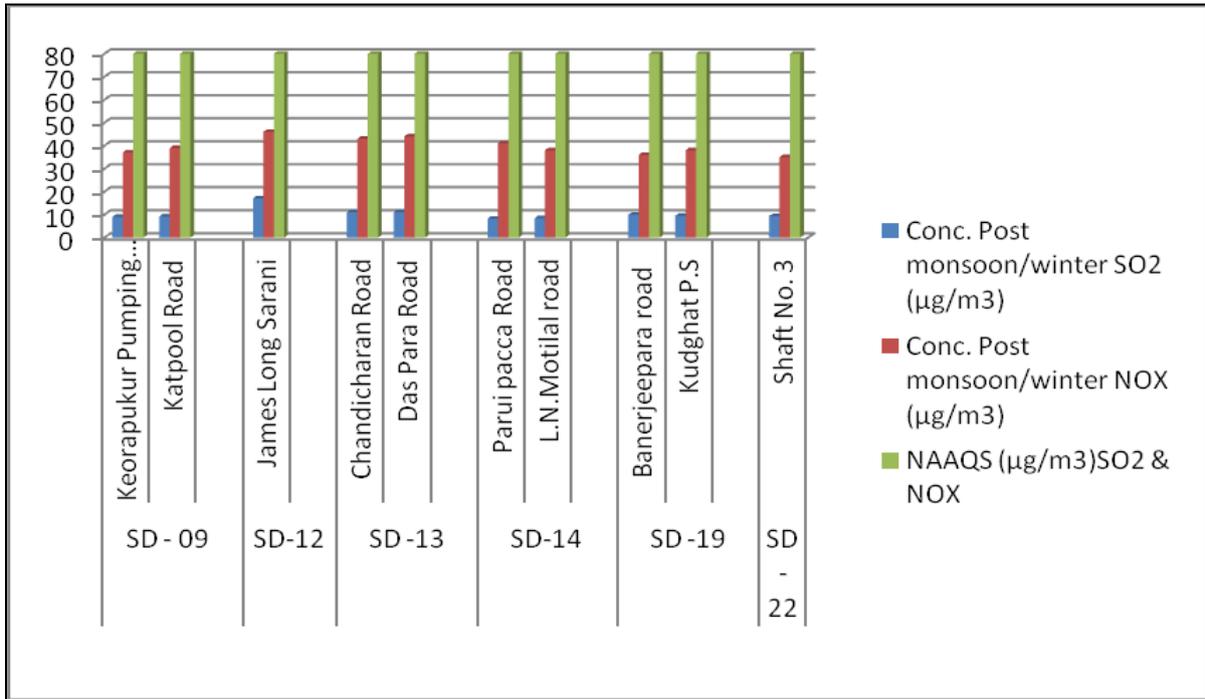


Figure 8: Status of SO₂ & NO_x in S&D network packages of Tranche-2

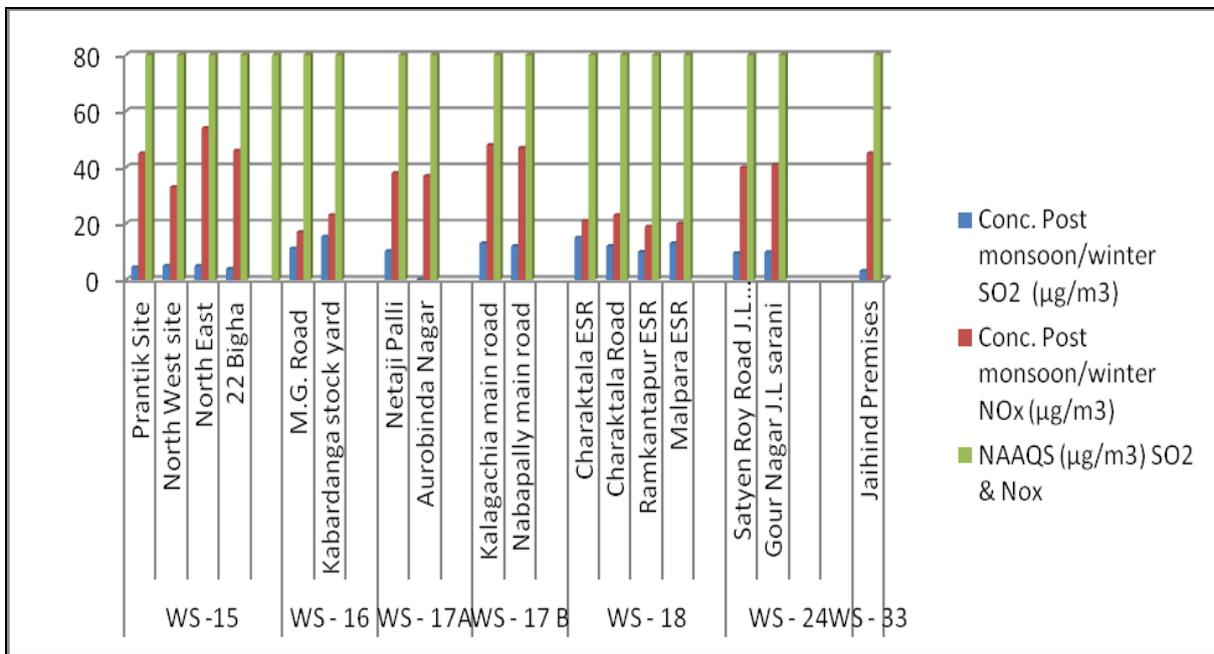


Figure 9: Status of SO₂ & NO_x in WS network packages of Tranche-2

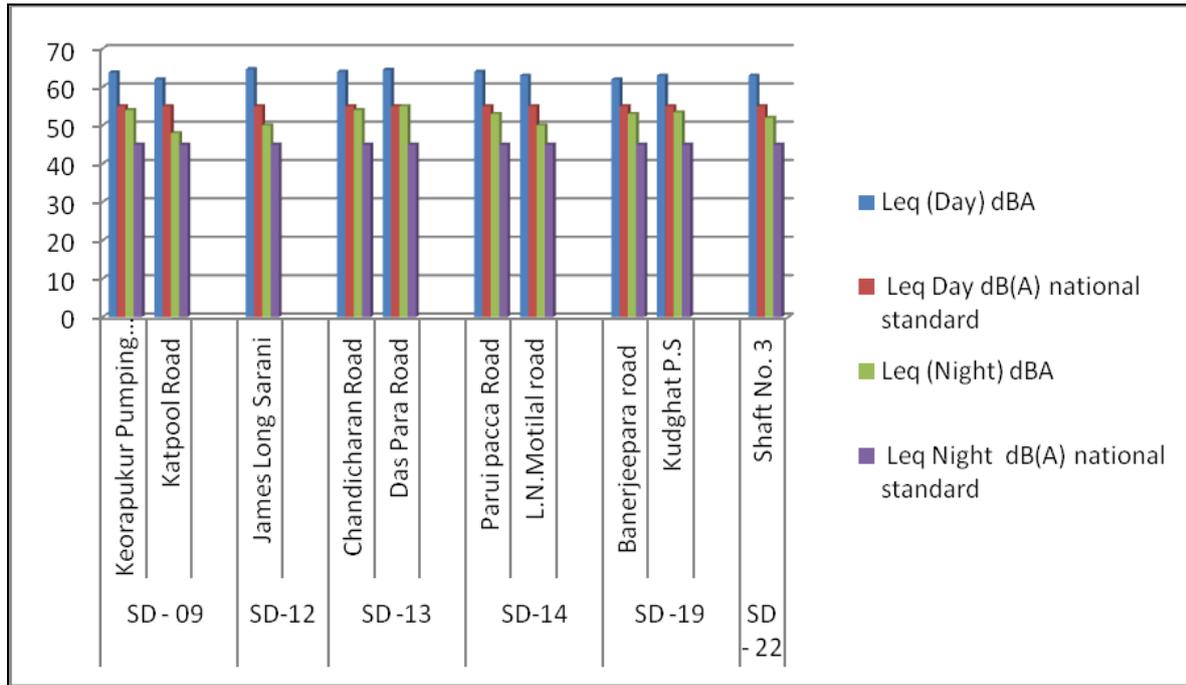


Figure 10: Status of Noise level in S&D network packages of Tranche-2

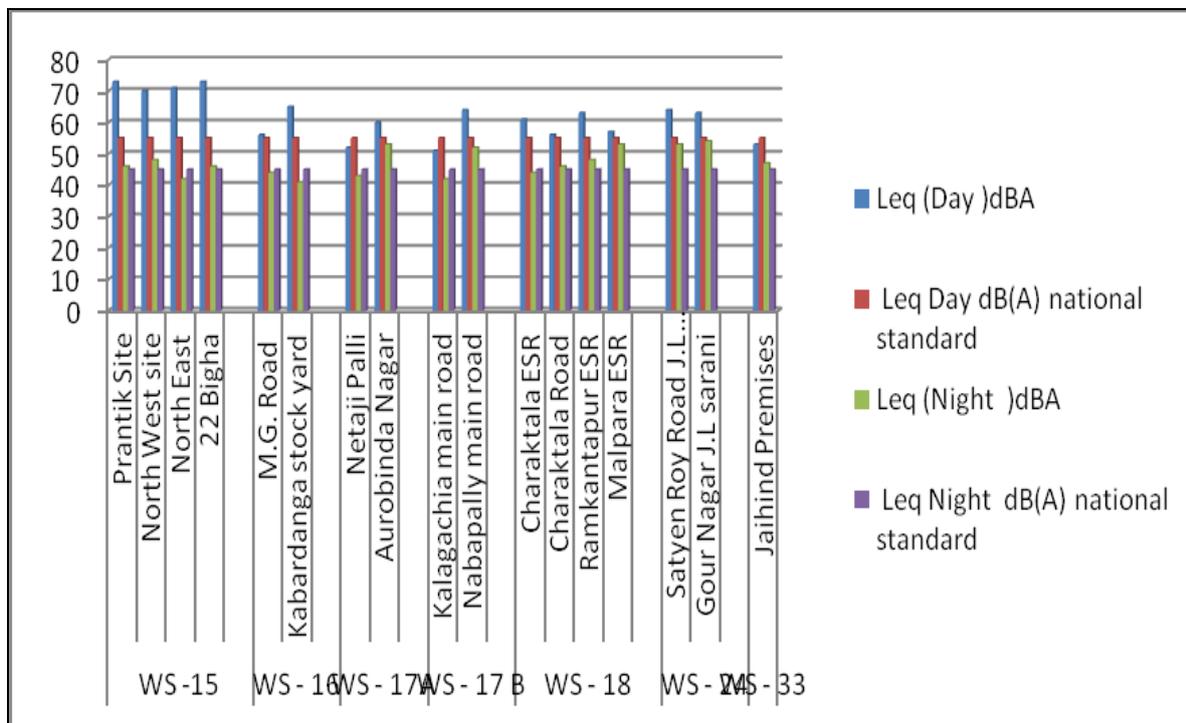


Figure 11: Status of Noise level in WS network packages of Tranche-2

Table 10: Performance Fact Sheet for Required Environmental Consents / Clearances of KEIP Tranche 2 (Package-wise)

Sl. No.	Package No.	Name of Contractor	EMP Part of contract Document(Yes/ No)	Environmental Consents / Clearances Required			
				Tree Cutting	i. Crusher ii. Batching Plant iii. Hot mix plant	Diesel Generator Set	Pollution Under Control Certificates (PUC) for Contractor's Vehicles
1	KEIP/NCB/Tr 2/SD-09/2016-17	SNET-JBPL JV	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of generator is used. No permission is required. Emission monitoring done.	Obtained
2	KEIP/NCB/Tr 2/SD-10T/2018-19	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Contractor not mobilized at site ,only survey work started	
3	KEIP/NCB/Tr 2/SD-11T/2018-19	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Contractor not mobilized at site ,only survey work started	
4	KEIP/NCB/Tr 2/SD-12/2015-16	ITD-ITD CEM JV	Yes	NOC received from Urban Forest Dept (via certificate no. 37 (o)/Clearance/17 dated 27.02.18) for felling of 30 nos. tree	NR as per present work	Green silent DG used	Obtained
5	KEIP/NCB/Tr-2/SD-13/2015-16	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of generator is used	Obtained

Sl. No.	Package No.	Name of Contractor	EMP Part of contract Document(Yes/ No)	Environmental Consents / Clearances Required			
				Tree Cutting	i. Crusher ii. Batching Plant iii. Hot mix plant	Diesel Generator Set	Pollution Under Control Certificates (PUC) for Contractor's Vehicles
6	KEIP/NCB/Tr-2/SD-14/2015-16	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of generator is used	Obtained
7	KEIP/NCB/Tr 2 /WS 15/2015-16	M/s Gannon Dunkerley & Co.Ltd.	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of Generator used.	Obtained
8	KEIP/NCB/Tr 2/WS16/2015-16	FFIL-RIL JV	Yes	Not required as per present scope of work	NR as per present work	Green silent DG used	Obtained
9	KEIP/Tr-2/WS 17A/2016-17	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of generator is used	Obtained
10	KEIP/Tr-2/WS 17B/2016-17	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of generator is used	Obtained
11	KEIP/NCB/Tr 2/WS18/2016-17	FFIL-RIL JV	Yes	Not required as per present scope of work	NR as per present work	Green silent DG used	Obtained
12	KEIP/NCB/Tr 2/SD-19/2016-17	Simplex infrastructures Ltd.	Yes	NR as per present scope of work	NR as per present work	Acoustic type of generator is used	Obtained

Sl. No.	Package No.	Name of Contractor	EMP Part of contract Document(Yes/ No)	Environmental Consents / Clearances Required			
				Tree Cutting	i. Crusher ii. Batching Plant iii. Hot mix plant	Diesel Generator Set	Pollution Under Control Certificates (PUC) for Contractor's Vehicles
13	KEIIP/NCB/Tr 2/SD-22/2016-17	ITD-ITD CEM JV	Yes	NOC received from Urban Forest Dept (via certificate no. 40/FUD /19 dated 22.07.9 for felling of 12 nos. tree	NR as per present work	Acoustic type of generator is used	Obtained
14	KEIIP/NCB/Tr 2/WS24/2016-17	Simplex infrastructures Ltd.	Yes	Not required as per present scope of work	NR as per present work	Green silent DG used	Obtained
15	KEIIP/NCB/TR-2/WS25/2017-18	SUEZ India Pvt. Ltd.	Yes	Work not yet started			
16	KEIIP/NCB/TR-2/WS26 B /2019-20	HITECH-SANTA COLIBRI JV	Yes	Work not yet started			
17	KEIIP/NCB/TR-2/WS33/2017-18	TEPL-SNET JV	Yes	Not required as per present scope of work	NR as per present work	Acoustic type of generator is used	Obtained

Table 11: Performance Fact Sheet for EMP Implementation of KEIIP Tranche 2 (Package-wise)

Sl. No.	Package Number	Contractor Social/ Environment Person ¹⁹	Overall Status of EMP Implementation	Field to be Monitored as per EMP													Score Total
				Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation	
				In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)													
1	KEIIP/NCB/Tr-2/SD-09/2016-17	Nominated	Complied	2	1	2	1	1	2	n/a	1	n/a	2	2	n/a	2	16
2	KEIIP/NCB/Tr-2/SD-10T/2018-19	Not Nominated	Contractor not mobilized at site ,only survey work started														
3	KEIIP/NCB/Tr-2/SD-11T/2018 -19	Not Nominated	Contractor not mobilized at site ,only survey work started														
4	KEIIP/NCB/Tr-2/SD-12/2015-16	Nominated	Complied	2	2	1	1	2	2	2	2	n/a	1	2	n/a	2	18
5	KEIIP/NCB/ Tr-2SD-13/2015-16	Nominated	Complied	2	1	2	1	2	2	n/a	1	n/a	1	2	n/a	2	16
6	KEIIP/NCB/Tr-2/SD-14/2015-16	Nominated	Complied	2	n/a	2	2	1	2	n/a	1	n/a	1	2	n/a	2	15
7	KEIIP/NCB/Tr-2/WS-15/2015-16	Nominated	Complied	2	1	1	2	2	n/a	n/a	1	n/a	1	2	n/a	2	14
8	KEIIP/NCB/Tr-2/WS-16/2015-16	Nominated	Complied	2	1	2	2	2	2	n/a	2	n/a	1	2	n/a	2	18

Sl. No.	Package Number	Contractor Social/ Environment Person ¹⁹	Overall Status of EMP Implementation	Field to be Monitored as per EMP													Score Total
				Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation	
				In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)													
9	KEIIP/Tr-2/WS-17A/2016-17	Nominated	Complied	2	n/a	2	2	2	2	n/a	1	n/a	2	2	n/a	2	17
10	KEIIP/Tr-2/WS-17B/2016-17	Nominated	Complied	2	n/a	2	2	2	2	n/a	1	n/a	2	2	n/a	2	17
11	KEIIP/NCB/Tr-2/WS-18/2016-17	Nominated	Complied	2	1	2	2	2	2	n/a	2	n/a	1	2	n/a	2	18
12	KEIIP/NCB/Tr-2/SD-19/2016-17	Nominated	Complied	2	1	2	1	2	2	n/a	1	n/a	1	2	n/a	2	16
13	KEIIP/NCB/Tr-2/SD-22/2016-17	Nominated	Complied	2	1	1	1	1	2	1	2	n/a	2	1	n/a	2	16
14	KEIIP/NCB/Tr-2/WS-24/2016-17	Nominated	Complied	2	n/a	1	1	2	2	n/a	2	n/a	1	2	n/a	2	15
15	KEIIP/NCB/TR-2/WS-33/2017-18	Nominated	Complied	2	1	1	2	2	2	n/a	2	n/a	1	2	n/a	2	17
16	KEIIP/NCB/TR-2/WS-25/2017-18			Substantial physical work not yet started.													
17	KEIIP/NCB/TR-2/WS26B/2018-19			Substantial physical work not yet started.													

Note: Calculation of numerical value for determining performance status- calculation is based on addition of numerical value like below (Refer **Table 11** and **Figure 12** for status of compliance).

Note: Work in few packages has just started and construction of camp, arrangement of safety caution board, barricade has commenced. Initial EMP compliance in these areas is unsatisfactory in some instances. It is expected that during next report period all non compliance issues will be resolved. Barring the above lacuna most of the sites are environmentally well managed)

Table 12: Calculation of numerical value for determining performance status

Sl. No.	Package Number	Total score	Number of field	Compliance performance score	Compliance standard score	Compliance status
1	KEIIP/NCB/Tr-2/SD-09/2016-17	16	10	1.6	1.5	Complied
4	KEIIP/NCB/Tr-2/SD-12/2015-16	18	9	2.0	1.5	Complied
5	KEIIP/NCB/ Tr-2SD-13/2015-16	16	10	1.6	1.5	Complied
6	KEIIP/NCB/Tr-2/SD-14/2015-16	15	9	1.6	1.5	Complied
7	KEIIP/NCB/Tr-2/WS-15/2015-16	14	9	1.5	1.5	Complied
8	KEIIP/NCB/Tr-2/WS-16/2015-16	18	10	1.8	1.5	Complied
9	KEIIP/Tr-2/WS-17A/2016-17	17	9	1.8	1.5	Complied
10	KEIIP/Tr-2/WS-17B/2016-17	17	9	1.8	1.5	Complied
11	KEIIP/NCB/Tr-2/WS-18/2016-17	18	10	1.8	1.5	Complied
12	KEIIP/NCB/Tr-2/SD-19/2016-17	16	10	1.6	1.5	Complied
13	KEIIP/NCB/Tr-2/SD-22/2016-17	16	11	1.5	1.5	Complied
14	KEIIP/NCB/Tr-2/WS-24/2016-17	15	9	1.6	1.5	Complied
15	KEIIP/NCB/TR-2/WS-33/2017-18	17	10	1.7	1.5	Complied

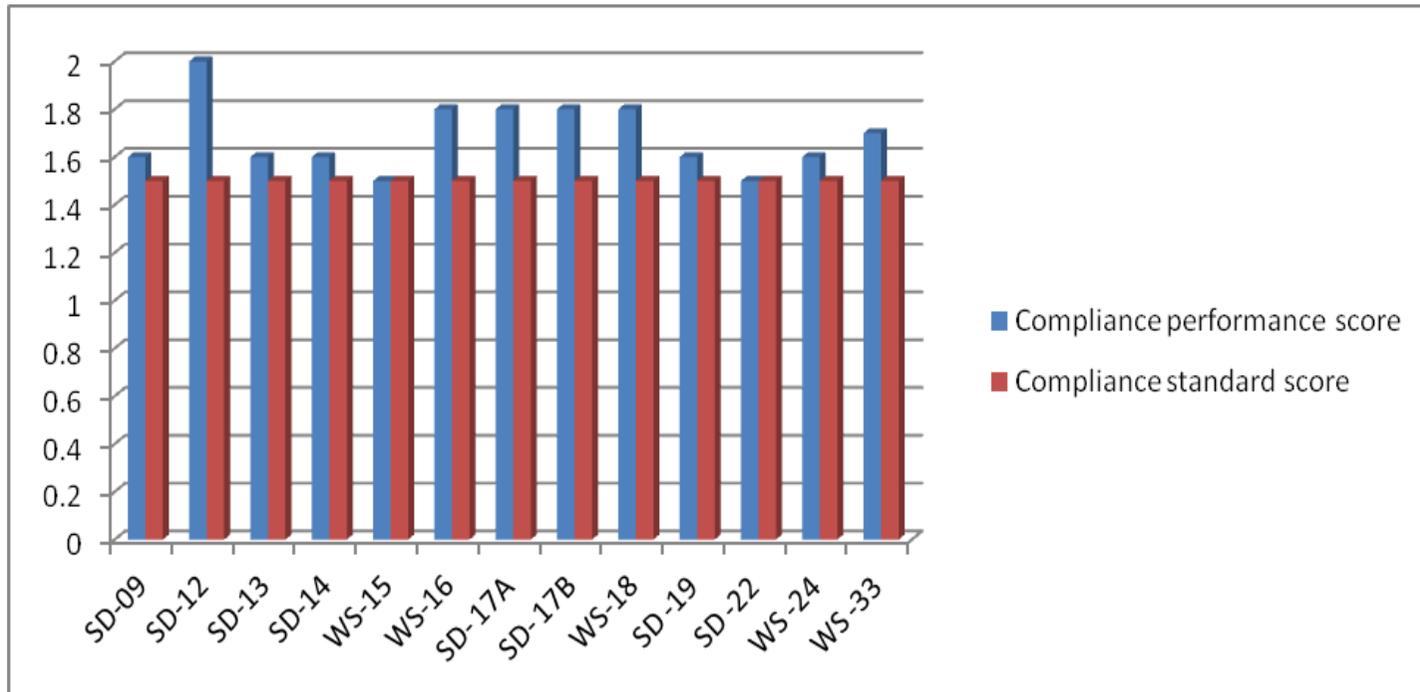


Figure 12: Package wise EMP compliance status of different construction packages in Tranche -2

VI CONSULTATIONS AND DISCLOSURES CONDUCTED

28. As per approved IEE, consultations and disclosure will be a continuous process throughout Tranche 2 project implementation involving public consultations and focus group discussions. Informal consultations were carried out with local people, pedestrian, etc.

29. Types of consultations and disclosure conducted in different packages of Tranche -2 during July to December 2019 are presented in **Table 12**.

30. Table 13 summarises different types of consultations, issues raised and resolved in different packages of Tranche -2 during July to December 2019.

Table 13 :Types of consultations and disclosure conducted in different packages of Tranche-2

Type of Consultation/ Disclosure	Target Date	Location	Target Participants	Responsible Person and Source of Funds
Local level consultation / FGD	Weekly – to be continued	At all construction locations	General public, shop keepers, pedestrian	Construction supervisor, Environment & safety officer of contractor Project budget – continuous process
Consultation – safety issues, implementation of EMP	During July 2019 to December 2019	At KEIIP office and project site office	Supervisor Engineer, PMU Engineer, all safety and environment staff of contractors	Construction Manager, Environment specialist of DSC and PMU
Consultation – safety issues, implementation of EMP and any social issue	During July 2019 to December 2019	During site visit at all sites and any grievance /complain received	Supervisor Engineer, PMU Engineer, all safety and environment staff of contractors	Construction Manager, Environment social team of DSC and PMU

31. Field level training program is being arranged for contractor's staffs and supervisors, some time for Project Managers by DSC's Environment Specialist on Environment Health and safety on regular basis.

32. There are series of informal discussions by the DSC with Chief Engineers of KMC and Director General (Projects), PMU mainly on understanding current situation and optimum design to be adopted in order to attain the objectives of taking up the work items.

33. Photographic evidences of training and awareness programme at different project sites of Tranche-2 and consultations at sites have been provided in **Appendix -3** and **Appendix-6** respectively.

33. A workshop cum training program on Safeguard Implementation Issues in the project (Kolkata Environmental Improvement Investment Program (KEIIP – Tranche II) was organised by the Safeguard Unit (environment & social Safeguard) of Design & Supervision Consultants (DSC) Tranche-II, KEIIP on 7th December, 2019 at Conference Room of KEIIP. The workshop cum training program was attended by Contractor's Project Managers, Environment Safety Officers, DSC's Construction Managers & Experts, DSC's Safeguard Team Members and PMU's Safeguard Team

34. In the workshop topics discussed in detail were - Implementation of EMP in the project, contractual obligation of the contractor related to safeguard, some good and bad EHS practices in Urban Infrastructure Projects. In addition to the above mentioned issued during interaction EMP implementation mechanisms, contractor's safety officers were asked to make a short power point presentation on their own sites regarding good practices adopted to minimise the EHs issues, spoil management, environmental monitoring, public consultation and existing safeguard issues which need DSC's intervention to mitigate.

35. The summary sheet on the above mentioned workshops has been provided as Appendix -7

Table 14: Summary of issues raised during public consultation in different packages of Tranche -2 during July to December 2019

Package Number	Place and Date of Consultation	Issues Raised
SD 12	James Long Sarani	Spoil spillage on road, dust and noise problem, access problem,
SD 13	M.G. Road, Mukunda Das Pally, purba Para Road, Chandicharan roa	Road restoration, disposal of surplus earth, access problem.
SD 14	Kaji para road, Hemanta Mukherjee road, Paruipara road, Sridhdhinath Chatterjee Road	Access problem, disposal of surplus earth, damage in house service connection.
WS 17B	Kalagachia main road, Nabapally main road, Greenpark main road, Anysarani road	Restoration of water supply line, repair of potholes, road restoration.
WS 18	Mallickpur road, Ramkantapur, Julpia, Charaktala	Access problem, disposal of surplus earth, damage in house service connection, road restoration
WS 16	Dhalipara, along M.G road(near blind school, children home thakurpukur, bank plot), Daspara, 22 Bigha	Restoration of water supply line, road restoration.
SD 22	Sodepur Brickfield Road, Barisha Purba Para, Purbachal, Mandal para road, Mandal para	Spoil spillage, access problem, disposal of surplus earth, road restoration, benefit of the project, dust and noise
WS 24	J. L. Sarani(Behala Chowrasta), Roy Bahadur road, Satyen Ray road	Dust generation, storage of construction materials, access problem

VII GRIEVANCE REDRESSAL

36. **Common Grievance Redress Mechanism.** A common grievance redress mechanism (GRM) has been established for social, environmental or any other subproject related grievances.

37. **Grievance Redress Process.** PMU is maintaining a Complaint Cell at KEIIP office located in 206 A J C Bose Road Kolkata 700017 headed by a designated Grievance Officer (currently the Administrative Officer) under Project Director. The Complaint Cell will also serving as Public Information Centre, where, apart from grievance registration, information on the Project, subprojects, social and environmental safeguards, etc can be provided.

38. At every Borough of KMC under which works are in progress, a Public Relations & Grievance Redressal Unit have been established for information disclosure on request from public and for receipt of complaints.

39. At Contractors' site offices, complaint and suggestion books available for lodging any complaint. The concerned Executive Engineers of KEIIP will monitor these books and if possible take necessary actions for redressal of minor complaints with intimation to the complainant.

40. The Grievance Registration/Suggestion Form will be available at the Complaints Cell and in Borough Offices and will also be downloadable from the KEIIP/KMC websites. Grievances/ suggestions of affected persons can be dropped in suggestion boxes or conveyed through phone or mail. Affected Persons will also be able to register grievances - social, environmental or other, personally at the Complaint Cell and at Borough offices of KMC. The Grievance Officer and designated official at the Boroughs will be able to correctly interpret/record verbal grievances of non-literate persons and those received over telephone.

41. All complaints (unresolved at local site/Borough level) relating to KEIIP will be sent to the Project Director, KEIIP including those received in the KMC/KEIIP website for redressal. The Grievance Officer will resolve simple unresolved issues and in case of complicated issues, consult/seek the assistance of the Environment/Social Specialist of the DSC/PMU. Grievances not redressed through this process within one month of registration will be brought to the notice of the Project Director, KEIIP. Action taken in respect of all complains will be communicated to the complainant by letter, over phone or e-mail or WhatsApp as the case may be.

42. Periodic community meetings with affected communities to understand their concerns and help them through the process of grievance redress (including translation from local dialect/language, recording and registering grievances of non-literate affected persons and explaining the process of grievance redress) will be conducted if required. The above Grievance Redress Process will be discussed with the stakeholders at the proposed disclosure workshop.

43. **Grievance Redressal Committee (GRC).** A PMU level GRC has already been constituted by the Project Director to address grievances. Grievances not resolved at borough level are referred to PMU level. However grievances that cannot be resolved at PMU level will be referred to an apex grievance redress committee (GRC).²⁰ Still unresolved issues will be referred to an appropriate court of law. Despite the project GRM, 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.

²⁰ The apex GRC will have the following members: KMC Commissioner as Chairperson, KEIIP Project Director, Director General (P), KEIIP, Environment/Social Safeguard Officer, Administrative Officer as the convener, representatives of APs, Community Based Organizations (CBOs), and eminent citizens. The GRC must have at least two women members.

44. The time limit for grievance redressal will be as follows,
- ✓ Site level – 7 days
 - ✓ Borough level – 7 days
 - ✓ GRC – PMU level – 15 days
 - ✓ Apex GRC- 15 days
45. **Consultation Arrangements for GR** - This will include group meetings and discussions with affected persons, to be announced in advance and conducted at the time of day agreed on with affected persons and conducted to address general/common grievances; and if required with the Environment/Social Specialist of PMU/DSC for one-to-one consultations. Non-literate affected persons/ vulnerable affected persons will be assisted to understand the grievance redress process, to register complaints and with follow-up actions at different stages in the process.
46. **Record-keeping.** Records will be kept by PMU/Borough Office/Contractors' site office 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 in effect, and final outcome.
47. **Information Dissemination Methods of the GRM.** Grievances received and responses provided will be documented and reported back to the affected persons (**Appendix 8** -Sample Grievance Registration Format). The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the offices of the different Boroughs of KMC and web. The phone number where grievances are to be recorded will be prominently displayed at the construction sites.
48. **Periodic Review and Documentation of Lessons Learned.** PMU will periodically review the functioning of the GRM and effectiveness of the mechanism, especially on the Project's ability to prevent and address grievances.
49. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting / information dissemination) will be borne by PMU.
50. A GRM flow chart has been provided in **Figure 13** of this report.
51. Grievances received and responses provided in different packages of Tranche -2 during July to December 2019 is presented in **Table 14** which indicate that there were no major grievances at project sites and issues recorded has been resolved.

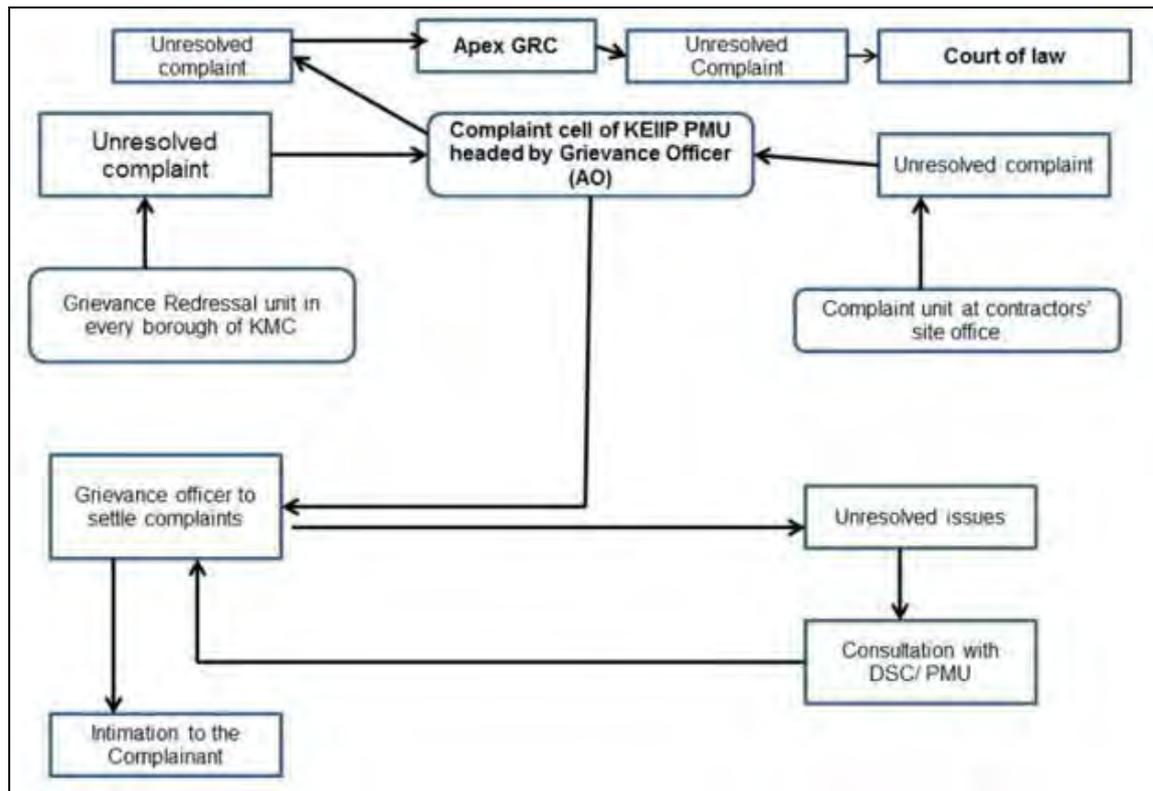


Figure 13: Grievance Redress Mechanism

Table 15: Summary of Grievance recorded and resolved in different packages of Tranche -2 during January to June 2019

Package Number	Issues registered / recorded	Status of the issues registered / recorded
SD 12	Spoil spillage on road, dust and noise problem, access problem,	Issues resolved immediately, verified by DSC.
SD 13	Road restoration, disposal of surplus earth, access problem.	Issues resolved immediately, verified by DSC.
SD 14	Access problem, disposal of surplus earth, damage in house service connection.	Issues resolved immediately, verified by DSC.
WS 17B	Restoration of water supply line, repair of potholes, road restoration.	Issues resolved immediately, verified by DSC.
WS 18	Access problem, disposal of surplus earth, damage in house service connection, road restoration	Issues resolved immediately, verified by DSC.

WS 16	Restoration of water supply line, road restoration.	Issues resolved immediately, verified by DSC.
SD 22	Spoil spillage, access problem, disposal of surplus earth, dust and noise	Issues resolved immediately, verified by DSC.
WS 24	Dust generation, storage of construction materials, access problem	Issues resolved immediately, verified by DSC.

VIII FINDINGS AND RECOMMENDATIONS

52. Field activity of the sub-project has started at most of the locations. Up to December 31st 2019 contractors have done good progress in all subprojects and in some area considerable progress has been reported. Provisions in the EMP are implemented in all the subproject. Within this reporting period (July to December 2019), no major environmental health and safety issues and problems have been encountered with, at the sub project locations.

53. Based on the foregoing observations, findings and environmental monitoring carried out from July to December 2019, it may be concluded that KEIIP Tranche 2 sub projects have been implemented in almost full compliance of the required environmental safeguards. Some time minor, localised and short duration non-compliances in some work sites of a few packages during this period was observed and pointed out to contractor by DSC Environment team and the issues were rectified in short time.

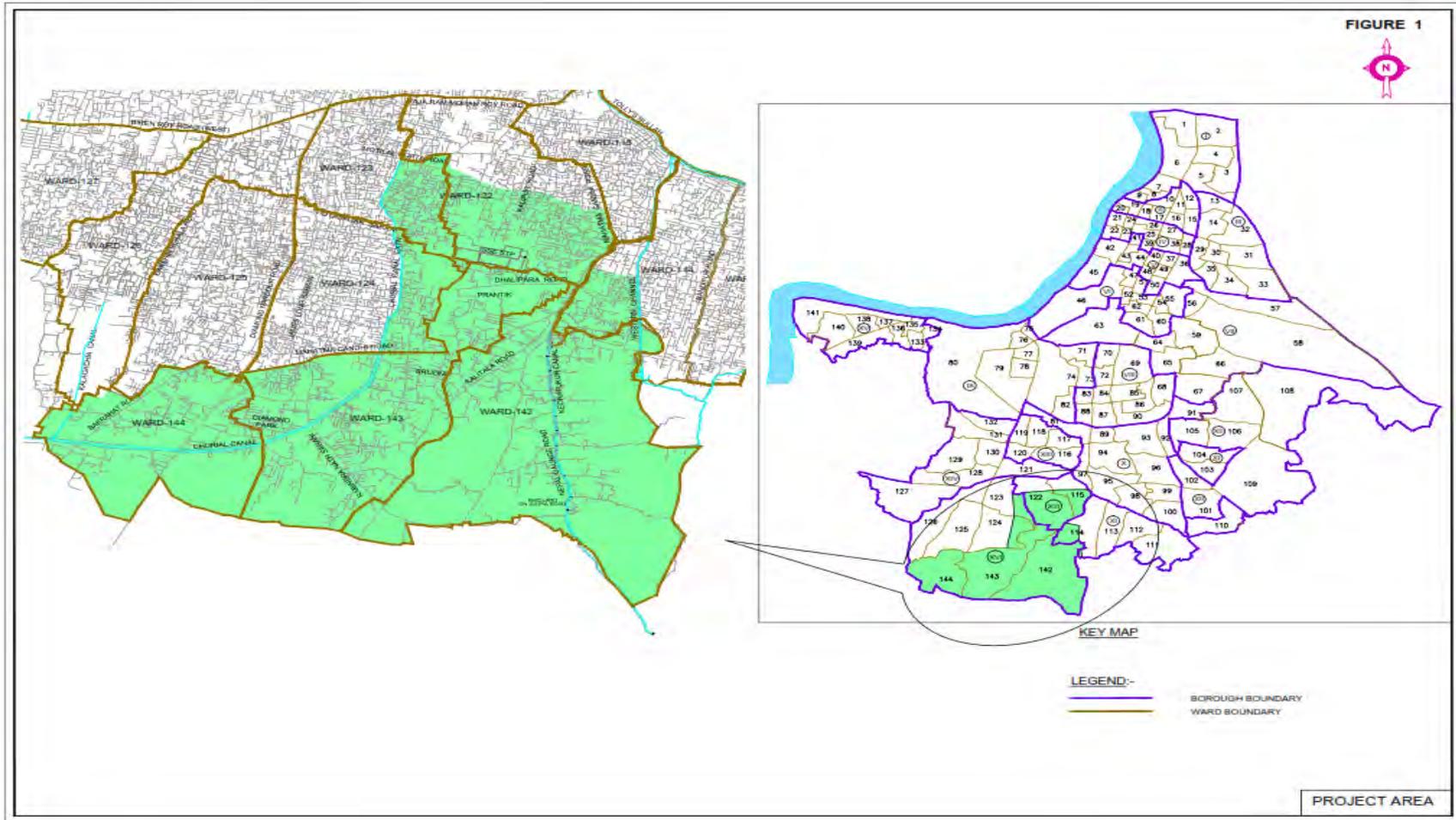
54. **Table 15** provides the recommended corrective action plan that has been devised and target dates that have been set so as to remove these non-compliances. The concerned Contractors have been suitably advised. Contractors have also been advised to provide written commitment for implementation of corrective action plan.

Table 16: Corrective Action Plan

Sr. No.	Partial complied issues	Action Required	Responsible	Target Date	Indicator of Compliance
1	Application of EMP	Continue on regular basis	Contractor in association with PIU and DSC	Continuous process	Site observation and checking
2	Incomplete Use of PPEs (particularly working shoes/ gumboots, hand gloves) by contractors' at different work locations	Complete use of PPEs, particularly use of working shoes, gumboots	Contractor	Immediate	Availability and use of PPE
3	Missing caution tape/ barricade at few locations of running packages	Complete use of caution tape/ barricade at all working sites	Contractor	Immediate	Site observation and checking
4	Non Availability of emergency contact no. at display/ caution board placed at few work sites of	Complete arrangement of display / caution board with all emergency contact no.	Contractor	Immediate	Site observation

Sr. No.	Partial complied issues	Action Required	Responsible	Target Date	Indicator of Compliance
	running packages				
5	Air pollution and increase in dust at few work sites of the running packages.	Immediate action to be taken like, water sprinkling, maintaining of stack height in Dg set, use of CPCB approved green DG set etc.	Contractor	Immediate	Monitoring result
8	Arrangement of labour camp/ rented house for contractor	Arrangement as per requirement	Contractor	Continuous process	Site observation and checking
9	Training to workers	Regular tool box training for labour. Safeguard orientation training for contractor	Contractor, PIU, DSC	Continue process	Record keeping and safeguard implementation
10	Renewal of Labour License	Continue on regular basis	Contractor, PIU, DSC	Continue process	Record keeping

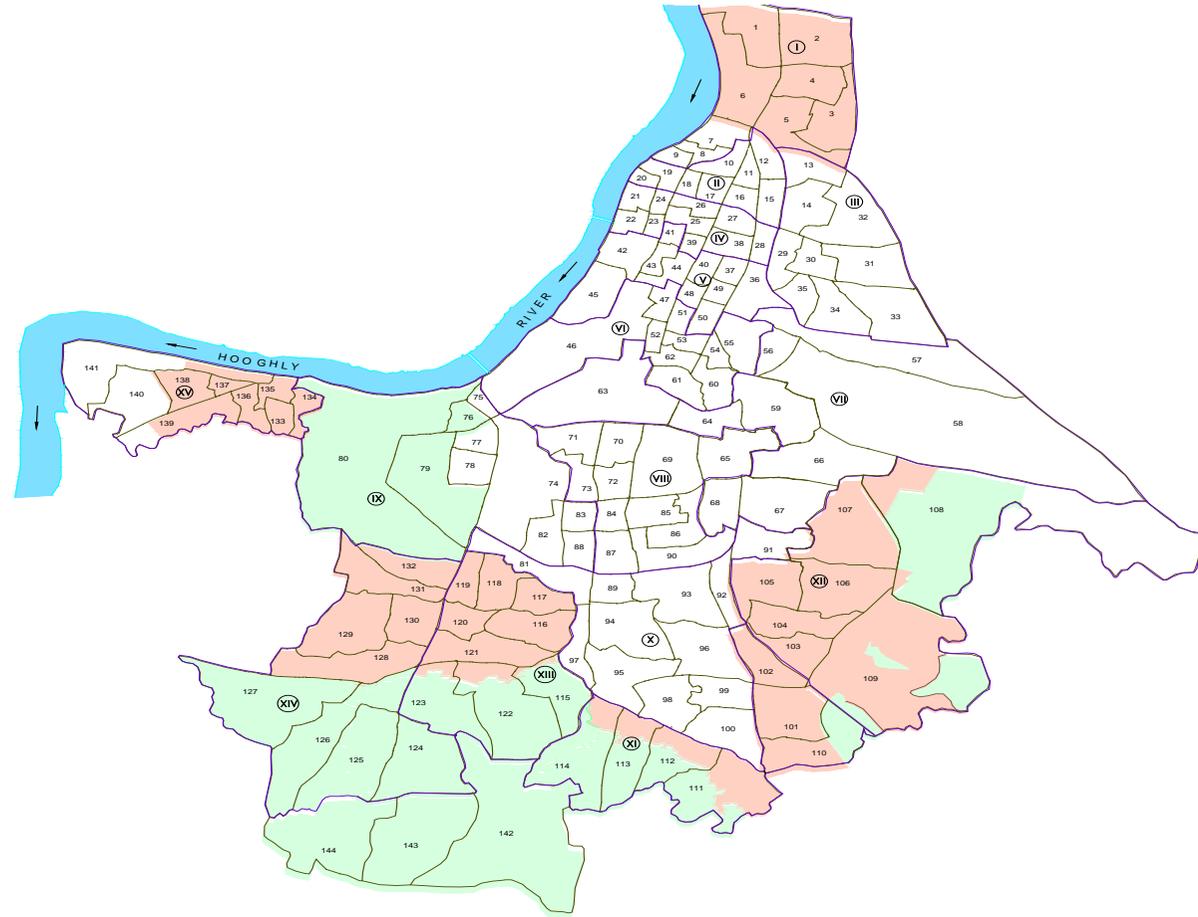
APPENDIX 1: LOCATION MAP PROJECT AREA



Water Supply Project Area

Sewerage and Drainage Project Area

- LEGEND-**
- BOROUGH BOUNDARY
 - WARD BOUNDARY
 - AREA TAKEN UP UNDER KEIP PHASE I
 - AREA TO BE CONSIDERED UNDER KEIIP FOR S&D DEVELOPMENT



Appendix 2: Progress of Work



Wet well work in progress at Kudghat PS(SD 19)



Pipe laying under progress near K.K.Roy road (WS 17A)



Jack pushing in progress (SD 22)



Shoring work done at Sanjib Pally (SD 14)



Work in progress near Shilpara off D.H. Road (SD 13)



Pipe laying work in progress at MG road (WS16)



Charaktala ESR in progress (WS 18)



Road Restoration work is completed at Thakurpara Area near A.G. School, Zone-1(SD 09)



Construction of Malpara ESR in progress (WS 18)



Pipe laying work in progress at Banerjee para road (WS 24)



Pipe Laying work at Churial Canal Extension (SD 22)



Pipe laying work in progress at Brick field road by open cut (SD 22)

Appendix 3: Training Conducted at Project Sites



Contractor Staff orientation on EHS in subproject WS-24



Contractor Staff orientation on EHS in subproject SD - 22



Contractor Staff orientation on EHS in subproject SD - 14



Contractor Staff orientation on EHS in subproject SD - 13



Contractor Staff orientation on EHS in subproject WS -17 A

Appendix 4: Environmental Monitoring at different project location



Environmental Monitoring at subproject SD -22



Environmental Monitoring at subproject WS -24



Environmental Monitoring at subproject SD - 13

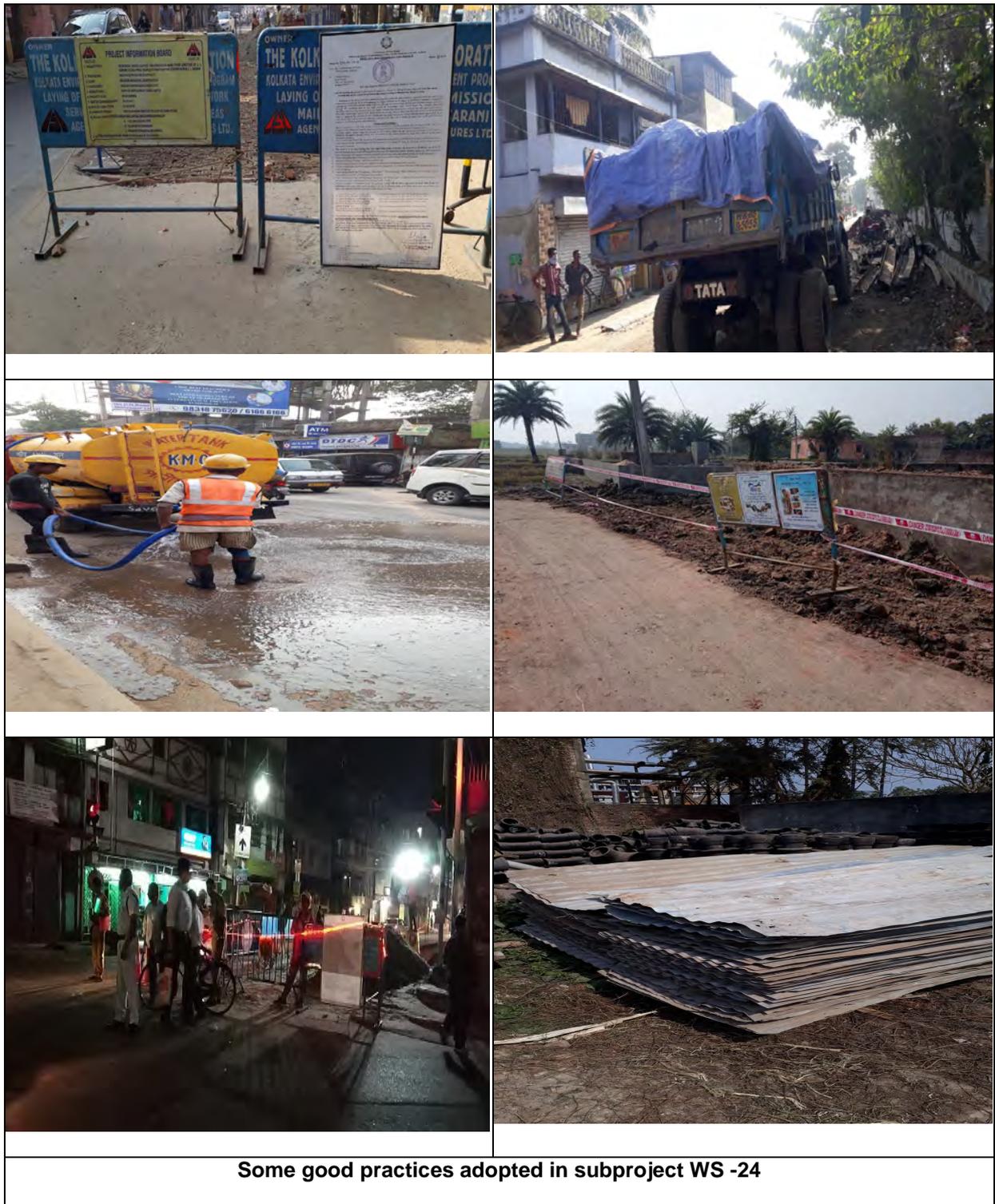


Environmental Monitoring at subproject SD - 14

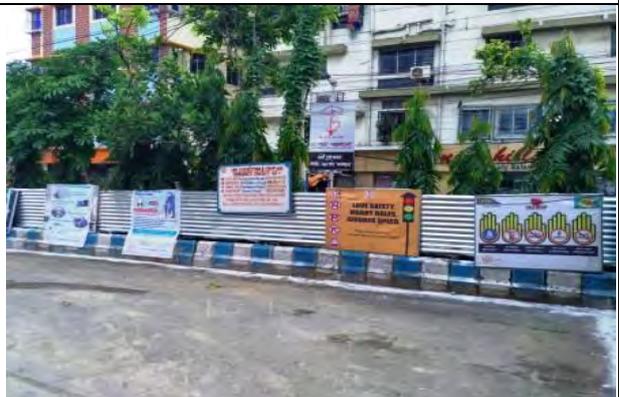


Environmental Monitoring at subproject WS – 17 A

APPENDIX 5: GOOD PRACTICE ADOPTED AT DIFFERENT SITES



Some good practices adopted in subproject WS -24



Some good practices adopted in subproject SD - 22



Some good practices adopted in subproject SD - 14



Some good practices adopted in subproject SD - 13

APPENDIX 6: PUBLIC CONSULTATION (FGD) AT DIFFERENT PROJECT SITES OF TRANCHE – 2



Consultation in subproject WS – 24



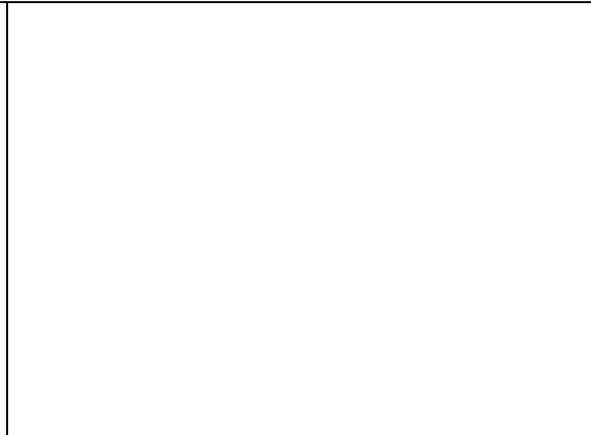
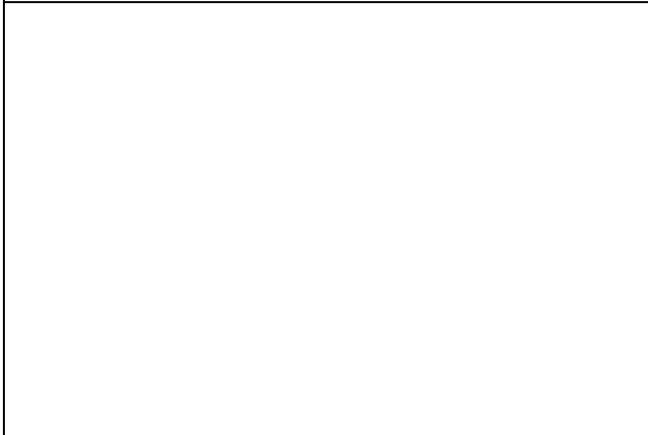
Consultation in subproject SD - 22



Consultation in subproject SD - 14



Consultation in subproject SD - 13



Appendix 7: Contractors' Orientation Programme on ADB's Safeguard Policy and EMP implementation

Kolkata Environmental Improvement Investment Program (KEIIP)
Design & Supervision Consultant (DSC)

Workshop on Safeguard Implementation

Summary Sheet

A Workshop on Safeguard Implementation Status of different Sub-projects under Tranche-2 and Tranche-3 was organised by DSC Safeguard Team at the Conference Room of KEIIP on 07.12.2019.

The programme was chaired by the Team leader, DSC and attended by the Contractors Project Managers & Environment Safety Officers of TR-2 & TR-3, DSC Safeguard Team (Environment & Social) and PMU Safeguard Unit.

The following topics were discussed in detail by the DSC Safeguard Team:

- SPS (2009) & ADB Safeguard Policy
- Implementation of EMP
- Environmental & Social issues of the sub-projects and mitigation measures to be adopted.
- Contractors Contractual obligations in Safeguard Implementation
- Safeguard (Environment & Social) provisions in the contract
- Good & Bad practices being adopted in the sub-projects

In the same workshop, contractors of different sub-projects (TR-2 & TR-3) presented Power Point presentation on their understanding of the safeguard issues and good practices adopted by the contractors in Safeguard Implementation.

An interactive session on issues related to implementation of social issues, EHS & EMP in the project was also organised during the Workshop to share the contractors experience.

The Workshop was successful and ended with vote of thanks.

List of Participants and some relevant photographs are attached for record.

- Encl. 1. Letter of DSC for organising Workshop.
2. Agenda of the Workshop
3. List of Participants
4. Photographs related to Workshop.





KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAM (KEIP)

Ref: DSC/KEIP/TL/2019-20/22515

November 29, 2019

Subject: KEIP – TR-2 & TR-3 : Workshop on Safeguard Implementation

D.G. (P),
CMU, KEIP

Safeguard (Environment & Social) team of DSC is intending to organize a short workshop (½ day – from 10.30 A.M. to 1.30 P.M.) to discuss the safeguard implementation status in different sub-projects under KEIP (TR-2 & TR-3) on 07.12.2019 (Saturday) at the Conference Hall of KEIP.

In this workshop all the working contractors will present the safeguard compliance status (which will include EHS issues, spoil management, training, monitoring consultation and social issues) of their respective sub-projects through Power Point Presentation (5-6 minutes presentation with maximum 10 slides).

Participants (50 heads) of the workshop will be Environment Safety Officers, Project Managers, DSC's Environment & Social Team, PMA, Sub-Contractors & Comm. Team, DSC's Construction Managers and PMC's Social Team.

Tentative cost of tea and snacks for the workshop will be Rs.5,000/- (Rupees Five Thousand only) which may kindly be approved. The same would be reimbursed under Provisional Sum & Sub-head "Programme for Capacity Development, Training, Workshop etc." (Form: FIN-4, Provisional Sums) of the Consultancy Agreement. However, at the time of invoicing, the original bill would be enclosed.

We would request your kind approval.

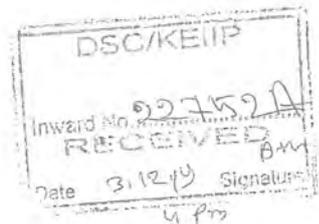
Dr. S. Banerjee / 359
3/12

'X' may kindly be approved.
30/11

26/11

3.12.19

(Diptarup Kahali)
Team Leader
DSC-KEIP



Kolkata Environmental Improvement Investment Program (KEIIP)
Design & Supervision Consultant (DSC)

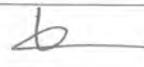
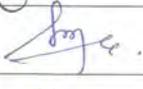
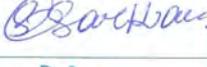
Workshop on Safeguard Implementation

List of Participants

Venue: KEIIP Conference Room

Date: 07.12.2019

Sl. No.	Name & Designation	Name of Organisation	Contact No.	Signature
1				
2	L. Chatterjee Envr. Spl	PMU, KEIIP	9830284340	
3	Subrata Kapat Dr. Enr	R. G. Industry	7596802988	
4	Anubam Koley, Safety Engg.	SIMPLEX(SO-14)	9073683985	
5	KERJAN KHALI	SIL.	9073674290	
6	Shehabuddin Rashid	SIL.	9574825423	
7	BIJAY KRISHNA DE (PROJECT ENGG)	SIL	9825988598	
8	MANAS CHOSH Project Engr.	SIL	9051422250	
9	Sukhendu Maity	SIL	9073672231	
10	Abhijit Beera Sr Safety Officer	SIL	8145005253	
11	Anecolose Nayak (Sr. Advisor HSE)	G. D. C. L.	7595837426	
12	Angharee Saha (HSE)	ITD-CEMINDIA JV	8584864132	
13	Shilajit Koley (HSE)	ITD-ITD CEM JV	8584012802	
14	Debit Mazumdar PM/ G D C L		9073678264	
15	Debanish Datta	SNET	8420089616	

Sl. No.	Name & Designation	Name of Organisation	Contact No.	Signature
16	K. S. GHOSH, S.S.S. DSC/KEIP	KEIP	9831317118	
17	Rupna Mukherjee (DSC KEIP)	KEIP	8240229218	
18	Dr. Samar Kr. Banerjee	Env. Spl. DSC, KEIP	9831291734	
19	K. K. Bhatnagar	KEIP	7074391087	
20	MD-Azharuddin Alam	FFIL	6292128027	
21	Sumanta Kr. Behera	Suez India Pvt. Safety Incharge	8274007434	
22	Santosh Kr. Tiwari	SUEZ.	9997551257	
23	Somnath Sankar.	SNET	8670254188	
24	MILAN DHOZE	TEPL	7595869 794	



View of the workshop on safeguard implementation

APPENDIX 8: SAMPLE GRIEVANCE REDRESS FORM

The **Kolkata Environmental Improvement Investment Program (KEIIP)** welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing ***(CONFIDENTIAL)*** above your name. Thank you.

Date		Place of registration			
Contact Information/Personal Details					
Name		Gender	Male Female	Age	
Home Address					
Village / Town					
District					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below:					
If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of official registering grievance)	
If – then mode:	
<ul style="list-style-type: none"> • Note/Letter • E-mail • Verbal/Telephonic 	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	<ul style="list-style-type: none"> • Yes • No
Means of Disclosure:	

GRIVENCE REDRESS REGISTAR
GRIVENCES RECORD AND ACTION TAKEN

Sr. No.	Date	Name and Contact No. of Complainer	Type of Complain	Place	Status of Redress	Remarks