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ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

UNDER GROUND CABLING NETWORK FOR RAJARHAT TOWN UNDER WBEDGMP

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IISWBM

December 2020

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

FOR UNDER GROUND CABLING NETWORK OF RAJARHAT TOWN UNDER WBEDGMP WITH WORLD BANK FUND ASSISTANCE

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WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
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Kolkata – 700 091

Executed by

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LIST OF ACRONYMS AND ABBREVIATIONS

AE	Assistant Engineer
CE	Chief Engineer
CEA	Central Electricity Authority
CMVR	Central Motor Vehicle Rules
CO_2	Carbon Dioxide
CPCB	Central Pollution Control Board
CPRI	Central Power Research Institute
CRZ	Coastal Regulation Zone
DM	District Magistrate
DE	Divisional Engineer
EE	Executive Engineer
EEE	Electrical and Electronic Equipment
EHSGs	World Bank Group Environmental, Health and Safety Guidelines
ESIA	Environmental & Social Impact Assessment
ERP	Emergency Response Plan
ESA	Environmental and Social Assessment
ESCP	Environmental and Social Commitment Plan
ESF	Environmental & Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standard
FPIC	Free, Prior and Informed Consent
GDF	Gender Development Framework
GHG	Greenhouse Gas
GoWB	Government of West Bengal
GoI	Government of India
GIIP	Good International Industry Practice
GIS	Gas Insulated Switchyard
GRC	Grievance Redressal Cell
GRS	Grievance Redress Service
HVDS	High Voltage Distribution System
IEC	Information Education Communication
LMP	Labour Management Procedure
LVDS	Low Voltage Distribution System
MoEF&CC	Ministry of Environment, Forests & Climate Change

MoP	Ministry of Power
MoU	Memorandum of Understanding
MVA	The Motor Vehicles Act
NGO	Non-Governmental Organization
NOC	No Objection Certificate
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
PCB	Polychlorinated Biphenyls
PCCF	Principal Chief Conservator of Forests
PIU	Project Implementation Unit
RHA	Risk Hazard Assessment
RPF	Resettlement Policy Framework
R&R	Rehabilitation and Resettlement
RoW	Right of Way
SC	Scheduled Caste
SE	Superintendent Engineer
SF6	Sulfur Hexafluoride
SPCB	State Pollution Control Board
SEP	Stakeholder Engagement Plan
SESA	Strategic Environmental and Social Assessment
ST	Scheduled Tribe
T&D	Transmission and Distribution
TPPF	Tribal Peoples Planning Framework
UGC	Under Ground Cable
WBSEDCL	West Bengal State Electricity Distribution Company Limited
WBEDGMP	West Bengal Electricity Distribution Grid Modernization Project

EXECUTIVE SUMMARY

1.0 INTRODUCTION

West Bengal State Electricity Distribution Company Limited (WBSEDCL) is a power distribution licensee for almost the entire State of West Bengal and accounts for about 80% of the power supply in the State and caters to almost 18.1 million customers. At present grid connectivity has been extended in every nook and corner of the State covering 99% villages (2018-19). To achieve Power for All (PFA) objective, the Government of West Bengal (GoWB) has sought World Bank assistance to support part of their investments in High Voltage Distribution System (HVDS), 33/11 KV GIS, Underground Cabling (UG) across select districts/towns (besides modern technology and institutional capacity building) to facilitate increased availability of power, improve service delivery and reduce system losses.

The WBSEDCL has adopted a comprehensive Environmental and Social Management Framework (ESMF) for management of possible Environment and Social (E&S) issues to meet the overall requirement of sustainable development. The said ESMF provides for detailed assessment of such issues for planning mitigative measures and Plans for proper management of E&S issues through ESIA and project specific ESMP. Accordingly, ESIA studies for instant subproject of UG cabling network at Rajarhat town has been carried out to identify likely E&S impacts and their mitigation measures to protect or enhance the quality of the environment and social settings within the UG cabling influence area that includes:

- Anticipate and avoid risks and impacts;
- Where total avoidance is not possible, minimize or reduce them to acceptable levels;
- Once risks and impacts have been minimized or reduced, mitigate;
- Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.

The major steps involved in ESIA studies are as follows:

- Collect required primary data through necessary field investigations and surveys to assess likely/identified E&S risks and impacts;
- Undertake stakeholder analysis and public consultation;

- Identify suitable measures for the disposal of various waste/unserviceable materials generated due to the project such as electrical cables, transformers, electric poles, soil and other recyclable/reusable materials;

- Plan suitable mitigation measures for significant E&S risks & impacts following mitigation hierarchy.

WBSEDCL delineated Indian Institute of Social Welfare and Business Management (A Constituent Institute of University of Calcutta, Kolkata, West Bengal) to carry out ESIA study of the proposed UG cabling sub-project in accordance with the set out scope of work and Terms of Reference (ToR).

IISWBM team members along with executives of WBSEDCL, HQ visited the project site on 4th September, 2020. Initially, the detailed meeting was conducted at RM Bidhan Nagar office to take the stock of present status of various feeders (11 and 33 kV HT & LT). During the meeting, it was resolved that the preliminary survey for three feeders (11 kv) of Narayanpur Sub-station (33/11 kv) have been already undertaken accordingly, the Environmental and Social Impact Assessment Screening Study can be initiated for these feeders immediately. Subsequently, remaining three feeders (11 kv) of Siddhapyne Sub-stations (33/11 kv) would be undertaken. Accordingly, IISWBM team along with representative of WBSEDCL visited the select area of Rajarhat town to understand the field condition and initiating the Environmental and Social Impact Assessment Study.

IISWBM team members along with executives of WBSEDCL started field survey from 5th September, 2020. The series of public consultation meeting conducted involving local people and ward members of Rajarhat area along with the other stake-holders to identify the likely environmental and social issues as well as their suggestions for tackling the same in the entire cross-sectional area of the proposed project. The local people participated in the public consultation were enlisted and their endorsement/suggestion were recorded.

2.0 PROJECT DETAIL

The proposed sub-project for Conversion of Overhead Distribution System to Underground Cabling System replacing both HT and LT overhead lines (about 30.5Ckt km 11kV (HT) and 437.50 Ckt km 230V/440V LT lines) at Rajarhat Town, North 24 Parganas, West Bengal under West Bengal Electricity Distribution Grid Modernization Project (WBEDGMP) funded by World Bank.

The development objective of the proposed project is to improve the availability and efficiency of electricity supply in Rajarhat Town, South 24 Parganas, West Bengal through conversion of existing overhead line to underground cable network along with installation of RMU, Feeder

pillar box, Junction Box & New Transformer. Advantages of underground lines include aesthetics, higher public acceptance, fewer interruptions and lower maintenance costs. Failure rates of overhead lines and underground cables vary widely, but typically underground cable outage rates are very minimal in comparison to their equivalent overhead line types. The sub-project is expected to benefit about 0.403 million people of West Bengal. The total cost of the proposed sub-project is INR 128.00 Cr

Presently the distribution system is overhead and laid as radial system. Project has been conceived for conversion of existing overhead system to U/G cabling in Rajarhat Town. The Proposed U/G distribution network for this package has been re-configured as ring main system for both 11 KV & LT networks respectively. The proposed U/G cable shall be XLPE insulated, XLPE Cable laid directly in buried trench with brick cover. In areas having space constraints or RoW issues, micro-tunnelling will be carried out. Utility crossings will be through RCC/PVC pipes. The brief detail of scope of work of the proposed sub-project is presented in following table:

S No	Particulars	Unit	Qty.
1	Installation of 11/0.4 KV 160 KVA DTR on 7.03 mtr H-Beam Pole	No	10
2	Installation of 11/0.4 KV 315 KVA DTR 7.03 mtr H-Beam Pole	No	44
3	Installation of 11/0.4 KV 315 KVA Plinth Mounted DTR	No	66
4	Installation of 11 KV 3Wy O/D Type RMU	No	30
5	Installation of 11 KV 4Wy O/D Type RMU	No	190
6	Conversion of 33KV line from OH to UG using 400SQMM XLPE UG Cable	Km	6.0
7	New 11 kV feeder for newly installed DTRs using 3CX300 SQMM. XLPE UG.	km	1.20
8	New 11 kV feeder for bifurcation of existing 11 kV feeder by 11 kV (E), 3C x 95 sq.mm Armoured XLPE Underground Cable.	Km	39.0
9	Augmentation/Renovation of existing 11 kV Feeder by 11 kV (E), 3C x 300 sq.mm Armoured XLPE Underground Cable.	km	67.0
10	Supply Erection of Optical Fibre and Testing, Commissioning of UG(11&33KV)	Km	113.2
11	Conversion of LT line from OH to UG using Diff Size of UG Cable	Km	216.22
12	Conversion of LT line from OH to AB Cable (3c x 50 + 1c x 16 + 1c x 35) Sqmm	Km	112.07
13	Augmentation/Renovation of existing Service Connection/Street Light Connection by UG Cable with Supply installation of Meter pillar Box	LS	-

For selection of optimum route, following points has been taken into consideration:

- The route of the distribution line does not involve any human resettlement & rehabilitation.
- Any monument of cultural or historical importance is not getting affected.
- The route does not create any threat to the survival of any community
- It does not affect any Public-Utility Services like Playground, School, Other establishments, etc.
- It does not affect any Sanctuaries, National Park, etc.
- It does not infringe with areas of natural resources.

3.0 POLICY& REGULATORY FRAMEWORK

The major policy and regulatory framework followed for ESIA is ESMF. However, during development of ESMF various National/State environmental and social policies, legislations, and regulations and World Bank's Environmental and Social Standards were studied and gap identified to develop a comprehensive framework that take care of both national and Bank requirement in the field of E&S safeguard.

Accordingly, as per the initial risk assessment the sub-component III i.e. Conversion of Overhead Network into underground cable system at Rajarhat town sub-project is classified as *Moderate Risk.* This is due to the fact that the potential adverse risks and impact are not likely to be significant. As this sub-project does not involve any activities which may have high potential for harming people or the environment and is located away from environmentally or socially sensitive areas. As such, the likely impacts and risks are likely to have the following characteristics:

- predictable and expected to be temporary and/or reversible;
- very low in magnitude that can be addressed with proposed mitigative measures;
- site-specific, without likelihood of impacts beyond the actual footprint of the project;

- Very low probability of serious adverse effects to human health and/or the environment (e.g. do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.).

4.0 ENVIRONMENTAL & SOCIAL BASELINE

The existing environmental & social baseline of project area has been assessed to screen the potential environmental & social risks and impacts of various components of proposed project. A compendium of biophysical and social sensitivity in the project area has been compiled on the basis of secondary data and spot verification during the field visit to provide an understanding of scale and magnitude of sensitivity/vulnerability of physical, ecological and social environment.

Rajarhat is the part of Bidhannagar Municipal Corporation (BMC) of North 24 Parganas district in the state of West Bengal. Geographically Rajarhat lies between 22°37'0" latitude North and 88°31'0" longitude East. The total area of the Rajarhat is 34.97 sqkm.

Air quality of the project area is showing moderate to high level of air pollution particularly with respect to particulate pollutant (PM_{10}). However, the analysis of air quality recorded at selected feeders commercial as well as residential locations for conversion of existing overhead line in to underground cabling network at Rajarhat town during the September 2020 reveals that air pollutants i.e. PM_{10}, $PM_{2.5}$ as well as major gaseous pollutants concentrations were well within the permissible national AAQS. The overall Air Quality Index (AQI) was also found good i.e. 70 to 80.

The ambient noise level of the majority of the sub-project area showed that the value ranging from 55 to 70 dB which is well within prescribed limits.

Some dominant trees of Rajarhat town includes: Siris (*Albizia lebeck*), Raintree (*Samanea saman*), Akashmoni (*Acacia auriculiformis*), Sisso (*Dalbergia sisso*), Gamar (*Gmelina arborea*), Babul (*Acacia nilotica*), Pipal (*Ficus religiosa*), Banyan (*Ficus benghalensis*), Neem (*Azadirachta indica*), Habul (*Thespetia pupalnea*), Gulmohar (*Delonix regia*), Radhachura (*Peltaphorum inermis*), Tamarind (*Tamarindus indica*), *Pithecolobium dulce* (*Manila tamarind*), Katchampa (*Pterocarpus marsupium*), Siraul (*Ceiba pentaudra*), Mango (*Mangifera indica*), Amaltas (*Cassia fistula*), Kadam (Anthocephalos chinensis), Palas (*Butea superba*), Arjun (*Terminalia arjuna*), Katbadam (*Terminalia catappa*), Bahera (*Terminalia belerica*), Bel (*Aegle marmelos*), Teak (*Tectona grandis*), Karanj (*Pongamia pinnata*), Jarul (*Lagerstromea parviflora*), Mahoginy (*Swetenia mahoginy*), Pituli (*Trewia nudiflora*), Jhau (Casuarina equisetifolia). However, none of the species of plants and animals are Endemic or Endangered. None of the Eco-Sensitive area found in this region.

As it has been seen that Rajarhat consists 26 wards of Bidhannagar Municipal Corporation with 6.5 lakhs population (19.26% SC & 1.73% ST) which is 1.27% of Kolkata Metropolitan Area population and 0.68% of State population covering approximately 1.47 lakhs households. The sex ratio is 976: 1000 (2011 census) which is slightly higher than national average i.e. 940:1000. Percentage of literate is 89.69% and percentage of minor population is 9 %.

5.0 ENVIRONMENTAL & SOCIAL RISK & IMPACTS AND MITIGATION MEASURES

The assessment of environmental and social risk and impacts has been undertaken across the three phases namely: Pre-construction Phase, Construction Phase and Operation & Maintenance Phase of proposed sub-project comprising development of 33/11kV HT and LT Underground Distribution Cable Network in Rajarhat town area.

The most notable and anticipated benefits of UG cabling Network sub-project includes:

- Rajarhat being the important upcoming residential and commercial hub in North 24-Parganas District of West Bengal, stands vulnerable to natural calamities, will essentially need such resilient electrical distribution network, thus aid in State's economic growth and enable to become attractive and destination to investors
- Will help in improving aesthetics of the city through conversion of overhead power distribution network into resilient underground infrastructure. All overhead power distribution infrastructures will be dismantled, after commissioning of the UG cable project.
- UG cable network is safer to public lives and property, particularly of people belonging to lower economic strata of society during calamities/disasters/thunders/lightening instances
- Resilient underground electrical cable network will help to retain/restore water, sewerage and sanitation services across city during or after calamities/cyclones
- Conserve state's resources in re-construction of damaged electrical network during every calamity.
- The proposed UG cable project will concurrently enable to up-rate distribution network to future demands by at least 10 years by installing the XLPE cables, which are far superior than the conventional overhead conductors, thus will avoid upgrading/ up-rating of existing OH network.
- Trefoil configuration of underground cables in UG cable project will enable to improve current distribution, reduce sheath losses, minimize magnetic field around conductor and reduce heat-up of cables, all of which will further improve efficiency of underground cable network.
- Underground cables do not require any dedicated corridor to be kept permanently clear as in case of an overhead line for safety, maintenance and repair.

- Underground cables will vacate space over ground, which improves aesthetics, higher public acceptance, convey environmental benefits and as well spurt an increase in property values. Thus, underground cables have a potential to induce knock-on effect" - that all other local communities might want "their" network put underground.
- Underground cables do not create obstacles over ground like in case of overhead lines. Also, underground cables pose no hazard to avifauna and low flying aircraft, if any.
- Underground cables are not affected by momentary interruptions, occurring from lightning, crow faults and falling of tree branches on overhead lines, which de-energize and then re-energize the circuit moment later, a most common feature in overhead lines.
- Typically, outrages in underground cable network are about half of their equivalent overhead networks. Also, operating and maintenance costs are estimated to be around one tenth of the cost of overhead network. Thus, advantage of underground network is of fewer interruptions and lower maintenance costs.
- Underground cables will have no pilferage, whereas overhead cables have scope for pilferage/power thefts, which can lead to safety hazards and accidents at times.

The assessed significance of likely environmental and social impact of Conversion of Overhead Distribution System to Underground Cabling System in Rajarhat town under WBEDGMP are as follows:

IMPACT	SIGNIFICANCE RATING			
	Construction Phase		Operation Phase	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Soil and Geology				
Contamination of soil	Very low	Not anticipated	Not anticipated	Not anticipated
Drainage Pattern	Very low	Not anticipated	Not anticipated	Not anticipated
Increase in erosion potential and sedimentation	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Ecology				
Impact on terrestrial ecology	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Forest and vegetation clearance	Very Low	Not anticipated	Very low	Not anticipated
Impact on Aquatic environment	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Impacts on Wetlands	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Air Quality				

Deterioration of Air Quality Index (AQI) due to dust	Very low	Not anticipated	Not anticipated	Not anticipated
Fugitive emissions	Very low	Not anticipated	Not anticipated	Not anticipated
GHGs emissions	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Noise and vibration				
Deterioration in ambient noise quality	Very Low & Temporary	Well within the prescribed Standards	N.A. as limits well within prescribed standards.	N. A.

IMPACT	SIGNIFICANCE RATING			
	Construction Phase		Operation Phase	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Water quality				
Water quality	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Hazardous & Other Waste				
Hazardous Waste Generation	Very Low – negligible	Not anticipated	only during change of transformer oil/major maintenance	Not anticipated
Pollution from other waste generation	Very low	Not anticipated	Very low	Not anticipated
Health and Safety				
Occupational Health and Safety	Low	Not anticipated	Very Low	Negligible
Public Safety	Low	Negligible	Negligible	Negligible
HIV & AIDS/COVID	Low	Not anticipated	N. A.	N.A.
Traffic Impacts				
Traffic Disruption	Low	Negligible	Not anticipated	Not anticipated

IMPACT	SIGNIFICANCE RATING			
	Construction Phase		Operation Phase	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Damage to roads and other infrastructure	Low	Very Low	Not anticipated	Not anticipated
Socio-economic Impacts				
Physical displacement of people (R&R)	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Impact on Tribal Community	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Damage to commercial & Residential structures	Low	Very Low	Not anticipated	Not anticipated
Loss of livelihood	Very Low	Not anticipated	Not anticipated	Not anticipated
Damage to CPRs	Low	Very Low	Not anticipated	Not anticipated
Creation of employment	Low positive impact	Medium High positive	N.A.	N.A.
Influx of labour	Low	Very low	Not anticipated	Not anticipated

6.0 ANALYSIS OF ALTERNATIVES

The alternatives considered in the sub-project preparation to avoid or minimize both environmental and social impacts, by selecting the most optimal UG HT/LT cable route alignment as well as location of DTRs and other required infrastructure. Accordingly, analysis of various alternatives has been carried out to arrive at the technically best fit option with minimal environmental and social impacts including operational measures to minimize disturbances to public.

The 'with' and 'without' project scenarios are analyzed with respect to the development of the state by the backdrop of requirement of resilient electrical distribution infrastructure for sustained growth economy. The 'with' scenario of the UG cabling project is expected to provide a resilient electrical network. The UG cabling project is expected to minimize the miseries of people at large. The project also helps to upgrade the existing overhead network to construct an upgraded underground electrical network, which can cater to the projected power demand as of year 2025. Therefore, the "with" project scenario, with its insignificant adverse impacts is

more acceptable than the "without" project scenario which would mean an aggravation of the existing problems. Potential benefits of the proposed UG cabling project are substantial and far-reaching in order to achieve all-round development of the State economy and progress for its people. The economic benefits of UG cable sub-project of Rajarhat town is likely to be Rs 4728.204 Lakhs. The payback period of proposed sub-project workout to be four years.

The project preparation has considered several options/alternatives, during finalization of route alignment of the UG cable project. The factors, which were considered included most optimal cable length, avoid or minimize relocation/shifting requirements of existing utilities along route alignment, avoidance of trees, which otherwise need felling, avoid or minimize road crossing points, minimum diversions to traffic as well as pedestrian traffic among others.Keeping above in mind the routes of proposed UG cable under the sub-project have been so aligned that it takes care of above factors.

7.0 PUBLIC CONSULTATION & DISCLOSURE

The public consultation process for the proposed underground cabling network (HT/LT) in Rajarhat town area was conducted during the early stage of ESIA preparation i.e. September/October, 2020 for the proposed sub-project under WBEDGMP. In compliance with this requirement, public consultation was carried out covering entire cross section of project area. All the issues discussed in meeting were validated and information was provided to the groups about the details of the project.

A summary of concerns and possible mitigation measures discussed in the stakeholder meeting as well as various public consultative meetings in project area includes:

Concerns	Responses & Mitigation Measures
Impact on trees, crops and temporary commercial/residential structures	It was agreed that the no trees would be cut as far as possible however trimming of some trees may be required near DTRs/RMUs locations. Whereas, compensatory afforestation for affected trees @ 1:5 ratio would be practiced as per MoEF&CC guidelines if required. As agricultural land is also not likely to be affected due to proposed project therefore the significant crop damage is not envisaged except at the time of dismantling of existing OH HT/LT line at few area. However, few temporary commercial structures are likely to get affected temporarily during construction period and it was agreed by affected people that they will relocate themselves under the guidance of Rajarhat area Ward Councilors and other local people for construction of underground cabling network.
Electrocution and	The proponent would ensure the Underground Distribution Cable

Concerns	Responses & Mitigation Measures
vandalism	lines were maintained in a good state of repair, with frequent monitoring and necessary corrective measures. The transformers/RMUs would be fenced and beatified. Access to the cable joint inspection pits, transformer, feeder pillar box etc will be by authorized personnel and with necessary work permits when required. It was agreed that no settlement, or growing of trees within the Right of Way. Vandals were warned and the public encouraged in ensuring community policing. It was also agreed that anybody who would engage in any activity on a mounted transformer would require proper identification and information given to ward off vandalism.
Noise and dust	It was agreed that the Proponent would sprinkle water where and when necessary to minimize dust pollution, and construction to be done during the day-time only and to observe Noise regulations of CPCB.
Soil Erosion	It was agreed that soil erosion that may arise during cable trenches excavation and access roads would need to be controlled. Unnecessary excavations and vegetation disturbance will be avoided as much as possible. Sprinkling water will be done as necessary and any compacted earth surfaces will be restored to enhance percolation. Retainer walls will be constructed in sloppy areas.
Consultation and informing the affected	A house to house visit and meeting with each of the Project affected persons will be carried out, briefed about adoption of mitigative measures with the help of will be done.
Valuation of houses, trees and property	Valuers from the WBSEDCL, with the help of the BMC for all private property affected, if any will be done and compensation would be done at market rates in harmony with the Company's compensation policy. Trees will be valued using ministry of environment rates based on species and size. In case of disagreements and the grievance committee unable to get a solution, the aggrieved will be free to seek court redress at his/her own expenses.
Loss of Livelihoods	It was agreed compensation to destroyed property would be done at the market rates and the affected people given logistic support where possible.
Employment to local People	The contractor will be expected to engage the locals for unskilled and semiskilled jobs during the project. This forms part of the contractual agreement with the proponent. The locals should be able and willing to accept the wages offered. Further recruitments can also be during the operation phase and

Concerns	Responses & Mitigation Measures
	maintenance of the ROW, and also the informal sector self-employment opportunities expected to blossom once power supply is boosted and stabilized.

One separate multi-stakeholder consultation was conducted on 18th September, 2020 at Office of SDO Bidhannagar to disclose the ESMF as well as ESIA for UG Cabling sub-project under WBEDGMP and to get views and suggestions from public on the "Possible Environmental and Social Impacts of the proposed Underground Cable Project at Rajarhat town. Total 30-35 participants attended (22 as per attendance list rest have not signed) the workshop which includes Mayor, Commissioner, Joint Commissioner of Bidhannagar Municipal Corporation, SDO, ADM of Bidhannagar Subdivision, Representatives from PWD, Traffic Police, BSNL, WBSEDCL, RECPDCL, IISWBM, local residents including women and other stakeholders.

The executive summary of final set of ESIA would be made available at Project Authority's state and sub-project offices (RM/DM Bidhannagar). The final documents in full will replace the draft documents in Project Authority's websites. The list of eligible persons (APs) if any for disbursement of benefits as per RPF shall be separately disclosed at concerned ward offices of Rajarhat area to ensure transparency. The Resettlement Policy Framework (RPF), executive summary of the Environmental &Social Impact Assessment of the sub-project shall also be placed in the WBSEDCL's RM/DM office as well as SDO's Office, Bidhannagar.

8.0 ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN

A detailed Environmental Social Management Plan (ESMP) has been prepared based on comprehensive assessment that include measures for avoiding or mitigating possible environmental and social impacts, anticipated during construction, operation and maintenance of the Rajarhat UG cabling sub-project under WBEDGMP. The ESMP is designed on the principles of avoidance, minimization & mitigation, including offsetting /compensating any residual issues to meet the requirement of sustainable development and compliance of Bank's ESSs.

The implementation of various measures included in ESMP primarily constitutes good construction practices accordingly they are considered as incidental to works. However, some measures are additional requirement to mitigate or avoid environmental, social, health and safety concerns during the implementation of Rajarhat UG cabling sub-project. The detail of budgetary provisions for implementation of ESMP for Rajarhat UG cabling sub-project have been made and it is estimated to be **INR 121.89 lakhs**.

The ESMP will be integrated in the contract/bidding documents as **MANDATORY CONTRACTUAL OBLIGATIONS.** Thus, the EPC contractor is expected to be fully conversant with the ESMP requirements of Rajarhat UG cabling sub-project and accordingly make required provisions for implementing the ESMP at the bidding stage itself.

9.0 INSTITUTIONAL ARRANGEMENTS & GRIEVANCE REDRESSAL MECHANISM

WBSEDCL has developed a Project Implementation Unit (WBSEDCL-PIU) for the implementation of the Rajarhat UG cabling sub-project under WBEDGMP. The WBSEDCL PIU is located at the WBSEDCL headquarters in Bidyut Bhavan, Bidhannagar, Kolkata and is headed by the Additional Chief Engineer (Distribution Project). The WBSEDCL PIU would also be responsible for driving the implementation of the E&S safeguards in Rajarhat UG cabling sub-project under WBEDGMP. At the field level the Bidhannagar_II Divisional and Bidhannagar Regional offices of WBSEDCL who would be responsible for implementing the technical aspects of the Rajarhat UG cabling sub-project under WBEDGMP would also be responsible for the implementation of the ESMP. In addition, the Contractor implementing the Rajarhat UG cabling sub-project under WBEDGMP would also have an Environment and Social personnel to actually carry out the E&S safeguards on the ground.

The capacity building would include both augmentation of the present institutional structure of WBSEDCL PIU as well as carrying out training of the personnel to be involved in the Rajarhat UG cabling sub-project implementation on E&S issues.

For the implementation of the E&S safeguards the WBSEDCL PIU would be additionally supported by designated Environmental Officer and Social Officer. These personnel would preferably from within WBSEDCL having requisite qualification and experiences. However, at the field level, the E&S safeguards implementation would be supervised by the designated Divisional/Assistant Engineer attached to the Region/Division implementing the project. The designated officers would be trained on E&S aspects and the implementation requirements of the ESMF in WBEDGMP.

The Contractor would also have an Environmental Engineer/Officer and a Social Officer in the team who is implementing the project. The respective contractor would be responsible for the submission and implementation of Construction - Environmental & Social Management Plan (C-ESMP) as well as provisions of ESMP as provided in the contract document and also coordinating with the respective Department for necessary statutory clearances if required.

The WBSEDCL PIU through the respective Region/Division Offices would monitor the implementation of the ESMF/ESIA and ESMP. The monitoring would be carried out through the subproject wise Monthly Progress Reports (MPR) submitted by the Bidhannagar Region/Division Office of WBSEDCL. The designated Environmental Officer and Social Officer of the WBSEDCL PIU would also visit the site regularly for the purpose of monitoring and

supervision. The reporting would capture information from the Contractors/Implementing Agency to Region/Division Offices and through a graduated process of consolidations, analysis and assessment, a monthly progress report will be send by the Division Office to the Environment and Social Officers at WBSEDCL PIU.

The WBSEDCL PIU would review these monthly reports and identify technical, managerial or regulatory and safeguard issues with regards to the compliance of the ESIA/ESMP provisions. A corrective action plan would be developed by the WBSEDCL PIU and debated internally to determine the appropriate interventions. These interventions would be conveyed to the WBSEDCL Management through a Quarterly report for approval and subsequently implemented by WBSEDCL PIU. The PIU would prepare a quarterly progress report (QPR) with ESMP compliance status and Semi-annual monitoring report and present it to the WBSEDCL and World Bank.

Grievance Redressal Mechanism

3-tier grievance redressal mechanism is already in place at WBSEDCL. It would be aligned to resolving grievance/disputes related to the environmental and social performance of the project. The stakeholders including tribal affected persons to flag-off any concerns/grievance/disputes in the project and seek redressal of the same thereby ensuring effective participation would use the system.

In order to realign with existing GRM mechanism of WBSEDCL to address grievances related to ESMP implementation two bodies are to be established; Project Steering Committee (PSC) at the corporate level and Grievance Redressal Committees (GRCs) at the sub-project sites. These PSC and GRCs would be aligned with the existing grievance redressal mechanism of WBSEDCL for easy access and timely redressal of any grievance of the APs and other local people.

It is proposed that the APs first register the grievances with the IA. After receipt of grievance, the IA should take them to the Committee (GRC) to take up the matter during the next immediate meeting and initiate measures for redressal. No grievance can be kept pending for more than a month which means the Committee has to meet every month. Implementation of the redressal rests with the PIU. In case the aggrieved party is not satisfied with the proposed redressal measures, it can approach the PSC. If the aggrieved party is not satisfied with the decision of PSC, it can approach the court of law.

In addition to seeking to resolve their grievances through the GRM established at the government level, “communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redressal Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns.

1.0 INTRODUCTION

1.1 BACKGROUND

West Bengal State Electricity Distribution Company Limited (WBSEDCL) is a power distribution licensee for almost the entire State of West Bengal, except for certain areas, which are catered by private distribution licensees. WBSEDCL accounts for about 80% of the power supply in the State and caters to almost 18.1 million customers (2018-19). At present grid connectivity has been extended in every nook and corner of the State covering 99% villages and the low and medium voltage consumer base has seen a significant increase post implementation of rural electrification schemes. However, this has led to a steady increase in losses with Aggregate Technical and Commercial (AT&C) loss levels.

To achieve Power for All (PFA) objective, the State has planned investments in modern ICT technologies including operational technologies across the complete electricity supply and demand chain to ensure efficiency and monitor reliable supply of power. The Government of West Bengal (GoWB) has sought World Bank assistance to support part of their investments in High Voltage Distribution System (HVDS), 33/11 KV GIS, Underground Cabling across select districts/towns (besides modern technology and institutional capacity building) to facilitate increased availability of power, improve service delivery and reduce system losses and achieve the PFA objectives.

For implementation of proposed distribution network strengthening project, due diligence of environment and social requirements of the World Bank's Environmental and Social Framework (ESF) and applicable Government of India (GoI)/GoWB's social and environmental legal framework have been undertaken. Based on due diligence, Environmental and Social Management Framework (ESMF) for proposed West Bengal Electricity Grid Modernization Project (WBEDGMP) has been formulated.

1.2 NEED OF ESIA

The WBSEDCL has adopted a comprehensive Environmental and Social Management Framework (ESMF) for management of possible Environment and Social (E&S) issues to meet the overall requirement of sustainable development. The said ESMF provides for detailed assessment of such issues for planning mitigative measures and Plans for proper management of E&S issues through ESIA and project specific ESMP. Accordingly, ESIA studies for instant sub-project of UG cabling at Rajarhat town has been carried out to identify likely E&S impacts and their mitigation measures to protect or enhance the quality of the environment and social settings within the HVDS & GIS sub-project influence area that includes:

- Anticipate and avoid risks and impacts;
- Where total avoidance is not possible, minimize or reduce them to acceptable levels;
- Once risks and impacts have been minimized or reduced, mitigate;
- Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.

1.3 OBJECTIVES OF THE STUDY

The prime objectives of the ESIA study includes:

- To collect required primary data through necessary field investigations and surveys to assess likely/identified E&S risks and impacts;
- To undertake stakeholder analysis and public consultation;
- To identify suitable measures for the disposal of various waste/unserviceable materials generated due to the project such as electrical cables, transformers, electric poles, soil and other recyclable/reusable materials;
- To plan suitable mitigation measures for significant E&S risks & impacts following mitigation hierarchy.

1.4 SCOPE OF THE STUDY

The ToR for conducting ESIA study is presented in Appendix 1.1. The brief scope of the ESIA study as per the ToR includes:

- Preparation of environmental and socio-economical profile of the sub-project (Corridor of Impact), through primary and secondary information (comprising demographic, socioeconomic, physical, biological and ecological/environmental features, etc).
- Conduct a socio-economic survey of the households along the alignment duly covering all indicators for the present and future evaluation and assessment.
- Preparation of questionnaire or instruments for the ESIA study.

- Based on the route alignment and field visits, develop an inventory of impacts of both temporary and permanent structures, trees and other environmental sensitive receptors such as schools, religious places and other common property resources and any other issues, which may be affected, while laying the underground cable network and during operation and maintenance.

- Identification of various other issues such as disposal of excess excavated earth, waste disposal/ reuse of old overhead electric cables, dismantling/ disposal of electrical poles, disposal of excess transformers (if any), disposal of transformer oil (if any), etc.

- Assessment of the health and safety impacts of laying the underground cable network, both during construction and operation phase of the project.

- For all the impacts/ issues identified above, recommend elimination or mitigation/management measures to be implemented by the project implementation unit and the construction contractors, in line with the Environmental and Social Management Framework (ESMF) of WBEDGMP.

- Study & inclusion of measures and plans mitigating temporary/ permanent impacts to the structures and communities along the cable alignment and prepare site specific ESMP to mitigate environmental & social impacts, RAP (if there are resettlement/ rehabilitation issues) and/or Tribal Development Plan (if there are significant population of tribal people likely to get affected).

- Identify various regulatory clearances that may be required for the sub-project, such as tree cutting permissions, “no objections” from state /national highway authorities, railways, utility agencies, etc.

- Preparation of a monitoring plan with reference to ESMP.

- A Grievance Redressal Mechanism (GRM) is to be developed in accordance with the ESMF under WBEDGMP and as per World Bank guidelines as well as WBSEDCL existing GRM.

- Conduct formal stakeholder/public consultations, to understand the impacts anticipated by the communities and also to explain measures proposed under project to implement to mitigate such impacts. These public consultations are to be conducted with the communities for information dissemination and their feedback. At least one such consultation will be carried with women in each community. The World Bank and the WBSEDCL need to be informed before conducting these consultations for possible participation.

- Finalize ESIA for implementation incorporating comments received from WBSEDCL and the World Bank.

1.5 ENGAGEMENT & MOBILIZATION OF CONSULTANT FOR THE STUDY

WBSEDCL delineated Indian Institute of Social Welfare and Business Management (A Constituent Institute of University of Calcutta, Kolkata, West Bengal) to carry out ESIA study of the proposed UG cabling sub-project in accordance with the set out scope of work and Terms of Reference (ToR).

A kick-off meeting was held on 17thOctober, 2019 at the chamber of Chief Engineer (Distribution), WBSEDCL, HQ, Salt Lake, Kolkata to discuss the modalities for initiating the Environmental & Social Impact Assessment Study for proposed Underground Electrical Cabling Network (33/11 kV HT & LT Lines) at Rajarhat Town Area under World Bank Project WBEDGMP and logistic support required for the same under the guidance of Chief Engineer (Distribution) and Addl. Chief Engineer (Distribution), WBSEDCL, HQ with project team members of IISWBM.

IISWBM team members along with executives of WBSEDCL, HQ visited the project site on 4th September, 2020. Initially, the detailed meeting was conducted at RM Bidhan Nagar office to take the stock of present status of various feeders (11 and 33 kV HT & LT). During the meeting, it was resolved that the preliminary survey for three feeders (11 kv) of Narayanpur Sub-station (33/11 kv) have been already undertaken accordingly, the Environmental and Social Impact Assessment Screening Study can be initiated for these feeders immediately. Subsequently, remaining three feeders (11 kv) of Siddhapyne Sub-stations (33/11 kv) would be undertaken. Accordingly, IISWBM team along with representative of WBSEDCL visited the select area of Rajarhat town to understand the field condition and initiating the Environmental and Social Impact Assessment Study.

IISWBM team members along with executives of WBSEDCL started field survey from 5th September, 2020. The series of public consultation meeting conducted involving local people and ward members of Bidhan Nagar Municipal Corporation (BMC) along with the other stake-holders to identify the likely environmental and social issues as well as their suggestions for tackling the same in the entire cross-sectional area of the proposed project. The local people participated in the public consultation were enlisted and their endorsement/suggestion were recorded.

1.6 STRUCTURE OF REPORT

The ESIA Report for UG cable network project for Rajarhat town has been structured into 9 Chapters as hereunder:

Executive Summary

Chapter 1 –Introduction: This chapter describes background of project and its components; need/requirement, objectives and scope of ESIA studies; and structure of the ESIA report.

Chapter 2 –Project Description: This chapter summarizes the UG cable sub-project design and proposed activities for laying of underground cables in Rajarhat town under the WBEDGMP.

Chapter 3 –Policy & Regulatory Framework: This chapter describes the applicable environmental policies and regulations of Government of India, Govt. of West Bengal and the World Bank Policies& Standards, which are applicable to the UG electrical cabling sub-project.

Chapter 4 –Environmental & Social Baseline: This chapter describes baseline environmental & Social profile of the project area, within which the UG cable sub-project will be implemented. The baseline environmental& social conditions of the sub-project area have been assessed based on both secondary data base and supplemented by primary investigations wherever required.

Chapter 5 – Environmental & Social Risks & Impacts and Mitigation Measures: This chapter identifies and evaluates the anticipated environmental& Social impacts due to the proposed UG cable sub-project. The Chapter also includes suggested mitigation measures in order to avoid/minimize the likely impacts during pre-construction, construction and operation phases of UG cable sub-project.

Chapter 6 – Analysis of Alternatives: This chapter describes the alternatives considered in the project design in order to minimize and/or avoid the potential environmental as well as social impacts due the implementation of UG cable sub-project.

Chapter 7 – Public Consultations and Information Disclosure: This chapter provides information on the public consultations carried out along underground cable routes as well as multi stakeholder consultations. The chapter summarizes the various issues/concerns raised by general public at large and how the same has been addressed in ESMP.

Chapter 8 – Environmental & Social Management Plan: This chapter describes an Environmental& Social Management Plan (ESMP) in order to minimize and/or avoid the impacts of the UG cable sub-project. The chapter also includes budgetary provisions as required for implementing the ESMP and its supervision by PIU.

Chapter 9 –Institutional Arrangement & GRM: This chapter provides a suggested institutional arrangement for ESMP implementation supervision and monitoring mechanism during UG cable sub-project implementation phase. This chapter also include a responsive grievance redress mechanism, given the nature of this project, which will be implemented within city limits and along busy roads/commercial areas and residential areas and therefore its potential to disrupt public utilities, water, sanitary utilities, impact upon street vendors/squatters among others and trigger public resentment, despite the benefits, that the project can usher on society.

FIGURE 1.1: INITIATION OF FIELD STUDY FOR THE FORMULATION OF ESIA FOR UG CABLING SUB-PROJECT UNDER WBEDGMP AT RAJARHAT TOWN

FIGURE 1.2: FIELD SURVEY FOR THE FORMULATION OF ESIA FOR UG CABLING SUB-PROJECT UNDER WBEDGMP AT RAJARHAT TOWN

2.0 PROJECT DETAILS

2.1 NATIONAL & STATE PROGRAMS IN POWER SECTOR

2.1.1 Country and Sector Issues

India's economy is the sixth-largest in the world by nominal GDP ($ 2.264 trillion) and third-largest by Purchasing Power Parity. The provision of quality and efficient infrastructure services is essential to realize the full potential of the growth impulses surging through the economy. The Government of India (GoI) has identified the power sector as key to achieving its goals of high and sustainable economic growth and accelerated poverty alleviation. India's Eleventh Five Year Plan (2007–12) and the Integrated Energy Policy, 2005 sought to eradicate poverty, and have created new opportunities to address India's rural energy problems. Now, the Twelfth Five-year Plan (2012-2017) focuses on a faster, inclusive, and more sustainable growth agenda.

The enactment of the landmark Electricity Act 2003 has been followed by a steady improvement in the country's power sector policy framework. The central and state governments have also launched major initiatives to expand rural access to ensure electricity on demand. The Centre has recently launched the 24X7 Power for All (PFA) joint initiative with all State Governments and UTs which aims at providing uninterrupted power supply to already connected consumers and providing access to all un-connected consumers by March 2019. The initiative involves the preparation and adoption of a PFA Roadmap by all states which clearly outlines the requirements across Generation, Transmission, Distribution, RE, and EE to achieve the end objectives of the program. West Bengal has already achieved 99% of village electrification and has set a target to achieve 100%.

2.1.2 West Bengal Power Sector

West Bengal with a population of around 96 million is the fourth most populous state of India. It has an area of 88,752 sq km. A major agricultural producer, West Bengal is ranked sixth in terms of contributions to India's net domestic product. West Bengal's nominal GSDP at current prices has risen to INR 9.20083 trillion or US$140.68 billion in the year 2015-16. West Bengal's average population in that year being 95.5 million, per capita nominal GSDP at current prices for the economic year 2015-16 can be calculated as US$1473. In terms of nominal net state domestic product (NSDP) at factor cost at current prices (base year 2004-2005), West Bengal was the sixth largest economy in India, with an NSDP of INR 7289.74billion or US$120.93 billion in 2014-15 and in terms of nominal gross state domestic product(GSDP) at current prices, the state had GSDP of US$132.86 billion in the economic year 2014-15. Agriculture accounts for the largest share of the labour force. The service sector has witnessed a phenomenal growth in last few years. The growth has been driven by trade, hotels, real estate, finance, insurance,

transport, communications and other services. The state is now power surplus having no shortage of power supply and ensured 24X7 power supply for all categories of consumers with no discrimination between urban and rural segment.

West Bengal implemented power sector reforms envisaged under Electricity Act 2003 by way of unbundling erstwhile State Electricity Board with creation of new companies for Transmission and Distribution business in the year of 2007. State owned Power Generation Company was also formed much earlier. In last six years, huge volume of capacity addition of electricity infrastructure and new electrification of villages and hamlets took place. The no. of consumers has become more than double in last six years. This has resulted enormous scope for the growth of rural economy.

At present grid connectivity has been extended in every nook and corner of the state covering 99% villages and the residual part is likely to be covered soon. However, the expectation of the consumers has grown very high and everybody expects uninterrupted and quality power supply for 24X7 hours. The key challenges facing the sector are summarized below:

- **Low Voltage Issues at some pockets:** Owing to vast spread of LT Distribution network covering remote places, issue of low voltage has come up at certain pockets which require some additional investment to improve the voltage profile to the desired extent. The **HT: LT ratio** need to be improved by way of increasing the length of HT line and installing the DTRs nearer to the load centers.

- **Interruption free power supply:** As the economic activities both in rural and urban areas are dependent upon the supply of electricity to a large extent, consumers in general expects power supply in an uninterrupted manner throughout all the seasons and weather condition. But as the distribution network is predominantly overhead in nature, system outage takes place during inclement weather. Hence, there is need to convert overhead network into under cable system at important towns in a phased manner to ensure quality and reliable power supply.

- **AT&C Loss reduction:** As the distribution network has been extended rapidly to a large extent with addition of huge nos. of low end consumers, it has given rise to AT&C losses of the Discom. It is perceived that both technical and commercial loss levels have increased which requires immediate course correction by way of introducing changes in system and improving operational efficiencies.

- **Retaining existing large consumers:** The distribution utility faces another challenge in form of parallel licensees operating in the state having overlapping areas in selected districts. In the last few years, some consumers have shifted to the network of other licensees. So, improvement of quality of supply is imperative in the competitive landscape.

2.2 PROJECT OVERVIEW

A typical transmission grid comprises High Voltage (HV) transmission circuits (400/220/132 KV) and substations. The transmission network interfaces with the distribution network at the 132/33kV substation level. Transmission lines deliver electricity up to this grid exit point (132/33 kV substation) and electricity is then delivered to the load centers (cities) through 33kV lines. These lines terminate at a 33 kV substation, where the voltages stepped-down to 11 kV for power distribution to load points through a distribution network of lines at 11kV and lower.

Each 11kV feeder which emanates from the 33kV substation branches further into several subsidiary 11kV feeders to carry power close to the load points (localities, industrial areas, villages, etc.). At these load points, a distribution transformer (DTR) further reduces the voltage from11kV to 415V to provide the last-mile connection through Low Tension (LT) lines to individual customers, either at 240V (as single-phase supply) or at 415V (as three-phase supply).

The common practice is to use large capacity DTRs, usually of 100kVA or 63kVA capacity, to serve a large number of consumers from a single DTR thereby minimizing the investments required in distribution infrastructure. This system is useful when catering to high load density rural areas where high concentration of consumers requires LT lines to cover only short distances.

On the other hand, in rural areas, the consumer concentration is dispersed over relatively larger geographical area. As a result, lengthy LT lines are put in place which causes significant line losses and voltage fluctuations. Consumers at the tail end of the LT line in particular face issues of low voltage. Due to low voltage, farmers try to compensate by using larger capacity motors which then overload the LT line. Additionally, due to the long length of the LT lines in this model, theft of electricity is easier and unauthorised connections also contribute to overloading the DTR leading to frequent failures. As the DTR is the collective responsibility of multiple farmers, there is very little incentive for any one farmer to prevent overloading of the line. Further the voltage fluctuations also lead to frequent burnouts of motors connected to the LT line.

Underground Cabling Network

To convert the existing distribution network at identified locations into underground cabling, it is contemplated (based on sample study) to implement either open cut-and-cover type UG cabling or wherever not possible for the same then there micro tunnelling is preferred. H-pole beam structure will be constructed for installation of Distribution Transformers (DTR) and concrete Plinth for installation of Ring Main Unit (RMU),LT Feeder and Junction box. Thus, the length of existing HT line from the city will be removed and UG cabling will be provided with the RoW thus previous DTR will be minimized and I^2R loss will be reduced. Besides, use of LT AB

cable will help to enhance safety from electrocution and other electrical hazards to users/public as well as check power theft from overhead lines.

2.3 PROPOSED PROJECT DEVELOPMENT OBJECTIVE AND BENEFITS

The development objective of the proposed sub-project is to improve the availability and efficiency of electricity supply in Rajarhat , North 24 Parganas, West Bengal through conversion of existing overhead line to underground cable network along with installation of RMU, Feeder pillar box, Junction Box & New Transformer. Key indicators to monitor progress towards achieving the development objective of the sub-project are:

- To reduce technical losses in the system
- To ensure greater reliability & quality of power
- To ensure increased customer satisfaction
- To improve safety for consumers particularly in congested areas
- To improve the overall socio-economic condition of the district

Advantages of Underground Cabling Network

Advantages of underground lines include aesthetics, higher public acceptance, fewer interruptions and lower maintenance costs. Failure rates of overhead lines and underground cables vary widely, but typically underground cable outage rates are very minimal in comparison to their equivalent overhead line types. Primary advantage of U/G Network most often cited can be divided into four areas:

- Potentially Reduced Maintenance and Operating Costs
  - Lower storm restoration cost
  - No tree trimming cost
  - Practically nil interruptions/breakdown hence low restoration cost
  - Reduction of power thefts

- Resilience enhancement
  - Less susceptible to the impacts of severe weather conditions.
  - Less damage during severe weather
  - Very fewer momentary interruptions

- Improves Safety
  - Lessens electrical accidents to public
  - Lessens vehicle accidents
  - Emit no electric field in air thus protect environmental ecosystem

- Improvement in Aesthetic Value
  - It requires a narrower band of land to install without disturbing actual scenic beauty of the area.

Benefits of Underground Cabling Network

The prime benefits of proposed sub-project includes:

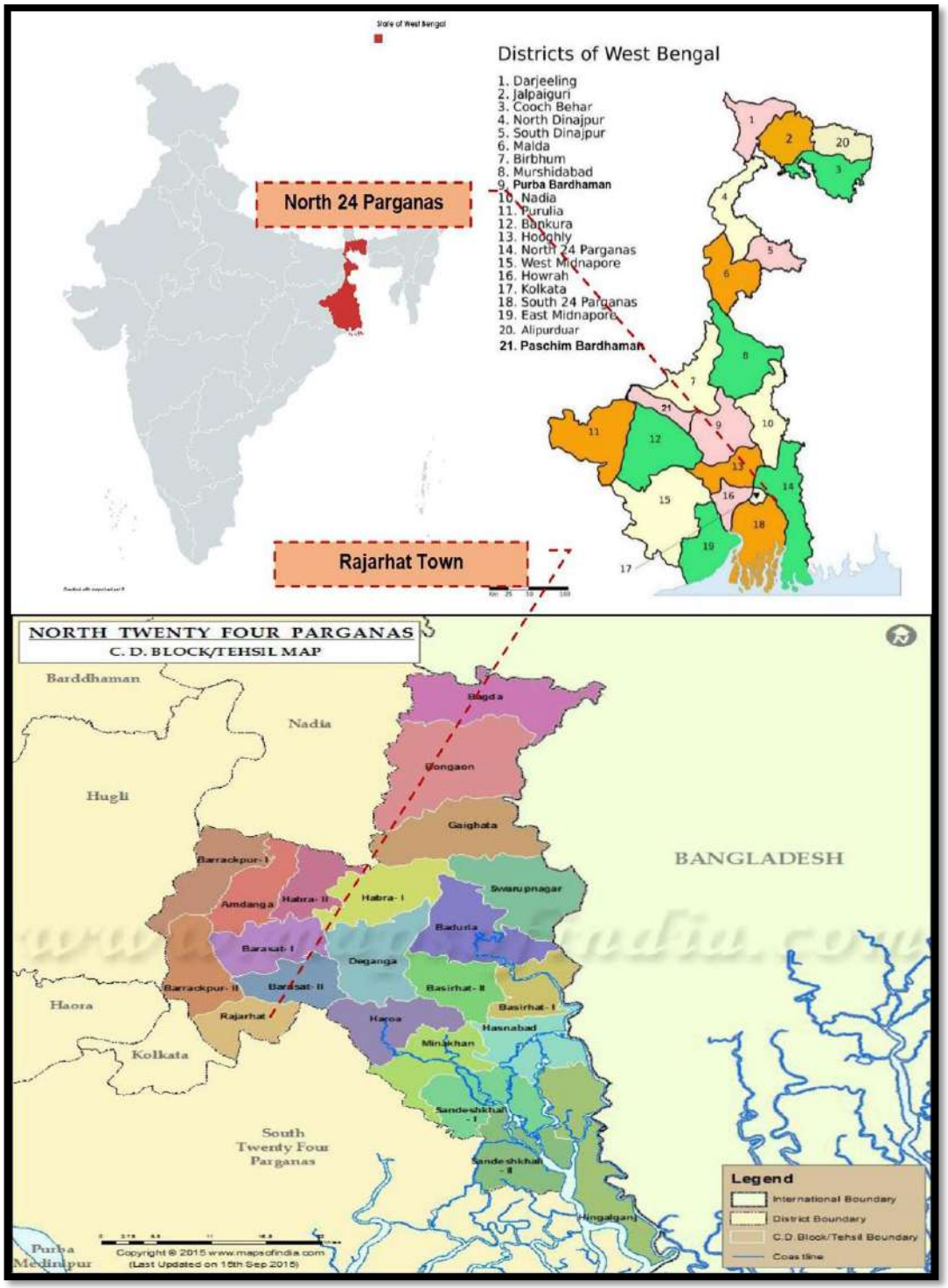
- Reduced maintenance and operating cost
- Increased Reliability
- Reduction of failure of DTRs
- Reduction in theft of energy
- Saving in technical energy loss

2.4 PROJECT LOCATION & CONSUMER PROFILE

2.4.1 Location

Rajarhat is a town under Bidhannagar Municipal Corporation of North 24 Parganas district in the Indian state of West Bengal (Figure 2.1). It is close to Kolkata and also a part of the area covered by Kolkata Metropolitan Development Authority (KMDA). Lying just on the periphery of the planned New Town, Rajarhat has seen huge spurt in real estate development.

FIGURE 2.1: LOCATION OF UGC RAJARHAT TOWN SUB-PROJECT



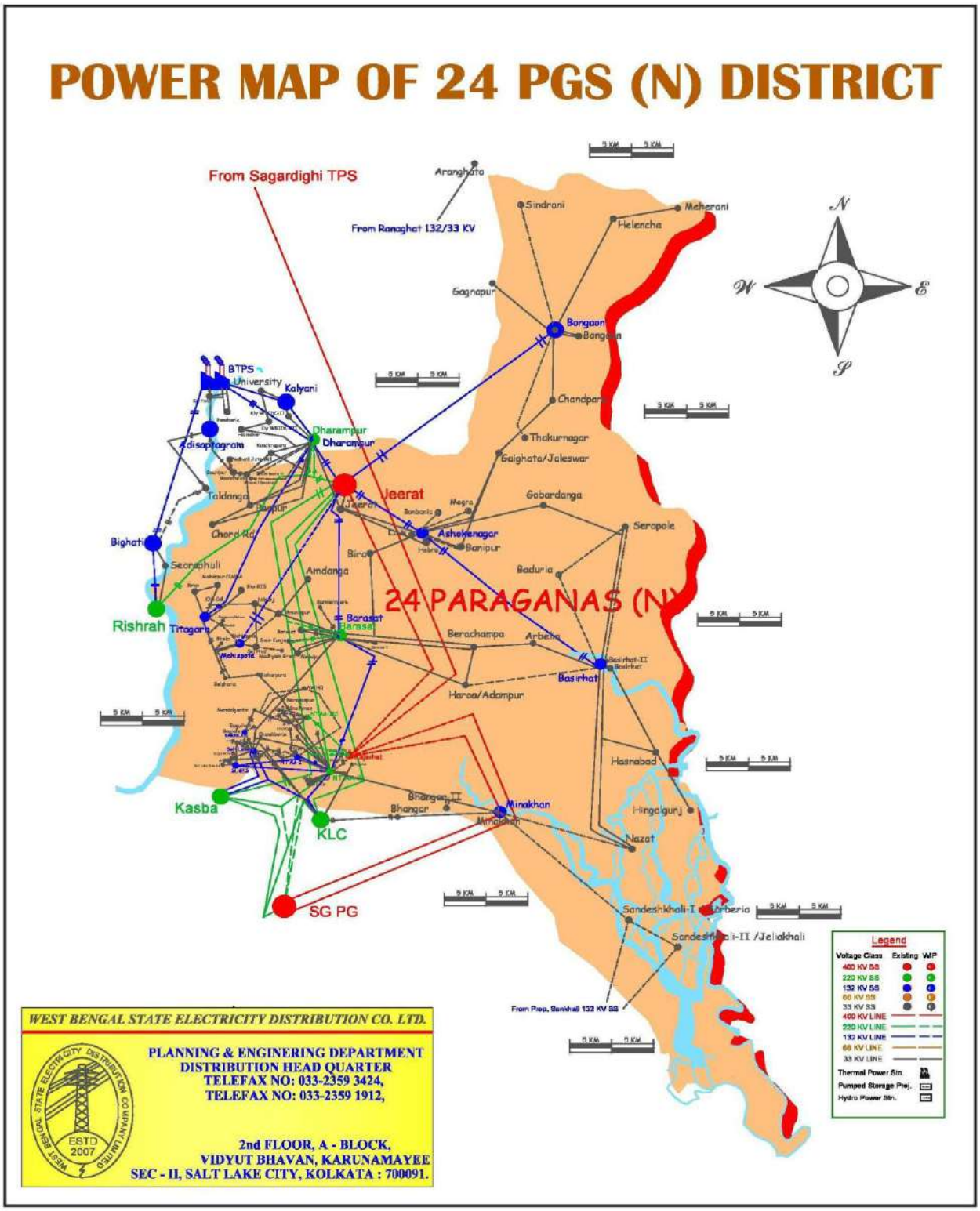
2.4.2 ANNUAL LOAD GROWTH

The power map of North 24 Parganas District is presented in Figure 2.2. Table 2.1 presents the annual load growth of Rajarhat town.

TABLE 2.1: ANNUAL LOAD GROWTH OF RAJARHAT

Sl.No.	Scheme Area *	Load details (MU)				Scheme Area	Load growth % adopted**
		2013-14		2018-19			
		Energy Sold (MU)	Max. Demand (MVA)	Energy Sold (MU)	Max. Demand (MVA)	Rajarhat	
1	Rajarhat	64.019	67.992	105.4141506	108.7962801	10.49	10.49
	TOTAL	64.019	67.992	105.4141506	108.7962801		

FIGURE 2.2: POWER MAP OF NORTH 24 PARGANAS DISTRICT



2.4.3 CONSUMER DETAILS

The detail of existing consumer profile in UG Cabling Area for Rajarhat Town is presented in Table 2.2.

TABLE 2.2: DETAIL OF CONSUMER PROFILE IN RAJARHAT AREA (AS ON 31.03.2020)

SL NO	Name of Division	Name of CCC/ Town	DETAILS OF CONSUMERS											
			33 KV Consumer		11 KV Consumer		LT Consumer							
							Industrial		Domestic		Commercial		Agricultural Consumer	
			Nos	MD (MVA)	Nos	MD (MVA)	No	Load (Kw)	No	Load (Kw)	No	Load (Kw)	No	Load (Kw)
1	BNDD II	RAJARHAT	0	0	15	4453	310	3687.14	44049	114679	3267	10988	0	0

2.5 PROJECT DESCRIPTION AND KEY PERFORMANCE INDICATORS

2.5.1 Implementing Agency

The implementing agency of the project will be West Bengal State Electricity Distribution Company Limited (WBSEDCL).

2.5.2 Co-financing

The project will be implemented through loans from the World Bank and investments by the Government of West Bengal/ WBSEDCL

2.5.3 Project Components

The project will comprise of investment and technical assistance for Conversion of existing overhead system to U/G cabling in Rajarhat. The brief description of the Rajarhat UG cabling sub-project under WBEDGMP is presented in Table 2.3.

Presently the distribution system is overhead and laid as radial system. Project has been conceived for conversion of existing overhead system to U/G cabling in Rajarhat Town. The Proposed U/G distribution network for this package has been re-configured as ring main system for both 11 KV & LT networks respectively. The proposed U/G cable shall be XLPE insulated, XLPE Cable laid directly in buried trench with brick cover. In areas having space constraints or RoW issues, micro-tunnelling will be carried out. Utility crossings will be through RCC/PVC pipes. The main components of proposed UG Cabling Network sub-project includes:

- Construction of H-Beam Pole structures for installation of Distribution Transformers (DTR) and Concrete Plinth for installation of Ring Main Unit (RMU), LT Feeder Pillar Box and Junction Box.
- Laying of UG HT cable along the road and terminating the same at RMU & DTRs.
- Laying of UG LT cable along the road at road centres and terminating the same at Feeder Pillar & Junction Boxes.
- Effecting service connections from the Junction Boxes.
- Dismantling the old OH existing network assets and storing the returnable materials to the designated stores.

TABLE 2.3: SALIENT FEATURES OF THE RAJARHATB UGC SUB-PROJECT

1.	Name of Sub-Project	Conversion of Overhead Lines to Underground Cabling of HT (33/11kv) & LT (1.1kv) Electrical Network at Rajarhat Area under West Bengal Electricity Distribution Grid Modernization Project (WBEDGMP).				
2.	Project Location	Site- Rajarhat, District-North 24 Parganas, State- West Bengal				
3.	Access to the Project	**Nearest Rail Station**: Bidhanagar Rly. **Nearest National Highway:** NH-12 **Road Distance**: From Kolkata (State Capital) = 14.9 Km.				
4.	Project Area Profile	Total Area of Coverage	Sq. km	34.97		
		Total Number of Consumers	No.	75,222		
		Total Population (as per 2011 census)	No.	4,02,844		
5.	Project Benefits	1. Improvement in quality and reliability of supply with ring main system. 2. More Scope of Industrialization due to improvement in Power Quality. 3. Reduction in failure of Supply with ring main system with sufficient redundancy. 4. Ensures safety i.e. less susceptibility to fatal accident and electrical hazards. 5. Reducing theft of energy due to use of UG Cable 6. Financial benefits by way of Reduction in Line Losses in project area by using UG Cable 7. Technical benefits by way of improved system parameters achieved by improving infrastructure quality.					
6	Detail of Scope of Work	S No	Particulars		Unit	Qty.
		A	Installation of 11/0.4 KV 160 KVA DTR on 7.03 mtr H-Beam Pole		No	10
		B	Installation of 11/0.4 KV 315 KVA DTR 7.03 mtr H-Beam Pole		No	44
		C	Installation of 11/0.4 KV 315 KVA Plinth Mounted DTR		No	66
		D	Installation of 11 KV 3Wy O/D Type RMU		No	30
		E	Installation of 11 KV 4Wy O/D Type RMU		No	190

		F	Conversion of 33KV line from OH to UG using 400SQMM XLPE UG Cable	Km	6.0
		G	New 11 kV feeder for newly installed DTRs using 3CX300 SQMM. XLPE UG.	km	1.20
		H	New 11 kV feeder for bifurcation of existing 11 kV feeder by 11 kV (E), 3C x 95 sq.mm Armoured XLPE Underground Cable.	Km	39.0
		I	Augmentation/Renovation of existing 11 kV Feeder by 11 kV (E), 3C x 300 sq.mm Armoured XLPE Underground Cable.	km	67.0
		J	Supply Erection of Optical Fibre and Testing, Commissioning of UG(11&33KV)	Km	113.2
		K	Conversion of LT line from OH to UG using Diff Size of UG Cable	Km	216.22
		L	Conversion of LT line from OH to AB Cable (3c x 50 + 1c x 16 + 1c x 35) Sqmm	Km	112.07
		M	Augmentation/Renovation of existing Service Connection/Street Light Connection by UG Cable with Supply installation of Meter pillar Box	LS	-
7	Cost of Project	INR 128 Cr (Including All taxes and duties)			
8	Completion Time	24 Months			

Estimated Cost of Rajarhat UGC Sub-project

The estimated cost of Rajarhat UGC Sub-project is presented in Table 2.4.

TABLE 2.4: ESTIMATED COST OF THE RAJARHAT UGC SUB-PROJECT UNDER WBEDGMP

S No.	Particulars	Unit	RATE (Rs Cr)	Qty.	Project Cost (Rs Cr)
A	Installation of 11/0.4 KV 160 KVA DTR on 7.03 mtr H-Beam Pole	No	0.045	10	0.446
B	Installation of 11/0.4 KV 315 KVA DTR 7.03 mtr H-Beam Pole	No	0.090	44	3.948
C	Installation of 11/0.4 KV 315 KVA Plinth Mounted DTR	No	0.077	66	5.064
D	Installation of 11 KV 3Wy O/D Type RMU	No	0.075	30	2.264

E	Installation of 11 KV 4Wy O/D Type RMU	No	0.063	190	11.981
F	Conversion of 33KV line from OH to UG using 400SQMM XLPE UG Cable	Km	0.420	6.0	2.520
G	New 11 kV feeder for newly installed DTRs using 3CX300 SQMM. XLPE UG.	km	0.280	1.20	0.336
H	New 11 kV feeder for bifurcation of existing 11 kV feeder by 11 kV (E), 3C x 95 sq.mm Armoured XLPE Underground Cable.	Km	0.176	39.0	6.856
I	Augmentation/Renovation of existing 11 kV Feeder by 11 kV (E), 3C x 300 sq.mm Armoured XLPE Underground Cable.	km	0.292	67.0	19.577
J	Supply Erection of Optical Fibre and Testing, Commissioning of UG(11&33KV)	Km	0.018	113.2	2.031
K	Conversion of LT line from OH to UG using Diff Size of UG Cable	Km	0.236	216.22	51.96
L	Conversion of LT line from OH to AB Cable (3c x 50 + 1c x 16 + 1c x 35) Sqmm	Km	0.059	112.07	6.592
M	Augmentation/Renovation of existing Service Connection/Street Light Connection by UG Cable with Supply installation of Meter pillar Box	LS	-	-	9.189
GRAND TOTAL					128.00

2.5.4 Key Performance Indicators

The following project key performance indicators are proposed:

a. Reduction in AT&C loss of the project area
b. Improvement in voltage profile at consumers' end.
c. Improvement in Reliability Index of power supply
d. Potentially Reduced Maintenance and Operating Costs

2.6 SELECTION OF OPTIMUM ROUTE

For selection of optimum route based on detailed survey, following points has been taken into consideration:

- The route of the UG cable does not involve any human resettlement & rehabilitation.
- Any monument of cultural or historical importance is not getting affected.
- The route does not create any threat to the survival of any community
- It does not affect any Public-Utility Services like Playground, School, Other establishments, etc.
- It does not involve any Sanctuaries, National Park, etc.
- It does not infringe with areas of natural resources.

2.7 SOCIAL ISSUES/ R&R MEASURES

- As per the prevailing law, land for electrical distribution line is not required to be owned by distribution line developer.
- Practice of construction management to minimize damages during execution of work would be followed.
- Land for Distribution Transformers (DTR) would be identified in manner that Social and R&R issues are avoided to the extent possible.
- Where displacement becomes unavoidable, R&R measures would be taken as per RPF as well as social needs in consultation with BMC.

2.8 CORRIDOR OF IMPACT

Corridor of impact for UG cable is presented in Table 2.5.

TABLE 2.5: CORRIDOR OF IMPACT FOR UG CABLE

Sl. No.	Items	Spec	Size (sq. mm)	No of Feeders/UG Cable to be laid along the Road	One Side/ Both of Road	Depth of Trench below Ground Level (m)	Trench Width (m)	Corridor of Impact/ Barricading (m)	Type of Barricading	Material
1	HT Cable	33 KV	400	Double	One Side	1.300	0.750	1.500	Strip Type Barricading Tape indicating 'WORK IN PROGRESS. DO NOT ENTER (Danger Logo). INCONVENIENCE DEEPLY REGRETED' Followed by Danger Board at certain Interval	1. Made out of PVC material 2. Single layer / double layer 3. Color: red & white 4. Standard size: 5” x 250 meter roll
		11 KV	185 to 400	Single/ Double	One/ Both	1.050	0.500	1.250		
2	LT Cable	1.1KV	16 to 150	Single/ Double	One/Both	0.900	0.500	1.250		
			185 to 400	Single/ Double	One/ Both	0.900	0.500	1.250		
3	Service Cable		6	Single/ Double	One/ Both	0.500	0.300	0.600		

Corridor of impact for DTR/RMU is presented in Table 2.6.

TABLE 2.6: CORRIDOR OF IMPACT FOR DTR RMU

pec	Foundation Structure (Plinth/Rail Pole)	Nos. Of Foundation	Depth of foundation below Ground Level (m)	Foundation dimension (Sq m)	Corridor of Impact/ Barricading (m)	Type of Barricading	Material	Remarks
630 KVA	Plinth	6	0.975	1.700 x 1.400	2.700	Strip Type Barricading Tape indicating 'WORK IN PROGRESS. DO NOT ENTER (Danger Logo). INCONVENIENCE DEEPLY REGRETED' Followed by Danger Board at certain Interval	1. Made out of PVC material 2. Single layer / double layer 3. Color: red & white 4. Standard size: 5” x 250 meter roll	
160 ,315 KVA		100		1.400 x 1.200	2.400			
160 ,315 KVA	Rail Pole	65	2.000	2.700 x 1.200	3.700			
11 KV 4 way / 3way	Plinth	122	1.000	1.450 x 1.250	2.400			
3 way	Rail Pole	76	Nil	2.100 x 1.250	3.100			Fitted on Rail Pole 500 mm. Above G.L
415 V	Plinth	171	0.675	1.700 x 1.150	2.700			
415 V	Plinth	1612	0.600	1.000 x 0.500	2.000			

3.0 POLICY & REGULATORY FRAMEWORK

India has a wide range of environmental and social policies, legislations, and regulations to handle/manage E&S issues associated with different types of projects. However, many of these regulations are not applicable to present project due to the nature of project activities and demonstrable E&S impacts. A review of applicable national and state level laws and regulations has been undertaken to understand the applicability of these laws to the proposed projects. Additionally, the relevant guidelines prepared by the state power utilities, for planning, construction and operations of the sub-stations and distribution lines were also reviewed. The World Bank's Environmental and Social Standards applicability for proposed projects components has been identified and gaps in national or state regulations to be considered while undertaking ESIA & formulation of ESMP.

3.1 LEGAL & REGULATORY FRAMEWORK

The major policy and regulatory framework followed for ESIA is ESMF for WBEDGMP. However, during development of ESMF various National/State environmental and social policies, legislations, and regulations and World Bank's Environmental and Social Standards were studied and gap identified to develop a comprehensive framework that take care of both national and Bank requirement in the field of E&S safeguard.

The applicable acts, rules, and relevant policies in the context of the project are presented in Table 3.1 and 3.2. WBSEDCL will ensure that project activities implemented are consistent with provisions of such legal framework.

TABLE 3.1: LEGAL AND REGULATORY PROVISIONS – ENVIRONMENT

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
I. Constitutional Provisions (India)		
a.	Article 48 A	The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.
b.	Article 51 A (g)	It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.
II. Provisions Law of the Land/Rules		
1.	Electricity Act, 2003 (EA, 2003)	Electricity distribution network projects are constructed under the ambit of Electricity Act, 2003 following the provisions of Section 67 & 68 of act. Under the provisions of **Section 68(1):-**Prior approval of the Govt. of West Bengal (GoWB) is a mandatory requirement to undertake any distribution project of 33kV system in the State which authorizes

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
		WBSEDCL to plan and coordinate activities to commission a distribution project. The electricity act under Section 164 has a provision to grant licensee the power of Telegraph Authority as provided in the Indian Telegraph Act, 1885. GoWB, on request of WBSEDCL, may by order in writing/through notification authorize them for using powers of telegraph authority after fulfilling the requirement as laid down in the rules thereof. The salient features of the Electricity Act 2003 are given in **Appendix 3.1**.
2.	Forest (Conservation) Act, 1980	This Act provides for the conservation of forests and regulates the diversion of forest land to non-forestry purpose. When any transmission/distribution line traverses forest land, prior clearance is mandatorily required from Ministry of Environment and Forests (MoEF), GoI under the Forest (Conservation) Act, 1980. The approval process of forest clearance in brief, as per set procedure in the guideline under the act and rules and procedure of online submission of application are provided in **Appendix 3.1.**
3.	Environment (Protection) Act, 1986	It is umbrella legislation for the protection and improvement of environment. This Act as such is not applicable to transmission/ distribution projects of WBSEDCL. Project categories specified under the schedule of the EIA notification is provided in **Appendix 3.1**. Even then some limited compliance measures notified under this EPA, 1986 are to be adhered to relevant rules and regulations under the EPA, 1986 applicable to the operations of WBSEDCL.
i.	Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016	As per notification, used oil is categorized as hazardous waste and require proper handling, storage and disposed only to authorized disposal facility (registered recyclers/ re-processors) Being a bulk user, WBSEDCL shall comply with provision of said rules. WBSEDCL, as bulk user of transformer oil which is categorized as Hazardous Waste, shall comply with the provisions of the said rules (refer **Appendix 3.1** for MoEF&CC notification dated 4th April 2016) if the practice of storing of used oil is maintained. In case it is decided to outsource the process of recycle of used oil to registered recycler as per the provisions of notification then WBSEDCL shall submit the desired return in prescribed form to concerned State Pollution Control Board at the time of disposal of used oil.
ii.	E-waste (Management) Rules, 2016	As per notification, bulk consumers like WBSEDCL is to dispose e-waste generated by them in environmentally sound manner by channelizing to authorized collection centers/ registered dismantler/ recyclers/return to producers. WBSEDCL, being a bulk consumer of electrical and electronics equipments shall maintain record as per Form-2 (**Appendix 3.1**) for scrutiny by West Bengal State Pollution Control Board.
iii.	Batteries (Management and Handling) Rules, 2001	As per notification, Being a bulk consumer, WBSEDCL is to ensure that the used batteries are disposed to dealers, manufacturer, registered recycler, re-conditioners or at the designated collection centers only. A half-yearly return is to be filed as per Form-8 (**Appendix 3.1***)* to the West Bengal State Pollution Control Board
iv.	Ozone Depleting Substances	As per the notification, certain control and regulation has been imposed on manufacturing, import, export, and use of these compounds.

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
	(Regulation and Control) Rules, 2000	
4.	Biological Diversity Act, 2002	This act is not directly applicable to electricity distribution projects because it deals with the conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith. WBSEDCL abides by the provision of the Act wherever applicable and avoids Biosphere Reserves and other Protected Area as well as Elephant Corridors during route alignment.
5.	West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006	The Act restrict felling of trees in Non-Forest Areas without permission of Department of Forest, GoWB. WBSEDCL abides by all provisions of this Act for felling/cutting of trees in non-forest area.
6.	The Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.
7.	The West Bengal Ground Water Resources (Management, Control And Regulation) (Amendment) Act, 2005	For extraction of ground water, permission has to be obtained from the District Level Authority / Corporation Level Authority / State Level Authority. The application in Form-I along with payment of prescribed fees to the Geologist of the State Water Investigation Directorate, Govt. of West Bengal of the district concerned or Superintendent Geologist, State Water Investigation Directorate, Govt. of West Bengal depending on the amount of groundwater wqter extraction required. As in the proposed sub-project water requirement is proposed to be met from the recycled water.

TABLE 3.2: LEGAL AND REGULATORY PROVISIONS – SOCIAL

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
I. Constitutional Provisions		
1	Fifth Schedule of the Constitution	It provides protection to the tribal on account of their economic disadvantages so that they could maintain their tribal identity without any coercion or exploitation. It also deals with the control and administration of the Schedule Areas.
II. Provisions Law of the Land/Rules		
2.	Land Purchase Policy of GoWB, 2016	It was enacted for procurement of land required for important infrastructure projects to ensure the timely implementation of such projects where, direct land purchase from land owners may become necessary. State Govt. will arrange securing of land required by WBSEDCL in case no other government land is available. The salient features of the provisions of this policy are given in **Appendix 3.2.**

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
3.	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	The Act provides for enhanced compensation and assistances measures and adopts a more consultative and participatory approach in dealing with the Project Affected Persons. Presently this Act is not in force in the West Bengal due to absence of rules and authorities needed to implement provisions of this act. Instead as provided in the act West Bengal government has notified a land purchase policy as mentioned above based on principle of willing buyer-willing seller basis (Voluntary) on negotiated and agreed rates for securing land.
5.	Rights of Way (RoW) and Compensation	In case of agricultural or private land damages, Section-67 and or Section-68 (5 & 6) of the Electricity Act, 2003 and Section-10 of the Indian Telegraph Act, 1885 if vested with power under section 164 of the Electricity Act, are followed for assessment and payment of compensation towards such damage.
6.	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	The act recognizes and vests the forest rights and occupation in forst land to forest dwelling. Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded, and provides for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land. The definitions of forest dwelling Schedule Tribes, forestland, forest rights, forest villages, etc. have been included in Section 2 of the Act. The Union Ministry of Tribal Affairs is the nodal agency for implementation of the Act while field implementation is the responsibility of the government agencies. The applicability of the act linked with forest clearance process under Forest (Conservation) Act, 1980 w.e.f. August 2009 by MoEF shall be followed by WBSEDCL if required.
8.	Indian Treasure Trove Act, 1878 as amended in 1949	The Act provides for procedures to be followed in case of finding of any treasure, archaeological artifacts etc. during excavation. Possibilities of such discoveries are quite remote due to limited and shallow excavations. However, in case of such findings WBSEDCL will follow the laid down procedure in the Section-4 of Act.
9.	Ancient Monuments & Archaeological Sites and Remains Act, 1958	The act has been enacted to prevent damage to archaeological sites identified by Archaeological Survey of India. During route alignment, all possible efforts are made to avoid these areas. Wherever it becomes unavoidable, WBSEDCL will take necessary permission under this act.
10.	The West Bengal Ancient Monuments and Records Rule, 1964	This Act prevents construction of building or carrying out any activity e.g. Excavating, blasting or any operation of a like nature inside archaeological site. WBSEDCL shall comply with the requirements of this rule.

3.2 WORLD BANK ENVIRONMENTAL & SOCIAL STANDARDS (ESS)

The applicable World Bank's ESSs in the context of the project are presented in subsequent section**.** WBSEDCL will ensure that project activities implemented are consistent with provisions of these ESSs.

ESS 1: Assessment and Management of Environmental and Social Risks and Impacts

The Bank requires assessment and management of environmental and social risks and impact of projects under Bank financing to ensure that they are environmentally sound and sustainable. ESS1 suggests adopting mitigation hierarchy approach to anticipate and avoid risks and impacts, where avoidance is not possible minimize the risks and impacts to acceptable level and compensate for significant residual impact where techno-economically viable.

This would require various tools like ESIA, Environment Audit, Hazard and Risk Assessment, Social and Conflict analysis, Environmental & Social Management Plan (ESMP), Environmental & Social Management Framework (ESMF), Strategic Environmental & Social Assessment (SESA), Environmental & Social Commitment Plan (ESCP) and subsequently monitoring and reporting the issues depending on the complexity of the project. The level of assessment required would be determined by a screening and scoping exercise.

ESS 2: Labor and working conditions

The ESS 2 on Labor and working condition requires promoting worker-management healthy relationship, developing strategies to improve working condition like fair treatment of workers and vulnerable groups that are involved in the project and preventing all forms of forced and child labors. This standard is applicable to project workers including full time, part time, temporary, contractual and migrant worker.

This standard helps to monitor health of the worker, working condition, hours of work and other necessary requirements including grievance mechanism and measures related to Occupational Health and Safety and shall be complied in accordance with ESS.

ESS 3: Resource Efficiency and Pollution Prevention and Management

The ESS 3 on Resource Efficiency and Pollution Prevention and Management promotes the sustainable use of resources (i.e. Energy, Water, Raw Materials) by identifying, avoiding or minimizing adverse impact both long term & short term caused by different pollutants on Health and Environment. The Standard also includes both Hazardous and Non-hazardous Waste Generation through minimizing and managing risks associated during entire life cycle of the Project.

ESS 4: Community Health and Safety

The ESS 4 on Community Health and Safety recognizes the exposure to risks and impacts that may cause due to project activities. Therefore, anticipating and avoidance of adverse impact on communities affected by the project from both routine and non-routine circumstances should be done. Accordingly designs & constructions to be modified that will ensure quality and safety to the community in conformance with climate change. Comprehensive Risk Hazard assessment and emergency action plan should be prepared in coordination with local authorities and affected communities.

ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

The ESS 5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement emphasizes for avoidance or minimization of involuntary resettlement or forced eviction to the extent it is feasible by exploring all viable alternative project designs.

Where involuntary resettlement is not viable, appropriate mitigation will be taken in accordance to sustainable development programs to alleviate the adverse impacts on displaced persons by providing timely compensation and at-least restoring their livelihood and improving their living standard to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. The Resettlement activities shall be executed by providing sufficient investment for displaced person who will be directly benefitted for the project and they should be meaningfully consulted and should have opportunities to participate in planning and implementation of resettlement programs.

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

This ESS affirms World Bank's commitment to protect and support conservation of biodiversity and natural habitat, application of mitigation hierarchy, designing and implementation of remedial measures that affects biodiversity. Sustainable management of the project should be done to provide benefit and to minimize damaging effects of the project as the bank does not support projects that involve significant conversion or degradation of critical natural habitats. This policy ensures the need to support livelihood of local communities through adoptive practices that can integrate conservation and development of the project area.

ESS 7: Indigenous peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

The World Bank's ESS 7 on Indigenous peoples/Sub-Saharan African Historically Underserved Traditional Local Communities contributes to the mission of poverty reduction and sustainable development by ensuring that the development process shall fully respects the dignity,

aspirations, identity, human rights, economies, and cultures of tribal People (Indigenous Peoples) and providing them natural resource-based livelihood.

Additional mitigative measures to be taken for avoiding adverse impact on underserved local communities. Sustainable developmental policies and opportunities that are culturally inclusive and appropriate for them should be fostered. Improvisation of the project design should be done through consultation and maintenance of constructive relationship with the indigenous community and their local bodies affected throughout the project's life cycle.

It is necessary to obtain Free, Prior and Informed Consent (FPIC) from the affected community during project assessment if any significant impact on land and natural resources are subjected to traditional ownership (like material to the identity and/or cultural, ceremonial or spiritual) or under customary use or occupation, thus providing them opportunity to adapt to the changing condition in an acceptable time frame. The standard suggests the following steps to be followed for the purpose:

Early Screening: Early in project preparation, a screening is carried out to determine whether Tribal Peoples are present in, or have collective attachment to, the project area;

Social Assessment: Based on the screening the project authority needs to undertake social assessment to evaluate the project's potential positive and adverse effects in the Tribal Population (TP).

Consultation and Participation: Where the project affects Tribal Peoples, the project authority engages in free, prior, and informed consultation with them.

Tribal Peoples Planning Framework (TPPF)/ Tribal Development Plan (TDP): On the basis of the social assessment and in consultation with the affected Tribal (Indigenous) Peoples' communities, the project authority prepares a *Tribal Peoples Planning Framework (TPPF)/*Tribal Development Plan (TDP) that sets out the measures through which the project authority will ensure that (a) tribal Peoples affected by the project receive culturally appropriate social and economic benefits; and (b) when potential adverse effects on Tribal Peoples are identified, those adverse effects are avoided, minimized, mitigated, or compensated for. The TPPF/TDP is to be integrated into project design.

ESS 8: Cultural Heritage

The ESS 8 on Cultural Heritage recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. The objective of the standard is to integrate sustainable development and protection of cultural heritage from adverse impact of the project by providing meaningful consultation and promoting equitable share of benefits with reference to the PCR. This standard tries to preserve Physical Cultural Resources (PCR) and in avoiding their destruction or damage. PCR includes resources of archaeological,

paleontological, historical, architectural, and religious (including graveyards and burial sites), aesthetic, or other cultural significance. Accordingly, this standard sets out measures designed to protect cultural heritage throughout the project life cycle.

ESS 10: Stakeholder Engagement and Information Disclosure

This standard requires Stakeholder Engagement Plan (SEP) for projects under Bank financing for open and transparent engagement with project stakeholders to improve the environmental and social sustainability of project. The effective SEP helps to identify the main stakeholders of the project and mechanism for public consultation and information disclosure as well as grievance redressal system.

Appendix 3.3 presents comparison between objectives of World Bank's Environmental & Social Standards and respective National and State Environmental & Social Regulations as well as gaps if any as per ESS's objectives and recommended actions.

3.3 ENVIRONMENTAL AND SOCIAL RISK CLASSIFICATION

As per World Bank's ESF any proposed project may fall into one of four category: High Risk, Substantial Risk, Moderate Risk or Low Risk. In determining the appropriate risk classification, it takes into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the environmental and social risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of environmental and social mitigation measures and outcomes, depending on the specific project and the context in which it is being developed.

Accordingly, as per the initial risk assessment the sub-component III i.e. Conversion of overhead network into underground cable system at Rajarhat town sub-project is classified as *Moderate Risk.* This is due to the fact that the potential adverse risks and impact are not likely to be significant. As this sub-project does not involve any activities which may have high potential for harming people or the environment and is located away from environmentally or socially sensitive areas. As such, the likely impacts and risks are likely to have the following characteristics:

- predictable and expected to be temporary and/or reversible;
- very low in magnitude that can be addressed with proposed mitigative measures;
- site-specific, without likelihood of impacts beyond the actual footprint of the project;

- Very low probability of serious adverse effects to human health and/or the environment (e.g. do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.).

4.0 ENVIRONMENTAL & SOCIAL BASELINE

The existing environmental & social baseline of project area has been assessed to screen the potential environmental & social risks and impacts of various components of proposed project. A compendium of biophysical and social sensitivity in the project area has been compiled on the basis of secondary data and spot verification during the field visit to provide an understanding of scale and magnitude of sensitivity/vulnerability of physical, ecological and social environment. The brief detail of environmental and social baseline of the project area is presented in subsequent sections.

4.1 PROJECT LOCATION

Rajarhat town is located under Bidhannagar Municipal Corporation of North 24 Parganas district in the State of West Bengal (Figure 4.1 and 4.2). Rajarhat is situated at the coordinates of 22 °37'0"N and 88 °31'0"E. It is close to Kolkata and also a part of the area covered by Kolkata Metropolitan Development Authority (KMDA). Nearest railway station is Dumdum junction which is 3 km far from Rajarhat.

FIGURE 4.1 LOCATION OF BIDHANNAGAR MUNICIPAL CORPORATION

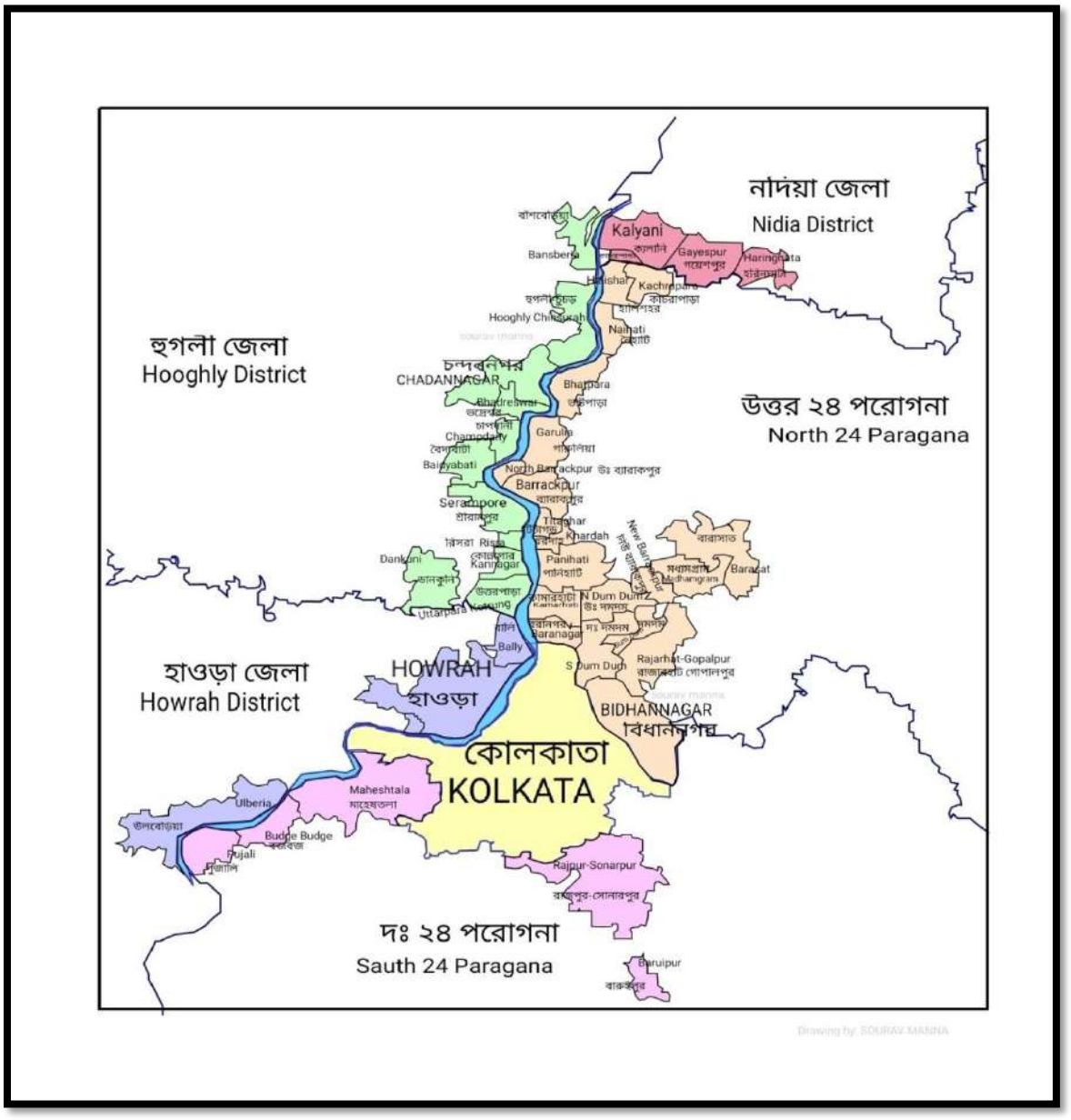
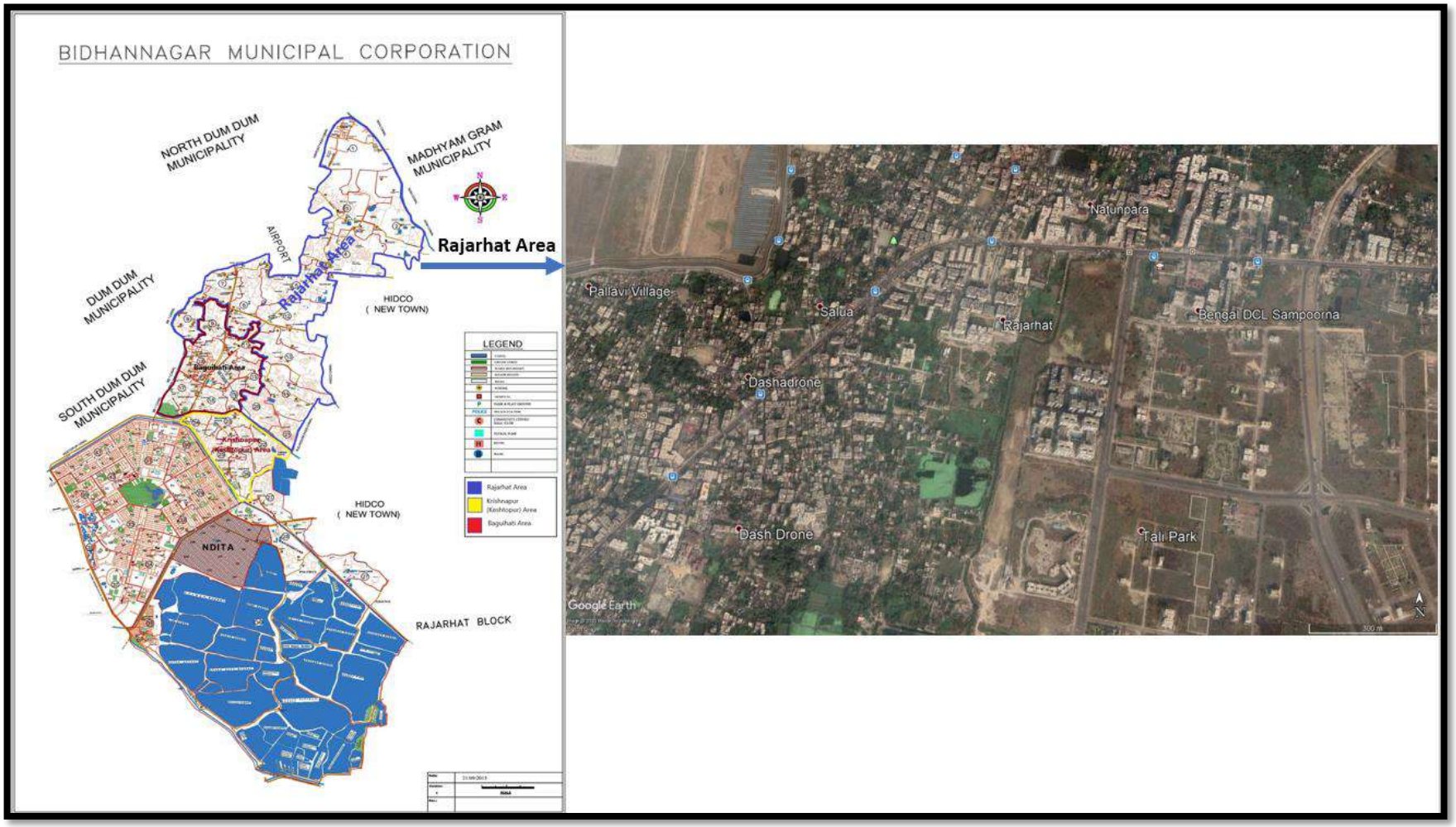


FIGURE 4.2: LOCATION OF RAJARHAT TOWN UNDER BIDHANNAGAR MUNICIPAL CORPORATION



Salient Features of Bidhannagar Municipal Corporation(Rajarhat Area) is presented in Table 4.1. Rajarhat-Goplapur has 26 wards (1 to 26) under Bidhannagar Municipal Corporation.

TABLE 4.1: SALIENT FEATURES OF RAJARHAT TOWN

Category	Description
Government Type /Body	Bidhannagar Municipal Corporation
Website	Bmcwbgov.in
Region	Greater Kolkata
District	North 24 Parganas
Area	34.97 km^2
Population (As per 2011 Census)	402,844
Population density	14387/km^2
Decadal growth rate (2001-2011)	48.2 %
Year of establishment of BMC (Bidhannagar Municipal Corporation)	18 June 2015
Literacy (2011)	90 %

Rajarhat is 16.9 km via Dum Dum road from Howrah railway station in West Bengal. Rajarhat is also at the cusp of an exciting transformation once the metro railway passes through it very soon shrinking community time by half. Rajarhat will capitalise on two metro rail linkages – the East West Metro that culminates in sector V, which is adjacent to Rajarhat and the Airport-Garia link that passes through Rajarhat. The Eastern Metropolitan Bypass connects the eastern fringes of Kolkata including Salt lakes townships and the newly growing Rajarhat Township also.

4.2 ENVIRONMENTAL BASELINE

4.2.1 Soil & Topography

Rajarhat is 102 km from Haldia Dock Complex via Diamond harbour. Rajarhat falls in the North 24 Parganas which is considered one of the most fertile for crop production. The soil type varies from sandy to clay sandy loam being the predominant ratio of high: medium: low land is 17:33:39. The soil of northern part of district is sandy, in the central middle part it is sandy with clay loam and in southern side it is clay loam. The physiographic structure of the district is mostly plain.

4.2.2 Existing Land Use of Rajarhat Gopalpur

Rajarhat Gopalpur has an area of 22.52 sq.km of which 22.51% is of open or vacant plot and agricultural land giving it a better scope for development. About 53.07% of the total area is residential area. Area under commercial, industrial, and public semi-public uses is very low with 1.53%, 0.48% and 1.18 % of each respectively. Detailed land use area is given in Table 4.2.

TABLE 4.2: LAND USE PATTERN OF RAJARHAT GOPALPUR

Land use	Area (sq.km)	Percentage
Residential	11.95	53.07
Commercial	0.35	1.53
Industrial	0.11	0.48
Public/Semi public	0.27	1.18
Mixed use	0.91	1.55
Recreational	0.35	4.02
Transportation and communication	2.53	11.25
Primary activity	1.33	5.92
Protective and undevelopable	0.99	4.39
Special area/open plot	3.74	16.61
Total area	**22.52**	**100**

- Rajarhat Gopalpur has a very a very low public/semi public as well as recreational area percentage allocations and needs intervention
- Rajarhat gopalpur has got comparatively more area for development.
- The agricultural, water bodies and special area constitute about 26.92 %.

Built up density of Rajarhat Gopalpur

The various details of Rajarhat gopalpur built up densities for various land uses is shown below. However in case of retail shops the density is comparatively low as most of the retail shopping is in the form of mixed use residential. The details are presented in Table 4.3.

TABLE 4.3: BUILT UP DENSITY OF RAJARHAT GOPALPUR BASED ON PRIMARY SURVEY

Type	Total Built up (Sq.m)	Total area for land use (Sq.m)	Net density	Gross density
Group housing	5023597.36	1797154.71	2.795	0.454
Plotted housing	7533993.92	6064689.86	1.242	0.681
Informal housing	568943.38	1359698.05	0.418	0.051
Retail shopping	207802.68	112908.92	1.840	0.019
General business	17252.67	74761.82	0.231	0.002
Warehouses	24774.12	76785.10	0.323	0.002
Service sector	34780.55	14196.84	2.450	0.003
Informal market	24216.39	57723.18	0.420	0.002
Light industry	72026.81	64624.71	1.115	0.007
Heavy industry	2849.56	14193.78	0.201	0.00
Special industrial zone	3986.98	327.07	12.190	0.00
Public offices	33679.09	150739.59	0.223	0.003
Police	692.92	4402.23	0.157	0.00
Educational	82337.67	63989.40	1.287	0.007
Health	12921.49	7105.3	1.819	0.001
cultural religions	53940.44	31304.43	1.723	0.005
Utility/ Services	10359.16	20588.47	0.503	0.001
Mixed residential	1521727.39	785835.47	1.936	0.138
Mixed Commercial	242575.36	114222.36	2.124	0.022
Playground stadium	314.45	69680.22	0.005	0.00
Transport terminals	727.18	19950.76	0.036	0.00
Extractive area	10419.39	1838.81	5.666	0.001
Fishing pottery	105.19	93810.04	0.001	0.00
Govt restricted area	52180.37	58276.51	0.895	0.005
Other uses	2103.57	6213.56	0.339	0.00
Total	15538308.10 (Sq.m)	**11065021.24**		
	15.538(Sq.km)			

4.2.3 Groundwater

Groundwater occurs in several granular zones deposited by the river system. Sand horizons of different grades textures and colours constitute the main aquifers. In Rajarhat area due to the presence of thick clay at the top the upper aquifer gives a semi-confined character.

Water supply system in Bidhannagar Municipal corporation has 2 network system. Salt Lake has its own water supply and the erstwhile Rajarhat-Gopalpur area has its own network. Both the areas depend mainly on ground water. 18 out of 42 water monitoring wells show arsenic contamination in north 24 parganas. The whole area of erstwhile Rajarhat-Gopalpur area is supplied ground water only. Apart from that many households have their own tube well to cater their needs.

Groundwater level in Rajarhat block is regularly monitored. The post monsoon Groundwater level (2011) of 7 monitoring stations in and around the project area is given in the Table 4.4.

TABLE 4.4: POST MONSOON DEPTH TO WATER LEVEL OF RAJARHAT AREA

Sl No	Mouza	Location	Type of well	Post monsoon DWL mbgl
1	Patharghata	Village centre	Tube well	5.5
2	Chandpur	Panchayat office	Tube well	0.85
3	Gopalpur	Health Centre	Tube well	11.25
4	Rajarhat	Bishnupur Health Adm unit	Tube well	5.53
5	Ghuni	Primary school	Tube well	9.9
6	Jagadishpur	Primary school	Tube well	7.7
7	Sukantanagar Salt lake	Near club	Tube well	12.3

4.2.4 Climate

The climate of Rajarhat areas is tropical like the other part of West Bengal, temperature varies between 12°C to 42°C , monsoon arrives in June and brings rain here, winter is dry in these area and summer season is humid. These are experiences highest temperature in May and lowest temperature in January. Average annual rainfall is 1700 mm and relative humidity ranges between 70%-80%.

4.2.5 Air Quality

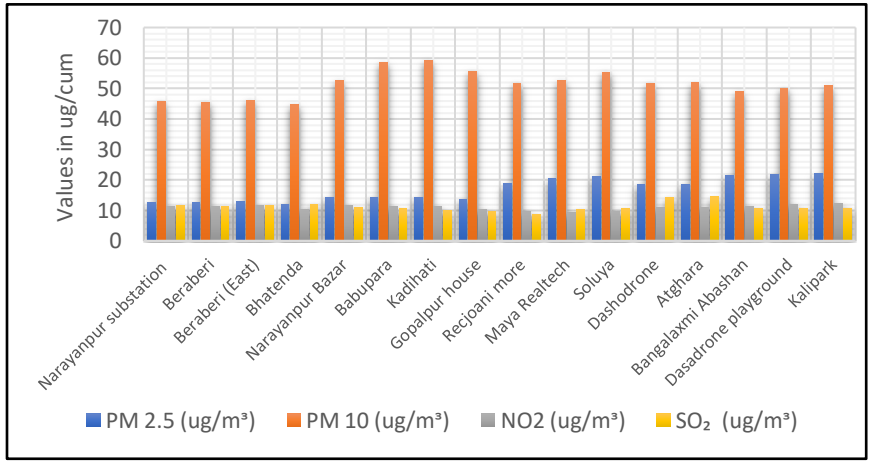
Air quality recorded at selected location along the various feeders of Rajarhat area during field survey is presented in Table 4.5 and Figure 4.3. The Air quality of the project area is showing low to moderate level of air pollution particularly with respect to particulate pollutant (PM_{10}). However, the gaseous pollutants level is considerably lower than national ambient standards.

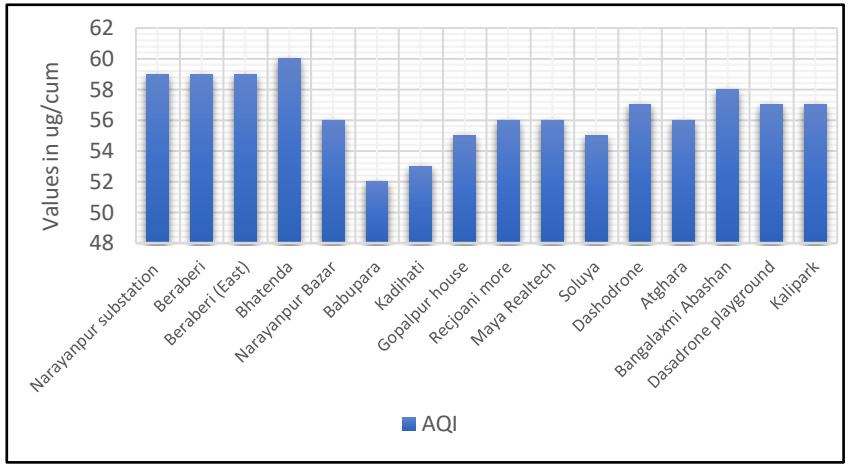
TABLE 4.5: STATUS OF AMBIENT AIR QUALITY OF RAJARHAT- SEPTEMBER 2020

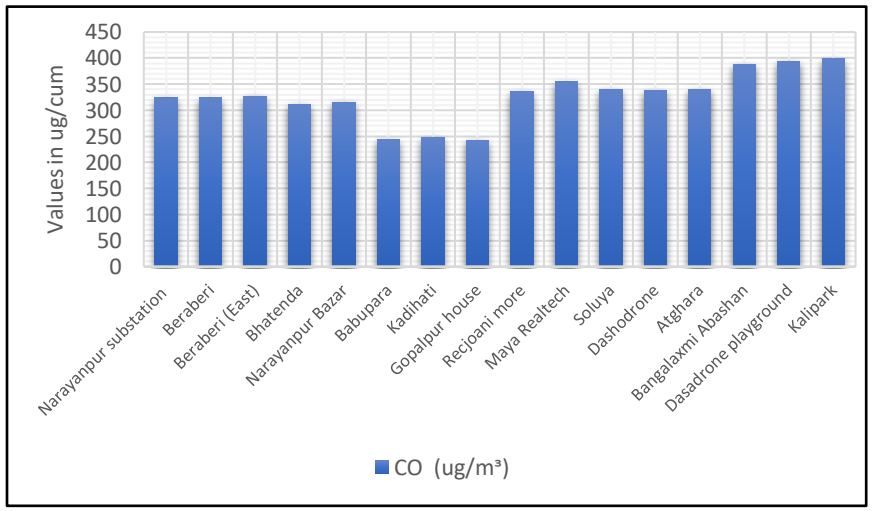
Sl. No.	location/feeder	PM 2.5 (ug/m³)	PM 10 (ug/m³)	NO2 (ug/m³)	SO_2 (ug/m³)	CO (ug/m³)	O3 (ug/m³)	AQI
NARAYANPUR SUBSTATION : NARAYANPUR LOCAL FEEDER								
1	Narayanpur substation	12.68	45.71	11.41	11.68	324.24	26.2	59
2	Beraberi	12.64	45.29	11.31	11.42	323.82	26.16	59
3	Beraberi (East)	12.83	46.24	11.65	11.81	326.5	26.16	59
4	Bhatenda	12.14	44.71	10.37	12.13	311.68	26.28	60
NARAYANPUR SUBSTATION : NARAYANPUR BAZAR FEEDER								
1	Narayanpur Bazar	14.21	52.6	11.61	11.03	315.35	28.67	56
2	Babupara	14.35	58.67	11.2	10.55	244.7	22.14	52
3	Kadihati	14.44	59.12	11.48	10.16	247.12	25.08	53
NARAYANPUR SUBSTATION : GOPALPUR 1 FEEDER								
1	Gopalpur house	13.61	55.54	10.5	9.74	242.71	24.55	55
SIDDHAPAINE SUBSTATION : RAJARHAT RHU FEEDER								
1	Recjoani more	18.77	51.81	9.66	8.82	335.52	38.02	56
2	Maya Realtech	20.38	52.67	9.23	10.4	354.75	38.69	56
SIDDHAPAINE SUBSTATION - SIDDHAGOPALPUR 1 FEEDER								
1	Soluya	21.12	55.28	9.81	10.63	339.04	38.94	55
2	Dashodrone	18.44	51.58	10.94	14.43	337.96	37.02	57
3	Atghara	18.51	51.91	11.07	14.46	339.04	36.94	56
SIDDHAPAINE SUBSTATION - SIDDHAGOPALPUR 2 FEEDER								
1	Bangalaxmi Abashan	21.46	48.999	11.5	10.74	388.32	30.1	58
2	Dasadrone playground	21.78	50	11.95	10.76	393.72	29.92	57
3	Kalipark	22.05	50.87	12.35	10.82	398.47	31.12	57

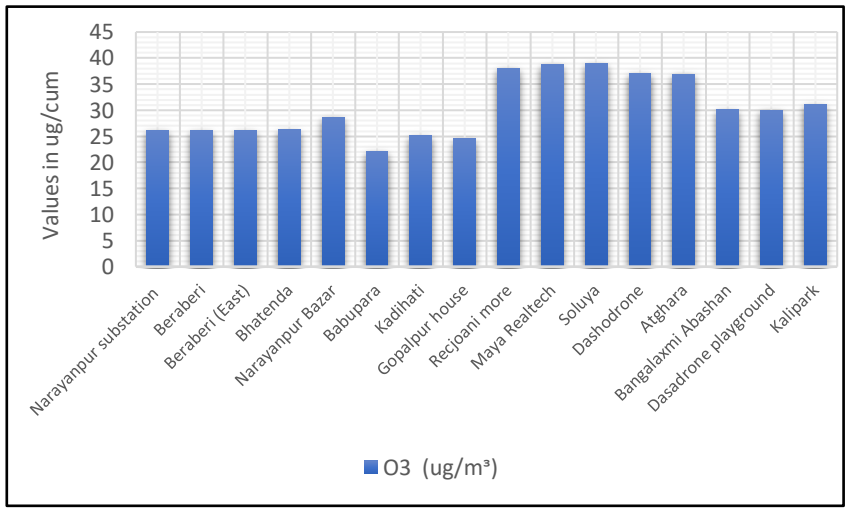
Source: Recorded through Breezometer, September 2020

FIGURE 4.3: STATUS OF AMBIENT AIR QUALITY OF RAJARHAT TOWN AREA- SEPTEMBER 2020









4.2.6 Ambient Noise

The ambient noise level of the majority of the sub-project area is presented in Table 4.6. The average Leq value is 60 dB which is well within prescribed limits.

TABLE 4.6: STATUS OF AMBIENT NOISE LEVEL OF RAJARHAT TOWN (SEPTEMBER 2020)

S No	Location/feeder	Latitude	Longitude	Averaging Time (second)	Min (dB)	Max (dB)	Leq (dB)	Area Category*
NARAYANPUR SUBSTATION : NARAYANPUR LOCAL FEEDER								
1	Narayanpur substation	22.3827	88.2757	60	40.8	67.7	55.6	Residential
2	Beraberi	22.3829	88.288	60	49.3	72.9	65.2	Commercial
3	Beraberi (East)	22.384	88.2813	60	43.6	65.1	56.8	Residential
4	Bhatenda	22.3741	88.2917	60	50.7	71.3	63.2	Commercial
NARAYANPUR SUBSTATION : NARAYANPUR BAZAR FEEDER								
1	Narayanpur Bazar	22.3842	88.274	60	56.5	71.7	64.6	Commercial
2	Babupara	22.3844	88.2736	60	41.8	63.3	53.8	Commercial
3	Kadihati	22.396	88.276	60	45.3	66.9	57.9	Residential
NARAYANPUR SUBSTATION : GOPALPUR 1 FEEDER								
1	Gopalpur house	22.3815	88.2659	60	54.8	68.2	61.5	Residential
SIDDHAPAINE SUBSTATION : RAJARHAT RMU FEEDER								
1	Recjoani more	22.3752	88.2857	60	52.1	74.7	62.8	Commercial
2	Maya Realtech	22.3738	88.2847	60	46.3	59.1	53.7	Residential
SIDDHAPAINE SUBSTATION: SIDDHA-GOPALPUR 1 FEEDER								
1	Soluya	22.38.42	88.274	60	36.8	66.4	53.9	Residential
2	Dashodrone	22.6308	88.4478	60	43.7	73.2	63.8	Commercial
3	Atghara	22.625	88.4434	60	45.8	74.9	64.2	Commercial
SIDDHAPAINE SUBSTATION: SIDDHA-GOPALPUR 2 FEEDER								
1	Bangalaxmi Abashan	22.4536	88.366	60	55.4	67.1	63.2	Residential
2	Dasadrone playground	22.6369	88.4482	60	52.1	53.8	56.8	Residential
3	Kalipark	22.6378	88.4513	60	57.7	63.9	68.9	Commercial

*Area Category: Silence/Residential/Commercial/Industrial
Source: Recorded through Noise Tracker, September 2020

4.2.7 Flora & Fauna

Rajarhat Gopalpur has some of the tree species which includes Banyan (*Ficus benghalensis*), Neem (*Azadirachta indica*), Habul (*Thespetia pupalnea*), Radhachura (*Peltaphorum inermis*), tamarind (*Tamarindus indica*), Mango (*Mangifera indica*), Bel (*Aegle marmelos*). Some fruit trees are also found there including Coconut, Fan palm, Banana, Date Palm, Litchi, Grapes and Pomegranate.

A good number of common birds, amphibians, reptiles, and small mammals reported from the Rajarhat area. However, none of the species of plants and animals are Endemic or Endangered. None of the Eco-Sensitive area found in this region.

FIGURE 4.4 (A): EXISTING ENVIRONMENTAL & SOCIAL SETTING ALONG THE RAJARHAT RMU FEEDER AT RAJARHAT TOWN

FIGURE 4.4 (B): EXISTING ENVIRONMENTAL & SOCIAL SETTING ALONG THE RAJARHAT RMU FEEDER AT RAJARHAT TOWN

FIGURE 4.4 (C): EXISTING ENVIRONMENTAL & SOCIAL SETTING ALONG THE RAJARHAT RMU FEEDER AT RAJARHAT TOWNN

FIGURE 4.4 (D): EXISTING ENVIRONMENTAL & SOCIAL SETTING ALONG THE SIDDHA GOPALPUR 2 FEEDER AT RAJARHAT TOWNN

FIGURE 4.4 (E): EXISTING ENVIRONMENTAL & SOCIAL SETTING ALONG THE SIDDHA GOPALPUR 1 FEEDER AT RAJARHAT TOWNN

4.3 SOCIAL BASELINE

4.3.1 Demography

The term demography is used to describe the population, population density, household density and other parameters. Rajarhat gopalpur town with a population of about 4 lakhs is the second most populous area located in North 24 Parganas in West Bengal. Rajarhat has 26 wards of which ward no 29 is the most populous ward with about 23 thousand and Ward no 16 of Rajarhat Gopalpur area is the least populated ward with 4361 inhabitants. Details are shown in the Table 4.7.

TABLE 4.7: DEMOGRAPHIC PROFILE OF RAJARHAT TOWN

Ward No.	Population			Literacy (%)	Sex ratio	Households
	Male	Female	Total			
1	5591	5409	11000	84	967	2546
2	5507	5197	10704	75	944	2318
3	5514	5185	10699	72	940	2297
4	3165	2951	6116	87	932	1517
5	4388	4306	8694	91	981	2152
6	3253	3140	6393	87	965	1473
7	3744	3658	7402	94	977	1850
8	4596	4567	9163	90	994	2265
9	7839	7162	15001	87	914	3461
10	5223	5091	10314	92	975	2693
11	5580	5521	11101	96	989	2858
12	3864	3813	7677	95	987	1964
13	3184	3098	6282	87	973	1445
14	3468	3477	6945	93	1003	1858
15	2831	2717	5548	93	960	1479
16	2217	2144	4361	85	967	1175
17	5153	5113	10266	95	992	2608
18	6189	5846	12035	90	945	2943
19	9218	8840	18058	79	959	3919
20	9635	9346	18981	92	970	4593

Ward No.	Population			Literacy (%)	Sex ratio	Households
	Male	Female	Total			
21	6587	6625	13212	95	1006	3362
22	5026	5018	10044	97	998	2708
23	6015	6019	12034	97	1001	3059
24	5133	5331	10464	96	1039	2834
25	4153	4178	8331	98	1006	2256
26	6970	7090	14060	95	1017	3726

4.3.2 Growth Direction of City

Rajarhat's growth pattern is significantly influenced by its location, shape, transport route and surrounding population pattern. Rajarhat is a locality in Bidhannagar Municipal Corporation of North 24 Parganas district of West Bengal. Bidhannagar, the most important satellite town of the city of Kolkata is situated on the eastern edge of the city. The BMC geographically spread with 1 Head office at Bidhannagar, 6 Borough offices and 41 ward offices across the jurisdiction of the BMC boundary under the aegis of Department Municipal Affairs & Urban Development, Government of West Bengal. The boundary of BMC covers around 60.5 Sq. Km. of total Kolkata Metropolitan Area of 1886.67 Sq. Km. catering services to 6.5 lakhs population (19.26% SC & 1.73% ST) which is 1.27% of Kolkata Metropolitan Area population and 0.68% of State population covering approximately 1.47 lakhs households.

Rajarhat region has experienced urban growth first in year 1971. In 1971, Khrishnapur Urban Agglomerates had three non-municipal growth with an area of 11.9 sq.km. Urban growth during this period was more than double whereas urban area growth was just 12%. The urban population has bounced up in to 2.5 times in respect to 1991. Now the residential area has increased by 45.3% whereas agricultural land, water bodies and vegetation has been reduced by 36.9%, 1.7% and 2.6% respectively in the Rajarhat area. The expansion of built up area takes place mainly in the agricultural land. Rekjuani village falls in the northern portion of this region which is 2-3 km away from 'Rajarhat-Gopalpur' area.

4.3.3 Economic Profile

Between 2015-16 and 2017-18 the annual growth rate (at constant prices) of the state GDP has increased from 5.8% to 11.4%. Services lead to the contribution to the GSDP at 56% followed by industry (25%) and agriculture (19%) industrial contribution to state GDP has been constant in the range of 25%. Agriculture has noted a decline.

4.3.4 Housing profile

Percentage of dilapidated houses in Rajarhat is maximum in ward 1 and 25. Ward no 4, 5, 16 and 17 have predominantly houses in good condition. Ward 2, 18 21 and ward 24 have maximum percentage of houses in liveable condition.

4.3.5 Workers profile

Rajarhat Gopalpur has 37% population engaged in either main or marginal works. 58 % male and 15% female population are working population. 56% of total population are main workers and 2% are marginal workers. For women 13% of total female population are main and 2% are marginal workers.

4.4 PHYSICAL INFRASTRUCTURE FACILITIES

4.4.1 Water Supply

The Bidhannagar civic body area, including Salt Lake and Rajarhat, presently receives around 7 million gallon of filtered water per day from Tallah and the rest of the water is pulled from underground reserves.

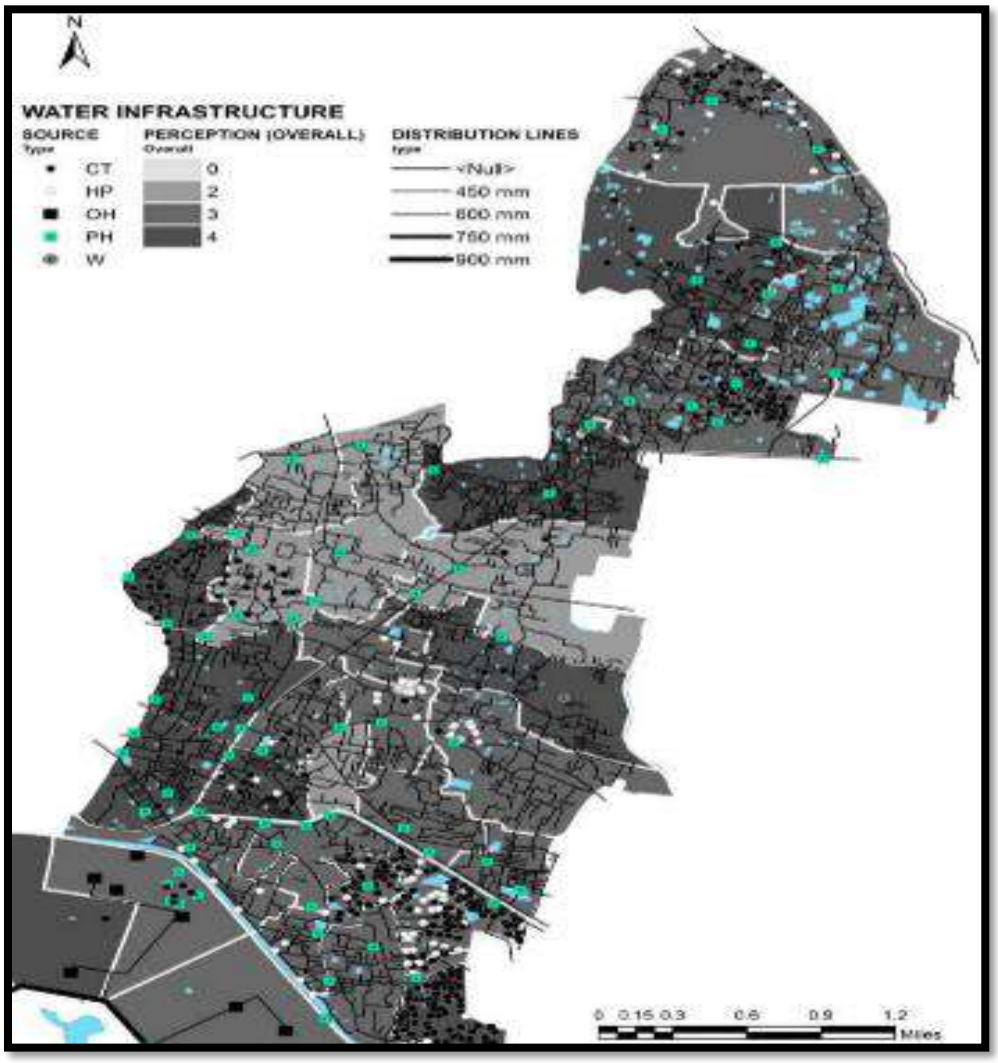
Most of the people of Rajarhat Gopalpur are dependent on municipal water connection which is harnessed at 66 pump houses across the area (Table 4.8). As per the primary survey, people often opt for individual borewells because they are not satisfied by the quality of water supplied by the municipality.

TABLE 4.8: SOURCES OF WATER

	Census 2011	Primary survey 2018	
	Rajarhat Gopalpur(%)	Rajarhat Gopalpur (%)	Bidhannagar (%)
Covered well	0.18	6.1	0.85
Uncovered well	0.04		
Tap water (treated)	74	35.2	68.36
Community tap	1.17	15	10.17
Hand pump	55.59		
Tube well/ bore well	34.19	23.5	2.82
River / canal	0.09		
Pond/ lake	0.11		
Other (bottled water)	1.24	20.2	17.8

The primary survey has revealed that although there are quality issues, most of the households in Salt Lake area have municipal connection. Whereas municipal water supply coverages are comparatively less in Rajarhat Gopalpur area.

FIG 4.5: WATER INFRASTRUCTURE BIDHANNAGAR MUNICIPAL CORPORATION



(source BMC)

The groundwater of Rajarhat and adjacent areas in the north and southeast is contaminated with arsenic. Current-pumping may induce more arsenic to flow into the aquifers of Rajarhat and Kolkata cities. Future large-scale pumping of groundwater beneath Rajarhat can modify the hydrological system, which may transport arsenic and low quality water from adjacent aquifers to presently unpolluted aquifer.

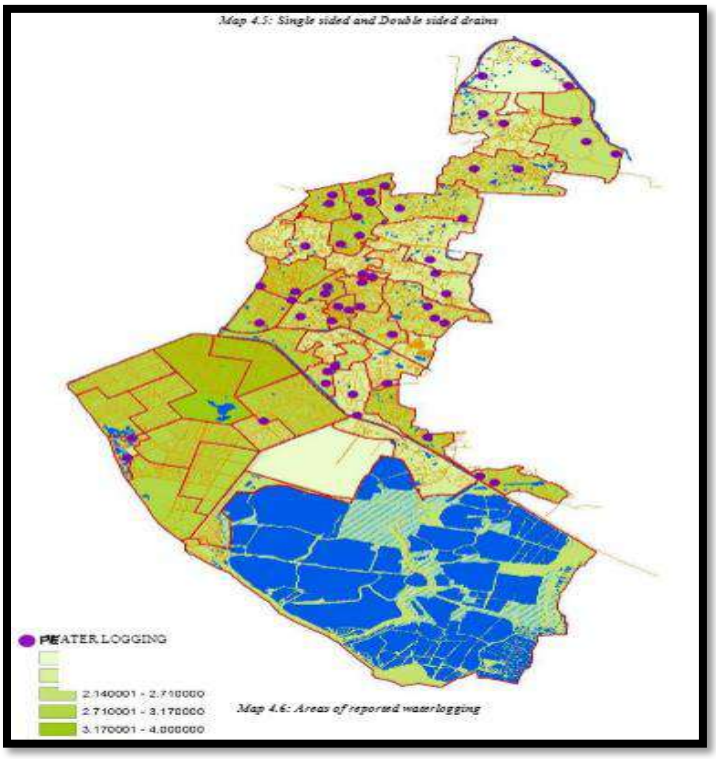
4.4.2 Drainage & Sanitation

At present The Bidhannagar Municipal town has an underground sewerage system along with some non-sewerage area also. The 277.1 km long sewerage system along with the metal road has varying diameter of 8”-33” and serves an area of 12.5 sq.km. There are Sewage Pumping Stations, 8 in number, to lift the sewage. The sewage is then pumped to the Bagjola Sewage Treatment Plant through a double-barrel Sewer line.

At present one part of the Kestopur Khal is connected with the river Hooghly via New Cut Canal Circular canal in the west ward direction and the other part with the river kultigong via Bhangarh kata Khal flowing easterly. This canal system is presently serving as a drainage channel, catering the drainage discharge of Lake Town, Bangur , Dum Dum Park , Salt Lake, Rajarhat , Bhangar and some other areas , either partially or fully.

Rajarhat Gopalpur area does not have proper distribution layout. There are many dead ends in the distribution network which results in water stagnation in pipes.

FIG 4.6: SINGLE SIDED AND DOUBLE SIDED DRAINS IN BMC



4.4.3 Solid Waste Management

From the survey it was found that Rajarhat Gopalpur area had no community bins and inner dense residential areas had no door to door services. The status of MSW generation is presented in Table 4.9.

The planning area Bidhannagar has an existing solid waste management system undertaken by the BMC. The planning area comprises of mainly two areas – the Rajarhat-Gopalpur area and the Salt Lake area and there is an observable difference in the quality of the MSWM services in both areas. Rajarhat Gopalpur has less developed solid waste management system compared to Salt Lake area.

According to the NISG (National Institute of Smart Governance) the concept of modern and advanced web based technologies to be used. The plan mentions developing underground solid waste management system and vehicle tracking system to mitigate solid waste management techniques in Rajarhat areas.

TABLE 4.9: WASTE GENERATED FROM THE MARKETS OF RAJARHAT GOPALPUR

Name of the market	Type	No of shops	Waste generated/shop (Kg)	Total waste (Kg)
SRCM road	Mixed	140	0.75	105
Narayanpur, south of West Beraberi mosque	Mixed	75	0.75	56.25
Narayanpur bazaar	Mixed	80	0.75	60
Supermarket	Mixed	125	0.75	93.75
Baguiati Market	Mixed	200	0.75	150
Arjun ngr Market	Mixed	50	0.75	37.5
Raghunathpur bazaar	Mixed	60	0.75	45
Charaktala bazaar	Vegetable	40	0.75	30
Teghoria	Mixed	20	0.75	15
Hatiara	Mixed	60	0.75	45
Baguiati puraton bazar	Mixed	330	0.75	247.5
Baguiati AC market	Mixed	150	0.75	112.5
Jagatpur market	Mixed	40	0.75	30
Jagatpur bazaar	Mixed	2650	0.75	1987.5
Milan Bazar	Mixed	250	0.75	187.5
Misan bazaar	Mixed	80	0.75	60
Anurupa pally	Mixed	100	0.75	75

4.4.4 Road Coverage and Communication network

BMC area is very well connected to Kolkata by VIP road (Kazi Nazrul Islam Avenue) and the Eastern metropolitan Bypass which adjoins the Bidhannagar area and goes further down south, connecting to the suburbs. The VIP road extends further on the north and connects to Dumdum and Netaji Subhas International airport. On the eastern side the VIP road branches out and further Connects to the Howrah railway station.

24 villages (80.00%) have a pucca approach road and 26 villages (86.67%) have transport communication (includes bus service, rail facility and navigable waterways). 11 villages (36.67%) have post offices. 23 villages (76.67%) have telephones (including landlines, public call offices and mobile phones).

FIGURE 4.7(a): ENVIRONMENTAL & SOCIAL SCREENING FOR THE FORMULATION OF ESIA FOR UG CABLING SUB-PROJECT UNDER WBEDGMP AT RAJARHAT TOWN

FIGURE 4.7(b): ENVIRONMENTAL & SOCIAL SCREENING FOR THE FORMULATION OF ESIA FOR UG CABLING SUB-PROJECT UNDER WBEDGMP AT RAJARHAT TOWN

5.0 ENVIRONMENTAL & SOCIAL RISKS & IMPACT AND MITIGATION MEASURES

This Section assesses both negative and positive impacts associated with the proposed construction of 33/11kV HT and LT Underground Distribution Cable Line in Rajarhat town area under WBEDGMP. The assessment of environmental and social risk and impacts has been undertaken across the three phases namely: Pre-construction Phase, Construction Phase and Operation & Maintenance Phase of proposed sub-project and also summarizes mitigation measures for minimization of potential negative impact.

5.1 POTENTIAL IMPACTS AND MITIGATION MEASURES

The overall UGC sub-project construction activity is on a very small spatial scale, and of a short duration and restricted to construction phase therefore resultant environmental & social impacts are generally insignificant and temporary. The UGC network is without any rotating or vibrating parts, hence, the UGC will not have any negative impact during the operation phase.

To identify the likely environmental and social impact of proposed sub-project activities of selected feeders for conversion of UGC covering entire cross section area of sub-project area with special emphasis on congested commercial area, forest area/tribal area, if any were studies. For the purpose Vidyut Manchitra for existing electricity distribution network of Bidhan Nagar-II Division i.e. presentation of HT/LT lines as well as location of DTRs, etc on GIS platform, has been used and superimposing the same on Google earth images to identify existing environmental and social setting at proposed sites for excavation of UGC trench and installation of DTRs/RMUs (315 KVA) along with route of new 11/33 kV HT line proposed, if any. The analysis was also undertaken to assess the clearance of RoW for installation of New 11 kV HT line from trees, building etc. The encroachment if any at proposed route of UGC as well as DTRs/RMUs site were also attempted to identify with sub-sequent field verification.

The detail of selected feeders under Rajarhat town along with likely environmental & social risks and impact of conversion of existing OH to UG distribution network and setting up of DTRs/RMUs as well as HT line (new/up gradation of existing LT line) is presented in Figure 5.1 to 5.8. Whereas the component wise likely environmental and social impacts are presented in subsequent section.

FIGURE 5.1: VIEW OF NARAYANPUR LOCAL & NARAYANPUR GOPALPUR 1 FEEDER UNDER NARAYANPUR SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN AREA

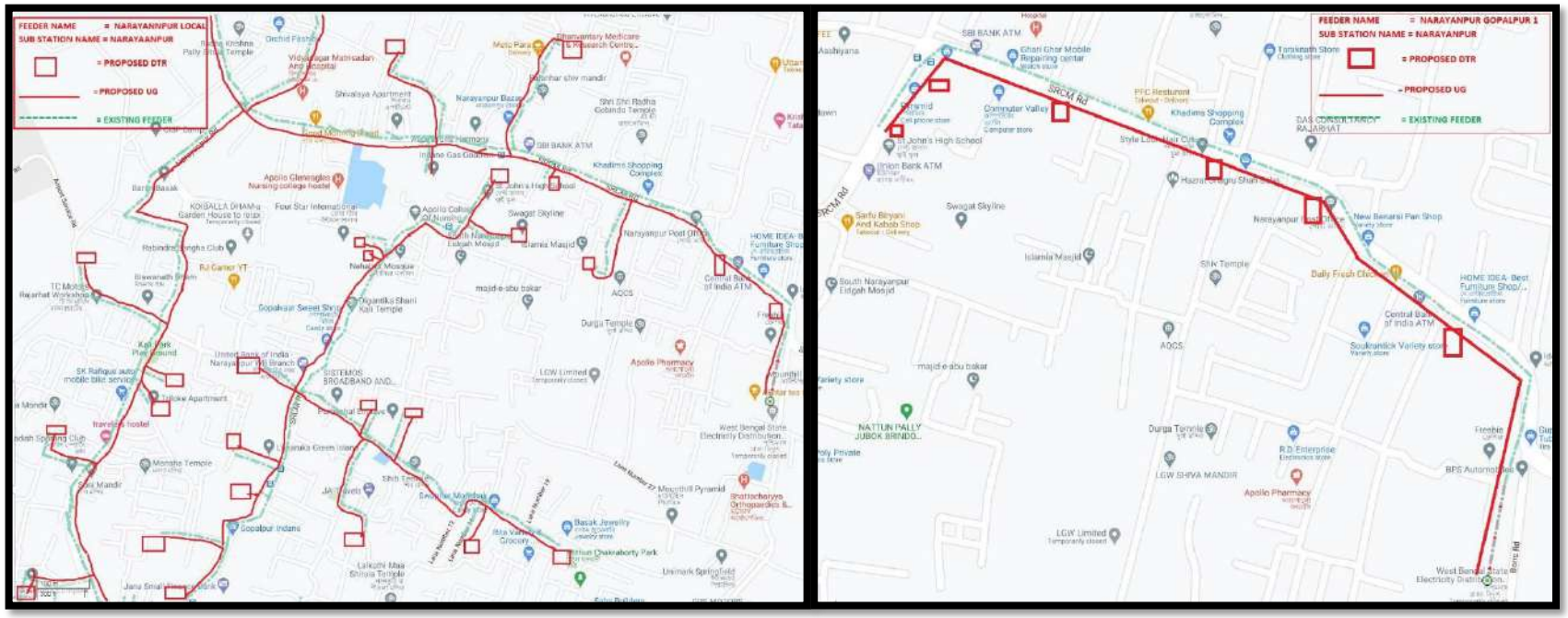


FIGURE 5.2: ENVIRONMENTAL & SOCIAL SETTING ALONG THE NARAYANPUR LOCAL & NARAYANPUR GOPALPUR 1 FEEDER UNDER NARAYANPUR SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN AREA

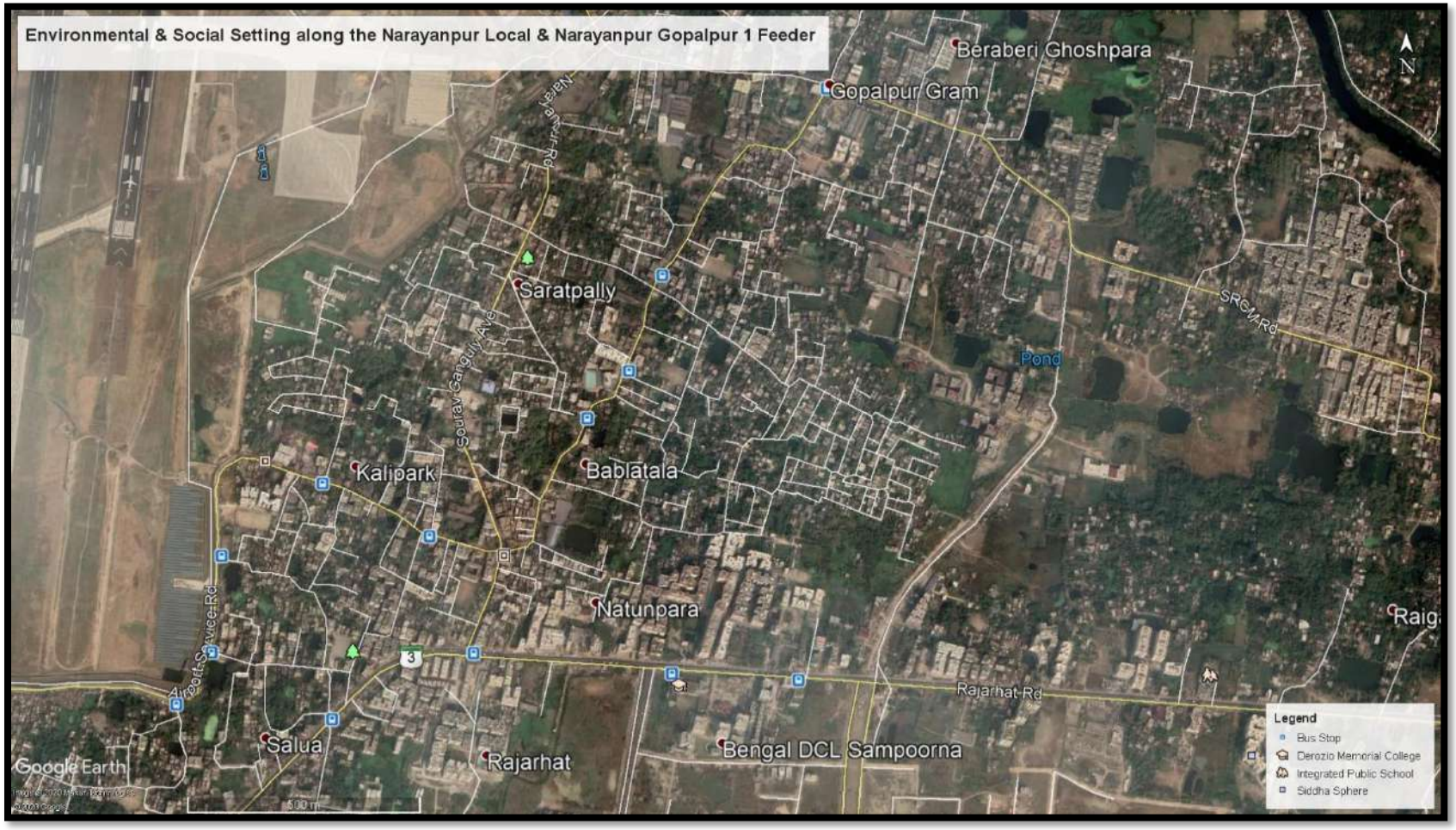


FIGURE 5.3: VIEW OF RAJARHAT TOWN FEEDER UNDER NARAYANPUR SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN

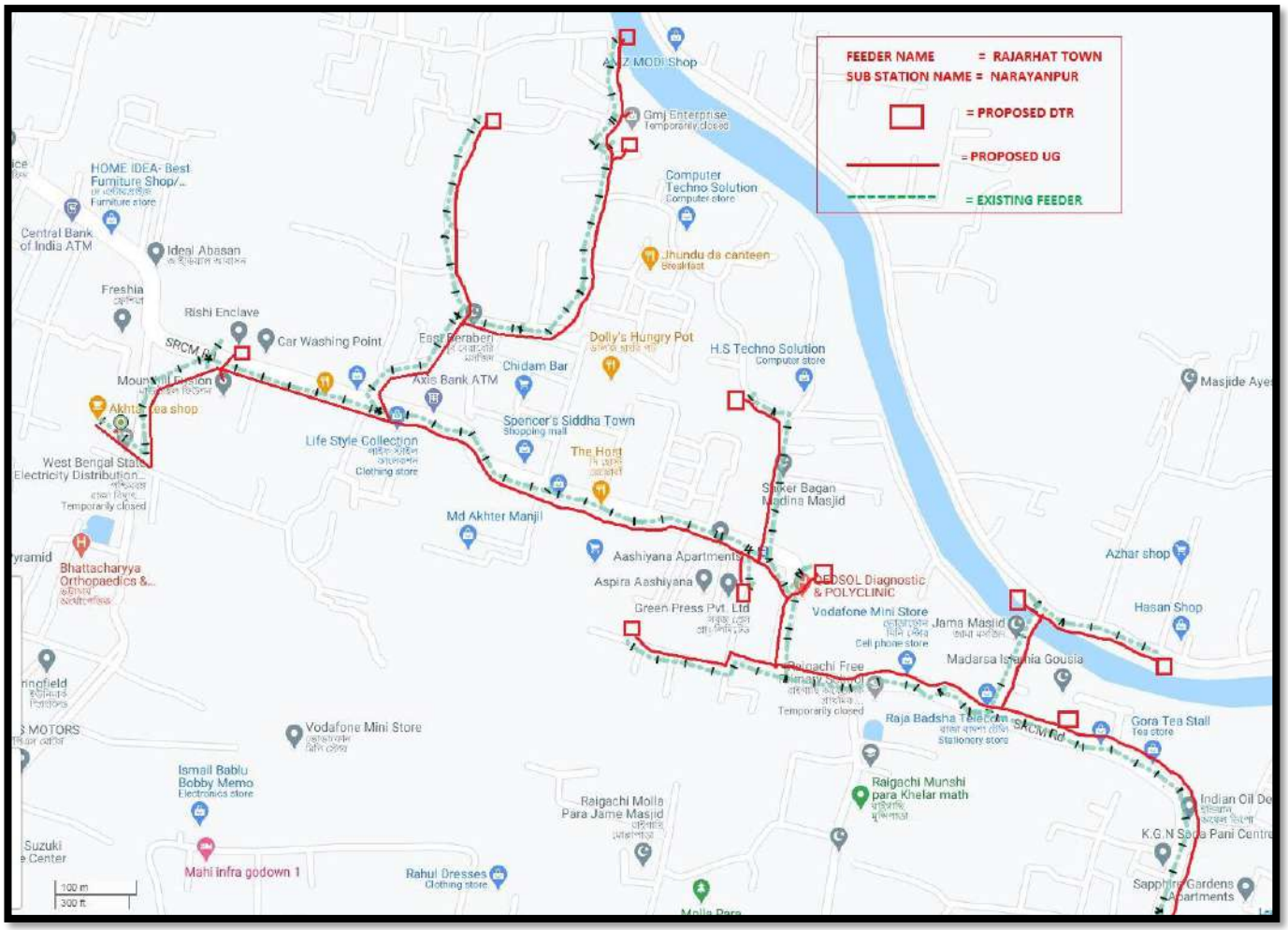


FIGURE 5.4: ENVIRONMENTAL & SOCIAL SETTING ALONG THE RAJARHAT TOWN FEEDER UNDER NARAYANPUR SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN

FIGURE 5.5: VIEW OF RAJARHAT ROAD RMU FEEDER UNDER SIDDHA PINE SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN

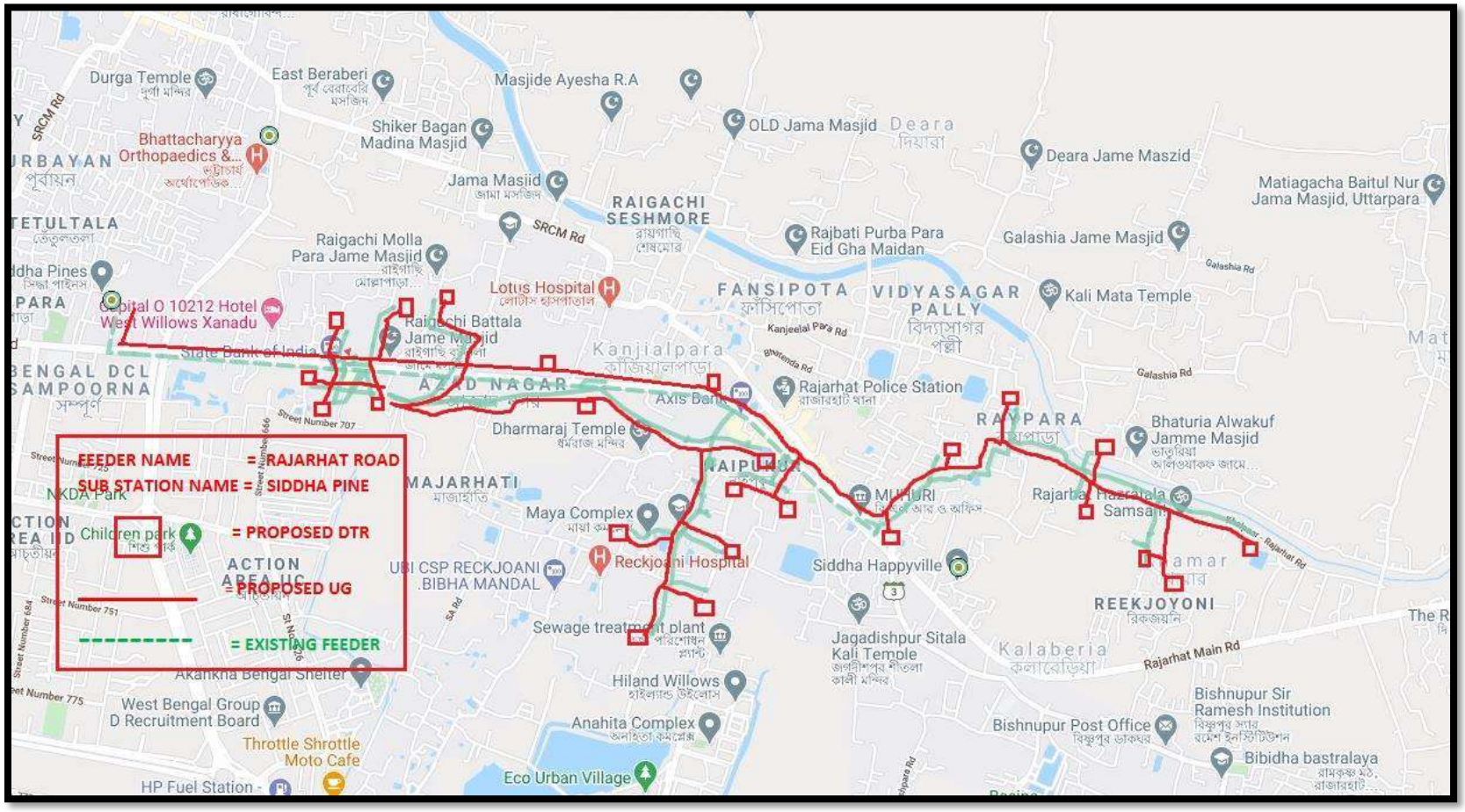


FIGURE 5.6: ENVIRONMENTAL & SOCIAL SETTING ALONG THE RAJARHAT ROAD RMU FEEDER UNDER SIDDHA PINE SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN

FIGURE 5.7: VIEW OF SIDDHA GOPALPUR 1 & 2 FEEDER UNDER SIDDHA PINE SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN AREA

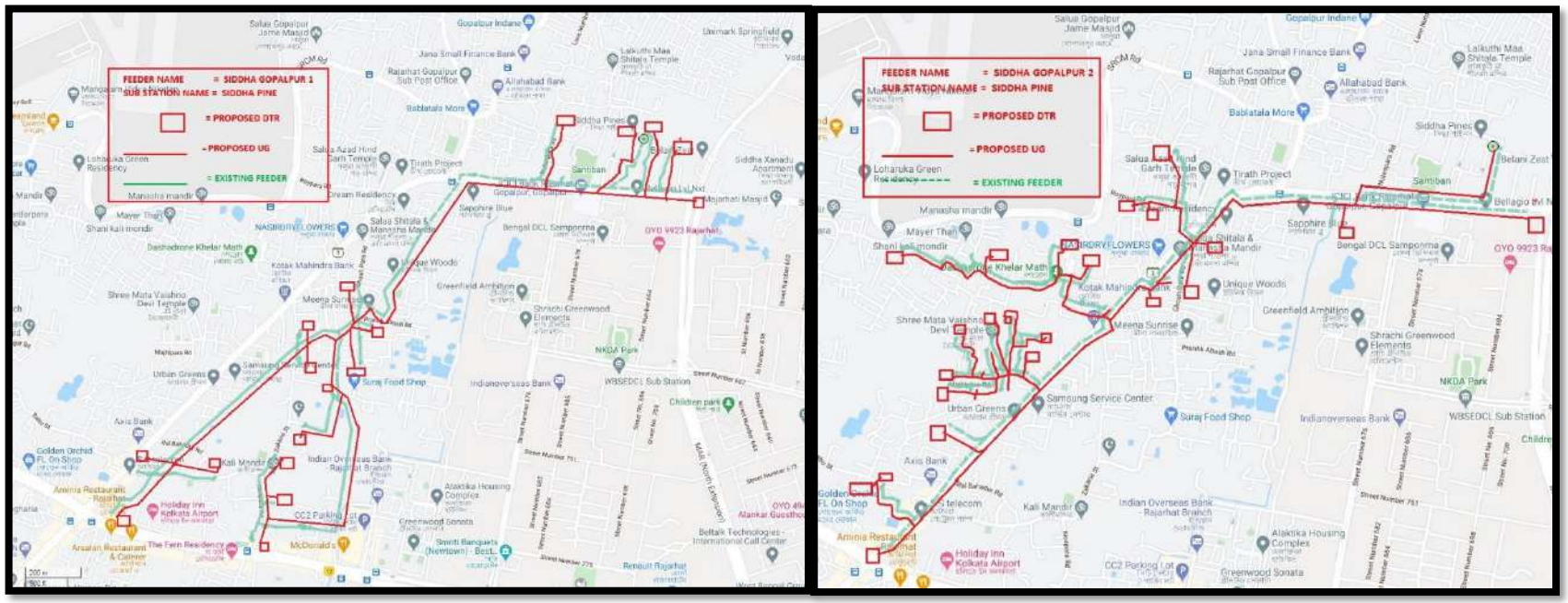


FIGURE 5.8: ENVIRONMENTAL & SOCIAL SETTING ALONG THE SIDDHA GOPALPUR 1 & 2 FEEDER UNDER SIDDHA PINE SUB-STATION SELECTED FOR UG CABLING AT RAJARHAT TOWN

5.1.1 Impacts on Land Use

The UG cable project, with a length of 6.0 km (33 kv HT), 107.20 km (11kv HT) and 216.22 km (230/440V LT) will be laid along the existing roads within the Rajarhat area. The Rajarhat area roads are largely bitumen paved and cement concrete roads particularly in narrow lanes and by-lanes and sporadic stretches of even brick soling at some locations. Once the cable laying operations are completed, the roads will be restored to its previous condition. The work camp sites, store yards and hot mix plant areas if any will also be restored to its previous state after demobilisation. The UG cable project does not involve any land acquisition or diversion of land for permanent change in land use. Thus, there will not be any long term impact or change in the land use as a consequence of this project.

5.1.2 Impacts on Surface Water Resources

The UG cable project will require water during initial site preparation and cable trench excavation/drilling apart from consolidation/compaction of soil during back filling operations of cable trenches, apart from dust suppression measures at different stages of the project implementation. Provision of onsite sanitation facility through mobile toilets for workforce will also require water.

The treated water shall be preferred if available else existing water resources will be used to meet the above water requirements. As no new water sources will be used for meeting the water requirements of the project. Thus, there will be no impact on water resources of the area as a consequence of this project implementation.

5.1.3 Impacts on Ground Water Resources

As mentioned in earlier section the water requirements of the UG cable project is intended to be met through preferably treated water if available else existing water resources. Rajarhat area is categorized under safe category for ground water extraction as per assessment carried out by CGWB (ref Chapter 4 Baseline Environment & Social Profile).

The typical water requirement for every 500 metres long cable laying segment is given in Tables 5.1. Accordingly, the total water requirement for laying of UG cable network is estimated to be around 1357 cum. Additional water would be required for onsite sanitation etc. The overall water requirement of UG cable project is estimated at 5-7 cum/day which includes both operational and onsite sanitation requirements. This is an insignificant quantity (equals daily water requirement of 8-10 households with 5 persons per household as per national standards i.e. 150 lpcd) and very minimal as compared to the presently available water resources within Rajarhat area.

TABLE 5.1: WATER REQUIREMENTS FOR LAYING 500M LENGTH OF UNDER GROUND CABLE

Sl. No.	Activities	Water Requirement	Total Quantity (in litres)
1	Initial Site Clean up	0.5 litre/sqm X 1.0m wide operational area X 500m	250
2	Trench Excavation (asphalt layer)	1 litre/sqm X 0.5 m trench width X500m X 2 times	500
3	Trench Excavation (WBM/SoilLayer)	1 litre/sqm X 0.5 m trench width X500m X 3 times	750
4	Consolidated & Backfilling Operations including Road Restoration	1.5 litre/sqm X 0.5m trench width X500m X 2 times	750
5	Wetting of Net Cloth Covered over Tipper Trucks	10 litre/truck X 50 trucks/Segment	500
6	Site Cleanup Operations	0.3 litre/sqm X 1.0 wide operation area X 500m X 1 time	150
Total Water Requirement for Laying 500m Segment of UG Cable			2900

The UG cable project does not involve any operations, which lead to generation of effluents/emissions that may directly or indirectly impact either surface and/or ground water resources. However, the slurry containing sodium bentonite likely to be generated during micro-tunnelling would be collected and disposed off in designated place by BMC. All other off-site operational areas under UG cable project like store yards, work camp sites, which are likely to have potential for pollution, if any will be provided with adequate measures to avoid soil, surface water and/or and ground water contamination. Thus, UG cable project will not significantly impact ground water sources.

5.1.4 Impacts on Soil and Geology

The underground cables under this project will be laid along the existing bitumen and/or cement concrete/brick soling roads, within the Rajarhat town limits. The maximum depth of cable trenches will be 1.00 metres from existing road level. The roads will be restored to its previous state after cable laying operations. No topsoil will be disturbed, or any virgin areas will be opened up for cable laying operations. The work camp sites, if any and other off site areas also will be restored to its previous state. Debris generated during laying underground cables will be collected and disposed in environmental sound manner. Therefore, the UG cable project will not cause any impacts on soil and/or geology of the area.

5.1.5 Impacts on Flora and Fauna

The operational area, within which underground cables will be laid under this project, will be limited to a 1.0 metres wide corridor along the footpath and/or road edge (Chapter 2 for details on operational area/corridor of impact). The environmental screening has indicated most of the pre-existing roadside infrastructure/utilities including roadside trees are within maximum of 0.5 metre from the foot path or road edge. Therefore, cable routes within the operational area will be aligned beyond this 0.5 m from footpath/road edge to avoid trees (irrespective of size) and no tree are likely to be felled for this project.

The tree enumeration survey during environmental screening has indicated that 6.0 km (33 kv HT), 107.20 km (11kv HT) and 216.22 km (230/440V LT) long cable route corridor under proposed project area has 55 trees of different sizes (Table 5.2). At stretches, where fully grown trees exist, trenches will be excavated through manual means with lopping of trees. During trench excavation, utmost care will be taken to avoid damage to the root zone of trees, irrespective of its size. Thus, UG cable project will have no significant impact on flora of the region.

As the UG project is limited to existing roads and does not traverse through forest/plantation areas or stretches with green cover, impacts on fauna is not anticipated.

TABLE 5.2: STATUS OF TREES FALLING ALONG THE PROPOSED UG CABLE ROUTE

Name	Qty
Casurina/Jhau (*Casuarina equisetifolia*)	6
Eucalyptus/Nilagiri (*Eucalyptus globulus Labill.*)	4
Coconut/Naarikel (*Cocos nucifera Linn.*)	10
Mango/Aam (*Mangifera indica Linn.*)	2
Guava/Peru(*Psidium guajava Linn.*)	4
Drum stick/Shajna(*Moringa oleifera*)	-
Banyan/Bot(*Ficus bengalensis Linn.*)	4
Tamarind/Imli(*Tamarindus indica Linn.*)	-
Banana/Kella(*Musa paradisiaca Linn.*)	2

Name	Qty
Gulmohar/Krishnachura(*Delonix regia*)	10
Wild Date Palm/Khajuria(*Phoenix spc.*)	-
Palm/Tal(*Borassus flabellifer*)	6
Asok/Ashoka (*Saraca asoca*)Mast tree/Devdaru (*Polyalthia longifolia*)	6
Neem/Nim (*Azadirachta indica*)	1
Golden Shower/Amaltas(*Cassia fistula Linn.*)	2
Arjun/Arjun(*Terminalia arjuna*)	-
Jackfruit/Kanthal (*Artocarpus heterophyllus Lamk.*)	-
White Lead/Subabul(*Laucaena leucocephala*)	1
Indian Plum/Ber, Kul(*Ziziphus mauritiana*)	-
Bamboo/Baans (*Bambusa arundinacea Willd.*)	-
Peanut/Badam (*Arachis hypogeae*)	-
Egyptian thorn/Babul(*Vachellia nilotica*)	-
Earleaf Acacia/Akashmoni(*Acacia auriculiformis*)	-
Indian beech/Karanj(*Millettia pinnata*)	-
Others	2
Total	**55**

5.1.6 Impacts on Ancient Monuments/Archaeological Sites

The area of the proposed UG cable project does not have any ancient monuments and/or archaeological site(s), protected under the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010 or by the Department of Archaeology and Museums, Government of West Bengal. Thus, there will no impacts on ancient monuments and archaeological sites due to the UG cable project.

5.1.7 Impacts on Heritage Structures

The project area has no heritage structures falling within UG cable route alignment. Therefore, cable laying along the road will not impact any heritage structures. Specific requirement/suggestions of the concerned authorities with heritage structures, if any, with regard to cable route alignment will be duly adhered during cable laying works at such locations.

5.1.8 Impacts on Ecologically Sensitive Areas

There is no ecologically-sensitive, wetland, protected areas and Important Bird Areas (IBA), within project area of the UG cable project. Cable routes under UG project are limited to already existing urban/rural roads through fully developed areas and therefore, underground cable laying works under this project will not cause any impacts on any of these areas.

5.1.9 Impacts on Structures

The detail survey was conducted to prepare the detail inventory of various types of structures likely to fall under 1 m COI of entire proposed underground cabling network (HT/LT) in Rajarhat area.

Based on the proposed layout and preliminary survey, the nature of social impacts identified in the sub-project mainly comprise of following impacts:

- Temporary loss of access to residential and commercial buildings
- Temporary impact on livelihood of squatters.

The survey reveals that there are no losses of complete structures, nor involves land acquisition. The impacts are essentially in the form of temporary loss of access area and loss of structure extension; and these all can be restored back.

The survey revealed that both residential and commercial structures along the roads (along UG cable route alignment) have direct access on to the road. In order to gain direct access, building owners have constructed ramps and /or steps from plinth level of their building(s) to road level (sometimes even over roadside drain) to ensure easy vehicular or pedestrian movement from building to road. Table 5.3 presents nature of overall impact on residential/ commercial structures as well as CPRs due to the proposed sub-project.

TABLE 5.3(a): FEEDER-WISE LIKELY IMPACT ON STRUCTURES DUE TO UNDERGROUND ELECTRICAL CABLING NETWORK AT RAJARHAT TOWN AREA- NARAYANPUR & SIDDHA PINE SUB-STATION

Sl. no.	Particulars	Unit	Rajarhat Town	Narayanpur Local	Gopalpur 1	Siddha Gopalpur 1	Siddha Gopalpur 2	Rajarhat Road RMU	Total	Remarks
1	Imp on Bitumin Rd X-ing	mtrs	60	50	70	60	60	0	300	Micro Tunneling/ Jack Push
2	Imp on Bitumin Road	mtrs	220	230	440	190	200	200	1480	
3	Imp on CC Rd X-ing	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push
4	RCC(Access,Pavement/Platform/Slab/Parking lot /Plaster/Tiles etc)	mtrs	160	160	110	100	140	60	730	
5	Imp on CC Rd/Pavement /Platform/Slab/Parking lot /Plaster/Tiles	mtrs	100	130	0	0	0	0	230	
6	Imp on Brick Rd Crs	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push
7	Imp on Brick Road/Platform/Pavement/Parking Lot	mtrs	0	180	0	50	160	0	390	
8	Imp on Paver Block/Mozaic/Marble	mtrs	0	0	0	0	0	0	0	
9	Imp on Culvert / Drain Slab X-ing	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push
10	Imp on Sewarage Line X-ing	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push
11	Impact on 250 mm. thick wall of Manhole/Drain Chamber-Removable	nos.	0	0	0	0	0	0	0	
12	Imp on 250 mm. thick Brick wall of Masonary Sewarage line/Pakka Drain/Boundary	mtrs	0	0	0	0	0	0	0	
13	Imp on Pakka Drain X-ing	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push
14	Imp on Waterline X-ing	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push
15	Effect on Water line	mtrs	0	0	0	0	0	0	0	
16	Imp on Green Fence/ Temp. Fence/Wood+Tin+pillar+fence Structures etc.	mtrs	0	0	0	0	0	0	0	Micro Tunneling/ Jack Push

TABLE 5.3(b): OVERALL LIKELY IMPACTS ON COMMERCIAL & RESIDENTIAL STRUCTURES AND CPRs

Particulars	Numbers
Commercial & Residential Structures Likely to be Affected	
Temporary Commercial Structures – Gumti/ Thela (Tea/Food stall, Variety stores, Mobile recharge, Travel agent etc)	35
Semi-Permanent Commercial/Residential Structure	18
Boundary Wall of Semi-Pucca Commercial structure	-
Boundary Wall of Residential Structure	-
Paver-block Parking/Access Area of Shops	21
Extended Part of Hotels and Others	6
Septic Tank	-
Access Road to Hospital/Petrol Pump/ School	4
Total	**84**
CPRs Likely to be Partially Affected	
Drinking Water Supply Lines	-
Garbage Vat/Bins	4
Pond Embankment	-
Water Stand-post	-
School Boundary Wall	-
Municipality Meter Room	-
Temple/ Mosque	2
Sluice Gate	-
Deep/Shallow Tube-well	-
Parking Place	8
Bus Shelter	2
Paver-block Pavement	12
Total	**28**

Particulars	Numbers
Impact on Other CPRs	
Culvert Crossing	12
Road Crossing	28
Drain Crossing	21
Rail Line Crossing	-
Drain	4
Canal Bridge Crossing	-
River Crossing	-
Total	**65**

5.1.10 Impacts on Livelihood

The survey also indicates that there are appreciable numbers of ambulatory vendors at some selected stretches/locations along the roads (incidentally also UG cable route alignment). Many of these vendors change their locations to 2-3 times per day to cover more areas. During the excavation works for underground cabling laying, they are unlikely to get directly affected as they can temporarily shift to nearby locations and continue with their business and thus they are unlikely to lose their livelihood due to UG cable laying.

The consultations held with such ambulatory vendors indicated that they do not hold this issue as serious and indicated that given some advance notice, they can temporarily shift to some nearby locations for the period of construction and relocate back, once cable laying activities are completed. However, few of them, who have occupied a particular location over a period of time and are found more or less stationary envisaged loss of their income during period of construction. They anticipate a loss of Rs. 300 - 500 per day.

In addition to the ambulatory vendors, many tea, snacks, stationery kiosks have been observed during the surveys.

The significance of likely environmental and social impact of conversion of Conversion of Overhead Distribution System to Underground Cabling System in Rajarhat town under WBEDGMP are presented in Table 5.4.

TABLE 5.4: SIGNIFICANCE OF ENVIRONMENTAL AND SOCIAL IMPACTS OF UGC NETWORK SUB-PROJECT AT RAJARHAT TOUWN

IMPACT	SIGNIFICANCE RATING			
	Construction Phase		Operation Phase	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Soil and Geology				
Contamination of soil	Very low	Not anticipated	Not anticipated	Not anticipated
Drainage Pattern	Very low	Not anticipated	Not anticipated	Not anticipated
Increase in erosion potential and sedimentation	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Ecology				
Impact on terrestrial ecology	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Forest and vegetation clearance	Very Low	Not anticipated	Very low	Not anticipated
Impact on Aquatic environment	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Impacts on Wetlands	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Air Quality				
Deterioration of Air Quality Index (AQI) due to dust	Very low	Not anticipated	Not anticipated	Not anticipated
Fugitive emissions	Very low	Not anticipated	Not anticipated	Not anticipated
GHGs emissions	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Noise and vibration				
Deterioration in ambient noise quality	Very Low & Temporary	Well within the prescribed Standards	N.A. as limits well within prescribed standards.	N. A.
Water quality				
Water quality	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Hazardous & Other Waste				
Hazardous Waste Generation	Very Low – negligible	Not anticipated	only during change of transformer	Not anticipated

IMPACT	SIGNIFICANCE RATING			
	Construction Phase		Operation Phase	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
			oil/major maintenance	
Pollution from other waste generation	Very low	Not anticipated	Very low	Not anticipated
Health and Safety				
Occupational Health and Safety	Low	Not anticipated	Very Low	Negligible
Public Safety	Low	Negligible	Negligible	Negligible
HIV & AIDS/COVID	Low	Not anticipated	N. A.	N.A.
Traffic Impacts				
Traffic Disruption	Low	Negligible	Not anticipated	Not anticipated
Damage to roads and other infrastructure	Low	Very Low	Not anticipated	Not anticipated
Socio-economic Impacts				
Physical displacement of people (R&R)	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Impact on Tribal Community	Not anticipated	Not anticipated	Not anticipated	Not anticipated
Damage to commercial & Residential structures	Low	Very Low	Not anticipated	Not anticipated
Loss of livelihood	Very Low	Not anticipated	Not anticipated	Not anticipated
Damage to CPRs	Low	Very Low	Not anticipated	Not anticipated
Creation of employment	Low positive impact	Medium High positive	N.A.	N.A.
Influx of labour	Low	Very low	Not anticipated	Not anticipated

5.2 HAZARD RISK AND VULNERABILITY

The UG cable project is spread across Rajarhat Municipality area, which is under a low risk seismic zone (Zone II).

Historical data indicates September and October months are the most probable months for occurrence of depressions, cyclones and severe cyclonic storms in Rajarhat Region (Ref Chapter 4- Baseline Environment& Social Profile for details). Therefore, cable laying operations may get stalled for brief periods, in the event of any occurrence of cyclones/inclement weather conditions during the implementation phase.

On the contrary, the UG cable project is being implemented in order to have a resilient underground electrical network, to counter damages, during and after cyclones and other such natural calamities in Rajarhat town area being close to Sunderban delta.

5.3 BENEFICIAL IMPACTS OF UG CABLE PROJECT

The most notable and anticipated benefits of UG cable project to Rajarhat and its residents are hereunder:

- UG cable network is safer to public lives and property, particularly of people belonging to lower economic strata of society during calamities/disasters/thunders /lightening instances
- Areas covered under UG cable project is expected to practically remain unaffected in future from power disruptions and associated implications during or after cyclone/high winds or natural calamities/inclement weather conditions, hence resilient to natural disasters, the main project development objective of UG cable project component under WBEDGMP
- Resilient underground electrical cable network will help to retain/restore water, sewerage and sanitation services across city during or after calamities/cyclones
- Resilient underground electrical cable network will help state administration to restore other damaged infrastructure during natural calamities with least down time.
- Conserve state's resources in re-construction of damaged electrical network during every calamity.
- Rajarhat town being the important upcoming residential and commercial hub in North 24-Parganas District of West Bengal, stands vulnerable to natural calamities, will essentially need such resilient electrical distribution network, thus aid in State's economic growth and enable to become attractive and destination to investors
- Will help in improving aesthetics of the city through conversion of overhead power distribution network into resilient underground infrastructure. All overhead power distribution infrastructures will be dismantled, after commissioning of the UG cable project.

- The present UG cable project will concurrently enable to up-rate distribution network to future demands by at least 10 years by installing the XLPE cables, which are far superior than the conventional overhead conductors, thus will avoid upgrading/up-rating of existing OH network.
- Trefoil configuration of underground cables in UG cable project will enable to improve current distribution, reduce sheath losses, minimize magnetic field around conductor and reduce heat-up of cables, all of which will further improve efficiency of underground cable network.
- Underground cables do not require any dedicated corridor to be kept permanently clear as in case of an overhead line for safety, maintenance and repair.
- Underground cables will vacate space over ground, which improves aesthetics, higher public acceptance, convey environmental benefits and as well spurt an increase in property values. Thus, underground cables have a potential to induce knock-on effect" - that all other local communities might want "their" network put underground.
- Underground cables do not create obstacles over ground like in case of overhead lines. Also, underground cables pose no hazard to avifauna and low flying aircraft, if any.
- Underground cables are not affected by momentary interruptions, occurring from lightning, crow faults and falling of tree branches on overhead lines, which de-energize and then re-energize the circuit moment later, a most common feature in overhead lines.
- Typically, outrages in underground cable network are about half of their equivalent overhead networks. Also, operating and maintenance costs are estimated to be around one tenth of the cost of overhead network. Thus, advantage of underground network is of fewer interruptions and lower maintenance costs.
- Underground cables will have no pilferage, whereas overhead cables have scope for pilferage/power thefts, which can lead to safety hazards and accidents at times.

5.4 IMPACTS AND MITIGATION MEASURES DURING CONSTRUCTION STAGE

The cable laying activities of UG project comprise sequential activities like initial site preparation, onsite cable route demarcation, trench excavation, cable pullout and lowering, cable jointing, backfilling of trenches, construction of cable joint inspection chambers, road restoration works and finally site clean-up operations. Each of these activities will be normally completed within 2-5 days and therefore the impacts for very limited duration and transitory. A typical work completion time for laying of underground cable in a 500 metres long segment is given in Table 5.5.

TABLE 5.5: WORK COMPLETION TIME UG CABLE LAYING IN A 500 METRE LONG SEGMENT

S.No.	Activities	No. of Days Required for Work Completion	Relevant Construction/Machinery
1	Site Preparation & Excavation of Road/Pavement	4	• Tipper trucks for transportation of all site cleanup materials/debris • Manual or mini excavators fitted with attachments for road/pavement cutting/breaking • Excavators, for loading the excavated materials on to tipper trucks to transport it to central work campsite or to disposal location per requirement
2	Excavation of Earth & WBM Layers	3	
3	Cable Laying (Pullout & Lowering)	4	• Mini excavator fitted with attachments for cable pull out, as required
4	Refilling of Sand &Laying of Concrete Slabs	2	• Rotating transit mixers fitted with hoses for delivery of fine sand into cable trench • Cement Concrete slabs are laid manually in cable trench but brought to site by trucks and unloaded & stacked manually alongside of cable trench
5	Backfilling of Trenches	3	• Rotating transit mixers fitted with hoses for delivery of WMM into cable trenches in un-segregated form • Vibratory compactors cum rollers, suitable for working in cable trenches (0.5 – 0.8 m wide)
6	Road Restoration works & Site Clean up	5	• Tipper trucks for transportation of asphalt materials to operational area and also removal of all debris/waste materials • Pavers for laying of Bituminous Concrete • Rollers for compacting the Bituminous concrete layers
7	Total Time Required for Cable Laying (500m segment)	21	• Tipper trucks for transportation of all debris & waste materials to approved disposal location or stacking area, prior to disposal
8	Time Required for Construction of Cable Joint Inspection Chamber, concurrent to UG cable laying operations	21	• Rotating transit mixers for pouring ready mix concrete for casting of RCC. joint inspection chambers

Moreover, all these activities will be confined to 1.0 metre wide barricaded operational area, which would keep shifting ahead in 500 metres long segments as the work progress. As per the project implementation schedule, only one such operational areas of 500 metres long segment will be opened up per feeder area at any given point of time. All works, except laying of bituminous layers to allow for natural compaction is to be mandatorily completed in the previous segment, prior to opening up of next operational area segment. The laying of the bituminous layer is to be subsequently taken up immediately after the natural compaction, expected to take place within 3-4 weeks or as determined based on site conditions. The entire 6.0 km (33 kv HT), 107.20 km (11kv HT) and 216.22 km (230/440V LT) UG cable laying in project area is scheduled to be completed between 2020-21 to 1921-22.

Other than this, UG cable project will require store yards at other locations, to cater for all feeders' areas, which is primarily intended to store cable coils and other inventory required for cable laying operations. Such store yards will enable to avoid on-site storage along cable routes (to extent possible) and thereby avoid inconvenience/disruptions to pedestrian as well as vehicular traffic. The project will also require one work camp site for establishing macadam mix plant and bitumen mix plant for road restoration works. The impacts and mitigation measures, for each of the sequential cable laying activities are given hereunder.

5.4.1 Site Clearance and Preparation

The site clearance and preparation activities along each of the 500 metres long operational area segment will comprise the following:

- Onsite marking of the cable routes as per cable alignment plan in the respective substation area
- Erect barricades on either side of the 1 metre wide operational area
- Clearing of barricaded area, for any unwarranted/waste materials, to ensure entire barricaded operational area is available for cable laying operations
- Provision of intermediate access, wherever required access across barricaded area for adjacent building occupants as per requirements

5.4.1.1 Impacts

The impacts of site clearance and preparation of operational area will be as hereunder:

- Site clearance operations may cause a marginal increase in dust levels, although for a very limited time in and around barricaded operations area
- Access to buildings across barricaded operational area will be constricted
- Pedestrian traffic across and along barricaded area will get constricted

- Roadside parking (both authorised and unauthorised) will get constricted as a result of barricading of operational areas in 500 metres long segments
- Vehicular traffic along the road will also get constricted as a result of reduced width of carriageway due to barricading
- Roadside storm water drainage along 500 metres long segment might get slightly affected, since some drainage chutes might get blocked under barricaded operational area
- Seepage and water logging of cable trenches may occur affecting the cable laying operations

5.4.1.2 Mitigation Measures

The mitigation measures required during the site clearance and preparation are:

- Cable route, cable trench of 0.5-0.8 metre width as well as 1.0 metre wide operational area is to be preferably demarcated on ground with yellow paint (7.5 cm wide minimum). The location of cable joint inspection chambers (size 1.0x2.5x1.0 metres deep or as per requirement) at every 250 metres interval along cable route, also to be marked on ground with yellow paint;
- While, demarcating the cable route and cable trench, shall mandatorily avoid removal /shifting of any of over ground road side infrastructure like poles (all types and sizes) and trees (all types and sizes), with exception of ramps, steps which are extending onto road;
- Ensure, centre line of 0.5-0.8 metre wide cable trench coincide with centre line of 1.0 metre wide operational area, with 500 mm wide working space availability on both sides of cable trench (Refer Chapter 4.0 – Baseline Environment & Social Profile);
- The cable routes and strip plans/UG cable route maps for entire project area would be prepared before commencement of field work;
- In case, cable routes are along commercial and busy roads, requisite approvals from traffic police shall be obtained at least 7 days in advance prior to start of site clearance operations in such stretches. The strip plans/UG cable route maps would be used in planning of any traffic diversions, if required and /or for seeking approvals from traffic police;
- The environmental screening has identified few sensitive receptors along 6.0 km (33 kv HT), 107.20 km (11kv HT) and 216.22 km (230/440V LT) network are aligned, the receptors include like hospitals, schools/educational institutions/ function halls etc along cable routes in all the feeders. The locations of all such receptors would be provided in strip plans/route maps. Details of information about cable laying operations, scheduled work completion time in such specific stretches would be shared with all such institutions/occupants of buildings at least 7 days in advance, prior to commencement of works. Their requirements with respect to access or traffic diversions or any other

concerns shall be considered in operations planning and scheduling of work and adhered to without any lapses on any account;

- The occupants of other buildings/establishments along operational areas to be barricaded shall be informed 7 days in advance about cable laying operations, scheduled work completion time, restriction in access for limited time and their specific requirements, if any with respect to temporary access and arrangements shall be discussed and finalized prior to barricading and commencement of trench excavation;
- Prior to commencement of excavation works, carry out minor repairs to foot paths (including making good all uneven surfaces along 500 metres cable route segment) adjacent to barricaded area (wherever applicable) to ensure pedestrian safety as a result of reduced walkway due to barricading on the road side;
- All operations shall be restricted to only day hours in residential areas. Only in case of commercial areas, which are most unlikely to disturb residential pockets, the operations, can be carried out at night hours with adequate floodlight arrangements and ensure operations are not a hazard to night traffic;
- At any given point of time, only 500 metre length operational area shall be opened up for cable laying operations at a particular location and a maximum 1 such operational area per feeder/zone. Prior to moving to next 500 metre segment, all works in the previous segment shall be completed in all respects, except laying of bituminous layers, which shall be taken up after achieving a natural compaction within 3-4 weeks. The worksite shall be completely cleared, prior to opening to traffic;
- Prior to commencement of excavation operations, permission for road cutting from BMC/PWD and approvals from traffic police, wherever required shall be obtained in advance. The telecom department shall be informed about the cable laying operations;
- Once required permissions from BMC and traffic police are in place, barricade(s) shall be placed on either side of the 1 metre demarcated operational area. The barricade will not only help to significantly limit impacts of cable laying to the operational area but will also act as a noise barrier.
- Sand/earth filled polypropylene bags (used cement bags) are to be placed along inner side of both barricades, to prevent seepage and water logging of cable trenches during rainy days if required. Seepage and water logging will not only prolong cable laying operations but will also prolong inconvenience to public and vehicular traffic as a result of barricaded operational area for extended period;
- The barricades shall be provided with energy efficient LED strip lighting system (only towards roadside) as a hazard safety for traffic moving at nights and late nights. The LED lighting system shall be switched on between sunset and sunrise hours mandatorily, for the entire duration of cable laying operations in any segment;
- All work force deployed for cable laying operations shall be provided induction training, which shall include awareness about safety practices at work places, safe distances to maintain around moving equipment like excavators etc, health and safety issues with

particular emphasis on public safety and on-site sanitation practices at worksite during cable laying operations;

- Every 500 metres segmental operation area shall be stationed with one mobile water tanker of 6000 litres capacity to meet all operational water requirements. The water tanker shall be fitted with a pressurized fine spray system and a hose reel of 600 metres length. Typically, water is required for dust suppression during site preparation, excavation, consolidation of backfilling layers and wetting of net cloth covered over tipper trucks, prior to their dispatch from operations site and site clean up after completion of cable laying;
- All workforce deployed at site irrespective of level, shall mandatorily wear personnel protective equipment (PPE) like safety helmets, face masks, ear plugs, protective gear with reflective jackets and safety shoes;
- Use of well-maintained and less than 5-year old earth excavators/moving equipment will enable to limit the noise levels to a large extent;
- At some locations like busy roads with commercial complexes and particularly near or ahead of junctions, location specific traffic diversion plans are to be planned and implemented to ensure smooth passage of traffic and avoid congestion. Same may be finalised in consultation/approval of traffic police, well in advance of at least 7 days.
- Diversion notice boards, or caution notice boards for both pedestrian as well as vehicular traffic at all appropriate required locations, both on upstream and downstream both sides of the barricaded area shall be installed, so that approaching traffic can move with caution. All boards shall be as per code of practice for road signs IRC: 67-2012;
- Trained traffic wardens with reflective handheld batons and jackets, helmets and safety shoes are to be deployed at places, wherever barricaded operation areas are near to road junctions/intersections in order to ensure smooth movement of traffic;
- An on-site crew group, comprising mason, plumber, carpenter/sheet metal fabricator, with mobile van (MUV type) and all required tools/equipment/materials shall be provided on full time basis and common to all operational areas to rectify the damages to underground utilities like water supply pipelines, sewer lines, drainage and/or sanitary connections or provide temporary access during excavation. The crew shall be provided with all resources by contractor to restore damaged utilities with least down time. The same crew group shall be deployed to restore the damaged steps, ramps during trench excavation works to ensure proper drainage alongside barricaded operational area during and after rains;
- Every 500 metres segment operation area shall be stationed with one mobile toilet (1 seat for men and 1 seat for women with separate entrances) and parked at a suitable place within a maximum distance of 100 metres from the operational area. The mobile toilet shall have at least 1000 litres capacity overhead water tank and replenished regularly. The toilet shall be well maintained and in usable condition at all times. The bottom tanks shall be emptied on a regular basis;

- The workforce shall be instructed to use the mobile toilets, specially provided under the project and not to use any other public/open places or public toilets;
- Each operational area shall have at least two waste collection bins (25 litres capacity each) installed at entry and exit points for use by workforce. The bins shall be regularly emptied and kept in clean conditions at all times;
- Every 500 metres operational area shall be stationed with one drinking water kiosk with minimum 300 litres capacity, replenished regularly. The kiosk shall be placed at a suitable place within 100 metres from operational area;
- The operational area shall display/maintain list of nearby hospitals for attending to any injury/ fatalities either to workforce and/or to public as a result of cable laying activities. The site shall also have a first aid kit and field level supervisory staff shall have undergone first aid training/orientation;
- Since the work is being carried out along roads in commercial as well as residential areas, utmost attention shall be exercised to swiftly complete all operations including road restoration, prior to opening up the barricaded area for public use with shortest possible time.
- Contractor should follow defined protocols for health &safety including measures for preventing spread on COVID-19.
- Safety equipment (PPEs) should be provided to workers
- Sign boarding of hazardous areas/materials should be done.
- The detailed Safety Plan as provided in ESMF shall also be made part of all contract document to ensure that provisions are uniformly implemented by all contractors.
- Ensuring strict compliance of "**Code of Conduct**" to avoid any incidence of Gender Based Violence (GBV)/ Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) etc.

5.4.2 Excavation of Pavement/Asphalt Layers

After the site preparation, first activity at operational area will be excavation of pavement (asphalt) layers, which can be done either manually and /or by using the specially designed accessory fitted to mini-excavators or backhoes of excavators itself, suited for 1 m wide operational areas.

The excavated materials can be directly loaded onto the tipper trucks for transporting it to the central asphalt plant, if recycling of the materials needs to be carried out for road restoration or transport to a safe disposal point, if re-cycling of excavated asphalt materials is not desired.

Pavement (asphalt) can be cut using specially designed accessory for road cut (pavement breaker) fitted onto the mini excavators or even with the back hoe of the excavators itself. Both of these will generate chunks of pavement material with irregular sizes, which are to be transported to a central plant for further crushing so that at least 95% of the materials pass

through 40mm sieve, if the material is to be recycled back for road restoration or transported as it is for safe disposal, if re-cycling is not desired.

5.4.2.1 Impacts

Irrespective of methods deployed, excavation of pavement will generate approx 5500 cum of asphalt, concrete and other materials from all feeder areas spread across project area.

The pavement cut materials will need to be either recycled/reused to the extent possible for road restoration works or safely disposed off to avoid adverse impacts on environment.

Other than this, pavement excavation operations will contribute to dust and noise levels, which are to be managed. Since the pavement excavation will largely be restricted to barricaded operational area, disruptions to local traffic will not be significant, except during loading of pavement cut materials to tipper trucks.

5.4.2.2 Mitigation Measures

a) Management of excavated pavement materials:

The pavement excavated materials, particularly asphalt contain significant quantities of bitumen (up to 4%) and stone aggregates (up to 96%), which can be re-deployed (as recycled asphalt pavement) during the road restoration works under UG cable project. The recycling/reuse of construction waste materials is now mandatory with the newly notified Construction and Demolition Waste Management Rules, 2016.

The recycled asphalt pavement has the following advantages:

- Avoid utilization of newer resources of bitumen and stone aggregates, through recycle and reuse of excavated pavement/road cut materials, which adequately contains required bitumen and stone aggregates;
- Will avoid or minimise the quantities of asphalt materials for transport as well as, safe disposal apart from associated costs, involved thereof;
- Will avoid or minimise movement of tipper trucks in and out of Rajarhat area as well as avoid carriage cost for transportation of excavated asphalt materials. The 1500 cum of excavated asphalt materials will involve in totality about 250 tipper trucks (@ 6 cum per tipper truck) for entire project and an average 2-4 tipper truck trips/day for every 500 metres segment of operational area. The BMC approved disposal locations for waste disposal area. On the other hand, if the material is to sent for recycling, central plants (modified bitumen hot mix plants) for processing of excavated asphalt materials will be located within Rajarhat area at less than 5 km.

Although, there are four principal recycling methods, central plant cold recycling (CPCR) is best suited for UG cable project, since this facilitate recycling of maximum quantity of excavated asphalt materials. Details of CPCR along with other recycling methods are given in Appendix 5.1.

Deploying CPCR will enable to completely utilize all excavated asphalt pavement materials for road restoration. Also, deploying CPCR will not warrant either transportation over long distances or safe disposal of excavated asphalt materials. Therefore, recycling of asphalt materials through CPCR may be considered for road restoration under the UG cable project.

The pavement cut materials of cement concrete roads, cannot be economically recycled/reused for pavement reconstruction. It can be used for filling low-lying areas or disposed as construction debris.

Consultations with BMC officials indicate that disposal location require large quantities of construction debris/soil either for closure of existing dumpsites or construction of approach road and other infrastructure at adjacent locations, where BMC is developing new waste disposal sites. In any case, BMC shall have to establish facility to receive and process all such waste as per recently notified Construction and Demolition Waste Management Rules, 2016,

b) Other mitigation measures during pavement excavation operations

- The dust levels during pavement cut operations shall be controlled by through periodical sprinkling of water through 6000 litres capacity mobile water tankers stationed at operational areas tankers stationed at work site and fitted with pressurized fine spray with hose reel arrangement. Pressurized water spray will enable to conserve water and avoid excess use of water for sprinkling at work sites/operational areas;
- The tipper trucks, which carry the excavated asphalt materials to a central plant for processing shall be covered with net cloth and wetted with sprinkling of water, prior to dispatch of every trip, to prevent en-route spills as well as airborne dust during transit. Tipper trucks shall not be overloaded beyond designated capacities, to avoid en-route spills;
- The noise levels during pavement cut operations can be limited/reduced through deployment of well-maintained and relatively newer (less than 5-year old vehicles) and all excavation operations are conducted at normal work pace.
- All work forces involved in pavement excavation operations will be provided with PPEs like safety shoes, helmets, face masks, ear plugs, and reflective jackets mandatorily. All personnel exposed to noise levels for prolonged duration shall be provided with one additional break in the pre and post lunch sessions, to limit their exposures;
- The road/pavement excavation at some specific locations may warrant partial removal of unauthorized ramps/steps along cable routes, but all such ramps, steps and other infrastructure shall be restored to its previous state and temporary access across barricaded area is to be provided as an interim measure to avoid/minimize inconvenience to occupants of the buildings along UG cable route corridor;

- A dedicated crew group comprising mason, plumber and carpenter/sheet metal fabricator with all resources including a mobile van (SUV type) is to be stationed (common for all operational areas across the project) to restore any damaged underground utilities like water/sewer/sanitary lines as a consequence of excavation works. In case of any un-foreseen utilities get damaged, the same shall be restored as per the time line provision made in the grievance redress mechanism (ref Chapter 9 for details). Normally, pavement excavation operations (upto maximum depth of 1m in present case) are unlikely to damage to any pre-existing underground utilities.

5.4.3 Excavation of Sub-Base and Base Layers

The sub base and base layers, which are beneath asphalt/cement concrete pavement layers are also to be excavated as per the trench type configuration. The estimated quantity of sub base and base layers, which is to be excavated as per project design is estimated at around 1200 cum.

The excavated base and sub-base layers may largely contain natural sandy soils, prevalent in Rajarhat region, interspersed with water bound macadam layers (graded stone aggregates mixed with coarse soil). Much of these materials can be re-used, depending upon its gradation and composition, which is to be determined during the excavation operations.

If the excavated materials found to be useful for reusing as wet mixed macadam (WMM), then it can be transported to a central WMM mix plant, to make it suitable for reuse as WMM with additional material as per required gradation in accordance with IRC guidelines or MoRTH (Ministry of Road Transport and Highways).

Even if the material is determined to be reusable after carrying out required gradation adjustments, only some 30% of the materials can be reused and balance 70%, would still needs to be disposed off as construction waste materials/debris or reused elsewhere.

5.4.3.1 Impacts

The surplus base and sub-base layers (after re-using to extent possible 30%) will need to be disposed off as construction waste and/or debris. Given that this excavated material is almost akin to natural soil, will not cause any adverse impacts and can be beneficially used in embankment construction or filling low lying areas and/ or can be sourced to other area development projects, commanding commercial value.

5.4.3.2 Mitigation Measures

- The surplus base and sub-base layers (after re-using to the possible 30%) is to be disposed off as construction wastes/debris at approved disposal locations unless any taker is found within BMC.
- Consultations with BMC officials indicate that all the disposal locations require large quantities of construction debris/soil either for closure of existing dumpsites or construction of approach road and other infrastructure at adjacent locations, where BMC is developing new waste disposal sites;
- Considering that only 70% of materials needs to be disposed off, which translates to average 4-6 tipper truck trips (@10 cu.m capacity trucks) per day spread over project implementation phase of entire UG cable project. All tipper trucks, carrying excavated materials shall be covered with net cloth and wetted prior to dispatch of every trip, to prevent en-route spills as well as airborne dust during transit. Tipper trucks shall not be overloaded beyond designated capacities, to avoid en-route spills;
- The dust levels during excavation of sub-base and base layers shall be controlled through periodical sprinkling of water through 6000 litres capacity mobile water tankers stationed at operational areas and fitted with pressurized fine spray with hose reels. Pressurized water spray will conserve water and avoid unwarranted use of water for sprinkling at work sites/operational areas;
- The noise levels during excavation can be reduced through deployment of well-maintained and relatively newer (less than 5-year-old vehicles) and all excavation operations are conducted at normal work pace;
- All work forces involved in excavation operations are to be sensitised to keep safe distances from moving equipment and provided with PPEs like safety helmets, safety shoes, face masks, ear plugs, and protective gear with reflective jackets mandatorily. All personnel exposed to noise levels for prolonged duration will be provided with one additional break in pre and post lunch session breaks, so as to limit their exposures;
- The excavation at some specific locations along operational area may warrant partial removal of unauthorized ramps/steps along cable routes, but all such ramps, steps and other infrastructure are to be restored to its previous state and temporary access across barricaded area are to be provided as an interim measure to avoid/minimize inconvenience to occupants of the buildings along UG cable route corridor.;
- Further, the excavation of sub-base and base layers at some locations may foul with some of the underground utilities like water supply, sewerage connections across barricaded operational area. Damage to pre-existing underground utilities are to be avoided through resorting to manual excavation at all such locations;
- In case of any damage to utilities like water/sewer/sanitary lines as a consequence of excavation works, same is to be restored through dedicated crew group comprising mason, plumber and carpenter/sheet metal fabricator stationed at operational area with all resources at earliest time line but not later than provision made in the grievance redress mechanism (ref Chapter 9 for details).

5.4.4 Cable Pull-out, Lowering and Jointing

Once the trench excavation is completed to required dimensions and checked for grading, cavities and sharp objects/edges, cables (as per required sizes and configuration) are transported and pre-tested at work site specific operational area for IR (insulation resistance) and CT (continuity test) as per BIS 7098 Part I and II, prior to lowering in cable trenches.

The tested cables are mounted on cradles and pulled out from coils over rollers (of required type and size) using mini excavator as a prime mover. Once the cables are pulled out and directly lowered into trenches as per required configuration, cables are tested once again for IR and CT to rule out damages to cable during pull out and lowering operations. During cable pull-out and lowering, the intact and safety of cable end caps are to be ensured. In case of damages, if any, same shall be made good with insulation tape, to avoid water/moisture getting into the core parts of cables, through damaged cable end caps. In case of cessation of works (for whatever reason), the cable trenches are to be covered with waterproof tarpaulins, to avoid seepage or water getting into cable trenches, in case of rains.

Rajarhat has with 60 rainy days in a normal year and July/August being wettest months has more than 10 rainy days and lowest monthly rainfall for about half a day per month between December and March.

5.4.4.1 Impacts

The impacts of cable pullout and lowering operations are very limited and do not contribute to increase in ambient noise levels as excavator is just being deployed as a prime mover to pull out cables from coils and lower them into trenches.

Since the cable lowering operations are limited to barricaded operational areas, disruptions to both pedestrians and vehicular traffic are unlikely. The cable pullout and lowering over 500 metres long segment can be completed in 2-3 days, depending upon trench configuration and therefore any inconveniences are only for a limited period.

5.4.4.2 Mitigation Measures

- All cable laying operations shall be in conformance with safety precautions laid down in Indian Electricity Regulations,1956 (with latest amendments) and BIS1255;1983(with latest amendments);
- Prior to cable pull-out, the excavated cable trenches are to be checked for any cavities on sides and the same are to be filled up with rich cement concrete, to avoid entry of any rodents into trench at a later date. Also, cable trenches are to be properly graded to have an even surface all through and devoid of any sharp objects/metal pieces/protruding stores at trench bottom/sides, to rule out damages to cables at a later date;

- During cable pull out and lowering operations, the work site shall have waterproof transparent tarpaulins, as a contingency measure to cover cable trenches in case of rains (seasonal or unseasonal). Any slippages on this account may lead to water logging of cable trenches, which will delay cable laying operations, and as a consequence will further prolong the work completion time, thereby inconvenience to both public and vehicular movement gets extended;
- The transparent tarpaulins can be hung across 1 metre wide barricaded operational area (in small lengths), which will facilitate work even during rainy/cloudy days;
- The work sites during cable lowering and backfilling shall be completely access controlled to prevent theft and vandalisation of cables. The barricaded operational areas are to be mandatorily access controlled and barred for entry by un-authorized persons from public safety point of view as well;
- The cable pull out, lowering operations can pose safety concerns and therefore all work force deployed in operations are to be properly trained to keep safe distances and provided with all required PPEs like safety helmets, face masks, ear plugs, protective gear with reflective jackets and safety shoes mandatorily;
- All cables in the lower tier (11/33KV cables in Trench) shall be drawn through cable conduits (of any suitable type and material); having a minimum of 40% extra space and conduit ends are embedded in the walls of the inspection chambers on either side. This will facilitate attending to cable fault at places other than joints, without resorting to opening up entire cable stretch and gain easy access to cables in lower tier;
- In case of any faults in such lower tier cables, which are in conduits, cables can be pulled out for repairs outside and pushed back into conduits and joints can be redone at both ends, all of which require least effort.

5.4.5 Backfilling of Cable Trenches with Fine Sand

Once the cable lowering as per project design is completed and tested for IR and CT, the trenches are to be backfilled with fine sand followed by fixing/laying of concrete slabs in layers as per project design (Ref Chapter 2 for details of trench and cable configurations).

A 500 metres length of cable trench will require on an average 350 cum of sand, depending upon the trench type and cable configuration, which translates to 25-30 truckloads/day (6 cum per load) and sand back filling operations can be completed in a maximum of 2 days.

5.4.5.1 Impacts

The trench backfilling operations do not cause any on site impacts, except for marginal increase in dust levels due to handling of fine sand. However, there could be some offsite impacts, if the sand is sourced from unauthorized sources and locations.

5.4.5.2 Mitigation Measures

- In order to limit off-site impacts, sand is to be mandatorily sourced from sand mining operators, licensed and approved by the Department of Mines, GoWB.
- The sand backfilling operation brought to site in tipper trucks is normally carried out through manual means; which is time consuming and will involve double handling of materials at site with additional space requirement.
- In order to avoid on-site space requirements and pace up operations, back filling is to be carried out using transit mixers, normally used to transport and pour ready mix concrete. Use of transit mixers fitted with flexible hoses for delivery of sand directly into cable trenches will enable to swiftly complete sand back filling operations, with minimal manual labour.
- The marginal increase in dust levels due to fine sand can be contained through use of pressurized fine spray of water. All work sites will be stationed with one water tanker (6000 litres cap.) fitted with arrangements for pressurized fine spray with 600 metres of hose reel.

5.4.6 Laying of Cement Concrete Slabs

Once the back filling of sand is completed, pre-cast M 20 grade cement concrete slabs are to be placed over the sand as per project design for cable trenches.

The pre-cast slabs will act as a protective layer for cables and prevent damage to cables due to accidental excavation at a later stage. The M 20 grade cement concrete slabs can be cast at work camp sites material yards under UG cable project and /or can be procured from pre-cast material suppliers as a customized requirement.

5.4.6.1 Impacts

The laying of pre-cast concrete slabs do not cause any on site impact and involves just laying of slabs in place manually as per project design. There could be off-site impacts, if the pre-cast slabs are not sourced from well-established and licensed/approved sources.

5.4.6.2 Mitigation Measures

- The pre-cast slabs can be stored alongside of trenches within the barricaded operational area and therefore no additional space beyond operational area (at work site) is required;
- The off-site impacts can be limited by sourcing the pre-cast slabs from well established and approved/licensed sources;
- Damaged and/or broken pre-cast slabs, if any during laying of pre-cast slabs is to be stored aside and transported back to work camp sites for disposal as construction debris, eventually.

5.4.7 Road Restoration Works

After the completion of the trench backfilling with sand and laying of pre-cast slabs, the roads are to be restored to its previous state (after allowing for natural compaction with an anticipated time frame of 3-4 weeks or as per site conditions) and to evenly match newly laid surface with existing old surfaces along the excavated cable trench.

The pavement excavated materials, particularly asphalt contain significant quantities of bitumen (up to 4%) and stone aggregates (up to 96%), which can be re-deployed (recycled asphalt pavement) during the road restoration works under UG cable project.

Although, there are four principal recycling methods, central plant cold recycling (CPCR) is best suited for UG cable project, since this facilitate maximum recycling of excavated asphalt materials. Details of CPCR along with other recycling methods are given in Appendix 5.1**.**

Deploying CPCR will enable to completely utilize excavated asphalt materials for road restoration, which is nearly equivalent to required quantity of pavement materials. Also, deploying CPCR will not warrant either transportation of excavated materials over long distances or safe disposal of excavated asphalt materials. Therefore, recycling of excavated asphalt materials through CPCR may preferably be considered for road restoration of the UG cable project. The road restoration using the redeploying excavated asphalt materials will involve laying of fine sand, wet mixed macadam, recycled asphalt mix followed by hot recycled bituminous concrete (BC) mix in different layers. However, the decision to use either recycled materials or new materials for road restoration shall rest with WBSEDCL.

Alternatively, if decided not to opt for recycled asphalt pavement and use only newer materials, then the trench will have to be filled with available excavated soil followed by WMM and bituminous concrete mix in different layers using all new materials/resources.

Based on environmental requirements and the mandatory requirement of the newly notified Construction and Demolition Waste Management Rules, 2016, use of recycled WMM, coldrecycled asphalt mix and hot recycled bituminous concrete mix as per option 1 shall be adopted for project area. However, the decision to use either recycled materials or new materials for road restoration shall rest with WBSEDCL.

Although, this method is being widely practiced for more than 30 years in developed countries like U.S., it is not yet fully /widely used in India but required technical knowhow as well as plant and equipment is available in India.

5.4.7.1 Impacts

The impacts of road restoration can be either due to re-deploying excavated bituminous materials as recycled asphalt pavement or use of entirely newer materials for road restoration and dispose-off all the excavated asphalt materials as a construction waste/debris.

The use of newer materials/resources in terms of bitumen, stone aggregates, and sand for road restoration is likely to cause more impacts as compared to re-deploying excavated bituminous materials.

The other associated common impacts of road restoration will be due to setting up and operation of work camp sites for wet macadam mix plants, bitumen mix plants and/or concrete mix plants and handling of bitumen, cement, sand, stone aggregates along with batch mixing operations for bitumen/concrete production, which will be common to both options of road restoration mentioned above.

5.4.7.2 Mitigation Measures

- Road restoration with Option 1 will involve laying of four layers namely; sand, recycled wet mixed macadam, cold recycled asphalt mix and final layer with hot recycled bituminous concrete. Road restoration with option 2 will involve backfilling of cable trenches with soil/sand followed by laying WMM & bituminous concrete layers.
- The laying of sand during road restoration is very similar to backing filling of trenches with sand after laying of cables (Ref chapter 5.5.5) and is to be carried out using transit mixers, fitted with flexible hoses for delivery of fine sand directly into cable trenches. This will enable to swiftly complete a uniform sand back filling operations and with minimal manual labour;
- The marginal increase in dust levels due to fine sand can be contained through use of pressurized fine spray of water. All work sites will be stationed with one water tanker (6000 litres cap.) fitted with arrangements for pressurized fine spray with 600 metres of hose reel;
- The sand backfilling operation, using tipper trucks and laying of sand through manual means is to be avoided as it is time consuming and involves double handling of materials at site with additional space requirement;
- In order to limit off-site impacts, sand is to be mandatorily sourced from sand mining operators, licensed and approved by the Department of Mines, Government of West Bengal;
- The recycled WMM, from the central plant, also is to be transported to operational area in rotating transit mixers fitted with flexible hoses for delivery directly into cable trenches. The un-segregated WMM shall be laid in two layers and compacted with suitable vibratory rollers to achieve desired compaction levels under optimum moisture conditions;

- The asphalt pavement and hot recycled bituminous concrete mix shall also brought to site in tipper trucks in un-segregated form and laid in place using customized pavers suitable for cable trench widths;
- The laying of sand, wet mix macadam and asphalt pavement will not cause significant on-site impacts except for increase in dust and noise levels, limited to 2-3 days for all road restoration operations put together. The noise levels can be controlled through deployment of well-maintained vehicles and equipment and conducting operations in a regulated and planned manner;
- The traffic is to be regulated during the road restoration operations, in order to ensure smooth traffic movement and avoid congestion as a consequence of road restoration works;
- In case of restoration of concrete roads, ready mix concrete shall be used, brought to the site through transit mixer(s) from a ready mix plant (RMC) located elsewhere. However, concrete will be sourced only from RMC plants having valid consents and permission or authorization of WBPCB;
- Considering the required concrete volume and availability of the ready mix plants in the BMC area, it will be economical and convenient to use the ready mix concrete in place of batch mixing of concrete on site, which is to be avoided, to possible extent.

5.4.8 Construction of Cable Joint Inspection Chambers

The UG cable project will involve construction of cable joint inspection chambers at every 250 metres along cable route. These inspection chambers are essential for maintenance of underground cable network and house spare cable lengths (in loops) and facilitate cable jointing as well as periodic inspection and trouble- shooting of problems after the underground cable network is commissioned. Normally, cable faults do occur at joints due to over loading, poor quality of cable or its insulation and/or bad workmanship of cable jointing itself.

The UG cable project will require 120 inspection chambers, with clear dimensions of 1mx2.5mx1m (deep) for HT (33KV/11KV) cables. The trenches which carry only LT cables might require a relatively smaller size inspection chamber with clear dimension of 1mx2.0mx1m (deep). All inspection chambers will be provided with one manhole cover of 560mm diameter and constructed with M25 grade RCC (reinforced cement concrete).

5.4.8.1 Impacts

The environmental impacts due to construction of RCC inspection chambers are not significant, generally transitory in nature and limited to 21 days. Moreover, these chambers will be constructed within the barricaded operational area, along cable trench and will be completed simultaneously along with cable laying works in a 500 metre long segment.

5.4.8.2 Mitigation Measures

The mitigation measures during construction of inspection chambers shall comprise.

- Location of inspection chambers are to be pre-determined during on-site marking of cable route itself during site preparation activity itself and demarcated on road with yellow paint (7.5 cm wide strips);
- Location of inspection chambers shall not foul with any other underground utilities, sewer manholes and/or chambers of telecom department and shall be at least 3 m away from any other similar appurtenant. Accordingly, location of inspection chambers can be marginally adjusted to avoid fouling with other pre-existing utilities;
- Construction of inspection chambers is to be commenced, concurrently with cable in (500 metres segment) laying operations, so as to complete both inspection chamber and cable laying works in the estimated 21 days. This will avoid lag in cable laying and construction of inspection chambers and cable jointing works as well. Moreover, this will also facilitate complete road restoration in one go and opening up of fully restored road to public in all respects;
- The top level of inspection chamber is to be finished at least 40mm below the existing road level, so that 40mm thick bituminous concrete as part of road restoration can be laid over inspection chamber as well (excluding manhole cover), so that only the manhole cover is visible after road restoration is completed;
- Under no circumstances, top level of inspection chamber shall be finished above the existing road level and thus pose hazard to pedestrian as well as vehicular traffic, after cable laying operations;
- Inspection chambers shall be provided with one 560mm extra duty manhole cover to withstand heavy traffic and shall avoid ingress of water into inspection chamber during rains;
- M25 grade ready mix concrete for inspection chambers shall be sourced from ready mix concrete plants having valid consents and authorization of WBPCB.

5.4.9 Cable Jointing

The underground cables, after laying in trenches are to be jointed in order ensure continuity. Normally, cables are laid in such a way to ensure all cable joints can be essentially housed at inspection chambers spaced at every 250 metres. Normally, straight through heat shrinkable jointing kits of desired voltage grade are used for both HT and LT cable jointing works.

The heat shrinkable joints have good insulating & sealing characteristics, high mechanical strength and excellent resistance to weathering and chemical reaction like ultraviolet radiations and alkaline soils. More importantly, the heat shrinkable joints take just about 4 to 5 hours to

complete one joint work and work can be completed swiftly unlike resin joints, which takes nearly 24 hours.

5.4.9.1 Impacts

The cable jointing works does not cause any environmental impacts. Depending upon trench and cable configuration, there could be cable joints at every 250 metres or at every 500 metres along cable route. Normally, cable faults do occur only at joints, thus cable joints need access for repair or rejoining with additional spare lengths as a pre-requisite in underground cable network. Thus, cable joints by design, are to be essentially housed only in inspection chambers.

5.4.9.2 Mitigation Measures

- All cable jointing works are to be carried out as per recommended procedures/specifications by the manufacturer with genuine cable jointing materials
- All cable jointing works are to be carried out in dry conditions and during clear days, with no possibility of rains. In case of unseasonal rains, waterproof tarpaulins shall be used to cover the work site at inspection chamber;
- No cable jointing work is to be carried out during rains or under wet conditions. The inspection chamber shall be in dry condition, before cable jointing work is resumed;
- The cable joints within the inspection chamber shall be supported on steel portals on either side of the cable trench, so that the no cable or joint within the chamber remain in hanging position for more than 0.45m at a stretch;
- The inspection chamber frame and manhole cover shall fit together well and further joints are sealed with water proof cement mortar (1 cement: 4 cement fine sand) to avoid ingress of water into inspection chambers during rains and/or storm water blockages on the road at a later stage.

5.5 OPENING OF OPERATIONAL AREA/COI FOR PUBLIC USE

The barricaded operational area in 500 metres long segment shall be opened up only after the road restoration works are completed. One of the most important requirements, prior to opening of operational area is installation of cable route markers at every 250 m along the work completed stretch.

5.5.1 Impacts

The impacts from opening of operational area could be in the form of remnants of road restoration works, waste materials/rejects from road restoration works or cable laying operations. Other impacts could be left out unpaved areas or uneven surfaces between old and

new surfaces and blockage of drainage outlets along roadside of the barricaded operational area.

5.5.2 Mitigation Measures

- Ensure no area is left out unpaved during the road restoration within operational area;
- Ensure levels of newly laid or restored road level match with old and existing pavement levels with no unevenness surfaces;
- Hitherto, barricaded operational area is to be cleared of all remnants of road restoration works, waste materials/rejects from road restoration works or cable laying operations and all such debris are to be disposed off at approved locations;
- In order to limits dust levels during clearing operations, gentle sprinkling of water with fine spray to be carried out;
- Prior to vacating the barricaded area, all road side outlets to storm drains alongside of barricaded area are to be checked;
- All road side drain chutes, both upstream and downstream of operational area shall be checked and blockages, if any are to be cleared, so that road drainage will not be affected aftermath of cable laying operations;
- All work forces deployed in clearing operations shall be provided with PPEs like safety helmets, face masks, protective gear with reflective jackets and safety shoes mandatorily.

5.6 ON SITE WORKFORCE

The preparation of site, trench excavation, cable lowering, jointing, back filling of trenches, and road restoration including site cleanup will require both skilled and un-skilled workforce. The estimated work force requirement for completing all operations for laying of 500m length underground cable will be 25, excluding supervisory/management staff. Considering that only 5 operational areas will be opened up in different feeder area at any given point of time, the total workforce requirement for cable laying and construction of inspection chambers will be 125.

5.6.1 Impacts

The most visible impact is safety at workplace (operational area) and health issues for the deployed work force for all levels and types (skilled and unskilled). Table 5.6 presents the permissible durations of exposure to specific noise level. The workforce who are likely to exposed beyond 100 dB(A) shall be given PPEs (i.e. noise reducing equipment like ear plugs/muffs) as well as rotational duty to restrict exposure to high noise limit within two hours.

TABLE 5.6: PERMISSIBLE DURATION FOR WORKERSEXPOSED TO SPECIFIC NOISE LEVELS

S.No.	Permissible Duration (Hours/Day)	Sound Level (dBA)
1	16	85
2	8	90
3	4	95
4	2	100
5	1.5	102
6	1	105
7	0.5	110
8	0.25	115

Source: OSHA – Technical Manual

Other impacts could be due to inadequate facilities at workforce camps, if any established and distances to be commuted to work site among others.

5.6.2 Mitigation Measures

- All work force shall be subjected to an orientation program, which familiarize them with work requirements, safety practices at work, safe distances to keep from earth moving equipment, first aid facilities, emergency response, on-site sanitation facilities and practices to be adopted, rights and privileges of workforce among others. Orientation shall also include concern for safety of public around operational areas as well;
- All work force deployed in operational areas shall be provided with PPEs like safety helmets, face masks, gloves, protective gear with reflective jackets and safety shoes. It shall be mandatory to wear them at work site. The PPEs shall be provided at no cost to workforce and shall be replaced once in six months. Any lost PPEs shall be provided at subsidized rates;
- Visitors/officials to worksite are to be provided with PPEs (hard hats and safety shoes) and shall be briefed ongoing operations on that specific time and related safety requirement at work site including safe distances to keep, while at site visit;
- Work force shall be subjected only to standard work shifts/hours. Overtime allowances shall be paid with ceiling limits. Working beyond such ceiling limits shall be discouraged, even if, so desired workforce or contractor;
- All workforce deployed shall be governed by Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996, with regards to safety and welfare measures (including equal wages for men and women) for workers employed at building and other construction sites;

- Provision of one mobile toilet of 2 seater capacity (1 men and 1 women with separate entrances) shall be stationed at a suitable place within 100 metres from each operational area of 500 m long segment. The mobile toilet shall have at least 1000 litres overhead water storage, well maintained and in usable condition at all times. Bottom tanks shall be regularly cleaned, and overhead tank replenished as per requirement. Work force shall be oriented to use mobile toilets and avoid using public toilets and/or nearby open places/parks;
- Every operational area shall be provided with one mobile drinking water kiosk having a storage of 300 litres and placed at a suitable place within 100 metres from work site;
- The operational work site shall have first aid kits and details of major/nearby hospitals displayed prominently in local language, in case of emergency and/fatalities to work force and/or public, as a consequence of operations;
- The supervisory staff shall be provided with wireless communication system (mobile telephones) for better communication at operational area and also with other operational area within project area, in case of emergency or otherwise;
- The work sites being within Rajarhat town area limits, UG cable project will provide skilled and unskilled employment opportunities largely to the local people. All work force is expected to return to their places of residence after work shift hours. For out station workforce if any, contractor shall provide rented residential accommodation with water, sanitation and allied facilities for comfortable stay. Pooled transportation facilities wherever required shall be provided to workforce as a welfare measure;
- No work force camps will be set up under the project and largely local work force shall be employed.

5.7 AMBIENT NOISE LEVELS AT OPERATIONAL AREAS

- Various rotating and moving equipment like excavators, tipper trucks, rollers, pavers and transit mixers will be used during various stages of cable laying operations. The typical time frame to complete laying of a 500 metres underground cable segment is 21 days. Moreover, many of these equipments will be deployed at different stages of work, either on continuous or intermittent basis depending upon work requirements. The activity wise deployment of equipments and respective sound pressure levels are given in Table 5.7.

TABLE 5.7: POTENTIAL NOISE SOURCES & CORRESPONDING SOUND POWER LEVEL (FOR CABLE LAYING OPERATIONS IN A 500 METRE LONG SEGMENT)

S.No.	Activity	Noise Source	Sound Power Level (dB(A))* (at 15 m from source)	Sound Power Level (dB(A))** (at 1.25 m from source)	Combination of Sources	Cumulative Sound Power Level (dB(A)) (at 1.25 m from source)
1	Initial Site Clean up	Nil - Only Manual Operations	-		-	-
2	Trench Excavation	Manual	-	-	-	-
		Mini-Excavator (1 No.)	80	101	Excavator + Tipper Truck	110
		Tipper Truck (1 No.) - not continuous	88	109		
3	Backfilling	Tipper Truck	88	109		109
4	Road Restoration	Roller	74	95	Roller +Paver + Tipper Truck	112
		Paver	89	110		
		Tipper Truck	88	109		
5	Site Clean up	Nil - Only Manual Operations			-	-
6	Construction of Inspection Chamber	Concrete Mixer	85	106	Concrete Mixer	106

Note: Cumulative Sound Power Levels also include the background ambient noise levels
Cumulative Sound Power Levels are calculated using formula LΣ = 10log10 (10L1/10 + 10L2/10 + ….10Ln/10)
*Source: * http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm*
*** Computed using formula Lpd2 = Lpd1 +20 x log(d1 / d2)*

5.7.1 Impacts

The deployment of excavators, other moving/rotating equipment at cable laying operational areas will be for a maximum duration of 21 days and therefore it is unlikely to cause any long term impacts on local people or the work force.

However, in order to assess the likely cumulative noise levels during cable laying operations as a consequence of deploying different combination of equipments, MASdB map version 0.5 noise modelling tool was used, which is on the same platform of CadnaA and Sound PLAN and suitable for linear sources.

The MASdB map tool considered three different combinations or scenarios of cable laying activities and associated equipments likely to be deployed. The scenarios considered for noise modeling tool is given in Table 5.8.

The MASdB map tool predicted cumulative noise levels at different distances from operational area for different cable laying activities as well as combination of sources and is given in Table 5.9.

TABLE 5.8: NOISE MODELING SCENARIO

S.No	Scenario	Activity	Noise Source
1	Scenario 1	Excavation	Excavator
2	Scenario 2	Excavation/Backfilling	Excavator +Tipper Truck
3	Scenario 3	Road Restoration	Roller + Paver + Tipper Truck
4	Scenario 4	Construction of Inspection Chamber	Concrete Mixer

* As the COI is only 1 m providing steel barrier may not be feasible, therefore noise modelling only without barrier was considered to identify potential noise zones.

The predicted cumulative noise levels due to cable laying operations given in Table 5.8 indicates that the predicted cumulative sound pressure levels likely to exceed 95 dB(A) at 3.75 metres. In such case, workforce is to be provided with one short break in pre-lunch and post lunch sessions or provided with ear muffs;

TABLE 5.9: PREDICTION OF NOISE POLLUTION DUE TO UG CABLE PROJECT ACTIVITIES

S.No.	Activity	Cumulative Sound Power Level (dB(A)) at 1.25 m from source	Cumulative Distance from Source (Trench Centerline)			
			3.75 m	6.75 m	8.75 m	11.25 m
1	Excavation	110	97	90.1	85.9	83.1
2	Excavation/Backfilling	109	96	89.1	84.9	82.1
3	Road Restoration	112	99	92.1	87.9	85.1
4	Construction of InspectionChamber	106	93	86.1	81.9	79.1

5.7.2 Mitigation Measures

- PPEs should be provided to all workers involved in excavation and other noise prone activities;
- The noise barriers if any shall be checked for its stability and bolted down on to ground, if required as a safety requirement, given the inclement weather conditions coupled with strong winds at Rajarhat, particularly between September and November as well as heavy traffic on some roads;
- The barricades if any shall be maintained in shape and good condition and painted at periodic intervals as per approved design.

5.8 ESTABLISHING OF STORE YARDS AND WORK CAMP SITES

The UG cable project may require store yards and work camp sites. WBSEDCL has some open space at their existing sub stations, which are intended to be used as store yards for materials, although final decision is yet to be made,

In addition, land may also be required for work camp site to establish wet mix macadam plant, hot mix plants and all other activities like handling and storage of construction materials *viz.* sand, cement concrete slabs, excavated earth soil, milling of excavated materials as may be required. Most suitable location(s) for the purpose would be in and around those lands, where routinely BMC and Public Works Department, Government of West Bengal, establish their camp sites in Rajarhat.

5.8.1 Impacts

The impacts due to establishing store yards and work camp sites are transitory and quickly dissipate, once the operations are over, provided the sites are managed and restored to its previous state, after the project completion.

5.8.2 Mitigation Measures

- Essentially, barren lands or uncultivable lands and those away from human settlements shall be the most preferred choice for establishing work camp sites;
- The selected land shall not warrant significant change in land forms or terrain, to make it suitable for establishing work camp sites;
- In case, land had been earlier used for establishing work camp site and meets the above requirements, same shall be given preference;
- Requisite consent to establish and consent to operate shall be obtained from WBPCB, if required;

- The ambient air and noise levels within the work camps sites shall be monitored, once in month and corrective measures if any required shall be taken in order to be complaint with National Ambient Air Quality and Noise Standards;
- All stipulated consent conditions by WBPCB shall be strictly adhered and complied by contractor;
- The work camp sites shall be access controlled with fixed entry and exit points;
- The dust levels at the work camps sites is to be controlled through regular sprinkling of water through similar mobile tankers deployed at operational areas for cable laying;
- Bitumen mix plants, deployed for UG cable project shall conform to regulatory norms/requirements;
- The site shall be cleared from all remnants of construction and debris and site restored to its previous state;
- Surplus soil available from excavation of cable trenches (sub-base and base layers) can be used to grade the site, as well as to restore the site after works completion, if required;
- The work camp sites shall mandatorily have designated paved areas for storage of used oils/lubes in plastic/HDPE drums, prior to their final disposal in WBPCB approved disposal locations.
- Contractor should follow defined protocols for health &safety including measures for preventing spread on COVID-19.

5.9 IMPACTS AND MITIGATION MEASURES DURING OPERATION STAGE

The commissioning and operation of the UG cable project in Rajarhat area will not involve any activities that will have environmental impacts. On the contrary, the network will be resilient and/unaffected due to any natural calamities/cyclones besides various other benefits as mentioned in earlier chapter (ref Chapter 2).

However, if underground cables are subjected to higher loads than design, or due to poor quality of cables or due to poor workmanship of jointing, faults in cables may occur.

The underground cables are tested at various stages prior to laying and therefore under normal circumstances, the only weak link is poor workmanship of joints, which can cause cable faults. The cable joints normally are housed in cable joint inspection chambers and therefore re-doing of cable joints will not require opening up of cable trench.

In case cable fault occur at places other than joints, either due to overload or poor cable quality, the insulation gets heated up leading to puncture in insulation layer leading to direct earthing, which will cause tripping of circuit breakers. In such an unlikely event, exact location of faults can be identified through cable fault detector. Once, location is identified, cable trench

will have to be opened up at fault location for rectification of cable, followed by restoration of all intermediate layers including road restoration as per project design.

The present cable configuration, particularly the cables laid in lower tiers (33KV and 11KV cables in trench), would be very difficult to repair or even to gain access, in case of a fault at any intermediate location, other than the joints. The faults at any intermediate stretch in cables laid in upper tier in these trenches can be repaired through by opening up small length of cable trench.

5.9.1 Impacts

The cable faults occurring at joints will not have any environmental impacts. Rectification of joint can be completed in 3-4 hours and for this period, an area of 1 m x1 m, surrounding the manhole cover needs to be cordoned off with temporary barricades and opened up after work is done and site is restored. As result, there could be minor inconvenience to vehicular and/or pedestrian traffic limited for few hours only, depending upon location of specific inspection chamber.

Most importantly, fault in underground cables, either at joint or at any other location does not cause fire or any other hazard.

The HT and LT cables used under proposed project will have XLPE insulation, which can withstand higher loads as well as higher temperature as compared to cables with PVC insulation. Moreover, HT and LT Cables will have two sheaths of PVC sheets (inner and outer), both of which will be FRLS (fire resistant and low smoke), which prevent fire hazards.

In addition to these factors, even if the cable gets heated up due to over load and/or any other factor, which could lead to damage of the insulation and sparks when conductor comes in touch with armour, it will not erupt into a fire, because of lack of oxygen in the well packed and backfilled trench at 1 m below ground level, which otherwise could be a cause for fire, a common feature in over ground cables.

Thus, underground cables, by its nature do not result in fire hazard, except for developing a fault in terms of puncture in the insulation, leading to direct earthing, which in turn trips the circuit breaker (either earth fault relay/over current relay/short circuit relay) at the respective substation and therefore disruption in services.

5.9.2 Mitigation Measures

The impacts or inconveniences due to cable faults can be largely controlled and/or mitigated as here under:

- Cables shall be subjected to stringent quality checks at various levels *viz* testing at factory prior to dispatch, testing at storage yards, at work site prior to pull out and lowering and finally after lowering and before back filling of trenches;
- Extreme care shall be taken not to over load the cables beyond its design load capacity, even more importantly for prolonged periods;
- Adequate supervisory checks during cable jointing work and adhering to manufacturer's specifications/procedures as per relevant Indian Electricity Regulation, 1956(with latest amendments) and BIS 1255:1983;
- In the event of cable faults at joints, the area around the man hole of inspection chamber (about 1mX1m), shall be barricaded and caution boards shall be put up for the public/vehicular traffic. Work shall be planned and swiftly completed. The work site around chamber shall be restored to its previous state. All waste materials from work site shall be removed with no trace any debris. The uneven surfaces, if any surrounding inspection chamber due to opening up of chamber cover shall also be rectified with rich cement mortar, as may be required, suitably;
- In case of faults in cables at locations other than joints, which are laid in upper tiers (11 KV and LT cables in trench), the area around cable fault location (about 1mX1m), shall be barricaded and caution boards shall be put up for the public/vehicular traffic. The cable trench shall be opened up at fault location for rectification of cable, followed by restoration of all intermediate layers including road restoration as per project design. Work shall be swiftly completed, and work site shall be restored to its previous state. All waste materials from work site shall be removed with no trace any debris. The uneven surfaces, if any surrounding the opened-up area shall also be restored to its previous state, suitably.

5.10 IMPACTS AND MITIGATION MEASURES DURING REMOVAL OF OH INFRASTRUCTURE

5.10.1 General

Once the UG cable project in Rajarhat area is commissioned, the existing overhead power distribution infrastructure, within the same feeder area is to be dismantled. The existing overhead infrastructure, which is to be dismantled and transported to WBSEDCL's designated store yards, is given in Chapter 2.

The overhead infrastructure comprises all types and sizes of conductors, insulators, straight and V-cross arms, guard wires, cement concrete poles, guy wires, power and distribution transformers and four pole structures for mounting of transformers among others.

At the store yards, all the removed infrastructure and brought to store yards will be subjected to technical assessment for its serviceability and balance life. All serviceable materials will be re-deployed elsewhere in non-cyclone affected areas and unserviceable materials will be disposed off as scrap by WBSEDCL. The dismantled OH infrastructure under proposed project is intended to be brought to WBSEDCL's existing store yard at Bidhannagar Division and special maintenance shed for transformers.

5.10.2 Impacts

The waste materials which are likely to be generated during dismantling of existing overhead distribution system (33 kV/ 11 kV HT & LT) at Rajarhat Town area, are given below in Table 5.10. None of the overhead infrastructure, which is removed and transported to designated store yards, will cause significant environmental impacts, except for the insulating oil in the transformers, which needs to be handled with adequate caution.

TABLE 5.10: WASTE MATERIALS LIKELY TO BE GENERATED DURING DISMANTLING OF EXISTING O/H DISTRIBUTION SYSTEM (33 kV/ 11 kV HT & LT) AT RAJARHAT AREA

Sl. No.	Particulars	Quantity	Storage Facilities	Recycled/Reuse/ Disposal
1	Transformers (25/63/100/160/200/250 /315KVA)	55 no.	Existing transformer will be stored at Bidhannagar Division Store yard for subsequent use.	Proposed to be reused by WBSEDCL in feeders outside Rajarhat town area.
2	Conductor			
	a) HT conductor (ACSR-50 sq-mm) (107.20 ckt km)	321.6 km	Existing overhead conductors (HT/LT) will be stored at Bidhannagar Division Store and sub-station store yard for subsequent use.	HT/LT conductors will be partially recycled and remaining will be scrapped as per WBSEDCL norms.
	b) LT conductor (328.29 ckt km)	2251.92 km		
3	Poles			
	a) PCC poles			
	• HT 33KV existing Overhead Lines (9m long).	150	PCC poles will be stored at Bidhanagar Division Store and sub-station store yard for subsequent reuse.	80% will be reused in other service area of WBSEDCL and 20% PCC poles are likely to get damaged during dismantling and would be disposed off in designated area of BMC.
	• HT 11KV existing overhead line (8m long)	762	PCC poles will be stored at Bidhannagar Division Store and sub-station store yard for subsequent reuse.	80% will be reused in other service area of WBSEDCL and 20% PCC poles are likely to get damaged during dismantling and would be disposed off in designated area of BMC.
	• LT existing overhead line (8m long)	13125 no.	PCC poles will be stored at Bidhannagar Division Store and sub-station store yard	80% will be reused in other service area of WBSEDCL and 20% PCC poles are likely to get damaged during dismantling and would be disposed off in

Sl. No.	Particulars	Quantity	Storage Facilities	Recycled/Reuse/ Disposal
			for subsequent reuse.	designated area of BMC.
b)	Rail Poles			
	• HT 33KV existing Overhead Lines (9m long).	50	Proposed to be stored in Bidhannagar Division store yard for subsequent reuse.	It will be reused by WBSEDCL in its other distribution area.
	• HT 11KV existing Overhead Lines (8m long).	300	Proposed to be stored in Bidhannagar Division store yard for subsequent reuse.	It will be reused by WBSEDCL in its other distribution area.
4	Insulators			
	• HT 33KV Poles (@3/Pole)	300	Proposed to be stored in Bidhannagar Division store yard for subsequent reuse.	80% insulators will be reused by WBSEDCL in its other distribution area and 20% which are likely to get damaged during dismantling will be disposed off in designated disposal site of BMC.
	• HT 11KV Poles (@3/Pole*762 poles)	2286 no.	Proposed to be stored in Bidhannagar Division store yard for subsequent reuse.	80% insulators will be reused by WBSEDCL in its other distribution area and 20% which are likely to get damaged during dismantling will be disposed off in designated disposal site of BMC.
	• LT 1.1KV Poles (@5/Pole*13125 poles)	65625 no.	Proposed to be stored in Bidhannagar Division store yard for subsequent reuse.	80% insulators will be reused by WBSEDCL in its other distribution area and 20% which are likely to get damaged during dismantling

Sl. No.	Particulars	Quantity	Storage Facilities	Recycled/Reuse/ Disposal
				will be disposed off in designated disposal site of Rajarhat Municipality
5	Service Cable (@30m/consumer*7522 consumers)	2256.66 km	Existing service cable will be stored at Narayanpur and Siddhapyne sub-stations store yard.	Service cable will be scraped as per WBSEDCL norms.
6	Existing overhead distribution infrastructure dismantling debris (@1 ton/pole)	13887 ton	Collected and stored at various strategic locations for ultimate disposal.	Disposed of in designated disposal site of Rajarhat Municipality.
7	Debris generated from excavation of trench/foundation for UG cabling network	4,37,000 cum	Proposed to be temporarily stored near the cable trenches/DTR foundation securely avoiding the traffic and other hindrances to local community	80% will be used for refilling of excavated cable trenches and remaining 20% would be disposed off in designated area of Rajarhat Municipality.

5.10.3 Mitigation Measures

- During removal of over ground infrastructure like poles, conductors, transformers and other related accessories, adequate safety precautions are to be taken to ensure public safety and the places shall be cordoned off with hazard tapes and caution boards;
- Workforce, guy ropes and other appropriate tools required for safely bringing down the poles on to ground shall be deployed and ensure no damage to public property and/life shall occur during these operations;
- All such removed infrastructure shall be transferred to designated store yards in appropriate transport vehicles, without endangering the public life and property during transit;
- After removal of overhead infrastructure, the places shall be restored to match with surrounding places *viz,* when a pole has been dismantled, the pole location shall be restored to match with surrounding place, including filling up the foundation pit of the pole with sand/cement concrete and finishing to match with surrounding surfaces as may be required;
- All transformers brought to store yards are to be technically tested for its usability and balance life at designated store yard at Bidhannagar Division. All serviceable transformers will be redeployed elsewhere, and unserviceable transformers will be deposed off through WBPCB approved scrap dealers;
- All other disposables and/or debris (after scavenging for scarp valuables) shall be disposed off at approved waste disposal sites of BMC.

5.11 WORKS SITE SAFETY DURING LAYING OF UNDERGROUND CABLES

5.11.1 Safety in Pits and Trenches

All pits and trenches works shall comply with works safety requirements but limited to:

- When a pit is to be left open overnight, proper barrier mesh and flashing lights, etc as required must be attached to pickets at least 300mm from the edge of the excavation or the pit must be covered;
- Soil must be piled back from the edge of the pit at least 600 mm;
- Pits or trenches deeper than 1500mm, in normal soil may require a ladder for access and require shoring, benching or sloping of the sides of them. Pits or trenches may require shoring even if less than 1500mm deep and the soil is unstable;
- Undermining walls, foundations, streets or pavements are to be avoided otherwise proper shoring is required;
- Barriers shall be erected to prevent vehicles inadvertently falling into the excavation.

5.11.2 Occupational Health and Safety during Laying of Underground Cables

- All trenches to have safety barricades when left open for an extended period of time;
- Necessary Personnel Protective Equipment (PPE) to be provided to all work force engaged in laying of underground cables;
- No materials/cables to be placed or stacked near the edge of any excavation;
- No load to be placed or moved near the edge of excavation, where it is likely to collapse on the work side;
- Safe distance shall be maintained from edge of trench;
- Materials will not to be placed or stacked near the edge of trench;
- No load to be placed or moved near the edge of trench, where it is likely to cause collapse of the trench;
- No load/personnel movement across trench;
- Manual handling awareness will be spread for load and electrical cables;
- Adequate rest periods shall be allowed, job rotation, minimizes repetitious twisting and shoveling.

5.11.3 Safety Working in the Vicinity of Traffic

- When working on road or in the vicinity of traffic, traffic management must be carried;
- Prior to commencing underground cable laying works, approval shall be obtained from the agency responsible for the care, control and management of the roads;
- Care should also be taken to ensure that all other required authorizations are obtained prior to the commencement of works;
- Lengthy delays may be experienced, if all necessary approvals are not obtained, increasing the risk of undesired traffic incidents;
- In addition, other agencies such as emergency services, police, public transport etc. in the area may need to be informed in advance of the underground cable laying works;
- Where the proposed traffic management involves modification to existing signal phasing, number of traffic lanes and / or timing on roads; are to be approved through traffic police;
- Work zone Road Safety Barrier will also be provided.

5.11.4 Public Safety

- Cable markers shall be installed to indicate the location of all underground power cables;
- Compaction to specified standard;
- Site cleared of debris and refuse;
- Restoration of site after laying underground cables;

- Proper marking with danger sign over electrical cable route and emergency numbers.

5.12 OCCUPATIONAL HEALTH & SAFETY DURING MAINTENANCE

- A hazard assessment must be carried out by the work crew prior to commencement of maintenance work to ensure that:

  - All hazards have been identified and assessed;
  - The appropriate controls have been put in place to mitigate the hazards;
  - All members of the work crew are aware of the hazards;
  - The safety of the public and other workers has been ensured;
  - WBSEDCL has been notified of any proposed work in the vicinity of underground Cables;
  - Necessary personnel protective equipment (PPE) shall be provided to work;
  - No workers shall physically handle a distribution cable of any type, if its condition is suspect or doubtful unless the cable is proved to be de-energized;
  - No personnel shall physically handle a high-voltage cable, while it is live unless it is completely surrounded by an earthed sheath or screen, or both, and precautions are taken, where necessary, to avoid danger from induced voltages and transferred earth potentials. A high-voltage cable shall be isolated, earthed and proved to be deenergised on site prior to commencing maintenance work on the cable;
  - Placing any pressure or load on exposed cables and or cable joints is not permitted;
  - This is inclusive of stepping on to or using the cable or cable joint for support whilst working on or near the asset. If this is physically impractical, WBSEDCL must be consulted on an alternate work method.
  - Ensuring strict compliance of "**Code of Conduct**" to avoid any incidence of Gender Based Violence (GBV)/ Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) etc.

6.0 ANALYSIS OF ALTERNATIVES

This chapter presents an analysis of alternatives considered in the project preparation to avoid or minimize inevitable environmental and social impacts, by selecting the most optimal cable route alignment to the extent possible. Accordingly, analysis of various alternatives has been carried out to arrive at the technically best fit option with minimal environmental and social impacts including operational measures to minimize disturbances to public.

6.1 ANALYSIS OF WITH OR WITHOUT PROJECT SCENARIO

The 'with' and 'without' project scenarios are analyzed with respect to the development of the state in the backdrop of requirement of resilient electrical distribution infrastructure for sustained growth in economic activities in the area with reliable & uninterrupted supply of electricity to its citizens.

The 'with' scenario of the UG cabling project is expected to provide a resilient electrical network. The UG cabling project is expected to minimize the miseries of people at large, minimize the damages to public and private property, help the state to handle the after-effects of natural disaster(s). The project also helps to upgrade the existing overhead network to construct an upgraded underground electrical network, which can cater to the projected power demand as of year 2025.

The main objective of this component under WBEDGMP is the conversion/replacement of all existing overhead electrical network into underground cabling network so as have a resilient electrical network, which can stand the vagaries of cyclones and reduce/prevent the miseries of people and resources for reconstruction including helping the state economy to recover faster in the aftermath of any natural disasters.

The economic benefits of UG cable sub-project of Rajarhat town is likely to be Rs 4728.204 Lakhs with the payback period of four years. The Anticipated benefits over 5 years are as follows:

(a) First year 10% : 472.820
(b) Second year 20% : 945.641
(c) Third year 40% : 1891.282
(d) Fourth year 80% : 3782.563
(e) Fifth year 100% : 4728.204

If the UG cabling project is not implemented, there is every likelihood that the existing overhead electrical network within Rajarhat town will stand exposed to damages and destruction that comes along with the cyclones, etc. Moreover, existing OH electrical network would need investments for up-gradation to meet increasing power demand of Rajarhat town in the coming years. Any further investments on the existing OH electrical infrastructure can't be justified, given the looming threat of cyclone disasters and the damages that comes along with that.

Therefore, the "with" project scenario, with its minor adverse impacts is more acceptable than the "without" project scenario which would mean an aggravation of the existing problems. Potential benefits of the proposed UG cabling project are substantial and far-reaching in order to achieve all-round development of the State economy and progress for its people.

6.2 CABLE ROUTE ALTERNATIVES

The project preparation has considered several options/alternatives, during finalization of route alignment of the UG cable project. For selection of optimum route, the following points are taken into consideration:

(i) The route of the proposed UG cable does not involve any human rehabilitation
(ii) Any monument of cultural or historical importance is not affected by the route of the distribution line.
(iii) The proposed route of distribution line does not create any threat to the survival of any community with special reference to Tribal Community.
(iv) The proposed route of distribution line does not affect any public utility services like playgrounds, schools, other establishments etc.
(v) The line route does not pass through any National Parks, Sanctuaries etc. Similarly, forests are avoided to the extent possible, and when it is not possible, a route is selected in

consultation with the local Divisional Forest Officer, that causes minimum damage to existing forest resources.

(vi) The line route does not infringe with area of natural resources to the extent possible.

Any route alternatives, without considering optimal cable length, relocation/shifting requirements of utilities, avoidance of trees, minimum diversions of pedestrian and vehicular traffic will cause severe disruptions not only for project implementation but also for vehicular and pedestrians' traffic, since cable routes are all spread across Rajarhat's busy main roads to lanes and by-lanes. Accordingly, the sub-project preparation has considered several options/alternatives, during feasibility of route alignment of the UG cable route.

In order to achieve this, WBSEDCL undertaken UG cable route selection in close consultation with representatives of concerned local authorities. Although under the law, WBSEDCL has right of eminent domain yet alternative alignments are considered keeping in mind the above-mentioned factors during site selection**,** with minor alterations often added to avoid environmentally sensitive areas and settlements at execution stage.

Since the most feasible route was to take it along existing roads using shoulder/utility area the factors, which were considered included most optimal cable length, avoid or minimize relocation/shifting requirements of existing utilities along route alignment, avoidance of trees felling, avoid or minimize road crossing points, minimum diversions to traffic as well as pedestrian traffic among others.

Keeping above in mind the routes of proposed UG Cable under the sub-project have been so aligned that it takes care of above factors. As such different alternatives for UG HT/LT lines were studied with the help of Govt. published data like Forest atlas, Survey of India and Google Maps etc. to arrive at most optimum route which can be taken up for detailed survey and assessment of environmental & social impacts for their proper management.

6.3 OPERATIONS AREA ALTERNATIVES

The project preparation has proposed four configurations of cable laying, but with a uniform trench width of 1 m and varying depth in all cases under the project. In order to minimize disruptions to both pedestrian as well as to vehicular traffic, it is utmost necessary to limit the area of operation required for trenching, cable pullout, lowering, jointing, prior to refilling and restoring trench to its previous state and at the same time ensure minimum working space is available for completing work in a timely manner.

In order to limit the area of operations, several cable trench excavation methods were assessed for minimal operations area requirement and a 1 m wide corridor as 'operational area or corridor of Impact' along the footpath, has been considered, which are to be opened up for cable laying operations in 500 m long segments. The 1 m wide corridor in 500 m long segments is to be barricaded on both sides considering the following;

- The corridor of impact/operations area will be along footpath, with footpath/kerb being one edge, and other edge of corridor extending on to road up to a maximum of 1 m.
- In case of roads which do not have foot paths, the line of sight with trees/poles shall be considered as one edge of the 1 m wide corridor and other edge of corridor extending on to road up to a maximum of 1 m.
- The 1 meter wide corridor of impact/operations area is to be barricaded on both sides in 500 m long segments along cable alignment with provision for temporary access at regular intervals to cross over across barricaded area for pedestrians.
- Within the barricaded operational area, 1 m wide cable trenches are to be excavated primarily manually in order to maneuver minor obstacles within the barricaded operational area like kerb/roadside small trees/saplings, telephone/electric poles, which will otherwise require shifting or removal for movement of mechanical excavators.
- Other operations like cable pull out, lowering, refilling of trenches, removal of excess earth, compacting of backfilled earth etc can be done by using the mini excavators, with additional accessory attachments. Thus, no operations related to cable laying work is ordinarily expected to spill out on to either footpath or the road, outside the barricaded area.
- The operational areas can be moved ahead in 500 m long segments, once all required cable laying operations are completed including restoration of trenched area to its previous state as required/specified.
- The contractors shall be provided with adequate open areas to store inventories like cable rolls, cement concrete slabs, earth/sand for refilling, cement concrete batch mixers for restoration of trench area among others. The provision of open areas for inventories will minimize disruptions to vehicular/pedestrian movement near barricaded operational areas and avoid unwarranted storage of construction materials on roads.
- The barricaded areas in each segment shall be provided with fixed exit and entry points for bring in required inventories and taking out debris or disposables out of the operations area.
- The operational areas can be either on left or right side of the road depending upon of the cable route alignment considered in the project preparation.

7.0 PUBLIC CONSULTATION & INFORMATION DISCLOSURE

Public consultation/participation is an essential requirement for environmental and social impact assessment. The ESIA team along with WBSEDCL officials undertook the public consultation (PC) for the proposed UG Cabling sub-project for Rajarhat town under WBEDGMP in accordance with the provisions stipulated in ESMF for ESIA Study.

The purpose of PC is to identify affected people and to allow such parties the opportunity to provide input and feedback on the ESIA process to facilitate informed decision-making. In complying with the public participation process (PPP) for the ESIA, consultations were carried out to ensure that issues, concerns and potential impacts identified by affected people, including the authorities, proponents, technical specialists and the public are addressed satisfactorily by incorporating/implying feasible measures in project design and implantation technique.

The public consultation process for the proposed UG Cabling sub-project for Rajarhat town under WBEDGMP was carried out during the early stage of ESIA preparation. In compliance with this requirement of ESMF, public consultation was carried out covering entire cross section of sub-project area. All the issues discussed in meeting were validated and information was provided to the groups about the details of the project. The public participation is an important issue for the proposed projects. The main objectives of such Public Consultation are:

(i) to disclose information about Project
(ii) to discuss with the stakeholders on potential environmental issues that may arise from construction and operation of the project
(iii) to take note of any objection or any comments or suggestions of the people on route/site selection
(iv) to ascertain that the people's reaction and the related issues are covered and addressed in the ESIA.

To ensure community participation in the planning phase and aiming at promotion of public understanding of project scope, activities, benefits and impacts, various sections of project affected persons and other stakeholders will continuously be engaged in various consultations throughout the project planning and implementation.

7.1 OBJECTIVES OF PUBLIC CONSULTATION

During the field survey (i.e. Sep-Oct, 2020), public consultation has been undertaken to know the people's perceptions about the project and social as well as environmental issues. The purpose of the public consultation includes the following:

- To disseminate information regarding proposed project to various stakeholders including advantages and disadvantages of project.
- To ascertain the public views on various social and environmental issues related to conversion of existing overhead HT (33/11 kV) and LT power lines into underground cabling in Rajarhat town area;
- To encourage and provide for people's participation in project implementation;
- To obtain new insight and site specific information and to appropriating possible mitigation measures based on local knowledge of the communities.

7.2 LEGAL REQUIREMENTS

As per law of land high voltage transmission and distribution lines are not covered under EIA notifications of 1994 & 2006 hence no mandatory public hearing is applicable. However, PC being an important tool for community participation it is an integral part of ESMF. Accordingly, public consultation and disclosure was conducted during December, 2019 to February 2020 at sub-project area to elicit views of public & other stakeholders.

7.3 APPROACH TO PUBLIC CONSULTATION

The roadmap of public consultation strategy is presented in Table 7.1.

TABLE 7.1: PUBLIC CONSULTATION STRATEGY

Project Stage	Consultation Activities
Project Preparation	**Information dissemination and consultation with APs during field surveys:** • Project description and its likely impacts • Objective and contents of the surveys • General provisions of compensation policy • Mechanics and procedures for public participation and consultation • Resettlement options • Grievance Redressal Mechanism • Feedback on the availability of APs to participate in income generation activities in the sub-project, where relevant It is a good practice to prepare a brief Public Information Booklet (PIB) for

Project Stage	Consultation Activities
	distribution to all the APs. The PIB very briefly explain the sub-project objectives, likely benefits and adverse impacts, general provisions of the compensation policy and grievance redress mechanisms.
	Information dissemination to local authorities after completion of census & inventory and during the ESIA preparation: • Sub-project components • Proposed policies and procedures including proposed resettlement strategies • A summary of impacts • Request for identification of resettlement sites, if necessary • Tentative implementation schedule • Roles and responsibilities of the sub-project proponents and local authorities
	Consultation with community and other key stakeholders: • Feedback regarding relocation site(s) • Preferences for the mode of compensation for affected fixed assets (i.e., cash or kind) • When the draft ESMP are available they should be provided to key stakeholders and local NGOs in their native language and put in a public place. Feedback should be requested and incorporated into the final documents. The feedback could be received through email, phone, face-to-face interaction, meetings etc. Details of all the public meetings held with people and local government officials with dates, location and the information provided and the major emerging issues should be documented. It is recommended that ESMP and other documents include this list, as an attachment. Where public announcements are made, the details, together with a copy of the text of the announcements should be provided in the documents. The draft ESIA should be discussed with local authorities and a copy of the document should be kept with state and district level authorities. APs should be informed through public announcements on the availability of the draft documents at the district and local government level.
Project Implementation	Information dissemination and consultation with APs during ESMP implementation: • Sharing ESMP document with local authorities • Major policy resettlement policy provisions and grievance redress mechanism should be informed to the APs and beneficiary households in the project area through village/ward level public meetings. • One to one meeting with the APs to explain their eligibility • Placing of micro plan for compensation and resettlement in affected

Project Stage	Consultation Activities
	villages/wards for review and minimize grievances • Payment of compensation to APs in public meeting to maintain transparency • Household consultation for skill improvement training, use of compensation amount and livelihood restoration
Public Participation in Project Monitoring and Ex-Post Evaluation	• Establish Stakeholder Monitoring Group (SMG), consisting with affected people and civil society members. The group will be responsible for monitoring of all aspects of resettlement implementation and provide feedback to the PIU • Participation of APs in monitoring will provide project management with a more accurate reflection of APs reactions and perceptions.

Initial Meeting with the Leaders/Government Officials

In order to operate the consultation programme in different ward/villages at the initial stage, initiatives were taken to meet the Councillors/Pradhan of each ward/village. During the initial meeting the purpose of visit to the ward/village was informed and processes to start and carry on with the consultation work was discussed. In this kind of interaction the basic general information of the ward/villages were also gathered and opinions of the Councillors/Pradhan regarding the project design, was earmarked.

Organizing Public Consultation

It was necessary to gather information of people's views and expressions and their problems and to bring maximum people under the process which is the basic objective of the Consultation. Thus, in order to organize the Public Consultation systematically, stepwise activities were performed which are as follows:

- The dates and time of survey and public consultation was necessary to be fixed with consent of the local peoples so as to get maximum involvement. The dates, time and the venue of the meetings were discussed with the Councillors/Pradhan. The venue for meeting for the consultation was fixed at a particular place in each ward/village.

- A notice was framed in English/Bengali language and pasted in the Ward Councillors/Panchayat Office and other strategic locations in the ward/villages at least 1 or 2 days before the scheduled date of Consultation. This was done with the help of Councillors/Pradhan and the local people, to let the people know about the Consultation date and the place or venue of gathering.

- This arrangement was done to confirm that every people were being approached Public Consultation was conducted covering entire cross section of project area.

- The issues were discussed in the meeting highlighting the important aspects of the social and economic conditions, which might get affected due to the proposed project. The issues were related to the basic problems of the stakeholders and any opinion or suggestions regarding the proposed project were discussed in detail.
- The people were allowed to discuss in their own manner and one person was present to translate for proper understanding of the situation to eliminate any communication gap. All the sections of the society were approached which included elders, businessman, residents, government officials, teachers, women and vulnerable population etc.

7.4 IMPACTS & BENEFITS OF UG CABLE PROJECT

Public participation, consultation and information dissemination in a project begins with initial Environmental & Social Impact Assessment during the initial phases of project preparation. Public consultation activities and information dissemination to APs and local authorities continues as the project preparation activities proceed in a project. Through respective departments and civil society, APs are regularly provided with information on the project and the resettlement process prior to and during the project preparation and implementation stage.

Consultation with Affected Persons (APs) is the starting point to address involuntary resettlement issues. People likely to be affected directly by the project activities may be apprehensive that they will lose their livelihoods during the time of construction. Community participation in planning and implementation of resettlement action plan helps to reduce their fears and gives APs an opportunity to participate in key decisions that affect their lives. The first step in developing plans for consultation and participation is to identify the primary and secondary stakeholders. Information sharing is the first principle of participation. This chapter provides details on the initial consultations carried out with the affected households that lay en-route the UG Cabling Project.

The information dissemination and consultation with APs during ESIA preparation included the following:

- Project description and its likely impacts
- Objective and contents of the surveys
- General provisions of compensation policy
- Mechanisms and procedures for public participation and consultation
- Grievance redressal procedures and its effectiveness
- Tentative implementation schedule
- Roles and responsibilities of sub-project proponents and local authorities
- Perceived loss of livelihood

- Preferences for the mode of compensation for affected structures and livelihood

Consultations were held with the APs and other local people to hear about their perceptions and apprehensions of the project and to elicit suggestions from them, if any, on improvement to project design.

The project affected households were consulted individually to understand their perception about the project. They were asked to give their perception on the anticipated positive and negative impacts of the project. All of them perceived reduction in sufferings during natural disasters after underground cabling. Majority of people opined an improvement in quality of life due to the project. However, some apprehensions were also raised by the respondents in the form of loss of livelihood, access and disruption of services during the period of construction. The details are presented in Table 7.2.

TABLE 7.2: PROJECT IMPACTS PERCEIVED BY THE COMMUNITY

S.No.	Positive Impacts Perceived			Negative Impacts Perceived		
	Type of Impact	Response -Yes (Nos.)	%	Type of Impact	Response –Yes (Nos.)	%
1	Reduced sufferings during cyclones and adverse climatic conditions	310	100	Temporary loss of livelihood	38	12.26
2	Improved access to services	260	83.87	Temporary loss of access to houses/ businesses/hotel, etc	85	27.41
3	Productive use of time	280	90.32	Loss of structures/ assets	65	20.96
4	Increase in business opportunity	225	72.58	Increase in accidents during and after construction	35	11.29
5	Improvements in quality of life	230	74.19	Disruption of utilities such as water, electricity, telephone, cable, etc	110	35.48
6	Others (specify)	-	-	Others (specify)	-	-

Further, consultation meetings were held with the community along the project corridor at Narayanpur, Gopalpur, Chinarpark, Kalipark, etc. Information was disseminated about the project, its benefits and possible impacts. The apprehensions and suggestions given by community are presented below in Table 7.3.

FIGURE 7.1: PUBLIC CONSULTATION AT SELECTED MARKET PLACES WITHIN RAJARHAT TOWN

TABLE 7.3: KEY ISSUES RAISED IN COMMUNITY CONSULTATIONS

Place of Meetings	Apprehensions Raised by the Community	Suggestions from Community
1. Gopalpur	• The steps and surrounding platform will be damaged during construction resulting in loss of access	• The steps and form surrounding plat if damaged need to be restored by the authorities under the project
2. Kalipark	• The trench and barricades will prohibit us to make a livelihood over project corridor i.e reduction in number of customer due to change of selling point.	• Advance notice should be given to gumti/vane owners.
	• Loss of Rs. 300 per day for all Vane/ Push Cart sellers if business is closed during construction.	• As compensation, Rs. 300 per day should be given to all bandy people if business is impacted during construction period.
3.Narayanpur	• In narrow streets the house door is opened directly on to the road. This may lead to accidents.	• Proper barricading should be done to avoid any mishap.
4.Chinarpark	• The important services like telephone, sewer, and water supply may get disrupted during construction period.	• Utilities if damaged during construction should be restored on urgent basis.
5.Atghara	• Whether the street light will be removed after underground cabling.	• The street lights should not be removed.
	• Whether the cost of electricity will increase.	• The project is good for the city and city people
		• People keeping their belongings on the project corridor will be informed to remove them.
		• Manual digging should be done in narrow streets to minimize the impact.

The public consultation was also undertaken in all the concerned Ward Offices with people representatives (Ward Councillor/Members, etc.) as well as affected people (commercial/ residential structures).

Most of the people seems to be unaware of the environmental and social problems but after awareness and consultation program, people felt necessary to have the proposed underground cabling network (HT/LT) in the interest of inclusive development of project area besides regional and national development. After the discussion, the response of the people was obtained on the response sheet. The prime environmental& social issues raised as well as suggestions made by the local people (Councillors, ward members and other local people) during the public consultation are presented in subsequent section.

It was observed from the discussions that people in general have many diverse issues that need to be given attention. These issues are related to the livelihood, economic conditions, social identity and health problems of stakeholders. These can be summarized under the comments.

People of the area are supportive in most of the ward/villages. The survey was conducted mainly in other villages and the people's reaction is very positive in most of the places and in very places the reaction is neutral.

The several social, environmental, health and safety issues related to proposed underground cabling network raised and suggestions made by the local peoples as well as people representative during the public consultation meetings. A summary of concerns and possible mitigation measures discussed in the stakeholder meeting as well as various public consultative meetings in project area is presented in Table 7.4.

TABLE 7.4: SUMMARY OF COMMENTS, ISSUES AND CONCERNS RAISED DURING ESIA CONSULTATION PROCESS

Concerns	Responses & Mitigation Measures
Impact on trees, crops and temporary commercial/residential structures	It was agreed that the no trees would be cut as far as possible however trimming of some trees may be required near DTRs/RMUs locations. Whereas compensatory afforestation for affected trees @ 1:5 ratio would be practiced as per MoEF&CC guidelines if required. As agricultural land is also not likely to be affected due to proposed project therefore the significant crop damage is not envisaged except at the time of dismantling of existing OH HT/LT line at few areas. However, few temporary commercial structures are likely to get affected temporarily during construction period and it was agreed by affected people that they will relocate themselves under the guidance of Rajarhat

Concerns	Responses & Mitigation Measures
	Ward Councilors and other local people for construction of underground cabling network.
Electrocution and vandalism	The proponent would ensure the Underground Distribution Cable lines were maintained in a good state of repair, with frequent monitoring and necessary corrective measures. The transformers/RMUs would be fenced and beatified. Access to the cable joint inspection pits, transformer, feeder pillar box etc will be by authorized personnel and with necessary work permits when required. It was agreed that no settlement, or growing of trees within the Right of Way. Vandals were warned and the public encouraged in ensuring community policing. It was also agreed that anybody who would engage in any activity on a mounted transformer would require proper identification and information given to ward off vandalism.
Noise and dust	It was agreed that the Proponent would sprinkle water where and when necessary to minimize dust pollution, and construction to be done during the day time only and to observe Noise regulations of CPCB.
Soil Erosion	It was agreed that soil erosion that may arise during cable trenches excavation and access roads would need to be controlled. Unnecessary excavations and vegetation disturbance will be avoided as much as possible. Sprinkling water will be done as necessary and any compacted earth surfaces will be restored to enhance percolation. Retainer walls will be constructed in sloppy areas.
Consultation and informing the affected	A house to house visit and meeting with each of the Project affected persons will be carried out, briefed about adoption of mitigative measures with the help of will be done.
Valuation of houses, trees and property	Valuers from the WBSEDCL, with the help of the BMC for all private property affected, if any will be done and compensation would be done at market rates in harmony with the Company's compensation policy. Trees will be valued using ministry of environment rates based on species and size. In case of disagreements and the grievance committee unable to get a solution, the aggrieved will be free to seek court redress at his/her own expenses.
Loss of Livelihoods	It was agreed compensation to destroyed property would be done at the market rates and the affected people given logistic support where possible.
Employment	The contractor will be expected to engage the locals for unskilled

Concerns	Responses & Mitigation Measures
	and semiskilled jobs during the project. This forms part of the contractual agreement with the proponent. The locals should be able and willing to accept the wages offered. Further recruitments can also be during the operation phase and maintenance of the ROW, and also the informal sector self-employment opportunities expected to blossom once power supply is boosted and stabilized.

As depicted in Table 7.4 above the stakeholders raised several pertinent issues regarding the project. The consultations were undertaken as part of the ESIA in order to obtain the views of stakeholders, their concerns and suggestions towards sustainable implementation of the project. In general, the stakeholders consulted were in support of the proposed project.

One separate multi-stakeholder consultation was conducted on 18th September, 2020 at Office of SDO Bidhannagar to disclose the ESMF as well as ESIA for UG Cabling sub-project under WBEDGMP and to get views and suggestions from public on the "Possible Environmental and Social Impacts of the proposed Underground Cable Project at Rajarhat town. Total 30-35 participants attended (22 as per attendance list rest have not signed) the workshop which includes Mayor, Commissioner, Joint Commissioner of Bidhannagar Municipal Corporation, SDO, ADM of Bidhannagar Subdivision, Representatives from PWD, Traffic Police, BSNL, WBSEDCL, RECPDCL, IISWBM, local residents including women and other stakeholders.

The following apprehensions and suggestions have been expressed by the participants during the meeting:

- What are the additional advantages of UG Cabling over existing system?
- Up to which level the underground cables are laid i.e. main roads, main streets or sub-lanes?
- Whether ESIA is completed or will be taken up now?
- What about the cables belonging to BMC in the area of Rajarhat which were recently laid on existing electrical supports for developing street lighting system?
- What is the time limit for restoration of roads after completion of UG cable works?
- The UG Cable project is to be completed in shortest possible time without any delays.
- Works are to be taken up in night-time so that disturbance to public and traffic will be less.
- What are the financial impacts of the Project? Is it a grant or loan?
- Whether there will be impact of the UG Cable Project on consumers by increasing electricity tariff?
- Whether any expenditure will be recovered from local residents due to UG Cable

project?

- Whether consumers have to modify their internal house wiring due to UG Cable Project?
- The UG Cable Project works shall be carried out with qualitative workmanship so that excavations do not recur in future.
- The existing Cable TV network should also be made underground since the poles will be removed after proposed UG Cabling network.
- What are the precautions being considered for UG Cable network in case of earth quakes?
- Whether consumers have to change their supply from single phase to three phase due to UG Cable Project?
- A Liaison Officer to be appointed to each area during execution of the Project to attend the grievances of the public.
- Better planning is to be done in consultation with stakeholders and traffic police to minimize the problems encountered during execution.

The proceedings of the meeting, brochures circulated, list of persons attended and issues raised along with photographs taken during the consultation meeting are given in Appendix7.1. The various issues, apart from the above-raised were also responded, which were largely related to timely implementation of the works, restoration of roads, traffic management and public safety issues. One of the other main issues, raised was tariff implication for the users as a result of this project. The audience was given satisfactory replies to all issues and WBSEDCL has assured that there will not be any increase in the tariff as a result of this project.

The effectiveness of the ESMP is directly related to the minimizing likely environmental & social risk and impacts of proposed project and degree of continuing involvement of those affected by the project. Participation of APs has been emphasized in the development of ESMP to assure that its components are suited to the needs of the impacted and resettled population. Their continued involvement and participation during ESMP implementation will both increase the probability of their successful resettlement and rehabilitation and contribute to the overall project success.

7.5 INFORMATION DISCLOSURE

The executive summary of final set of ESIA made available at Project Authority's state and sub-project offices (RM/DM Bidhannagar). The final documents in full will replace the draft documents in Project Authority's websites. The list of eligible persons (APs) if any for disbursement of benefits as per RPF shall be separately disclosed at concerned ward offices of

Rajarhat area to ensure transparency.

The Resettlement Policy Framework (RPF), executive summary of the Environmental &Social Impact Assessment of the sub-project shall also be placed in the WBSEDCL's RM/DM office as well as SDO's Office, Bidhannagar.

The following sub-project specific information related to environmental &social safeguards will be disclosed on the website.

- Approved ESIA;
- Details of Grievance Redress Committee, its procedures and mechanism;
- Details of public consultation;
- Details of compensation given to APs, if any.

In addition to the local disclosures as discussed above, documents like ESIA and GDP, LMP, SEP etc will be disclosed in the World Bank's Info-shop.

FIGURE 7.2: PUBLIC CONSULTATION FOR THE FORMULATION OF ESIA FOR UG CABLING SUB-PROJECT UNDER WBEDGMP AT RAJARHAT TOWN

8.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 Environmental and Social Management Plan

Environmental Social Management Plan (ESMP) is an integral part of ESIA which contain mitigative measures and plan for assessment and management protocol to address identified/potential environmental & social risk/impacts during project implementation and O&M stage. This section presents the ESMP, which includes measures for mitigating possible environmental and social impacts, anticipated during construction, O&M of the Rajarhat UG cabling sub-project with budgetary provisions under WBEDGMP.

The ESMP outlined below addresses the identified potential negative impacts and mitigation measures of the proposed UG Cable Network sub-project during construction and operation & maintenance phase, based on the identified potential environmental and social risks & impacts and mitigation measures of the expected negative impacts.

The ESMP specifies the mitigation and management measures which the PIU/EPC will undertake to demonstrate how the project will mobilize organizational capacity and resources to implement these measures. The ESMP covers information on the management and/or mitigation measures that will be taken into consideration to address impacts during pre-construction, construction and post-construction phases of the project as presented in Table 8.1.

TABLE 8.1: ENVIORNMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
Pre-construction Phase:						
Alignment & design of UG Cabling Network	Exposure to safety related risks	Setback of dwellings to UG line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	UG Cable alignment selection with respect to nearest dwellings	Setback distances to nearest houses – once	PIU-WBSEDCL	Part of UG lines detailed alignment survey and design
	Social inequities	▪ Ensure that all consumers receive project benefit. ▪ All LT feeder line are converted into UG cabling irrespective of socio-economic status of the consumers	Route alignment sketches	Once	PIU-ACE/SE(Engineering & Project Management)	At time of detailed survey for route alignment
	Damage to socially/culturally sensitive and historical sites	Careful selection of site and route alignment to avoid encroachment of socially, culturally, and archaeological sensitive areas (e.g. sacred groves, graveyards, religious worship place, monuments etc.)	Route alignment sketches	Once	PIU-ACE/SE(Environment & Safety Management)	At time of detailed survey for route alignment
	Damage to Crop	Minimise impact on agricultural land	Route alignment selection (distance to agricultural land)	Consultation with local authorities/ and land owners – once	PIU-WBSEDCL	Part of detailed alignment survey and design
	Impact on water bodies	Avoidance of such water bodies to the extent possible.	UG Cable alignment selection (distance to water bodies)	Consultation with local authorities– once	PIU-WBSEDCL	Part of detailed UG cable alignment survey and design
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in substation transformers or other project facilities or equipment.	Transformer design	Exclusion of PCBs in transformers stated in tender specification – once	PIU-WBSEDCL	Part of tender specifications for the equipment
		Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once	PIU-WBSEDCL	Part of tender specifications for the equipment

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
		use, if any, in existing processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of the Government		Phase out schedule to be prepared in case still in use – once	PIU-WBSEDCL	Part of equipment and process design
	Exposure to electromagnetic interference	DTRs design to comply with the limits of electromagnetic interference	Electromagnetic field strength for proposed DTRs	DTRs in compliance with relevant standards – once	PIU-WBSEDCL	Part of design parameters
	Exposure to noise	Design of DTRs enclosures to comply with noise regulations.	Expected noise emissions based on substation design	Compliance with regulations - once	PIU-WBSEDCL	Part of detailed siting survey and design
Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill clean up equipment.	Equipment specifications with respect to potential pollutants	Tender document to mention specifications – once	PIU-WBSEDCL	Part of detailed equipment design /drawings
Explosions /Fire	Hazards to life	Design of substations to include modern fire-fighting equipment	Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications – once	PIU-WBSEDCL	Part of detailed substation design /drawings
Construction Phase:						
laying of UG lines and erection of of transformers	▪ Increase in airborne fugitive dust	▪ Overall, the anticipated impact is insignificant and of a short duration. However, sprinkling of water around the construction site and material handling area is recommended to minimize the fugitive dust. ▪ Maintain a Complaint Register at site	▪ Number of complaints from neighbors local authorities, if any. ▪ No. of places where sprinkling of water carried out.	▪ Daily review during construction period	▪ Construction contractor, Social and Environment Member	▪ During construction
	▪ Increase in noise pollution	▪ No construction activity to be carried out during night time ▪ Regular and effective maintenance of construction	Number of complaints from neighbors/local authorities, if	▪ Daily review during construction period	▪ Construction contractor, Social and Environment Member	▪ During construction

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
		equipment ▪ Maintain a Complaint Register at site	any			
	▪ Soil / water contamination due to storage of construction material	▪ Construction materials should be stored in covered areas to ensure protection of spillages during handling and storage. ▪ Avoid storage along waterbodies, if any. ▪ Maintain a Complaint Register at site	▪ Visual monitoring of storage arrangements ▪ Incidents of spillages at site. ▪ Number of complaints from neighbours/ local authorities, if any.	▪ Daily review during construction period	▪ Construction contractor, Social and Environment Member	▪ During construction
	▪ Soil / water contamination due to spillage / leakage of oil from transformer shifting	▪ The chemicals and oil containers should be safely barricaded to ensure protection from any potential damages during shifting. ▪ Provision of spill control kit / saw dust buckets at DTR site to control spillage ▪ Immediate communication of any incident of transformer oil leakage	▪ No. of incidents of leak ▪ No. of user complaints	▪ Daily review during construction period	▪ Construction contractor, Social and Environment Member	▪ During construction
	▪ Impact on drainage patterns	▪ Regular monitoring and clearing of natural drains / low lying areas along the project site ▪ No stacking of construction debris and material along the natural drains / low lying areas.	▪ Visual monitoring of area within ▪ and around subproject location	▪ Daily during construction period	▪ Construction contractor, under guidance of the Social and Environment Member	▪ During construction
	▪ Impact on worker /community health and safety	▪ All personnel at the project sites are provided with personal protective equipment like helmets, goggles, safety	▪ Use of personal protective equipment (PPEs) by workers	▪ Daily for safety equipment At the time of initiation of work	Construction contractor, under guidance of the Social and	During construction

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
		shoes, ear plugs, mask, hand gloves etc. ▪ Suitable first aid facilities for handling emergency situation like fire, explosion, electrocution, etc. are provided at the work and camp sites, if any. ▪ The construction workers, supervisors and engineers are properly trained and qualified. ▪ The construction sites are access controlled. ▪ Cautionary signboards / instructions to be displayed at appropriate places ▪ Ensure access roads are maintained Compliance with labour laws	▪ Presence of cautionary signboards at appropriate locations ▪ Availability of first aid equipment ▪ Display of Ambulance and nearest hospital contact details.	at each site.	Environment Member	
	▪ Crops and trees may be damaged during the construction phase however, this is unlikely as construction is undertaken during non-harvesting season and the lines are laid along the roads/bunds	▪ Civil work to take place in non-agricultural season to minimize. ▪ Avoid cutting of trees by looping and realignment of cable route to the extent possible. ▪ Appropriate compensation will be provided for crop and other damages if any.	▪ Work Schedule ▪ Route alignment sketches ▪ Records for payment of compensation	▪ Once at the start of civil work ▪ Monthly	Construction contractor, under guidance of the Social and Environment Member	During construction
	▪ Violation of labour standards	▪ Contractor should follow labour standards as per applicable laws such as minimum wages,	▪ Labour laws are being followed ▪ Welfare	▪ Monthly	Construction contractor under the guidance of	During Construction

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
		equal pay for equal work, no child labour etc.	facilities are available		WBSEDCL Divisional Manager/Station Manager	
Operation Phase:						
Operation and maintenance of UGC Network	Soil / water contamination due to spillage / leakage of hazardous chemicals and oil during repair and maintenance	▪ Use of appropriate tools for handling of chemical / oil containers. ▪ Avoid storage along drainage / streams, if any. Provision of spill control kit / saw dust buckets at storage site to control spillage	▪ No. of Incidents of leak /spillage ▪ Availability and health of secondary containment ▪ Availability of spill control kit/saw dust buckets	During daily rounds	Divisional Manager/Station Manager	During Operations Phase
	Soil/water contamination due to spillage / leakage of oil from transformer	▪ The chemicals and oil containers should be safely barricaded to ensure protection from any potential damages during storage. ▪ Provision of spill control kit / saw dust buckets at storage site to control spillage ▪ Immediate communication of any incident of transformer oil leakage	▪ No. of Incidents of leak • No. of user complaints	During routine maintenance	Divisional Manager/Station Manager	During Operation & Maintenance Phase
	▪ Risk of fire hazards	Maintaining UGC Network effectively	Regular inspection of UG cable through Inspection pits	▪ Once every month (and as directed by field engineer)	Divisional Manager/Station Manager	During Operations and Maintenance Phase
	▪ Impact on worker /community health and safety	▪ All maintenance personnel are provided with personal protective equipment like helmets, goggles, safety shoes, ear plugs, mask, hand gloves etc.	▪ Use of personal protective equipment (PPEs) by workers ▪ Presence of	▪ Daily for safety equipment Weekly for other measures	Divisional Manager/Station Manager	During Operation and Maintenance phase

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
		▪ The maintenance personnel are properly trained and qualified. Cautionary signboards / instructions to be displayed at appropriate places	cautionary signboards at appropriate locations			
Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (no. of injury incidents, lost workdays)	Preparedness level for using these technologies in crisis- once a month	Divisional Manager/Station Manager	During Operation and Maintenance phase
		Security fences around substations and declaring them as restricted areas.	Maintenance of fences	Report on maintenance – every 2 weeks	Divisional Manager/Station Manager	During Operation and Maintenance phase
		Appropriate warning signs on facilities	Maintenance of warning signs	Report on maintenance – every 2 weeks	Divisional Manager/Station Manager	During Operation and Maintenance phase
Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (lost workdays due to illness and injuries)	Preparedness level for using these technologies in crisis – once each year	Divisional Manager/Station Manager	During Operation and Maintenance phase
		Provide adequate sanitation and water supply facilities	Provision of facilities	Complaints received from staff /workers every 2 weeks	Divisional Manager/Station Manager	During Operation and Maintenance phase
		Safety awareness raising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff /workers covered – once each year	Divisional Manager/Station Manager	During Operation and Maintenance phase
Operations and maintenance	Unnecessary environmental	Adequate training in O&M to all relevant staff of UGC Network	Training/awareness programs and mock	Number of programs and	Divisional Manager/Station	During Operation and Maintenance phase

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
staff skills less than acceptable	losses of various types	maintenance crews.	drills for all relevant staff	percent of staff covered – once each year	Manager	
Inadequate periodic environmental monitoring.	Diminished ecological and social values.	Staff to receive training in environmental monitoring of project operations and maintenance activities.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	Divisional Manager/Station Manager	During Operation and Maintenance phase
Uncontrolled growth of vegetation	Fire hazard due to growth of tree/shrub /bamboo around DTRs/Inspection pits, etc	Periodic pruning of vegetation to maintain requisite electrical clearance. No use of herbicides/ pesticides	Requisite clearance (meters)	Assessment in consultation with forest authorities - once a year (pre-monsoon/post-monsoon	Divisional Manager/Station Manager	During Operation and Maintenance phase

8.2 ESTIMATED BUDGET FOR IMPLEMENTATION AND SUPERVISION OF ESMP

The implementation of many of the measures included in ESMP largely constitutes good construction practices and therefore, they are considered as incidental to works. However, some measures are considered as additional requirement to mitigate or avoid environmental, social, health and safety concerns during the implementation of UG Cabling Network Sub-project at Rajarhat Town. Adequate cost provisions have been included for such measures, which are considered as additional requirement whereas measures which are incidental to work deem to have been included in the quoted tender/bid price by the contractor.

The detail of budgetary provisions for implementation of UG Cabling Network Sub-project at Rajarhat Town is presented in Table 8.2. It is estimated to be **INR 121.89 lakhs**.

The ESMP will be integrated in the contract/bidding documents as **MANDATORY CONTRACTUAL OBLIGATIONS.** Thus, the EPC contractor is expected to be fully conversant with the ESMP requirements of Rajarhat UG cabling sub-project and accordingly make required provisions for implementing the ESMP at the bidding stage itself.

TABLE 8.2: ESTIMATED BUDGETARY PROVISIONS FOR IMPLEMENTATION OF ESMP FOR UG CABLING NETWORK SUB- PROJECT AT RAJARHAT TOWN UNDER WBEDGMP

S. No.	Item Particulars	Budgetary Provision Rs in Lakhs	Remarks/Notes
A	ESMP Measures, considered incidental to works, deem included in quoted bid price	Nil	These measures are to be essentially implemented by contractor and costs deem included in quoted bid price by contractor
B	ESMP Measures considered additional requirement to be implemented by contractor and/or other external agency engaged by PMC/PIU:		Payment shall be made as per actual by PMC /PIU
	a. Restoration & Reconstruction Cost of Municipality & Other Bituminous Roads, 1480 sqm x @1800/- per sqm	26.64	
	b. Reconstruction/Restoration of Drain after Laying UG Cable as per Technical Specification of EIC, @2000/- per m	-	
	c. Restoration & Reconstruction Cost of CC Roads, 230 sqm x @ 7500/- per sqm	17.25	
	d. Reconstruction/Restoration of	13.55	

S. No.	Item Particulars	Budgetary Provision Rs in Lakhs	Remarks/Notes
	Cement Concrete access to residential/commercial structures etc. after Laying UG Cable as per Technical Specification of EIC, 730 x @1850/- per sqm		
	e. Reconstruction/Restoration of extension shed of residential/commercial buildings , @1200/- per sqm	-	
	f. Reconstruction/Restoration of Boundary Wall of residential/commercial structures after Laying UG Cable by Brick Work with Cement Mortar (1:4) including curing and Plaster with NCP as per Technical Specification of EIC, @ 2000/- per sqm	-	
	g. Reconstruction/Restoration of Paver Block/Brick Road/ Walkways/parking places of hotels and other commercial structures after Laying UG Cable by Paver Blocks as per Technical Specification of EIC, 390 sqm x @1000/- per sqm	3.900	
	h. Reconstruction of Green Fence/ Temp. Fence/ Wood+ Tin+ pillar+ fence etc. @200/- per m	-	
	i. Compensation/RA towards crop damage during dismantling of existing OH infrastructure and RA for temporary disturbance to livelihood, if any (Lump sum)	15.00	
	j. Environmental Monitoring (@ 8X1.5 lakhs/quarter)	12.00	
	k. IEC Activities* (lump sum)	20.00	
	l. External Evaluation& Monitoring of Implementation of ESMP (@ 2 x 5.0 lakh)	10.00	
	Sub-total	118.34	
C	ESMP Implementation Supervision by	Nil	This shall be the

S. No.	Item Particulars	Budgetary Provision Rs in Lakhs	Remarks/Notes
	PMC-PIU		responsibility of PMC under PIU. The cost of ESMP implementation supervision shall be borne by PMC as per their quoted rates.
D	Total Cost of ESMP Implementation and Supervision(Total of A + B +C)	118.34	None
	Add Contingencies @3% of 118.34 Lakhs	3.55	
	TOTAL COST of ESMP IMPLEMENTATION (rounded off) – Rs in Lakhs	121.89	

*Information Education Communication (IEC) Activities which primarily includes awareness generation among various stakeholders regarding proposed sub-project activities their likely potential E&S impacts including health and safety and its mitigative measures, pamphlets/leaflets, banner, posters, hoardings at strategic locations within sub-project area, consultation meeting, etc.

9.0 INSTITUTIONAL ARRANGEMENTS & GRIEVANCE REDRESSAL MECHANISM

WBSEDCL would provide utmost importance to environmental, social, health & safety of workers, employees and nearby communities as described in the Environment and Social Management Plan. The implementation of the ESMP would be carried out jointly by WBSEDCL project staff and contractor under the direct supervision of project specific PIU constituted by WBSEDCL. WBSEDCL Divisional/Regional offices would maintain close watch on the environmental and social safeguards implementation through a system of Monitoring & Review.

9.1 INSTITUTIONAL ARRANGEMENT

For the implementation of the UG Cabling Network sub-project at Rajarhat Town under West Bengal Electricity Distribution Grid Modernization Project (WBEDGMP), West Bengal State Electricity Distribution Company Limited has developed a Project Implementation Unit (WBSEDCL-PIU). The WBSEDCL PIU is located at the WBSEDCL headquarters in Bidyut Bhavan, Bidhannagar, Kolkata and is headed by the Additional Chief Engineer (Distribution Project). The detail of WBSEDCL PIU is presented in **Appendix 9.1.** The WBSEDCL PIU would also be responsible for driving the implementation of the E&S safeguards in UG Cabling Network sub-project at Rajarhat Town under WBEDGMP. At the field level the Bidhannagar Regional office of WBSEDCL who would be responsible for implementing the technical aspects of the UG Cabling Network sub-project at Rajarhat Town under WBEDGMP would also be responsible for the implementation of the ESMP. In addition, the Contractor implementing the UG Cabling Network sub-project at Rajarhat Town under WBEDGMP would also have deploy Environment and Social personnel to actually carry out the E&S safeguards on the ground. The checklist for supervision of implementation of ESMP is presented in **Appendix 9.2**.

9.1.1 Capacity Building

The capacity building would include both augmentation of the present institutional structure of WBSEDCL PIU as well as carrying out training of the personnel to be involved in the UG Cabling Network sub-project at Rajarhat Town under WBEDGMP implementation on E&S issues.

For the implementation of the E&S safeguards the WBSEDCL PIU would be additionally supported by designated Environmental Officer and Social Officer. These personnel would preferably from within WBSEDCL having requisite qualification and experiences. However, at the field level, the E&S safeguards implementation would be supervised by the designated Divisional/Assistant Engineer attached to the Region/Division implementing the project. The designated officers would be trained on E&S aspects and the implementation requirements of ESMP as per the provisions of ESMF for WBEDGMP.

The Contractor would also have an Environmental Engineer/Officer and a Social Officer in the team who is implementing the project. The respective contractor would be responsible for the submission and implementation of Construction - Environmental & Social Management Plan (C-ESMP) as well as provisions of ESMP as provided in the contract document and also coordinating with the respective Department for necessary statutory clearances if required.

9.1.2 Roles & Responsibilities

The responsibilities of E&S officers of PIU-WBSEDCL shall be as follows:

- Shall be responsible for providing WBSEDCL PIU with E&S inputs on the planning and implementation of the project;
- Shall be responsible for supervising the implementation of the Environmental and Social Management Plans including the Labor Management Plan and the Stakeholder Engagement Plan as per provisions of ESMF;
- Shall be responsible for coordinating training sessions and awareness campaigns for improving awareness on E&S Issues in the organisations i.e. WBSEDCL;
- Shall formulate training modules and impart training for CCC/ Division Level staff;
- Shall be the custodian of the Grievance Redresses Mechanism of WBEDGMP and maintain the process of grievance redressal. They shall maintain the records of all the grievance and action taken;
- Shall be responsible for monitoring the E&S safeguards implementation and reporting that same back to the WBSEDCL management and the World Bank Periodically;
- Shall coordinate with the different agencies appointed by the WBEDGMP PIU, to implement the E&S safeguards.

The responsibilities of E&S officers of contractor/sub-contractors shall be as follows:

- Shall be responsible for implementation of the ESMP provisions under their scope (including C-ESMP/LMP);
- Assisting the WBSEDCL Regional/Divisional Office to coordinate with the forest department for forest clearance and other statutory clearances e.g. tree cutting/trimming, etc;

- Reporting the ESMP Implementation/compliance to the WBSEDCL Regional/Divisional Office;

- Coordinate with the External Agency, if any in preparing monitoring/compliance report on the implementation of the ESMP;

9.1.3 Monitoring Frequency & Responsibility

The responsibility and frequency of monitoring ESMP implementation supervision in line with the suggested institutional arrangements is given in **Table 9.1**. The various aspects that are to be monitored during ESMP implementation supervision are also given in **Tables 9.2** and **9.3**. The checklist for development of Worksite Safety Management Plan also is given in Table **9.4**.

The checklists given in Tables 9.1 to 9.4 are illustrative and to be finalized by PIU-E&S unit within PIU prior to mobilization of contractor.

TABLE 9.1: MONITORING FREQUENCY AND RESPONSIBILITY FOR UG CABLING NETWORK SUB-PROJECT

S.No.	Particulars	Frequency	Reporting Responsibility	Monitoring responsibility
1	Operational Area – Commencement Report	At every instance	PIU-E&S officer under guidance of Team Leader	Team Leader – Environment
2	Daily Progress Report	Daily by close of Working Hours-6 PM	PIU-E&S officer	Team Leader under the assistance of PIU-E&S officer
3	Weekly Progress Report	Weekly, by end of Week - Saturday 6PM	PIU-E&S officer under guidance of Team Leader	Team Leader under the assistance of PIU-E&S officer
4	Operational Area – Closing Report	At every instance	PIU-E&S officer under guidance of Team Leader	Team Leader – Environment under the assistance of PIU-E&S officer
5	Monthly Progress Report	Monthly, by last working day of the month	Team Leader under the assistance of PIU-E&S officer	Team Leader – Environment
6	Quarterly Progress Report	Quarterly, by last working day of month, every Quarter	Team Leader under the assistance of PIU-E&S officer	Team Leader – Environment

S.No.	Particulars	Frequency	Reporting Responsibility	Monitoring responsibility
7	Annual Consolidated Report	Annual, by last working day every year or every 3rd quarter as required	Team Leader under the assistance of PIU-E&S officer	Team Leader – Environment
8	Project Completion Report – ESMP Implementation	As and when Project is declared commissioned	Team Leader under the assistance of PIU-E&S officers	Team Leader – Environment
9	Environmental Monitoring covering areas in and around all operational areas, work camp sites. The parameters monitored shall be ambient air quality and ambient noise level	Quarterly (AAQ Parameters shall cover PM10, PM2.5, SO2, NO2, CO, Noise levels shall include Leq Day and Leq Night)	Independent NABL/ MOEF&CC accredited Laboratory and appointed by EPC-E&S	Team Leader - Environment

Note:

1. The periodic progress report shall capture status of ESMP measures, implemented by contractor and shall list compliance(s) and non-compliance(s), to respective measures as well as compliance(s) to consent conditions stipulated by WBPCB if any. The report shall include list of Actions to be Taken and Action Taken Report by the contractor, which shall also be monitored by the PIU-E&S.

2. The periodic progress report shall cover all operational areas as well as designated work camp sites and store yards along with the environmental monitoring carried out covering all operational areas, where work is under progress and work camp sites as may be required.

TABLE 9.2 ILLUSTRATIVE CHECKLIST FOR OPENING UP OF OPERATIONAL AREA

Sl No	Checklist Items prior to Operational Area Commencement	Provided		Remarks/Notes
		Yes	No	
1	Site cleanup and removal of all waste materials/debris lying within the 1 metre wide operational area			
2	Minor Repairs to footpath to remove all unevenness, alongside of barricaded area for pedestrian safety in 25mm thick PCC(1:4:8) or 20mm thick cement concrete mortar(1:6)			
3	On-site marking of cable route, cable trench and 1 metre wide area to be barricaded, with 7.5 cm wide strip of yellow paint, at each of the 500 metre length operational area			
4	Fabrication and Erection of MS barricades on both sides of the cable trench alignment as per design			
5	Stacking of sand bags in polypropylene (used cement) bags, along inner side of both barricades, to prevent seepage /water logging of cable trenches			
6	Provision of LED strip lighting to MS barricades as a safety measure during night hours (on road side only)			
7	Installation of caution/sign/diversion boards on both upstream and downstream sides of operational area as per requirement of specific stretch as per site assessment/requirement of traffic police			
8	Obtaining requisite approvals from traffic police for traffic diversions at least 7 days in advance. Traffic diversion plans, wherever required for a specific site/stretch, shall be prepared in consultation and/under approval of traffic police well in advance and No work shall be undertaken in anticipation of permissions and approvals			
9	Obtaining requisite approvals from Bidhnanagar Municipal Corporation for road cutting permissions at least 7 days in advance. No work shall be undertaken in anticipation of permissions and approvals			
10	Inform telecom and other departments, at least 7 days in advance prior to site clean-up and commencement of excavation of road			
11	Cleaning of roadside drain chutes on both upstream and downstream sides of operational area			
12	Ensure, no water logging occurs along barricaded operational area during rainy days			
13	Provision of Mobile Water Tanker of 6000 litres capacity, at			

	Operational Area, fitted with pressurized spray system and 600m hose reel			
14	Provision of 2 seater Mobile Toilet (1 seat for men and 1 seat for women) with separate entrances), fitted with 1000 litres overhead water storage tank, and stationed at a suitable place within 100 metres from operational area, with one attendant			
15	Provision of Mobile Drinking Water Counter/Kiosk, fabricated from stainless steel with 300 litre capacity, with at least two taps, with bottom tank to collect waste water and stationed at a suitable place within 100 metres from operational area, with one common attendant for both Mobile toilet and drinking water kiosk			
16	Deploying a on-site crew group, comprising mason, plumber, carpenter/sheet metal fabricator at Operational area. The crew shall have access to all required resources are provided to restore the damaged utilities like water supply connections, sanitary/sewer connections etc, with least down time, once excavation commences			
17	Provision of water resistant tarpaulins at Operational area to cover barricaded area, during rainy days (as a contingent measure)			
18	Provision of water resistant tarpaulins at Operational area to cover tipper trucks carrying excavated material approved disposal sites to prevent enroute dust and spills			
19	Provision of personal protection gear(PPE) for all workforce at operational area			
20	Provision of traffic wardens along operational areas, near to junctions/intersections, wherever required			
21	All vehicles /equipment deployed at operational areas shall be less than 5 years old, in good working condition and mandatorily have valid Pollution under Control Certificates, while being deployed on this project			
22	Provision of intermediate access across barricaded area for adjacent building occupants as per requirements			
23	No workforce camps shall be set up at any of the operational areas. All workforce are to be provided with suitable type of rented accommodation, if required or can return to normal places of residence.			
24	All supervisory staff shall have wireless communication system (walkietalkie) supplemented with mobile phones for better communication at operational area in case of emergency or otherwise			

25	First aid facilities and free emergency care facilities at operational area. Contents of first aid box shall be as per attached list)			
26	All operational areas shall be access controlled with fixed entry and exit points, and shall have watch and ward facilities at all times. At least 2 Waste bins (25 litre capacity) shall be kept at entry and exit points of operational area and regularly cleanly maintained			

** Similar checklists are to be prepared by PIU-E&S, for different stages of the project including Operational area closing report based on ESMP for compliance monitoring by EPC Contractor*

Signature of EPC-E&S Signature of PIU-E&S

TABLE: 9.3 ILLUSTRATIVE CHECKLIST FOR CLOSING OF OPERATIONAL AREA

Sl No	Checklist Items prior to Operational Area Closing Report	Provided		Remarks/ Notes
		Yes	No	
1	Whether Road Restoration works has been completed without any left out or unpaved areas within the 1 metre wide operational area			
2	All restored paved surfaces matches with evenly with old surface without any unevenness			
3	Whether Operational area has been cleared off all types of waste materials			
4	Whether MS barricade have been moved to next segment of the operational area and site cleared			
5	Whether drain chutes along hitherto barricaded operational area has been checked for any blockages and cleared thereof if any. This shall also include drain chutes on both upstream and downstream sides of barricaded area up to at least 100 meters on either sides			
6	Whether all diversion and caution boards have been removed and previous boards has been restored, if any			
7	Whether all other site infrastructure like mobile tankers, Toilets, Drinking water kiosks have been moved to new places as per requirements			
8	Whether all intermediate access provided across hitherto barricaded area for adjacent building occupants as per requirements have been removed including all remnants			
9	Whether all ramps/steps/minor extensions of structures, although illegal have been restored to its previous state as per requirements of the building occupants			
10	Whether all grievances/complaints/requests/concerns received from people during the cable laying operational phase have been resolved. And confirm if any such issue /matter pending			
11	Whether construction of inspection chamber has been completed and is provided with manhole cover. The operational area shall not be declared open, unless inspection chambers are provided with manhole covers and fixed properly as a safety requirement			
12	Whether any damaged kerb/footpath edges and/or any other over ground pre-existing infrastructure has been restored, if any damaged during cable laying operations within hitherto barricaded operational area			

**Similar checklists are to be prepared by PIU-E&S, for different stages of the project including Operational area closing report based on ESMP for compliance monitoring by EPC Contractor*

Signature of EPC-E&S Signature of PIU-E&S

TABLE 9.4 CHECKLIST FOR DEVELOPMENT OF WORK SITE SAFETY MANAGEMENT PLAN

(This Worksite Safety Management Plan shall be prepared in conjunction with ESMP measures provided in ESIA report)

The worksite safety management plan (WSMP) shall be prepared by the contractor and get it approved by the PIU-E&S, during mobilization period and prior to commencement of site operations. The WSMP shall essentially address the following:

1. All operational areas (every 500 metre cable laying segment is construed as one operational area), shall have a designated one safety officer and one social officer. The safety officer shall be versed with all safety requirements in a similar working environment and preferably have undergone OHSAS 18001-Occupational Health and Safety Management Systems – Implementation Training. The social officer shall be primarily responsible to handle all public concerns/requirements/grievances with regard to requirements for intermediate access walkways, restoration of damaged utilities, ramps steps etc among other social and safety issues
2. All workforce deployed (at all levels), shall have demonstrated experience in underground cable laying operations, excavation of trenches in urban/rural areas for similar utilities like water supply, sewerage and drainage projects, road construction and /or paving works. The work force shall also have experience in operation and maintenance of underground cables per requirement of work.
3. Induction training of all workforce (at all levels), with particular ESMP has is on expected ESMP measures as well as environmental, health and safety requirements under the project
4. Operational areas shall have fixed access controlled entry and exit points with adequate lighting arrangements at night. All visitors to operational areas are to be briefed about safe distances and emergency response mechanism available at site and provided with safety boots, helmets and mandatorily accompanied by designated official, prior to getting into/ around operational area.
5. All construction and earth moving equipment deployed shall be less than 5 years, well maintained and good working condition at all times
6. Barricading operational areas with intermediate access to adjacent building occupants as per requirements. Barricading shall have LED lighting as a hazard prevention measure for traffic during night hours. If required barricades shall be bolted/anchored down on to ground for stability and safety, during inclement weather conditions
7. The workforce shall strive to maintain a cordial communication channel with the building occupants along operational areas, and any contentious issue(s) raised shall be responded politely and matter escalated to concerned designated E&S officer /social officer
8. Provision of safe and adequate walkway plat forms, properly rested on firm ground/base across barricaded operational areas. The walkway platforms shall be made of wooden planks or MS plates of adequate strength (at least 3 times more than requirement)

9. To ensure public safety at all stages of cable laying operations, minimal disruptions to traffic movement along barricaded area, minimal inconveniences to pedestrian and occupants of buildings along cable routes

10. Provision of on-site crew at all operational areas, comprising mason, plumber, carpenter/sheet metal fabricator with all resources to repair any damaged underground utilities with least down time in close coordination with social officer and concerned building owner/occupant

11. Ensure safety of public and no undue inconvenience is caused to vehicular traffic during movement of materials in and out of operational areas through deployment of traffic wardens

12. All cable rolls, cradles and hauler(s) for cable pullout shall all be placed on firm ground and properly anchored so that it does not get toppled and/or sets into motion, which could pose a safety issue and can cause hazard

13. Provision of personal protection equipment(PPEs) for all workforce and to make it mandatory for the workforce to wear them at all times during working hours

14. Contractor should follow defined protocols for health &safety including measures for preventing spread on COVID-19.

15. Sign boarding of hazardous areas/materials should be done.

16. The detailed Safety Plan as provided in ESMF shall also be made part of all contract document to ensure that provisions are uniformly implemented by all contractors.

17. Ensuring strict compliance of "**Code of Conduct**" to avoid any incidence of Gender Based Violence (GBV)/ Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) etc.

18. Orientation of workforce to keep safe distances from moving equipments and all such areas shall be access regulated only for authorized workforce

19. Provision of fully equipped First Aid Post and all required emergency numbers of nearby hospitals, at all operational area(s), in case of any injury/fatal accident to workforce or to public as a consequence of cable laying operations

20. Provision to record/document all types of incidents, which has led to some form of injury (irrespective of minor/major/fatal) to workforce or to bystanders as a consequence of cable laying operations. The cause(s) of such incidents shall be investigated and corrective measures identified, shall be immediately implemented to prevent recurrence of such incidents.

21. Deployment of Traffic wardens at or near road intersections(junctions) to ensure smooth movement of traffic alongside of barricaded area

22. Provision of onsite sanitation facility through deployment of well-maintained mobile toilet and mobile drinking water kiosk and ensure it is used by workforce

23. Conduct safety awareness drill periodically and award workforce who adhere and practice safety measures at operational areas

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All cable testing, jointing, testing and commissioning shall be conducted in strict conformance to India Electricity Regulations Act, 1956, with its latest amendments.

9.2 GRIEVANCE REDRESSAL MECHANISM

3-tier grievance redressal mechanism is already in place at WBSEDCL **(Appendix 9.3)**. It would be aligned to resolving grievance/disputes related to the environmental and social performance of the project. The stakeholders including tribal affected persons to flag-off any concerns/grievance/disputes in the project and seek redressal of the same thereby ensuring effective participation.

In order to realign with existing GRM mechanism of WBSEDCL to address grievances related to ESMP implementation two bodies are to be established; Project Steering Committee (PSC) at the corporate level and Grievance Redressal Committees (GRCs) at the sub-project sites. These PSC and GRCs would be aligned with the existing grievance redressal mechanism of WBSEDCL for easy access and timely redressal of any grievance of the APs and other local people.

9.2.1 Project Steering Committee

The established PSC for WBEDGMP under the chairmanship of Additional Chief Engineer (Distribution) of WBSEDCL, shall be used to monitor and review the progress of implementation of ESMP of each sub-project. Adl Chief Engineer (Distribution) WBSEDCL will be convener of this Committee.

This Committee should meet every quarter to review the progress made in the implementation of the ESMP of each sub-project and to solve any grievances of the APs including women and tribal peoples. This Committee will also provide policy related direction to the Grievance Redressal Cell and the participating departments with regard to ESMP.

9.2.2 Grievance Redressal Committee

The Grievance Redressal Committee (GRC) will be established at sub-project site level under the chairmanship of Divisional/Regional Manager, WBSEDCL for redressal of grievances of the APs. Sub-station In-Charge shall be the convener of this Committee. At the sub-project level, the

ESMP Implementing Agency (IA) i.e. contractor will provide support to this Committee. Block/Sub-division/District level head of all participating departments will be members along with a representative of APs including Indigenous Peoples and local NGOs/CBOs, if any.

It is proposed that the APs first register the grievances with the IA. After receipt of grievance, the IA should take them to the Committee to take up the matter during the next immediate meeting and initiate measures for redressal. No grievance can be kept pending for more than a month which means the Committee has to meet every month. Implementation of the redressal rests with the PIU. In case the aggrieved party is not satisfied with the proposed redressal measures, it can take approach the PSC. If the aggrieved party is not satisfied with the decision of PSC or at any stage can approach the court of law.

The proposed grievance redressal mechanism for WBEDGMP is presented in Table 9.5.

TABLE 9.5: GRIEVANCE REDRESSAL MECHANISM FOR WBEDGMP

Level	Agency	Time Period for Redressal of Grievances	Issues likely to Emerge	Responsibility
Sub-Project	Grievance Redressal Committee	Maximum of one month	• Air & Noise Pollution during construction activities • Debris/waste dumping • Encroachment • Crop Damage & Compensation • Access to CPRs • Temporary disruption of traffic & utility services	AP/Community Representative, Ward Members/DM/RM as Chairperson and Sub-station In-Charge as Convener
Corporate	Project Steering Committee	Maximum of three months		Head PIU, Adl CE (Dist), WBSEDCL, as Chairman, Member (Env & Social Issues), PIU-WBSEDCL as Convener

9.2.3 Court of Law

All APs/complainants who are not satisfied with the mechanism given above has option to avail legal recourse/ court of law to address their grievance at any stage.

9.2.4 Grievance Redressal Service of the World Bank

In addition to seeking to resolve their grievances through the GRM established at the government level, "communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redressal Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns.

Project affected communities and individuals may also submit their complaint to the WB's independent Inspection Panel, after having brought the complaint to the World Bank's attention through its GRS. Information on how to submit complaints to the World Bank's Grievance Redressal Service is available at http://www.worldbank.org/GRS. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

9.2.5 Mechanism Process

As mentioned in earlier section systematic Grievance Redress Mechanism (GRM) has been evolved for WBEDGMP which would be active for the entire life of the project.

All complaints would be registered by respective Engineer in charge of the site. The complaints can be registered verbally (in person), in writing or by mail or through Web Portal (www.wbsedcl.in). The addresses of the CCC/Divisional Offices/email/ Phone Number would be displayed at the site. The Mailbox would be set up for the purpose at all Customer Care Offices of WBSEDCL in selected districts for implementation of WBEDGMP. The complaints received would be recorded in a Register of Complaints along with the description of compliant, date, Name of the aggrieved along with the contacts. The decision/s regarding the complaint would also be recorded in the register. The decision regarding the Grievance would be communicated to him by Speed Post within 7 days of the decision being reached. The complainant would have 7 days from the receipt of the letter to approach the next level for reconsideration.

9.2.6 GRM Budget

All costs involved in resolving the complaints/grievances (meetings, consultations, communication and reporting/information dissemination) will be borne by the WBSEDCL; costs related to escalation of grievances to Court of Law would be met by WBSEDCL.

APPENDIX 1.1

Terms of Reference for ESIA Studies for Sub-projects under WBEDGMP

Sarbani Mitra

[DRAFT]Terms of Reference
West Bengal Electricity Distribution Grid Modernization Project
Environment & Social Consultants

1. Background - Project Description

West Bengal State Electricity Distribution Company Ltd. (WBSEDCL) is a power distribution licensee for almost the entire state of West Bengal, except for certain areas, which are catered by private distribution licensees. WBSEDCL accounts for about 80% of the power supply in the state and caters to almost 18.1 million customers. At present grid connectivity has been extended in every nook and corner of the state covering 99 percent villages and the low and medium voltage consumer base has seen a significant increase post implementation of rural electrification schemes. However, this has led to a steady increase in losses with Aggregate Technical and Commercial (AT&C) loss levels.

To achieve Power forAll (PFA) objective, the state has planned investments in modern ICT technologies (including operational technologies) across the complete electricity supply and demand chain to ensure efficiency and monitor reliable supply of power. The Government of West Bengal (GoWB) has sought World Bank assistance to support part of their investments in High Voltage Distribution System (HVDS), Underground Cabling across select districts/ towns (besides modern technologyand institutional capacity building) to facilitate increased availability of power, improve service delivery and reduce system losses and achieve the PFA objectives.

WBSEDCL now intends tohire a consulting firm to assist them to undertake the Project preparation activities w.r.t. due diligence of environment and social policy requirements of the World Bank's Environmental and Social Framework (ESF) and applicable Government of India (GoI)/GoWB's social and environmental legal framework.

2. Objectives of the Assignment

The overall objective of the assignment is to assist WBSEDCLto identify, assess, and implement environmental and social management measures in respect of the construction of sub-stations and drawing of distribution lines.To achieve this objective, the Consultant will conduct comprehensive environmental and social assessments (ESA)[1]to prepare, appropriate Environmental and Social Management Frameworks, Environmental and Social Management Plans, Stakeholder Engagement Plans and other associated safeguard documents for the specific identified investments(Annexure I) as per World Bank's ESF[2] and GoI/GoWB social and environmental legal requirements.

These will guide WBSEDCL to ensure that the project activities do not cause any harm, follow the applicable national and local regulations, as well as World Bank Environment and Social

[1] Guided by Environment and Social Management Framework (ESMF) to be developed for the project
[2] Available on the Internet @ http://www.worldbank.org/en/projects-operations/environmental-and-social-framework

Safeguard Standards (ESSs). The relevant portions of the ESMPs will be suitably integrated with the contract documents to facilitate smooth implementation during construction and operation phases.

3. Scope of Work

I. Task I: Preparation of Environment and Social Management Framework (ESMF)

3.1 The consultant in coordination with WBSEDCL would prepare an overall Environment and Social Management Framework(ESMF) for implementation of identified investment schemes to be undertaken with World Bank financing. This would include the following:

i. Review of the existing studies, including any previous safeguards documentation available in the context of West Bengal/ activities undertaken by WBSEDCL;
ii. Preparation baseline information database of existing biophysical and socio-economic condition for the project influence areas – from primaryand secondary sources;
iii. Review of the environmental and social legislative framework – national, state, local and the World Bank's ESSs- for the relevant aspects that the project activities would need to comply toand suitable changes to address any gaps that are found in existing practices;
iv. Identification and assessment of potential environmental and social impacts of project activities, including impacts of different technologies, locations, and other project controllable alternatives, on the natural environment, people, especially on tribal people, women;
v. Carry out social and environment screening sub -projects based on significance of impacts
vi. Formulation of management measures – following the hierarchy of Avoidance, Minimization, Mitigation for adverse/negative impacts, and Enhancement of Positive Impacts, for biophysical environment and social considerations, especially for tribal people and women;
vii. Identification of the main labor requirements and risks associated with the project, and help WBSEDCL to determine the resources necessary to address project labor issues;
viii. Mechanisms for citizen engagement/ consultation and beneficiary feedback;
ix. Mechanism for Redressal of Grievances;
x. Monitoring and Evaluation arrangements for implementation of the management plans;
xi. Review of the current institutional arrangements and capacity in WBSEDCL to implement the activities identified in the ESMF and recommendingsuitable capacity building measures;
xii. Preparation of high-level cost estimates to implement the ESMF;
xiii. Support WBSEDCL in undertaking consultations with stakeholders – including the various departments in the state government, NGOs, and local people in and around the areas where project investments will take place.
xiv. Guidance for undertaking sub-project specific ESAs, including scoping of the activities and outline of their contents

3.2 The data/ information shall be generated from both primary and secondary sources. This ESMF would conform to applicable Environment and Social Standards (ESS)[3] of the World Bank and would be prepared in a Bank approved format (as attached in Annexure II).

3.3 Public Consultations and Disclosure workshops

i. Throughout the preparation of ESMF, the Consultant will hold consultations with stakeholders to elicit explicitly the views of the community, beneficiary groups and womento ensure their participation at all stages of the project. These consultations at field level shall be explicitly documented (photograph, MoMs, number of participants disaggregated by gender etc.]as a chapter in ESMF.

ii. Further, post preparation of the draft ESMF, it wouldbe discussed in broad based stakeholder workshopat state level. The Consultant will support WBSEDCL in proper documentation of all theconsultations (with public notice of meeting, minutes of meeting, attendance list (gender disaggregated), photographs and how public comments have been addressed) and incorporate in the final report. The final report would be cleared by the World Bank and Board of the WBSEDCL.

iii. The consultants would also support WBSEDCL in discussing the feedback of the World Bank on the draft(s) and in suitably addressing the comments of the World Bank to get their clearance(s) on the same.

iv. The Consultants will also support WBSEDCL in disclosure of the draft and final version of the report at the offices of WBSEDCL, website of WBSEDCL and project areas.

v. The Consultant will prepare an Executive summary of the draft and final ESMF and translation of the Executive Summary in local language [Hindi and Bengali].

3.5 Expected Outputs from Task I

i. Environment and Social Management Framework

ii. Resettlement Policy Frameworkor RPF (including entitlement framework);

iii. Tribal Peoples Planning Framework (TPPF);

iv. Gender Development Framework (GDF);

v. Labor Management Procedure (LMP) - The purpose of the LMP is to facilitate planning and implementation of the project. The LMP identify the main labor requirements and risks associated with the project, and help WBSEDCL to determine the resources necessary to address project labor issues;

vi. Stakeholder Engagement Plan (SEP):focusing on describing the project and identifying its stakeholders; identifying what information will be in the public domain, in what languages, and where it will be located; explain the opportunities for public consultation, provide a deadline for comments, and explain how people will be notified of new information or opportunities for comment; explain how comments will be assessed and taken into account; describe the project's grievance mechanism and how to access this mechanism;

[3] For the purpose of this ToR, World Bank Environmental and Social Standards (ESS) are the following: ESS1 – Assessment and Management of Environmental and Social Risks and Impacts; ESS2 - Labor and Working Conditions; ESS3 – Resource Efficiency and Pollution Prevention and Management; ESS4 – Community Health and Safety; ESS5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources; ESS7 – Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities; ESS8 – Cultural Heritage; ESS9 – Financial Intermediaries; and ESS10 – Stakeholder Engagement and Information Disclosure.

provide for a mechanism to releasing routine information on the project's environmental and social performance, including opportunities for consultation and how grievances will be managed; and

vii. Environment and Social Commitment Plan (ESCP):The Consultant would assist the WBSEDCL to develop, by Project Appraisal, ESCP for agreement with the World Bank. The ESCP will mainly provide according to a specific timeframe (a) a list of management plans, based on ESA findings that borrower will develop and implement, (b) the appropriate plans and actions required for the project to meet ESSs requirements, (c) adaptive management process for changes in project scope and unforeseen circumstances, and (d) include targets and performance indicators for borrower's monitoring.

II. Task II: Preparation of Environment and Social Assessments (ESAs), including Environment and Social Management Plans (ESMP)

3.6 The consultant would undertake the environment and social assessments of the schemes identified for World Bank funding as per the ESMF.The ESA for the project will be undertaken with a view to manage the potential impacts of the proposed project activities on social and the bio-physical environment. The ESA shall cover the project design, implementation and operation phases. It will also be used to guide the preparation of specific environmental and social management plans.

The currently identified activities under the project – construction of substations as well as overhead and underground distribution lines can have impacts on several social and environmental attributes – flora/ground cover on site, including trees, fauna using the site as habitat/foraging area, land slope and drainage, use of non-renewable natural resources, energy intensive material, land pollution due to chemical mishandling, and health and safety of workers as well as nearby residents, among others. The construction of sub stations and distribution lines may require land; both public and private sources and may impact title, non-titleholders and community properties. The ESA will assess the land requirements and its impacts on people and assets. It will also cover climate change impacts, including estimates of GHG emissions (and/or reductions) for the project. The Consultant shall also evaluate the options available to increase the resilience of the infrastructure being created under the project to climatic change, including using environmentally friendly techniques like bioengineering.

3.7 In general, the ESAwould include the following:

i. The assessment would be prepared based on representative site visits under consideration across the various bio-geographical zones in the state – the coastal districts, the hills, and the forested areas
ii. Social Assessment–compiling socioeconomic profiles at state, district, village, sub project level;
iii. Stakeholder Analyses (Key Expectations, Impacts, Issues as related to each stakeholder) and public consultations
iv. Impact Assessment of positive and negative social impacts/risks likely to occur for different sub-groups or beneficiaries because of project interventions; and suggest measures to avoid/minimize/mitigate negative impacts and derive the maximum benefits from positive impacts;

v. Institutional Arrangements – document the existing institutional and implementation arrangements, covering all key entities – government departments, sector institutions, political bodies etc.;The institutional arrangement to cover role and responsibility of various players at project, district and state level; grievance redress mechanism; monitoring and evaluation plan including indicators; capacity building requirements to manage E&S issues; implementation schedule and budget;

vi. Analysis of citizen engagement and beneficiary feedback for incorporating at the design stage;

vii. The ESA shall cover the project design, implementation and operation phases.

viii. Each of the ESA reports prepared shall clearly document (MoMs, photographs etc.) of the various consultations that have been conducted in preparation of the ESA. Such consultations should be taken in each of the project intervention areas.

ix. The Consultant prepare of an Executive Summary of the draft and final ESA reports and translation of the same in local language(s).

x. The Consultants will also support WBSEDCL indisclosure of the ESAs at the offices and website of WBSEDCL and project areas.

3.9 EnvironmentalManagement Plans, Resettlement Action Plans, Tribal Development Plans (ESMPs):Based on the ESAs, the consultant shall prepare specific and separate EMPs, RAPs, TDPs as required for key activities – construction of substations, construction of HVDS lines, underground distribution lines, etc. ESMPs would include identified impacts and their selected mitigation measures, time frame, institutional responsibilities for implementation, supervision and monitoring. If appropriate, focused plans like one for Safety of workers and general public in the area, would also be prepared. These would be referred in the ESMP or annexed to the document. Cost estimates for the implementation and monitoring of the measures should also be included.

3.10 Preparation of relevant portions of the contract documents – BoQs, specifications for integration with the Bidding/Contract documents.

3.11 Expected Outputs from Task II

i. ESA and EMPs, RAPs, TDPs (ESMP reports)

ii. Relevant Contractual Stipulations in terms of specifications, Quantity estimates, and Implementation Schedule modification (where required)

4. Team Composition:

The team shall include the following key personnel:

Sr. No.	Position	Indicative Number of personnel to be deployed	Indicative Level of Effort person months
1	Team Leader	1	5
2	Environment Specialist(s)	1	5
3	Social Development Specialist(s)	1	5
4	Ecologist	1	3

Sr. No.	Position	Indicative Number of personnel to be deployed	Indicative Level of Effort person months
5	Pubic Consultation / Outreach Expert	1	3
6	Labour Management Expert	1	1
7	Power distribution Expert	1	3
8	Environment Associates	5	5
9	Social Associates	5	5

5. Deliverables, Timelines and Payment Terms

Sr. No.	Milestone	Timelines

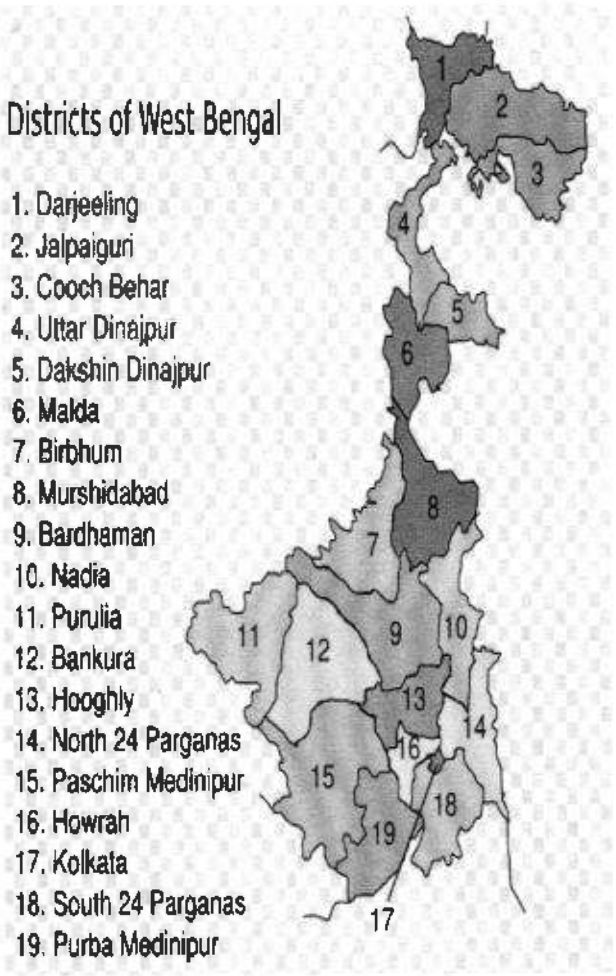
ANNEXURE - I

A TENTATIVE LIST OF SCHEMES TO BE COVERED UNDER WORLD BANK FUNDING

1. Distribution system strengthening by way of implementing High Voltage Distribution System (HVDS) in 13 districts (Alipurduar, Coochbehar, Jalpaiguri, Darjeeling, Raiganj, Dakhshin Dinajpur, Malda, Nadia, Howrah, Purba Midnapur, Bankura, Purulia, Murshidabad): Implementation of HVDS in semi-urban and rural areas of 13 districts of West Bengal by 63 KVA and 25 KVA DTRs at load centres after drawing 11kV line with ACSR conductor or AB cable and converting LT bare conductor to AB cable;

2. Construction of 33/11kV GIS Sub-stations: 15 number GIS sub-stations to be set up in the urban, semi urban/ rural areas of 13 no. districts of West Bengal, where HVDS work is proposed. (Alipurduar, Coochbehar, Jalpaiguri, Darjeeling, Raiganj, Dakhshin Dinajpur, Malda, Nadia, Howrah, Purba-Midnapur, Bankura, Purulia, Murshidabad);

3. Conversion of Overhead Network into underground cable system at Asansol Town (Burdwan) &Tamluk town (Purba Midnapur)



Annex II

Indicative Outline of ESA

a) Executive Summary
   Introduction
   Project Description
   Baseline Environment
   Anticipated Environmental Impacts and Mitigation Measures
   Alternatives
   Public Consultation and Information disclosure
   - Consultation to Date
   - Disclosure of documents

   Environmental Management Plan
   Conclusion and Recommendations

b) Introduction
   Background
   Purpose of the document/ESA

c) Legal and Institutional Framework
   Government Policy
   World Bank ESF
   International Treaties that need to be complied

d) Project Description
   Location
   Key Project Components
   Description of Alignment for transmission lines and locations for substations
   Project Design
   - Overhead conversion to HVDS sub-projects
   - GIS substations
   - Underground cabling works

   Volume of Civil Works
   Quarries and Borrow Sites
   Construction Camps
   Construction and Commissioning Processes
   Project Costs
   Implementation Timelines

e) Baseline Data
   Physical Resources
   - Climate
   - Topography and Landscape
   - Geomorphology
   - Geological hazards of the project area
   - Hydrology
   - Hydrogeology

   Ecological Resources
   - Flora
   - Fauna

- Protected Areas
- Migratory routes for Animals and Birds

Physical Environment Quality

- Water
- Air
- Noise
- Soil

Social Economic and Cultural Resources

f) Environmental and Social Risks and Impacts and Management
   - Preconstruction
   - Construction
   - Operation

   Preliminary assessment of climate change impact including GHG emissions
   Induced Impacts
   Cumulative impacts

g) Analysis of alternatives
   Overview
   Without Project Alternatives
   Alternative Analysis in Feasibility Study
   Alternative Analysis during Detailed Design
   - Study of Alternative Alignment where new alignments are proposed

h) Stakeholder Consultations and Disclosure
i) Environmental Management Plan
   a. Objective of EMP
   b. Methodology for EMP preparation
   c. Environmental and social risk and impacts
   d. Mitigation Measures
   e. Monitoring timing and performance indicator
   f. Capacity Building and Training
   g. Emergency Response Plans
   h. Reporting responsibility
   i. Grievance Redress Mechanism
   j. Implementation Schedules
   k. Cost Estimate
j) Inputs to Bid Documents – Specifications, Quantity estimates, Implementation Schedule
k) Measures and Actions for the Environmental and Social Commitment Plan (ESCP)
l) Key Appendices

[DRAFT]Terms of Reference
West Bengal Electricity Distribution Grid Modernization Project
Environment & Social Consultants

1. Team Composition – Suggested/ Indicative Key Qualification of Experts for Reference:

S. No.	Position	Educational Qualification	Relevant Experience
1	Team Leader	*Essential*: An advanced Degree (Post Graduate/Doctoral) in Environmental or Social Science or Management or development related field *Desirable*: Training in project management	*Essential* • Post Educational Experience of at least 15 years • Acted as Team leader in Environmental and Social Assessment of at least 2 projects • Working in at least 2 projects in infrastructure sector funded by the World Bank *Desirable* • Working in West Bengal on Linear Infrastructure projects • Working as Team leader of at least 2 projects in linear projects
2	Environmental Specialist	*Minimum*: Master's Degree or equivalent in Environment Sciences or related field	*Essential* • Minimum total work experience after post-graduation – 15 years • Minimum 7 years of experience in undertaking EIAs of development projects. • Experience of preparing EIA and management plans and supervising & monitoring implementation of the plans for linear infrastructure projects. *Desirable* • Should be familiar with World Bank's ESF and ESSs • Should be familiar with Environmental / Forest / Wild life clearance procedures and pertinent guidelines of Ministry of Environment & forests (MoEF), GoI. • Worked as Environmental Expert in at least two World Bank funded projects • Previous work in West Bengal

S. No.	Position	Educational Qualification	Relevant Experience
			would be given preference.
3	Social Development Specialist	*Minimum*: Master's Degree or equivalent in Social Sciences or related field	*Essential* • Minimum total work experience after post-graduation – 15 years • Minimum 7 years of total work experience on carrying out Social impact assessments and preparation of Resettlement Action Plans of linear development projects • Must have knowledge of the World Bank's guidelines, procedures and operational policies/directives. • Experience in preparation of RAP, gender plan, LMP, community consultations and IPDP. *Desirable* • Social/resettlement expert in at least two World Bank funded projects • Familiarity with project area and local language will be advantageous
4	Ecologist	*Minimum:* Master's Degree or equivalent in biology or Ecology or related field *Desirable:* Doctoral Degree in Ecology with focus on terrestrial ecology	*Essential* • Minimum total work experience after post-graduation – 15 years • 7 years of total work experience on carrying out conducting ecological impacts assessment for linear infrastructure located in areas with similar types of biodiversity values • Experience as Ecologist in at least two projects funded by World Bank or international financial institutions *Desirable* • Must be familiar with requirements of World Bank ESSs - ESS 6 on Biodiversity Conservation and Sustainable Management of Living Resources • Must have the experience of preparing Biodiversity management plans and supervising & monitoring implementation of the plans.

S. No.	Position	Educational Qualification	Relevant Experience
5	Labour Management Expert	Minimum:Bachelor's Degree or equivalent in Social Sciences or Industrial relations or related field	• At least 7 years of experience in management of labour in construction projects and dealing with regulatory requirements around it • Experience in infrastructure projects, particularly power transmission and distribution would be preferable
6	Pubic Consultation / Outreach Expert	Minimum:Master's Degree or equivalent in Social Sciences or communication or related field	• At least 7 years of experience in undertaking consultations with diverse stakeholders, with proficiency in the local language. • Preference will be given to persons with experience of working on projects supported with multilateral/bilateral funding agencies
7	Power Distribution Expert	Minimum:Bachelor's Degree or equivalent in Electrical Engineering	• At least 7 years of experience in planning, and implementation of DMS sub-station, HVDS and Underground cabling projects (33 kV and below)

APPENDIX 3.1

Policies & Regulations Applicable to Sub-projects Under WBEDGMP-ENVIRONMENTAL

APPENDIX 3.1
POLICIES & REGULATIONS APPLICABLE TO SUB-PROJECT UNDER WBSEDGMP - ENVIRONMENTAL

The National and State policies and regulations related to environment are presented in the following sections:

Constitution of India

Article 51 A(g) indicate that it will be the duty of each citizen of India to protect and improve the natural environment including forest, lakes, rivers and wildlife and to have compassion for all living creatures.

Article 48 A of the Constitution requires the State should protection and improvement of environment and safeguarding forest and wildlife.

To uphold the principle, legislations have been enacted which have implication of the planning, construction, operation and maintenance of transmission and distribution lines. The spirit of the legislation has further been clarified through administrative notifications and judgments in different courts of laws. These legislations, notifications and judgments pertaining to environmental protection are described below.

The Electricity Act 2003

The Electricity Act, 2003 provides the framework to transform the power sector in India by measures propitious to the industry. However, the Act does not explicitly deal with environmental implications of various activities associated with distribution of power and construction of substation. WBEDGMP shall integrate the environmental and social protection/aspects as a part of its project activities while planning, designing, implementation operation and maintenance of its Distribution and substation schemes based on Environmental and Social Standards (ESS) of The World Bank. The applicable legal provisions under the act are:

- **Section 67 –**Under this section, the licensee (i.e. WBSEDCL) is given the provision to open up streets, railways, lay down and place electric lines, plants and other acts necessary for supply of electricity. Under section (u/s) 67(3) of EA, 2003 a licensee can cause as little damage, detriment or inconvenience as may be and shall make full compensation for the same and the difference/disputes related to such compensation are to be determined by the appropriate commission as mentioned under section (u/s) 67(4).

- **Section 68 –** Under this section, prior approval of the Govt. of West Bengal under section

(u/s) 68(1) of EA, 2003 is a mandatory requirement to undertake any new Distribution project in the State which authorizes WBSEDCL to plan and coordinate activities to commission a new Distribution project. Further, under section (u/s) 68 (5,6) of EA, 2003 any tree (shrub, hedge, jungle or other plants) near distribution line which interrupts or interferes with transmission or other works can be removed on application of the licensee by authority specified by the Govt. of West Bengal while awarding reasonable compensation to the person interested in the tree.

- **Section 164–** Under this section West Bengal Government, may by order in writing, authorize WBSEDCL for the placing of electric lines or plants for the Distribution of electricity confer upon licensee (i.e. WBSEDCL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as West Bengal Government may think fit to impose and to the provisions of the Indian Telegraph Act, 1885, any of the power which the Telegraph authority possesses for the purpose of a telegraph to be established or maintained by the Govt. of West Bengal

Rights of Way and Compensation under Electricity Act, 2003

The act has a provision for notifying Distribution company under section 164 to avail benefits of eminent domain provided under the Indian Telegraph Act, 1885.

- **Section 10** –The section10(d) of Indian Telegraph Act, 1885 ensures full compensation to all persons interested for any damage sustained by concerned authority. So, any damage that would be done on any person's property will be compensated by the authority.

- **Section 18** –The details on tree cutting compensation are described on Section 18 of Indian Telegraph Act, 1885.

Environment (Protection) Act, 1986

The Environment (Protection) Act 1986 was introduced as umbrella legislation for the protection and improvement of environment. The Act and the Rules require that environmental clearance is obtained for specific types of new projects or expansion of existing projects (addressed under Environmental Impact Assessment Notifications, 1994 and 2006) and for submission of an environment statement to the State Pollution Control Board (SPCB) annually.However, Environmental clearance is not applicable to power Distribution project.

Distribution lines are not listed as an activity under the EIA Notification 2006 and hence do not require an EIA to be conducted. However, they require complying with some of the provisions of the Environment (Protection) Act 1986. WBEDGMP will comply with these provisions and will function within permissible standards of ambient air quality and noise levels as prescribed by

national laws.The other relevant rules and regulations under the Environment (Protection) Act 1986 applicable to the operations of WBEDGMP are describedbelow:

Ozone Depleting Substances (Regulation and Control) Rules,2000

By notification dated 17th July 2000 under the Environment (Protection) Act 1986, the MoEF&CC has notified rules for the regulation/ control of Ozone Depleting Substances (ODS) under the Montreal Protocol. As per the notification, certain control and regulation has been imposed on manufacturing, import, export, and use of these compounds. WBSEDCL shall follow the provisions of the notification and shall phase out all equipment, which uses these substances, and shall aim for CFC free organisation in the near future.

Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

These rules classify used oil as hazardous waste, thus would require proper handling and disposal. WBSEDCL would abide by the provisions of these rules during the handling of used transformer oils. In case it is decided to outsource the process of recycle of used oil to registered recycler as per the provisions of notification. WBSEDCL shall submit the desired return in prescribed form to concerned State Pollution Control Board at the time of disposal of used oil.

E-Waste (Management) Rules, 2016

It is the responsibility of the bulk consumer to ensure that e-waste generated is channelized through collection centre or dealer of authorised producer or dismantler or recycler or through the designated take back service provider of the producer to authorised dismantler or recycler. WBSEDCL, being a bulk consumer of electrical and electronics equipment shall maintain the record as per Form-2 for scrutiny by State Pollution Control Board. WBSEDCL, being the bulk consumer of electrical and electronic equipment listed in Schedule I of the Act, shall file annual returns in Form-3, to the West Bengal State Pollution Control Board on or before the 30th day of June following the financial year.

The Biological Diversity Act 2002

The GoI has enacted the Biological Diversity Act, 2002, following the Convention on Biological Diversity signed at Rio de Janeiro in 1992 of which India is a party.

This act is not directly applicable to Distribution projects because it deals with the conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith. However, WBSEDCL is fully conscious of the provisions of this enactment and will avoid locating projects in areas identified for conservation.

West Bengal Biological Diversity Rules 2007

Pursuant to the provisions of the Act, the State is empowered to formulate the rules. The state is empowered to "lay down procedure and guidelines to govern the activities" in areas which are rich in bio-diversity.

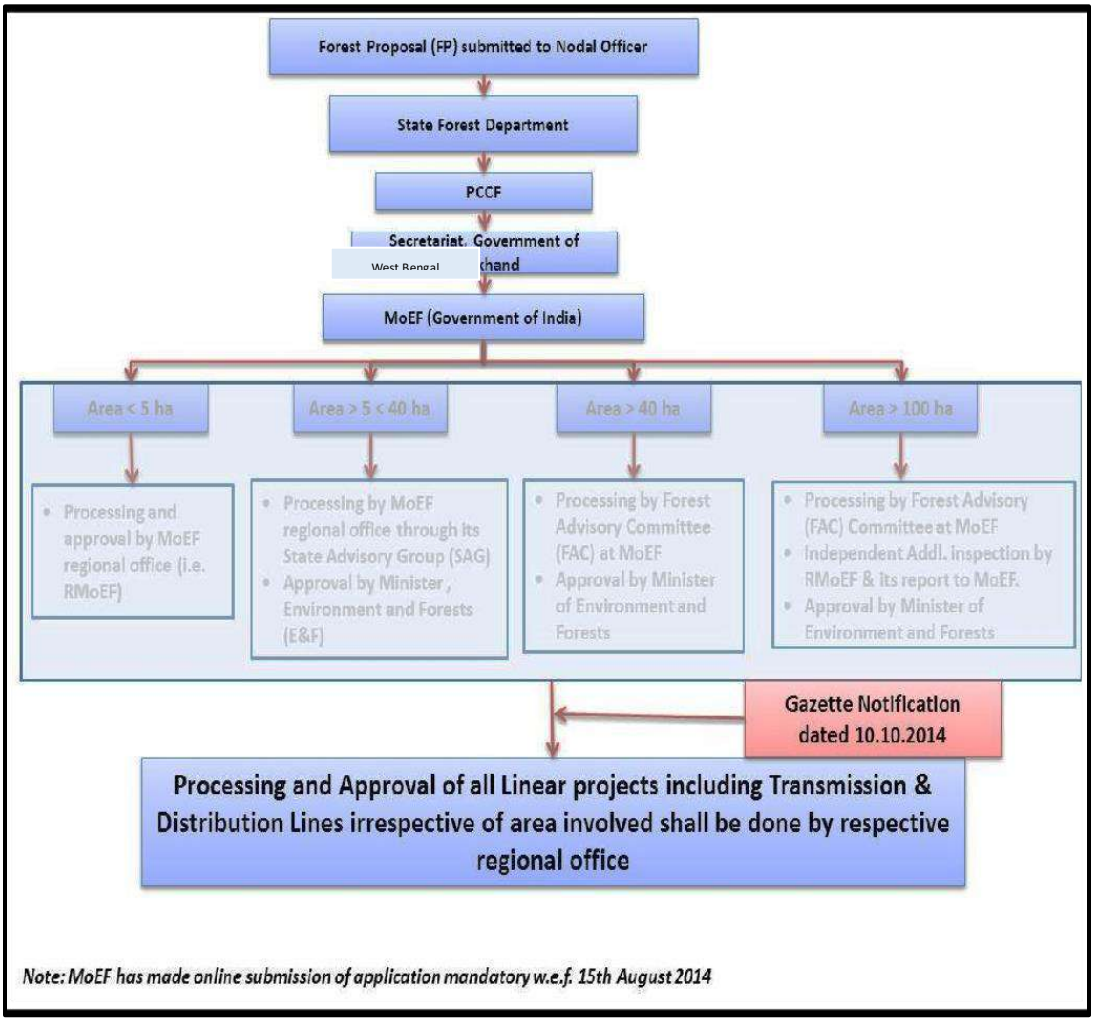
Wildlife Protection Act, 1972, as amended

The Act provides for the protection of wild animals, birds and plants and would also include the activities which can have impacts on wildlife. The provisions of the Wildlife Act have father been elaborated through the different judgments in the Courts of law and the notifications issues by MoEF&CC from time to time. WBSEDCL would abide by the provisions of the act as also the judgment/circulars provided under the Act. Supreme Court in its order dated 13th November 2000 adjudicated that for consideration of Distribution projects involving diversion of land within any notified ecologically sensitive areas viz. National Parks, Bioreserves,Wild Life Sanctuaries etc. recommendation/ permission of Standing Committee of National Board of Wild Life (NBWL) is mandatory as per the WLP and associated Court rulings.

Forest Conservation Act, 1980 & Forest Conservation Rules, 2003 (as amended) & corresponding orders and judgements

This Act provides for the conservation of forests and regulates the diversion of forest land to non-forestry purpose. When any Distribution line traverses forest land, prior clearance is mandatorily required from Ministry of Environment, Forests& Climate Change (MoEF&CC), GoI under the Forest (Conservation) Act, 1980. The approval process of forest clearance in brief, as per set procedure in the guideline under the act and rules is shown in figure below.

Forest Clearance Approval Process



Note: MoEF&CC has made online submission of application mandatory w.e.f. 15th August 2014

Guidelines for Laying Transmission & Distribution Lines through Forest Areas

Efforts are usually made to avoid forest areas during the planning of Distribution lines. However, if it is unavoidable the efforts should be made to adopt such a route of Distribution line which involves minimum disturbance to the natural habitats. Guidelines to these effects have been issued by MoEF&CC. WBEDGMP would follow those guidelines for maintaining width of Right of Way (RoW) and other clearances.

Right of Way (RoW) corridor for the Distribution line, allows the utility to provide clearance from trees, buildings and other structures to ensure that there is no interference with line installation, maintenance and operation. RoW is dependent on the line voltage. The maximum permissible width of RoW on forest land and minimum clearance between Trees and conductors as specified in MoEF&CC guidelines are presented in table below respectively.

Width of ROW of Distribution Line Passing on Forest Land

Sl. No.	Distribution Voltage (In kV)	Width of Right of Way (RoW) (in meter)
1.	11 kV	7
2.	33 kV	15

Source: http://forestsclearance.nic.in/writereaddata/Addinfo/0_0_31119125212231GUIDELINES.pdf

Guidelines for diversion of forest land for non-forest purposes under the Forest (Conservation) Act, 1980- Guidelines for laying Distribution lines through forest Areas - reg., F. No.7-2s/ 29I2-FC, Government of India, Ministry of Environment and Forests (FC Division), Dated: 5a May, 2014

In the width of Right of Way (RoW) trees has to be felled or lopped to the extent required, for preventing electrical hazards by maintaining the following clearance as per MoEF&CC guidelines.

Clearance Between Conductor of Distribution Line and Trees

Sl. No.	Distribution Voltage (In kV)	Minimum clearance between conductor and trees (in meter)
1.	11 kV	2.6
2.	33 kV	2.8

Source:*http://forestsclearance.nic.in/writereaddata/Addinfo/0_0_31119125212231GUIDELINES.pdf*

Guidelines for diversion of forest land for non-forest purposes under the Forest (Conservation) Act, 1980- Guidelines for laying Distribution lines through forestAreas - reg., F. No.7-2s/ 29I2-FC, Government of India, Ministry of Environment and Forests (FC Division), Dated: 5a May, 2014

For obvious reasons of safety and grid maintenance, there must be a minimum distance between any building (or other structure) and the power system equipment at all times which should follow the rules as mentioned in Indian Electricity Rules as follows:

Clearance Between Conductor of Distribution Line and Buildings

Sl. No.	Distribution Voltage (In kV)	Description	Minimum clearance between conductor and trees (in meter)
1.	Up to 11 kV	Line passes above the building a vertical clearance	2.5
2.	Up to 11 kV	The horizontal clearance between the nearer conductor and any part of such building	1.2
3.	11 kV to 33 kV	Line passes above or adjacent to any building or part of a building	3.7
4.	11 kV to 33 kV	The horizontal clearance between the nearer conductor and any part of such building	2.0

Source:*https://kupdf.net/download/is-5613-2-1-2002-design-of-overhead-power-lines-up-to-220-kv_58f60fb6dc0d607d76da981d_pdf*

A major goal of overhead power line design is to maintain adequate clearance between energized conductors and the ground so as to prevent dangerous contact with the line, and to provide reliable support for the conductors, resilience to storms, ice loads, earthquakes and other potential damage causes. To avoid this, following guidelines as given in IS: 5613 are to be followed:

Permissible Minimum Ground Clearance of Electrical Line

Sl. No.	Distribution Voltage	Description	Minimum ground clearance (in meter)
1.	Low and Medium Voltage	Minimum height of any conductor of an overhead line across any street	5.8
2.	Low and Medium Voltage	Minimum height of any conductor of an overhead line along any street	5.5
3.	Low and Medium Voltage	Minimum height of any conductor (bare) of an overhead line erected elsewhere	4.6
4.	Low and Medium Voltage	Minimum height of any conductor (insulated) of an overhead line erected elsewhere	4.0
5.	High Voltage	Minimum height of any conductor of an overhead line across any street	6.1
6.	High Voltage	Minimum height of any conductor of an overhead line along any street	5.8
7.	High Voltage	Minimum height of any conductor (bare) of an overhead line erected elsewhere	4.6
8.	High Voltage	Minimum height of any conductor (insulated) of an overhead line erected elsewhere	4.0

Source: *https://law.resource.org/pub/in/bis/S05/is.5613.1.1.1985.pdf*

A minimum distance between two power lines are maintained for the safety of the distribution line from insulation breakdown of air. This should follow the minimum clearance as mentioned below:

Minimum Clearances Between Electrical Lines Crossing each Other (as per IS:5613)

Distribution Voltage (In kV)	22 kV	33 kV	66 kV	110 kV	132 kV	220 kV
11 kV	2.44 m	2.44 m	2.44 m	2.75 m	3.05 m	4.58 m
33 kV	2.44 m	2.44 m	2.44 m	2.75 m	3.05 m	4.58 m

Source: https://kupdf.net/download/is-5613-2-1-2002-design-of-overhead-power-lines-up-to-220-kv_58f60fb6dc0d607d76da981d_pdf

The minimum height above rail level of the lowest portion of any conductor of a crossing, including guard wire, under conditions of maximum sag shall be as per Indian Railways Regulation, 1987 as follows:

Vertical Clearance between Overhead Lines and Railway Tracks

Sl. No.	Distribution Voltage (In kV)	Minimum Clearance (in meter)
1.	11 kV	Normally by Cable
2.	33 kV	14.10

Source: http://www.indianrailways.gov.in/railwayboard/uploads/codesmanual/ACTraction-II-P-II/AcTractionIIAppendix4.htm

A minimum distance between conductors are maintained to avoid sparking in distribution line. The spacing between conductors are influenced by the rated voltage of the line. IS:5613(Part 2/Sec 1) specifies the clearance between conductors of 33kV distribution system.

Conductor Spacing in 33kV System

Sl. No.	Distribution Voltage (In kV)	Minimum Electrical Clearance Between Conductors (in meter)	
		Vertical	Horizontal
1.	33 kV(Single Circuit on poles)	1.5	1.5
2.	33 kV(Single or Double Circuit)	1.5	1.5

Source: https://kupdf.net/download/is-5613-2-1-2002-design-of-overhead-power-lines-up-to-220-kv_58f60fb6dc0d607d76da981d_pdf

Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006

The act recognizes and vests the forest rights and occupation in forest land to forest dwelling. Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded, and provides for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land.

The definitions of forest dwelling Schedule Tribes, forestland, forest rights, forest villages, etc. have been included in Section 2 of the Act. The Union Ministry of Tribal Affairs is the nodal agency for implementation of the Act while field implementation is the responsibility of the government agencies. The applicability of the act linked with forest clearance process under Forest (Conservation) Act, 1980 shall be followed by WBSEDCL.

PROCEDURE FOR MANAGEMENT OF HAZARDOUS WASTE & E-WASTE

PURPOSE

The purpose of this document is to control and minimize risks while collecting, storing and handling of hazardous waste and electronic waste in accordance to the Government Regulation [E-Waste (Management) Rules, 2016 and Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016] and WBSEDCL's policies.

SCOPE

Scope of this document has been defined to consider hazardous waste (mainly used transformer oil) and e-waste (e.g., electronic appliances such as computers, printing machine, electronic meter and other equipments) generated from distribution system and GIS substation. In case of any change or modification in the operation of WBSEDCL, waste inventory and this document shall be updated.

PROCEDURE

Procedure for Management of E-waste

- WBEDGMP shall identify and shall keep inventory of different type of electronic waste (refer table below) generated from its operation;

- WBEDGMP shall maintain record of e-waste in **Form-2** (***Appendix 2***) of E-Waste (Management) Rules, 2016 and shall make available such record for scrutiny by West Bengal State Pollution Control Board (WBPCB), whenever requested for;

- For storing of e-waste, WBEDGMP shall follow following process:

  - E-waste should be stored in an area that is weather proof and restricted for unauthorized person;
  - E-waste should be stored away from any storm water drains.
  - Sorting areas shall be regularly cleaned and at the end of the day the facility must be swept;
  - Make sure e-wastes are collected regularly or taken to a recycler on time;
  - Different e-waste items shall be stored separately in different container/designated storage area and there should be no mixing of different kinds of e-waste;
  - All the container/ designated storage area shall be clearly labeled;

- WBEDGMP shall channelize e-waste through collection centre or dealer of authorised producer or through designated take back service provider of the producer (1) to authorised dismantler or recycler;

- WBEDGMP shall ensure that end-of-life (1) electrical and electronic equipment as listed in table below are not mixed with e-waste containing radioactive material as covered under the provisions of the Atomic Energy Act, 1962 and rules made there under;

- Discarded equipment containing radioactive material shall be treated/disposed as per the provision of Atomic Energy Act 1962 or provision of permission issued by Atomic Energy Regulatory Board (AERB);

- For electrical and electronic equipment listed in table below, WBEDGMP shall file annual returns in **Form-3** (***Appendix 3***) of E-Waste (Management) Rules, 2016 to the West Bengal State Pollution Control Board (WBPCB) on or before the 30thday of June following the financial year to which that return relates.

(1) Agency authorised by the producer of the electronic item who take back the 'end-of-life' (the time when the product is intended to be discarded by the user) electronic item.

Categories of electrical and electronic equipment including their components, consumables, parts and spares covered under the e-waste (Management) Rules, 2016

Sl. No.	Categories of electrical and electronic equipment	Electrical and electronic equipment code
i.	**Information technology and telecommunication equipment**	
	Centralised data processing: Mainframes, Minicomputers	ITEW1
	Personal Computing: Personal Computers (Central Processing Unit with input and output devices)	ITEW2
	Personal Computing: Laptop Computers(Central Processing Unit with input and output devices)	ITEW3
	Personal Computing: Notebook Computers	ITEW4
	Personal Computing: Notepad Computers	ITEW5
	Printers including cartridges	ITEW6
	Copying equipment	ITEW7
	Electrical and electronic typewriters	ITEW8
	User terminals and systems	ITEW9
	Facsimile	ITEW10
	Telex	ITEW11
	Telephones	ITEW12
	Pay telephones	ITEW13
	Cordless telephones	ITEW14
	Cellular telephones	ITEW15
	Answering systems	ITEW16
ii.	**Consumer electrical and electronics**	
	Television sets (including sets based on (Liquid Crystal Display and Light Emitting Diode technology)	CEEW1
	Refrigerator	CEEW2
	Washing Machine	CEEW3
	Air-conditioners excluding centralised air conditioning plants	CEEW4
	Fluorescent and other Mercury containing lamps	CEEW5

Source: Schedule I of E-Waste (Management) Rules, 2016

(1) 'end-of-life' of the product means the time when the product is intended to be discarded by the user

Procedure for Management of Hazardous Waste

- WBEDGMP shall identify and shall keep inventory of different type of hazardous waste generated from its operation;

Type of Hazardous Waste

Sl. No.	Hazardous Waste
1	• Used oil and waste oil
2	• Empty barrels/containers contaminated with hazardous chemicals/wastes • Contaminated cotton rags or other cleaning materials
3	• Mercury-switches
4	• Activated glass cullets from cathode-ray tubes and other activated glass and PCB-capacitors
5	• Any component contaminated with cadmium, mercury, lead, polychlorinated biphenyl having characteristics as described in ***Appendix 1***.

Source: Schedule I, Schedule III and IV of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

- WBEDGMP shall obtain authorization for generation and storage of hazardous waste from WBPCB. For this authorization, WBEDGMP shall make an application to WBPCB in **Form 1** (***Appendix 4***) as prescribed in the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. In case of renewal, WBEDGMP shall make the application to WBPCB in **Form 1**(***Appendix4)*** along with conditions specified in the authorisation for hazardous waste.

- For storing of hazardous waste, WBEDGMP shall follow following process:
  - The storage area should be provided with concrete floor;
  - The storage area floor should be provided with secondary containment;
  - Proper slopes as well as collection pit to be provided in the storage area to collect wash water and the leakages/spills etc;
  - In case of leakage/spills, following procedure should be followed:

- At the foremost, to try and eliminate the source of the spill by adopting any of the following measures e.g. i) up-righting drums or other containers, ii) closing valves, or other similar actions;

- Prevent the oil from spreading or entering drains by absorbing flowing oil or diking the area with sand bags, jute/cotton mats, or berms;

- Spread absorbent material e.g., sawdust over the surface of the spill from the perimeter of the spill to its centre; and

Contaminated absorbents containing diesel fuel etc., shall be stored in drums and disposed-off as hazardous waste.

  - Storage area should be provided with the flameproof electrical fittings;

  - Automatic smoke, heat detection system should be provided in the sheds;

  - Adequate firefighting systems (ABC type fire extinguisher) should be provided for the storage area; and

  - The Storage area shall be designed in such a way that the floor level is at least 150 mm above the maximum flood level.

- WBEDGMP shall maintain a record of hazardous waste in **Form 3** (***Appendix 5***) of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and prepare and submit an annual return containing the details specified in **Form 4** (***Appendix 6)*** in this rule to the WBPCB, on or before the 30th day of June following the financial year to which that return relates.

- WBEDGMP shall make an agreement with authorised common Hazardous and Other Waste Treatment Storage and Disposal Facility (TSDF) (1) and handover hazardous waste to that TSDF, on or before 90 days last date of disposal or accumulated quantity of 10 ton whichever is earlier.

- WBEDGMP shall provide the transporter of the hazardous waste with the relevant information e.g., nature of the wastes and measures to be taken in case of an emergency, in Form 9 and shall label the hazardous and other wastes containers as per Form8.

- While sending hazardous waste, WBEDGMP shall prepare and sign seven copies of the manifest in Form 10 comprising of colour code as indicated in below table:

Colour code of Manifests to generated /maintained

Copy number with colour code	Purpose
Copy 1 (White)	To be forwarded by the sender (WBSEDCL) to the State Pollution Control Board (WBPCB) after signing all the seven copies.
Copy 2 (Yellow)	To be retained by the sender (WBSEDCL) after taking signature on it from the transporter and the rest of the five signed copies to be carried by the transporter.
Copy 3 (Pink)	To be retained by the receiver (actual user or treatment storage and disposal facility operator) after receiving the waste and the remaining four copies are to be duly signed by the receiver.
Copy 4 (Orange)	To be handed over to the transporter by the receiver after accepting waste.

(1) common facility identified and established individually or jointly or severally by the State Government, occupier, operatorofafacilityoranyassociationofoccupiersthatshallbeusedascommonfacilitybymultipleoccupiersoractual users for treatment, storage and disposal of the hazardous and other wastes.

APPENDIX 3.2

Policies & Regulations Applicable to Sub-project under WBEDGMP-SOCIAL

APPENDIX 3.2
POLICIES & REGULATIONS APPLICABLE TO SUB-PROJECTS UNDER WBEDGMP - SOCIAL

The National and State policies and regulations related to various social issues are presented in the following sections:

LEGAL REQUIREMENTS-SOCIAL

Fifth Schedule

The basic thrust of the Fifth and Sixth Schedule of the constitution is the protection of cultural distinctiveness of Tribal. It also provides protection to the tribal on account of their economic disadvantages so that they could maintain their tribal identity without any coercion or exploitation. The interests of Schedule Tribes outside the North east are protected by Fifth Schedule The fifth schedule designates "Schedule areas" in large parts of India in which the interests of the "Scheduled Tribes" are to be protected. The Scheduled area has more than 50 percent tribal population.

The Fifth Schedule being a very important provision of the constitution deals with the control and administration of the Schedule Areas. Some of the important features of the Schedule are:

- It deals with provision for the constitution of a Tribes Advisory Council.
- The Governor has the power to adapt laws passed by Parliament and State legislature in such a way that it suits these areas.
- It provides Governor with the power to make regulation for good governance and peace for the area.

The Fifth Schedule also deals with the extension of direction by the Union to a State for the administration of the Schedule Areas.

Land Purchase Policy of Govt of WB

Government of West Bengal issued policy in 2016 for procurement of land required for important infrastructure projects to ensure the timely implementation of such projects where, direct land purchase from land owners may become necessary. As per the notification the Government may consider, in rural and/or urban areas through Zilla

Parishad/MunicipaIity/Municipal Corporation/ other Government bodies and parastatals, as the case may be, by adopting the following procedures:

(i) The administrative department(s) will take concurrence of the Standing Committee on Industry, Infrastructure & Employment before going ahead with the purchase of land indicating its tentative location, quantum and financial involvement. In terms Of Finance Department Memorandum No. 862-FB Dated 14/10/2015, the administrative department shall get the proposal vetted by the Finance Department before placing it for Cabinet approval.

(ii) A 15-day local notice mentioning preference and details of land intended for purchase shall be given in the public offices and local newspaper(s) informing the prospective land owners and requesting them to submit application in plain paper indicating their intention to sell their lands.

(iii) The department concerned will select the appropriate plot(s) of the land to be purchased as per suitability and other considerations from among the applications/offers received on the basis of the notice.

(iv) The relevant administrative department will undertake land searching through the panel advocate(s) at the respective sub-registry office to guard against fraudulent transfer. Besides, the BL & LRO will verify the right and title of the selected lands within 14 days and shall furnish report in the enclosed format to the Purchase Committee.

(v) Land would be purchased through the Zilla Parishad/Municipality/Municipal Corporation/ Parastatal as may be decided by the administrative department(s).

(vi) Funds will be allotted to the Zillaparishad/Municipality/MunicipaI Corporation/Parastatal by the administrative department for payment to land owners and payment will be made to their bank accounts. An appropriate administrative cost will be given to Zilla Parishad/Corporation by the administrative department

(vii) A committee of the following officials will finalize the price of land for the purchasing department :

a) District Magistrate of the district — Chairperson
b) DL & LRO — Member
c) Special LAO — Member
d) Two members from the concerned Panchayat Samity to be nominated by the Chairperson —Members
e) FC & CAO, Zilla Parishad — Member
f) Representative of administrative department/RB — Member
g) District Registrar — Member
h) Secretary Zilla Parishad —Member Secretary

In case of purchase of land for Municipal areas, the Chairman of Municipality will also be a Member of the Committee in place of the members of Panchayat Samities as in SI. (d).

(viii) For areas under Municipal Corporations the Purchase Committee will be as follows :

a) District Magistrate — Chairperson

b) Mayor — Member

c) Municipal Commissioner / CEO, Corporation —Member

d) DL & LRO/1st LA Collector — Member

e) District Registrar — Member

f) Special LAO — Member

g) Two members from Ward Councillors to be nominated by the Chairperson - Members

h) Chief Municipal Auditor, Corporation — Member

i) Representative of administrative department/RB - Member

j) Secretary, Corporation — Member Secretary

(ix) As regards the direct purchase of land by parasatals/ development authorities like WBSEDCL, WBSETCL, etc the administrative depanment shall obtain concurrence of the Standing Committee on Industry, Infrastructure and Employment as in Para 3(i)(a) and thereafter the Parastatal / Development Authority shall move the proposal before the Purchase Committee as in para (vii) and para (viii), as the case may be.

(x) Value of buildings/structures, would be assessed by the Executive Engineer, PWD/MunicipaI Engineering Directorate/ District Engineer/Executive Engineer, Zilla Parishad or by such agency as the administrative department may decide.

(xi) The base price of the land will be determined taking into account the assessed value of land or set forth value of land whichever is higher. Incentive on the price of land finally determined will be given to the land owner if land registration is done: (a) within 30 days - 50% (b) within 31 to 60 days - 10%, from the date of publication/ communication of land price to the landowners. For this purpose, individual land owner will be informed of the price of land in writing by the Member-Secretary of the Land Purchase Committee, for registration of sale deed.

(xii) After the purchase of land from the land owners, land will be registered in the name of Zilla Parishad/ MunicipalityMunicipal Corporation/ Parastatal. Thereafter, Zilla ParishaUMunicipality/ Municipal Corporation/ Parastatal, as the case may be, could formally transfer the land in favour of administrative department(s).

(xiii) Care would be taken by the Zilla Parishad/ Municipality/MunicipaI Corporation/ParastataI to ensure that the entire transaction is fair and transparent and it is based on mutual consent. There shall be no element of coercion.

(xiv) Stamp duty shall be exempted for such purchase of land by Zilla Parishad/ Municipality/ Municipal Corporation/ Parastatal and also for subsequent transfer to administrative department(s).

(xv) In case, the aforesaid Purchase Committee fails to perform its functions within a reasonable time, the administrative department would be free to use any Corporation /Parastatal / Authority under its control to purchase the land on the same terms & conditions as prescribed above.

Ancient Monuments & Archaeological Sites and Remains Act, 2016

The Act has been enacted to prevent damage to archaeological sites and its maintenance. It also places restriction on activities which can cause harm to the monument /property. The law is however applicable only in monuments identified by the Archaeological Survey of India.

Indian Treasure Trove Act, 1878

This act interprets treasure as anything of value hidden in the soil and provides for procedures to be followed in case of finding of any treasure, archaeological artefacts etc. during excavation.

West Bengal Ancient Monuments and Archaeological Sites, Remains and Art Treasures Act, 2016

This Act prevents construction of any structure or building or carrying out mining, quarrying, excavating, blasting or any operation of a like nature inside archaeological site.

Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006

The act recognizes and vests the forest rights and occupation in forest land to forest dwelling. Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded, and provides for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land.

The definitions of forest dwelling Schedule Tribes, forestland, forest rights, forest villages, etc. have been included in Section 2 of the Act. The Union Ministry of Tribal Affairs is the nodal agency for implementation of the Act while field implementation is the responsibility of the government agencies. The applicability of the act linked with forest clearance process under Forest (Conservation) Act, 1980 shall be followed by WBSEDCL.

HEALTH SAFETY REQUIREMENTS

Contract Labour (Regulation & Abolition) Act 1970

The Act applies to every establishment in which 20 or more workmen are presently employed or were employed on any day on the preceding 12 months as contract labour. It however does not apply to establishments where the work performed is of intermittent or casual nature. WBSEDL and its contractors or sub-contractors would abide by the provisions of the act.

The Child Labour (Prohibition and Regulation) Act, 1986

This Act prohibits employment of children below 15 years of age. WBSEDL its contractors and sub-contracts would abide by the provisions of the act. No child labour would be directly or indirectly employed in the project.

Minimum Wage Act, 1948 and Contract Labour Revised Wage Notification of Government of West Bengal dated 14th December 2016

This Act provides for fixing minimum rates of wages in certain employments. Based on this Act, West Bengal Government notifies minimum wage rate from time to time. WBSEDCL and its contractor would pay to all the labourers as per the minimum wage notified by labour department of Government of West Bengal.

The Payment of Wages Act, 1936, as amended

As per the notification dated 28th January 2017 of Government of West Bengal, every industry or other establishment should pay wages to all the employees by the cheque or by crediting the wages in his/her bank account.

Bonded Labour System (Abolition) Act, 1976

This Act provides for abolition of bonded labour system with a view to preventing the economic and physical exploitation of the weaker sections of the people. WBSEDL and its contractors would abide by the provisions of the act.

Grievance Redressal Policy under Industrial Disputes Amendment Act, 2010

Industrial Disputes Amendment Act, 2010 provides for establishment of Grievance Redressal Committee for the resolution of disputes arising out of individual grievances. WBSEDL and its contractors would abide by the provisions of the act.

Employees' Provident Fund and Miscellaneous Provisions Act, 1952

This Act mandates provision of provident in all the establishment employing 20 or morepersons. This Act will be applicable to WBSEDL's contractor employing 20 or more persons.

Employees State Insurance Act, 1948

This Act provides for certain benefits to employees in case of sickness, maternity and 'employment injury'. As per provision of this Act, an employer is liable to pay his contribution in respect of every employee and deduct the employee's contribution from wages bill and shall pay these contributions to the ESI Corporation within 21 days of the last day of the Calendar month in which the contributions fall due. Contractors of WBSEDL would abide by the provisions of the act.

The Workmen Compensation Act 1923

The Workmen's Compensation Act, 1923 provides for payment of compensation to workmen and their dependents in case of injury and accident arising out of and in the course of employment and resulting in disablement or death. WBSEDL would ensure that the conditions of contracts incorporate the provisions of thisact.

Maternity Benefit Act, 1961

This Act provides to regulate the employment of women in every establishment from certain periods before and after childbirth and to provide for maternity benefit and certain other benefits. WBSEDL's contractors would abide by the provisions of the act.

Inter-state Migrant Workmen Act 1979

This Act is formulated by GoI to regulate the employment of inter-State migrant workmen and to provide for their conditions of service. WBSEDL's contractors would abide by the provisions of the act.

Intimation of Accidents (Forms and Time of Service of Notice) 2004

Taking the power from the Electricity Act 2003 these rules is formulated. It requires that any accidents related to the Distribution have to be reported to the Inspectorate. WBSEDL would set up procedures to comply with the provisions of these rules.

Technical Standards for Construction of Electrical Plants and Electric Lines Regulations, 2010

The Central Electricity Authority of India (CEA) is a statutory organisation constituted under the Electricity Act 2003 and advises the government on matters relating to the Policy and perspective plans for development of electricity systems. Technical standards for construction of electrical plants, electric lines and connectivity to the grid have been prepared by CEA. Even though the technical standards do not specifically deal with environment they provide guidance for planning of Distribution lines.

Measures relating to Safety and Electric Supply Regulations, 2010

The Central Electricity Authority has also formulated regulations for safety of Distribution lines. WBSEDCL would abide by these provisions to ensure safety of human as well as wildlife.

APPENDIX 3.2 Part 2

WBSEDCL's Guidelines for Selection of Land for Construction of 33/11 kv Sub-station

West Bengal State Electricity Distribution Company Limited
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OFFICE OF THE DIRECTOR(DIST.)
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Circular No:- 118

Dt.26.02.2019

Sub: Criteria of selection of land for construction of 33/11 KV Sub-station.

1. Requirement of land-area for construction of 33/11 KV Sub-stations largely depends upon the following factors:

   (i) Number of 33 KV & 11 KV lines.
   (ii) Power transformer capacity including numbers.
   (iii) Type of Sub-station viz (a) Spread-out, (b) Partly box,(c) AIS and (d) GIS.
   (iv) Geometrical shape & size of the land and alignment of road.
   (v) Resistivity of soil
   (vi) Requirement of land filling.

   Some typical lay-out models covering the above mentioned issues are enclosed herewith for guidance. Site officials should look for lands matching the ones, as mentioned in the layout.

2. Indoor GIS type Sub-stations may be considered in the Sub-stations to be constructed at different housing projects, government & private industrial parks, government townships and new S/Stn in urban areas where land cost is high or land for AIS S/Stn layout not available etc. Here, requirement of land ranges between 754 sq mtr (0.187) acre to 425 sq mt (0.105 acre).

3. In case where sufficient land is not available, a special design is made with certain considerations. The considerations are as follows. Here the minimum land requirement is limited to 425 sq. mtrs. (0.105 acre).
   (i) A corner plot with two adjacent side-accesses is required.
   (ii) Earth resistivity remains within normal limit (20 Ω mt).
   (iii) Land filling necessitating construction of earth retaining structure is not required.
   (iv) Toilet can be positioned below the 1st landing
   (v) Developers of the Projects will provide sewage, surface & waste water disposal from their system. Developers would provide drinking water connection to WBSEDCL Sub-station.
   (vi) Sub-station will not have I/C & O/G Gantry Isolators.
   (vii) Sub-station capacity is limited to 2x10 MVA with no future provision.
   (viii) The 33 KV System is GIS while that of 11 KV is AIS.

West Bengal State Electricity Distribution Company Limited
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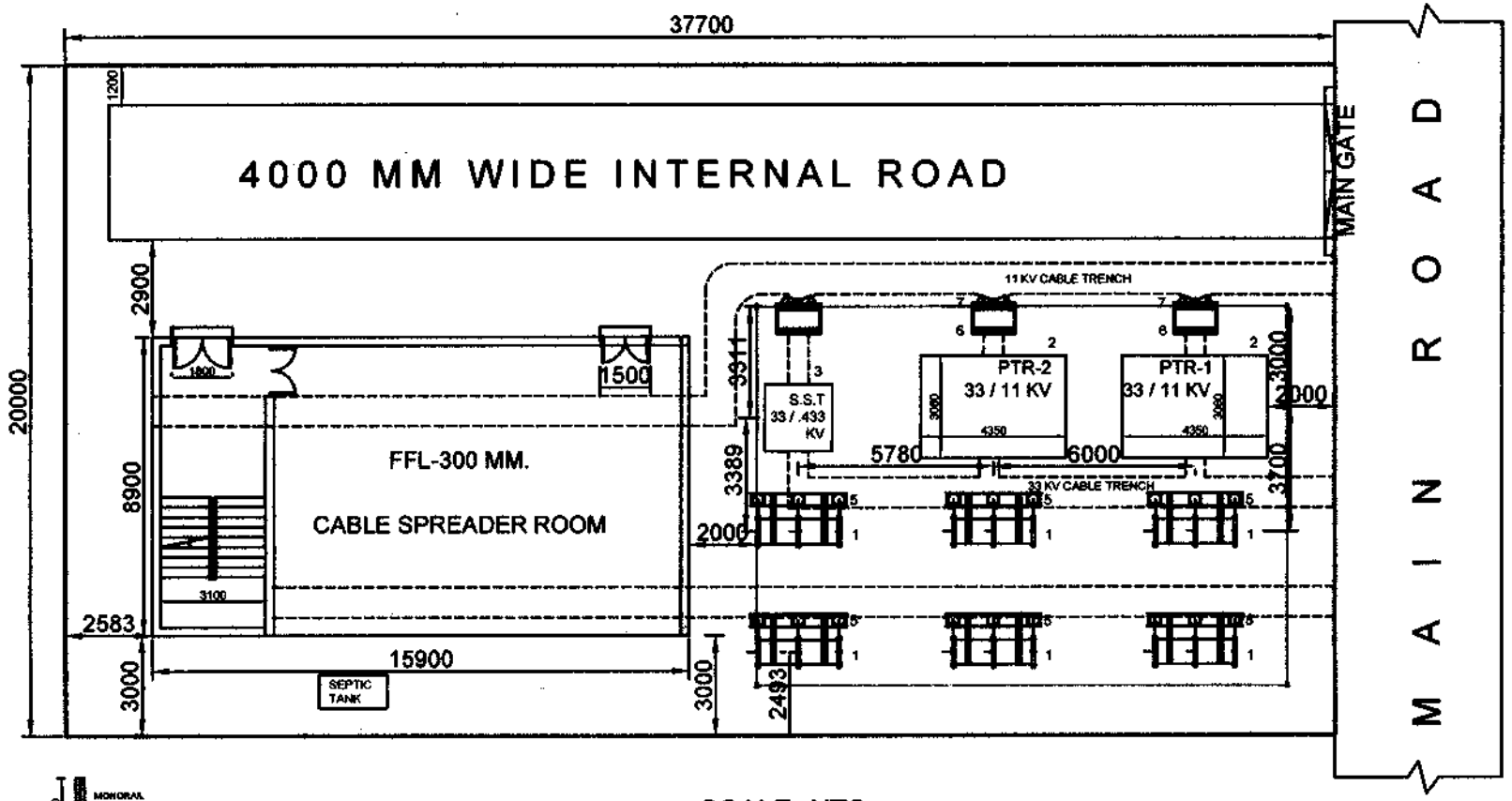
This is only for different housing projects, government & private industrial parks, government townships and urban areas where land is particularly not sufficiently available. Under such conditions only, site officials are hereby requested to look for lands with geometrical shape & size matching the enclosed sketch, as far as practicable. Site officials are further requested to arrange to obtain necessary undertaking from the respective Project Proponent covering the point no (v), as mentioned above.

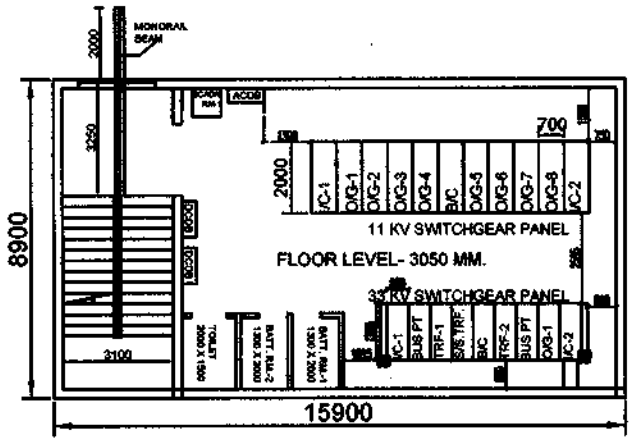
4. Proposals for construction of Sub-stations should be placed with all particulars as given in the enclosed formats (A to F) so that issues relating to (i) technical feasibility & (ii) land suitability for construction of 33/11 KV Sub-stations can be settled expeditiously.

Enclo: as stated.

26/2/19
(S.K. Dey)
Director (Distribution)
WBSEDCL.

"ENCLOSURE-8"





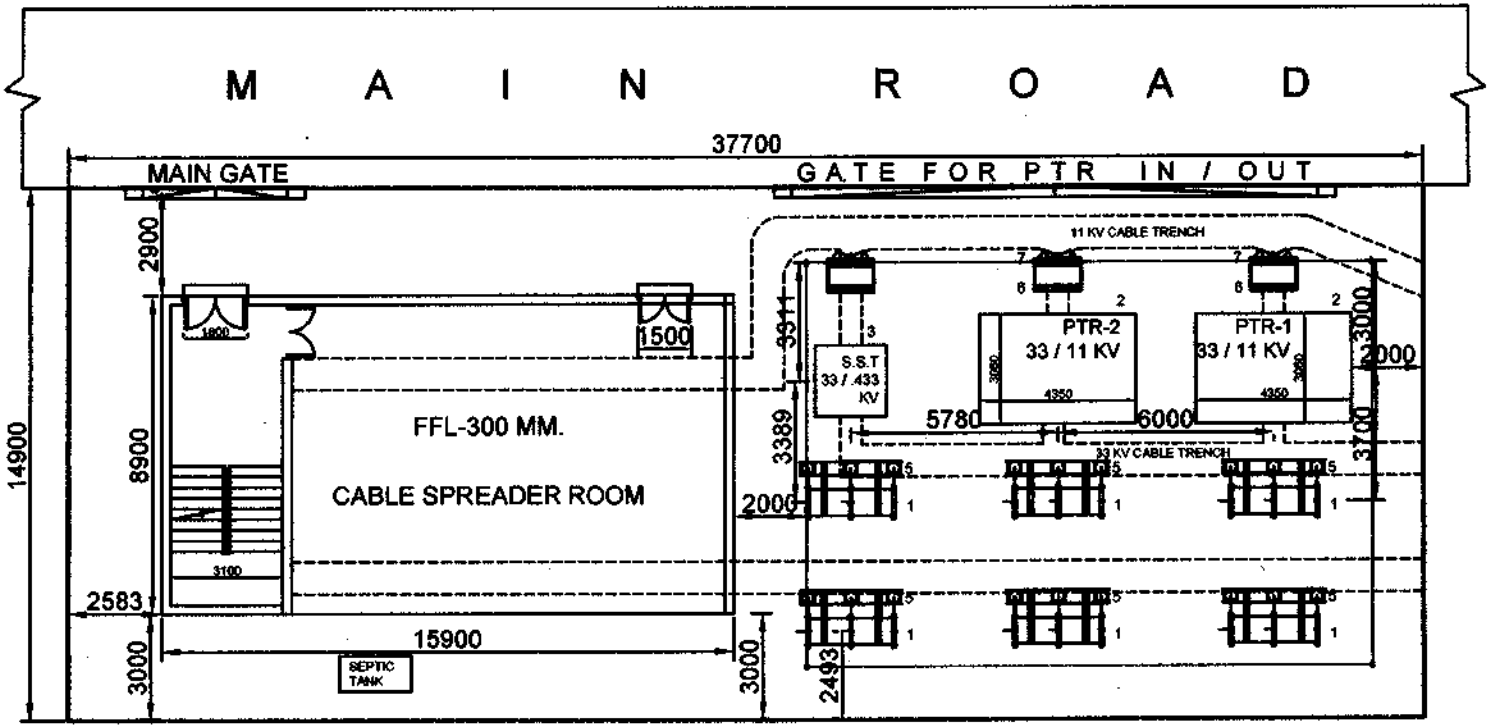
FIRST FLOOR CRB PLAN

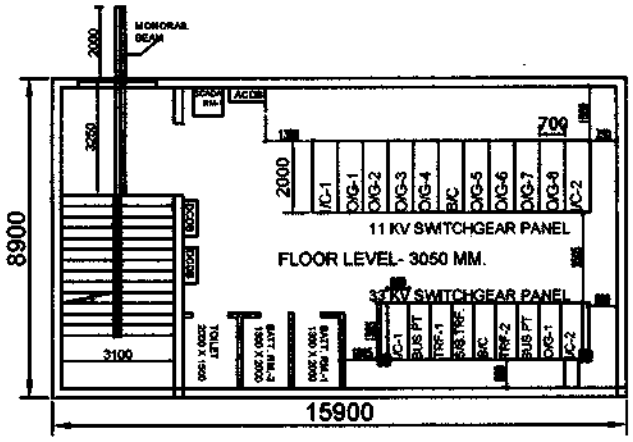
SCALE- NTS

AREA= (37.7 X 20.0) = 754.0 SQM.= 0.187 ACRES.
N.B.- CONSIDERING NO LAND FILLING.

TYPICAL PLAN FOR INDOOR GIS 33 / 11 KV S/STN WITH 2 X 10 MVA PTR O.D TYPE (WITH 33 KV GIS & 11 KV AIS SWITCHGEAR PANEL WITH CABLE SPREADER ROOM)

"ENCLOSURE-9"





FIRST FLOOR CRB PLAN

SCALE- NTS

AREA= (37.7 X 14.9) = 561.73 SQM.= 0.139 ACRES.
N.B.- CONSIDERING NO LAND FILLING.

TYPICAL PLAN FOR INDOOR GIS 33 / 11 KV S/STN WITH 2 X 10 MVA PTR O.D TYPE (WITH 33 KV GIS & 11 KV AIS SWITCHGEAR PANEL WITH CABLE SPREADER ROOM)

5855
28/5/19

Government of West Bengal
Public Works Department
'NABANNA' (8th floor), 325, Sarat Chatterjee Road, Howrah-711 102

No. 1M-22/17/553 - R/PL Dated, Kolkata, 8th May, 2019

ORDER

Whereas, Chairman and Managing Director West Bengal State Electricity Distribution Company Limited has informed that West Bengal State Electricity Distribution Company Limited has taken up a project of underground cabling in phases in all Districts and Sub-divisional Headquarters in order to improve the quality of power supply in these towns and that the project is going to be implemented through the State Government budgetary support provided to WBSEDCL by the Power Department.

Whereas, Additional Chief Secretary, Power Department, Government of West Bengal has reiterated the matter and informed that that the work will give benefits to the citizens.

Whereas, it appears that some Executive Engineers are imposing license fee for this work of WBSEDCL based on G.O. No. 575-W(C)/1M-75/13 dated 29.8.2013 which applies to license fees for drawing Optical Fiber Cables (OFC) under the PWD land.

It is therefore, clarified that the G.O. for drawing Optical Fiber Cables under PWD land will not be applicable for underground cabling work of WBSEDCL and no license fee is to be charged from WBSEDCL.

Executive Engineers will give necessary permission for the underground cabling work of WBSEDCL wherever required upon receiving the application along with necessary drawing and schedule of the work. If some changes are to be made by WBSEDCL the same is to be informed promptly to concerned officials of WBSEDCL for necessary action.

If any road restoration is needed as a result of damage to road during the work of WBSEDCL, as an estimate for road restoration may be drawn up and sent to relevant official of WBSEDCL for placement of fund.

Sd/-
Principal Secretary to the Government of West Bengal
Public Works Department

APPENDIX 3.3

Comparative Assessment Of National & State Environmental & Social Regulations With WORLD Bank's ESSs

COMPARATIVE ASSESSMENT OF NATIONAL & STATE ENVIRONMENTAL & SOCIAL REGULATIONS WITH WORLD BANK's ESSs

The following table presents comparison between objectives of World Bank's Environmental & Social Standards and respective National and State Environmental & Social Regulations as well as gaps if any as per ESS's objectives and recommended actions.

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts				
1.	Objectives of ESS 1 are: To identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs. To adopt a mitigation hierarchy approach to: (a) Anticipate and avoid risks and impacts; (b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; (c) Once risks and impacts have been minimized or reduced, mitigate; and (d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible. To adopt differentiated measures so that adverse impacts do not fall disproportionately on the	• The Environment (Protection) Act, 1986. • The Environment Impact Assessment Notification, 2006 and amended till date. • Hazardous & Other Wastes (Management and Transboundary • Movement) Rules, 2016 • E-waste (Management) Rules, 2016 • Batteries (Management and Handling) Rules, 2001 • Ozone Depleting Substances (Regulation and Control) Rules, 2000	No significant gaps between ESS 1 and national & state laws There are no gaps between the National Environmental Appraisal and World Bank procedures in the screening process.	Scoping of key environmental and social risks and impacts of the Project has been undertaken and appropriate mitigation measures identified, as laid out in this ESMF. The provision of detailed ESIA process described in ESMF aims to address the biophysical and socio-economic issues associated with the Project and utilize broad stakeholder consultation in the preparation of the Project, and follows the implementation of the SEP. WBEDGMP further promotes sustainable development and prescribes the requirement of activity-specific ESMPs, where applicable. Sub-project specific ESIAs will be conducted prior to the implementation of activities. Bulk consumer, as defined in rules, only include consumer using/procuring 100 or more batteries at one place. Its applicability to sub-project activities shall be ascertained during project specific ESIA for

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project. To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate. To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.			compliance. Ozone depleting substances are already phased out in all equipment installed under projects and it will also be included in contract document to ensure its full compliance. This Project will apply waste management guidelines in all relevant activities.
ESS 2: Labour and Working Conditions				
2	The Objectives of ESS 2 are: To promote safety and health at work. To promote the fair treatment, non-discrimination and equal opportunity of project workers. To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community	• Minimum Wages Act, 1948 • Contract Labour (Regulation & Abolition) • The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013	There are no gaps between national legislation and ESS 2 Whereas some National legislation only applies for formal sector workers, who are engaged with contracts.	The Project includes small-scale construction work, including setting up GIS and UG Cabling Network. Sub-component activities will employ contracted workers who will be subject to the Project LMP, GRM and the World Bank Group Environment, Health and Safety Guidelines in compliance with ESS 2. The Project worker will adhere to minimum wages. The Project will provide GRM for community as well as contracted workers. Additionally, each sub-project contractor will prepare

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	workers and primary supply workers, as appropriate. To prevent the use of all forms of forced labor and child labor. To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. To provide project workers with accessible means to raise workplace concerns.	• Bonded Labour System (Abolition) Act, 1976 • The Payment of Wages Act 1936 amended in 200 • The Child Labour (Prohibition and Regulation) Act, 1986 • Grievance Redressal Policy Under Industrial Disputes Amendment Act,1976 • Compensation Act,1923 • Employees state Migrant Workmen Act,1979 • Maternity Benefit Act,1961 Intimation of Accident (Forms and Times of service		a Construction-ESMP with labour protocol to address such issues.

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
		of notice) Rules , 2004		
ESS 3: Resource Efficiency and Pollution Prevention and Management				
3	The Objectives of ESS 3 are: To promote the sustainable use of resources, including energy, water and raw materials. To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. To avoid or minimize project-related emissions of short and long-lived climate pollutants. To avoid or minimize generation of hazardous and non-hazardous waste. To minimize and manage the risks and impacts associated with pesticide use.	• The Environment (Protection) Act, 1986.	There are no significant gaps between ESS 3 and national laws	The Project will improve the availability and quality of power in project area. It aims for resource efficiency in the reduction of AT&C losses and other natural resource like forest, water etc. through innovative means like using treated water for construction activity to the extent possible in line with provision of ESS 3.
		• Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016		The Project will also develop and implement measures and procedures for managing waste and hazardous materials during construction and operation phase of project.
		National Environmental Policy, 2006		Setting up of GIS and UG cabling Network activities will be based on a screening process, as well as ESIAs and ESMPs, where applicable. Activities will be compliant with the Act and with ESS 3.
				Contractors will prepare a waste management plan as part of the C-ESMP.
ESS 4: Community Health and Safety				
4	The Objectives of ESS 4 are: To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life-cycle from both routine and non-routine	Measure relating to safety and Electrical supply Regulation 2010	There are no significant gaps between ESS 4 and national laws and regulations	Although the Project aims to improve the lives of millions of people in rural and sub-urban as well as urban area, it needs to be ensured that Project activities do not pose any unintended negative consequences on communities primarily during construction period. A dedicated health and safety

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	circumstances. To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams. To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials. To have in place effective measures to address emergency events. To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.			management plan will be developed. Several measures will be undertaken by the WBSEDCL, including requiring contractors to develop road safety management plan and a Health and Safety Plan as part of the C-ESMP to address the impacts on local communities of moving construction equipment; measures and actions developed to assess and manage specific risks and impacts outlined in the ESMF and subsequent ESMPs. All activities will be compliant with the applicable regulations and ESS 4.
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement				
5.	The Objectives of ESS 5 are: To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives. To avoid forced eviction. To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on	• Government of West Bengal Land Procurement Policy, 2016 • The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013)	The provisions of national act are more stringent and take care of all possible shortcomings including detailed SIA, Public consultation/disclosure and very liberal compensation assessment process to make it at par with	The legislations and policy related to land acquisition and resettlement & rehabilitation as well as provisions of ESS 5 may not be attracted as no involuntary land acquisition is envisaged in the project. Only Government land is likely to be secured for setting up of GIS and in case of private land, direct purchase on the principle of willing buyer-willing seller on negotiated rate using provisions of West Bengal land purchase policy shall only be used.

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure. To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant. To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those		replacement cost coupled with R&R provisions making it fully comparable with Bank's ESS requirement. Moreover, the land requirement for setting GIS substation is quite small (less than 1 acre) for which such act may not be applicable.	

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	affected.			
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources				
6	The Objectives of ESS 6 are: To protect and conserve biodiversity and habitats. To apply the mitigation hierarchy4 and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity. To promote the sustainable management of living natural resources. To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.	• The Biological Diversity Act, 2002 • West Bengal Biological Diversity Rules, 2005 • Forest Conservation Act,1980 • Forest Conservation Rules, 2003 (as amended) • MoEFCC Guideline dated 5thMay 2015 (letter no. F.No. 7- 25/2012-FC) for laying distribution line through forest areas • Supreme Court Orders Dated 30.10.2002 in respect of Compensatory Afforestation Fund in I.A. No. 566 In WP(C) No. 202/1995; and Supreme Court's Order dated 1.8.2003 in I.A. No. 826 & 859 in I.A. No. 566 in Write Petition (Civil) No.202 • Wild Life Protection Act, 1972, as	There are no significant gaps between ESS 6 and national laws Forestry concerns are defined as conversion of forest land to other use, while the WBSEDCL will implement HVDS primarily through existing distribution network in forest and other ecological sensitive area.	It is anticipated that the existing route alignment with appropriate mitigative measures will be undertaken for conservation of vegetation/biodiversity and other living natural resources in order to be fully compliant with this statutory instrument. The sub-project will implement activity-specific screening procedures for biodiversity risks and no impacts likely to occur from the activity.

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
		amended till date • MoEFCC Guideline dated 9th February [F. No. 1-9/2007 WL- I (pt)] regarding guidelines for declaration of eco-sensitive zones around National Parks and Wildlife • The Forest Rights Act (FRA), 2006 regarding compliance on livelihood impacts of community dependent of particular forest land		
ESS 7: Indigenous Peoples/Sub-Saharan African Historically underserved Traditional Local Communities				
7	The Objectives of ESS 7 are: To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. To avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or	Schedule Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 The Right To Fair Compensation And Transparency In Land Acquisition, Rehabilitation And Resettlement Act, 2013	There are no significant gaps between ESS 7 and national laws	No Indigenous/Tribal People are likely to be affected in majority of sub-projects however, if any sub-project is likely to affect any Indigenous/Tribal people the sub-project specific TDP would be prepared in accordance with TPPF and ESS7 and Implemented.

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	compensate for such impacts. To promote sustainable development benefits and opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in a manner that is accessible, culturally appropriate and inclusive. To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities affected by a project throughout the project's life-cycle. To obtain the Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in the three circumstances described in this ESS. To recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples/Sub-			

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	Saharan African Historically Underserved Traditional Local Communities, and to provide them with an opportunity to adapt to changing conditions in a manner and in a timeframe acceptable to them.			
ESS 8: Cultural Heritage				
8	The Objectives of ESS 8 are: To protect cultural heritage from the adverse impacts of project activities and support its preservation. To address cultural heritage as an integral aspect of sustainable development. To promote meaningful consultation with stakeholders regarding cultural heritage. To promote the equitable sharing of benefits from the use of cultural heritage.	• Ancient Monuments & Archaeological Sites and Remains Act,1958 • Indian Treasure Trove Act,1878 as amended in 1949 • West Bengal Ancient Monuments and Archaeological Sites, Remains and Art Treasures Act,2016. • The West Bengal Ancient Monuments and Records Rule, 1964	There are no significant gaps between ESS 8 and national laws	No major impact on any cultural heritage sites is anticipated under the Project; however, in case of any chance findings at the sub-project level, the same will be handled following Chance Find Procedures (ESS 8).
ESS 9: Financial Intermediaries				
9	The Objectives of ESS 9 are: To set out how the FI will assess and manage environmental and social risks and impacts associated with the subprojects it finances. To promote good environmental and social management practices in the subprojects the FI finances. To promote good environmental and		n/a	n/a

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	sound human resources management within the FI.			
ESS 10: Stakeholder Engagement and Information Disclosure				
10	The Objectives of ESS 10 are: To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties. To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance. To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life-cycle on issues that could potentially affect them. To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.	The Right to Information Act, 2005 and provision of mandatory public consultation with all stakeholders in EPA, 1986 and RCTLARR-2013 .	While the Act spells out right to information held by public bodies, the public consultation required under EPA and RCLARR, 2013 requires involvement of local people in planning and finalization of project along with minimization of likely potential impact of proposed project activities. ESS 10 recognizes the importance of open and transparent engagement vis-à-vis project stakeholders by the borrower	This process of consultation has already commenced during the ESMF development to know the people's opinion about project. However, a detailed Stakeholder Engagement Plan (SEP) with mapping out all the different types of stakeholders, timings and modes of communication and consultation has also been prepared for implementation during ESIA and project execution. The Plan linked the GRM with the SEP to address the issue of transparency and feedback. ESS 10 recognizes the importance of open and transparent engagement vis-à-vis project stakeholders by the borrower. .

Sl. No.	ESF Objectives	National & State Laws and Requirements	Gaps	Recommended Actions
	To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.			

APPENDIX 5.1

Environmental & Social Screening of Impact of UG Cabling Network at Rajarhat Town Sub-project under WBEDGMP

SCREENING OF E&S IMPACT OF UG CABLING NETWORK AT RAJARHAT TOWN UNDER WBEDGMP

Name of Feeder: **Date of Survey:**

Particulars of Activities: 33 kv/11 kv & LT UG Line

SL. NO.	Location (From - TO)	Route Length		Environmental Issues	Social Issues	Remark/Suggestion
		in KM	L/R Side of Road			
		Total				

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT OF WBEDGMP (WORLD BANK PROJECT)

PUBLIC CONSULTATION

Date:

Name of the Town/Village: Name of the Block/District:

Ward No./GP: Name of the State:

Purpose of meeting: Environmental and Social Impact Assessment Study for UG Cabling Network Sub-project at Rajarhat Town under WBEDGMP.

Sl. No.	**Environmental, Social, Health and Safety Issues Raised**	**Suggestions Made**

Signature(s)

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT OF WBEDGMP (WORLD BANK PROJECT)

DETAIL OF PROJECT AFFECTED PERSONS

Date:

Name of the Town/Village: GP/Block: Name of the District: Name of the State:

Location of Survey Site: Proposed UG Cable Route/Other (Viz New DTRs etc)

Sl. No.	**Name**	**Spouse Name**	**Sex**	**Age**	**Occupation**	**Monthly Income**	**Environmental & Social Impact**			
							Nature of Structure*	Type of Structure #	Quantum of Impact (sqm)	Trees No. & Type

* Nature of Structure: Road / Footpath / Drain / Access Platform / Boundary Wall / Religious Structure / Handpump / Well / Others

Type of Structure: Boundary Wall – Temporary / Permanent - Kutcha / Pucca / Kutcha-Pucca Mixed

Footpath - Paver Block / Tiles

Drain - Kutcha / Pucca / Kutcha-Pucca Mixed

Road – Brick / Stone Soling / CC Road / Bitumin Road

APPENDIX 7.1

Detail of Public Consultation & Stakeholder Meetings for ESIA Study for UG Cabling Network at Rajarhat Town Sub-project under WBEDGMP

West Bengal State Electricity Distribution Company Limited
(A Government of West Bengal Enterprise)
OFFICE OF THE DIRECTOR(DIST.)
A -BLOCK , 7TH FLOOR , VIDYUT BHABAN ,
BIDHANNAGAR , KOLKATA - 700 091
e-mail: directordistribution708@gmail.com
Tel:(033)2359-1891 . Fax:(033)2334 5607,Website: www.wbsedcl.in

Memo No: CE/Project-III/IPDS/ 1539 Date: 28 /08/2020

To
The Regional Manager,
Bidhannagar/Burdwan/Paschim Medinipur Region Office
The Divisional Manager,
Bidhannagar-II/Asansol/Kharagpur

Sub: Meeting Notice on Environmental & Social Screening as well as DPR of U.G.Cabling Work Under World Bank Project.

Dear Sir,

An urgent meeting will be held regarding discussion on upcoming U.G. Cabling work in Kestopur, Baguihati, Rajarhat, Asansol & Kharagpur towns under World Bank project on 04.09.2020 at 12 noon at Conference Hall, 7thfloor, Vidyut Bhawan and allied potentially significant **social** and **environmental** risks and/or impacts to screen, classify and evaluate the project activities during project preparation.

You are requested to attend the meeting positively on the said date and time.

CMD, WBSEDCL will grace the meeting by his kind presence.

Yours faithfully,
Sd/-
(P.P. Mukherjee)
Director (Dist.)
WBSEDCL

Memo No: CE/Project-III/IPDS/ 1539 (i-vi) Date: 28 /08/2020

Copy forwarded for kind information please to:

i) The Chief Engineer, Proj-III office, WBSEDCL
ii) The AGM(HR&A), CS Cell, WBSEDCL – He is requested to arrange Coffee & Snacks for 25 heads.
iii) Sri Subhrendu Sarkar, ACE, CMD Cell, WBSEDCL
iv) The Sr. Consultant, M/s REC Power Distribution Company Ltd. (RECPDCL), IB 186, Sector-III, Salt Lake City, Kolkata- 700106.
v) Dr. K. M. Agarwal, Project Coordinator, IISWBM.
vi) P.S. to CMD.

Director(Dist):WBSEDCL.

Date:04.09.2020 **T.O : 12 Noon**

Meeting Attendance on ESIA & DPR preparation related to UG Cabling work under World Bank Project within Bidhannagar,Burdwan & Paschim Midnapur Region

Venue: 7th Floor Conference Room, Vidyut Bhawan, WBSEDCL

Sl No	Name	Utility/ Organisation	Designation	Mobile No.	Signature
1	P.P. Mukherjee	WBSEDCL	Director (Distn.)	7449300105	
2	M. Banerjee	WBSEDCL	CE, Project-III	7449300838	4/9/20
3	R. Bhattacharjee.	WBSEDCL	C.E. DPD	7449300820	04.09.20
4	P. K. Nag	WBSEDCL	ACE, DPD	7449300640	04/9/2020
5	S. G. Dutta.	WBSEDCL	ACE & ZM Kolkata Zone	7449300000	
6	Owasim Akram.	RECPDCL	P.Engineer.	8777518286	Akram 24/09/2020
7	SUBHRENDU SARKAR	WBSEDCL	ACE, CMD Cell	7449300196	4/9/2020
8	P. K. NAYEK	WBSEDCL	ACE, Proj-III	7449300843	
9	A. CHANDA	WBSEDCL	SE, Proj-III	7449300885	
10	Sushanta Chatterjee	WBSEDCL	Divisional Manager, Asansol	7449303230	
11	D.K. Bachhar	WBSEDCL	RM, Paschim Medinipur	7449305050	
12	R. Mondal	WBSEDCL	RM, BDNRO	7449303050	
13	Dibakar Mandal	do	RM, BNRO	7449304390	
14	R.P. Biswas.	WBSEDCL	DE(F), Proj III	8777674095	
15	Malay Sikder	WBSEDCL	DM, BNDD-II Divn.	7449304490	

Sl No	Name	Utility/ Organisation	Designation	Mobile No.	Signature
16	Tanmoy Mahapatra	KGP Division WBSEDCL	DE & DM	7449305080	4/9/20
17	S. GHOSH DASTIDAR	Associate Advisor, REC PDCL		9831405200	04-09-20
18	Prof (Dr) S.C. Saha	Env. Consultant with IISWBM	Retd Prof (Kalyani Univ)	9433285100	4/9/20
19	Rahul Chakraborty	Research Fellow, IISWBM	Research Fellow	+919805610811	
20	Dr. K.M. Agrawal	IISWBM	Proj Dir	9433719714	
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Checklist for Public Consultations for UG Cabling Network

Part A: Questions for Concern RM/DMs WBSEDCL:

- Overall explanation of the UG Cabling sub-project for concerned Town:
  - What work is involved (in conversion of OH to UG lines, replacing distribution transformers etc.)?
  - What is the proposed geographical & type of users coverage of UG sub-project?
  - Would the construction work for UG Cabling would lead to any inconvenience to the local people in the project site – air pollution, noise pollution, obstruction of paths, etc?
  - Are there any risks to users / workers during conversion process (risk of electrocution etc.)?

- Are any transformers or other distribution infrastructure being put up on private land?
  - If yes, what is the process for obtaining permission?

- Have any discussions been held with the covered users regarding conversion of the lines?
  - If yes, when did the discussion take place; who were part of the discussions; what was the view of the users regarding UG Cabling etc.?
  - If no, do you have plan to hold discussions with the selected users?

- What are the advantages of the UG Cabling Network; what benefits will the users get?

- Are there any disadvantages of UG Cabling Network?
  - For users
  - For maintenance staff?

- What are the challenges you are likely to face in implementing the project?

Part B: Questions for Users under Proposed Sub-project Area:

- Do you have an electricity connection?

- What is the duration of usage?

- Are there any challenges with the electricity supply? Power outages, low voltage, theft of electricity, transformer breakdown etc.
  - If yes, does it affect you in any way?

- What do you do if there is no electricity?

- Do you think the UG Cabling Network system will benefit you?
  - If yes, what are the benefits?

- Do you think there are any disadvantages to the UG Cabling Network system?

- Is there any issue in Implementation of UG Cabling Network (RoW, location of Poles of DTRs, etc)?

- What are the likely Social Issues involved in construction and operation of UG Cabling Network?

  -Displacement of Land owner(s), Encroachers/Squatters, Vendors, etc
  - Loss of Residential/Commercial Structures
  - Loss of other Immovable property viz, HP/Deep Tube Well, Well, Pond, Boundary Wall, etc.
  - Loss of Trees
  - Loss of Common Property Resources viz, Religious Structure, Road, HP, Play Ground, etc.

- What are the likely Environmental Issues involved in construction and operation of UG Cabling Network?

  - Temporary increase of Air & Noise Pollution during construction phase
  - Disposal of Waste Material/Debris
- - Risks to local people/ workers during construction/operation of UG Cabling Network? (Risk of health & safety, EMF, electrocution etc.)?

WBSEDCL

THE WORLD BANK

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

PUBLIC CONSULTATION & STAKEHOLDER MEETING ON

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN FOR PROPOSED UNDERGROUND CABLE NETWORK AT BAGUIATI-KRISHNAPUR & RAJARHAT TOWN SUB-PROJECT UNDER WBEDGMP WITH WORLD BANK ASSISTANCE

Location: SDO Office, Bidhannagar *Date: 18th September, 2020*

ATTENDANCE SHEET

Sl No.	Name	Sex (M/F)	Designation/ Occupation	Address	Contact No.	Signature
001	Krishna Chakraborty	F	Mayor	BMC		18/9/2020
002	D. Ghosh	M	Commissioner	BMC	9434422000	
003	S. Bose	M	JMC	BMC	9051724462	
004	Smt. Ismail		APM(LR)	DLLRO office	9874888555	
005						
006	Saikat Chakraborty	M	SDO, Bidhannagar	DJ-4, Salt Lake	8336959130	
007	Sovedoya Kr Saha	M	Dy. Magistrate Bidhannagar	SDO OFFICE, Bidhannagar	8336959166	18/9/20
008	Pradip Kr Barai	M	Dy. Magistrate, Bidhannagar	SDO, Office, Bidhannagar	8240264980	
009						
010						
011						

012	Dipankar Mandal	M	RM, Bidhannagar WBSEDCL	WBSEDCL	7449304390	18.09.2020
013	Dr. K. M. Agrawal	M	Professor & Proj Dir	IISWBM	9433719779	[illegible]
014	Prof. S. C. Santra	M	Professor & Proj TM	IISWBM	9433215100	[illegible] 18/9/20
015	Rahul Chakraborty	M	Research Fellow	IISWBM	7980561081	[illegible] 18/9/2020
016	Malay Sikder	M	DM/BNDD-II Division	WBSEDCL	7449304490	[illegible] 18/9/20
017	ANIRUDDHA HAZRA	M	A.E(E), BNDD-II Div.	WBSEDCL	7449304493	[illegible] 18.09.2020
018	ARUP KR. KOLLEY	M.	ACP [illegible] BDN PC.	BDN PC.	9073343309.	[illegible] 18/9/20
019	Mita Banerjee	F	CE, Project-III	WBSEDCL	7449300838	[illegible] 18/9/20
020	Partha Pratim Mukherjee	M	Director (Dist)	WBSEDCL	7449300109	[illegible] 18/9/20.
021	Pathik Kr. Nasker	M	ACE, Proj. III	WBSEDCL	7449300843	[illegible]
022	Pradip Kr. Nag	M	ACE, DPD	WBSEDCL.	7449300600	[illegible] 18/9/2020
023	PRIYAM DEY	M	AE/BMC	Bidhannagar Municipal Corp.	9830157303	[illegible] 18.9.20
024	Ajit Kr Singh	M	EE, Barasat HWY Div-II	PW(Roads) Dte	8116413073	[illegible]
025	Chandan Samanta	M	AE, Barasat HWD-I	PW(Roads) Dte	8335896141	[illegible] 18/09
026	Sambiti Chakrabarty	F	ACP, Traffic BGNPC	Bidhannagar PC	8961388935	[illegible] 18/9/20
027						
028						
029						
030						

Santanu Basu, IAS
Chairman & Managing Director

West Bengal State Electricity Distribution Company Limited
(A Government of West Bengal Enterprise)

Ref No.: CMD/World Bank/ 419

14th September, 2020

Smt Chaitali Chakrabarty, WBCS (Exe.)
Dist Magistrate, North 24-Parganas
39, Katgola Banamalipur
Barasat, Pin: 700 124

Sub.: Request for organizing Public Consultation Meeting for World Bank's WBEDGMP

Dear Chaitali,

To achieve Power for All (PfA) objective, the Government of West Bengal (GoWB) has sought World Bank assistance to support part of their investments in Underground Cabling Network across five (5) selected Towns where your "Baguihati – Krishnapur" and "Rajarhat" Towns have been considered to facilitate increased availability of power, improved service delivery and reduction of system losses. As per **World Bank's Environmental & Social Standards compliance requirement** for sanctioning the financial assistance for proposed West Bengal Electricity Distribution Grid Modernization Project (WBEDGMP) we have to organize public consultation meeting involving various stakeholders to discuss the likely environmental and social issues and their cost-effective mitigation plan for implementation of Underground Cabling Network sub-project within your jurisdiction.

Considering urgency from World Bank & obtained available slot from our consultant, IISWB, in this score, we request you to please facilitate the required Public Consultation meeting on 18th September, 2020 at 02:30 pm at a convenient meeting room of SDO, Bidhannagar Office. We would be happy, if you request the SDO, Bidhannagaer to convene the meeting and if possible depute an ADM from your end to join. Our Regional Manager with his team will attend the meeting from our Salt Lake Head Quarter with around 9 / 10 Officers, including the representative of IISWB. The meeting duration would be of one hour. Please also request the SDO to invite the Mayor, Commissioner, Chairperson of Bidhannagar Municipal Corporation, related Councilors and other important Stakeholders / Peoples' representatives in the meeting. Expected total participants in the proposed meeting room would be around 30 - 35 people (with Social distancing norms) including Public representatives, officials of District Administration and our WBSEDCL officials.

SDO, Bidhannagar is appraised of the issue and our Regional Manager, Bidhannagar Region also met him personally to brief him regarding the World Bank funded U.G Cabling Network sub-project of aforesaid Towns and likely environmental & social issues to be discussed during the proposed meeting and also finalize the modalities for the same.

Regards,

14/9/2020

(Santanu Basu)
CMD, WBSEDCL

Registerd Office
"Vidyut Bhavan", Bidhannagar, Block-DJ, Sector-II, Kolkata-700 091
Telephone : 91-33-2359 1915, 2337 1150 (O), Fax : 033-2337 0169
E-mail : cmd@wbsedcl.in, Website : www.wbsedcl.in

Ref No.: CMD/World Bank/ 419 (i-vii) 14th September, 2020

Copy forwarded for information and necessary action to:

i) The Director (Dist.), WBSEDCL

ii) The C.E (DPD), WBSEDCL

iii) The C.E (Project-III), WBSEDCL

iv) The C.E (Dist.), WBSEDCL

v) The ZM, Kolkata Zone, WBSEDCL

vi) The R.M, Bidhannagar Region, WBSEDCL

vii) The SDO, Bidhannagar, GoWB

PROCEEDING OF PUBLIC CONSULTATION MEETING FOR ESIA STUDY FOR UG CABLING NETWORK OF RAJARHAT TOWN HELD ON 18th SEPTEMBER, 2020 AT CONFERENCE HALL OF SDO BIDHANNAGAR

Public Consultation Workshop on Environmental & Social Impact Assessment of proposed sub-project for conversion of existing overhead electrical network to underground cable at Rajarhat town area under WBEDGMP, A World Bank aided project of WBSEDCL, Government of West Bengal was conducted on 18th September, 2020 at the Conference Hall of SDO Bidhannagar.

The public consultation held in presence of Chairman, Commissioner, SDO, Dy Magistrate, ACP Traffic, Representatives of PWD, BSNL and other Utility Service providers as well as other invited representatives from local administrative authorities with general public and other stakeholders. The Workshop was attended by around 35 people. The list of participants attended the Workshop is appended.

The meeting was presided over by Smt Krishna Chakraborty, Mayor, Bidhannagar Municipal Corporation. The Consultation Workshop started with the initiation of presentation about the proposed project by Shri P. Mukherjee, Director (Dist) & Shri Dipankar Mondal, Regional Manager Bidhannagar, WBSEDCL. Shri Mukherjee stated the scope of work under proposed sub-project of UG Cabling work of Rajarhat town area under WBEDGMP which includes conversion of existing OH 33/11 kv HT feeders in to UG as well as OH LT lines into UG/AB cable. He also appraise the present status of proposed project and reported that the draft DPR along with ESIA & ESMP study reports have been already prepared based on initial field survey and available secondary data by RECPDL and IISWBM as per guidelines of World Bank.

During the presentation Shri Dipankar Mondal, RM Bidhannagar, WBSEDCL stated the need and necessity bound with laying electric lines underground. He cited modern applicable procedures for conversion of OH electricity distribution system into UG cabling network in urban/peri-urban areas within the State, where such methods have been successfully installed and working e.g. Salt Lake and Eco-space Tech City Action Areas, Digha-Shankarpur Area, etc. With such pragmatic examples he asserted that the same or similar pattern of work will be initiated in the entire surveyed Rajarhat region with little or very miniscule impact to Common Public Property and associated environmental factors.

In relation to the same, Shri S Ghosh Dastidar, Associate Adviser, RECPDCL stated that excavation of trenches will be carried out up to 500 meters stretch and that, entire trenching work will be dealt with first and the reconstructive works too will follow on first hand as well. Besides, all necessary safety measures, commuting measures (in case of works on roads/streets and other public commuting areas) will be looked after and taken care of immensely and without any negligence.

Shri Mondal further added his comments towards the required statutory Environmental & Social Impact Assessment and formulation of Environmental and Social Management Plan for the proposed sub-project as per the National & State Regulations as well as World Bank requirement. Subsequently, he introduced Dr. K. M. Agrawal, Project Director of IISWBM which facilitated WBSEDCL for undertaking ESIA & formulation of ESMP. Shri Mondal

praised and applauded the efforts planned and executed by IISWBM for executing ESIA & ESMP study for the proposed sub-project.

Dr Agrawal started his proceedings with a vivid pictorial power-point presentation about Environment and Social Impact Assessment and Environmental (ESIA) & Social Management Plan (ESMP) for UG Cabling Network for Rajarhat town area sub-project under WBEDGMP funded by World Bank. Its core intent was to provide life safety to inhabitants of the areas, to prevent ecological and environmental damage from electrical high tension and low tension lines with social, economic and aesthetical up gradation of the area, life and livelihood at large. Accordingly, Dr. Agrawal presented the salient features of ESIA study and highlighted the proposed ESMP including RPF, LMP, GDF, SEP and TPPF for minimising the negative environmental & social impact likely to be caused during construction as well as operation phase of sub-project.

The people from the locality and invitees from local administrative strata resonated affirmation towards initiating the project and sounded that they would usher in maximum possible support as far as the implementation and execution of making the project a success is concerned starting from Hon'ble Mayor and Commissioner, BMC, SDO, Dy Magistrate, ACP, Traffic, PWD, BSNL, Shop Owners, etc.

Many people involved and present in the Public Consultation shared their comments amongst them a few had put their words across with some recommendations which have been documented as under: Some valid questions rose during the Public Consultation which includes:
 How long this entire project may take?
 Whether the project will cover beyond Rajarhat area especially in adjacent panchyat area?
 Can the project be executed in close co-ordination with PWD and Traffic Department besides Rajarhat for minimum disruptions in utility services and traffic, etc?

Public View and Proposed Recommendations:

Support from the Public Representatives and Other Stakeholders:

Mayor, BMC, Smt Krishna Chakraborty; Commissioner, BMC, Shri D Ghosh; Shri Sikat Chakraborty, SDO, Bidhannagar have spoken in support of the project and assured of their full cooperation during the project work proceedings. All the concerned Hon'ble Councillors of Rajarhat area too sounded their support to this upcoming project of underground cabling network.

Recommendations by Stakeholders include:

- Hon'ble Mayor, BMC while attending the Public Consultation recommended that all the adequate budget provision should be there to ensure timely restoration of any damage private as well as public property including CPRs viz, road, drainage, foothpath, etc.

- Hon'ble Commissioner, BMC while attending the Public Consultation recommended that all the civil works once initiated should be completed and negligence during work should be mitigated as far as possible and practicable and such efforts are to be effectively maintained and followed by contractors undertaking the excavation and laying works and the overall safety of the zone should be monitored at all aspects.
- Hon'ble SDO, Bidhanagar stated that a local monitoring committee comprising of members from various associated/affected establishments be set up which will participate on a cooperative role to allow local public rapport and support the safety and that the restoration measures by the contracting bodies during and after the project to ascertain successful project completion measures.
- Furthermore, it has been asserted by those present in the Public Consultation that all the works should be completed at least within stipulated time and that the reconstructive works which are supposed to be provided from the project undertakers end should be comprehensively provided to the affected as far as practicable.
- Overall negligence by contractors engaging manual works should be properly dealt with by the concerned department as in here WBSEDCL so that no untoward incidents related to risk to life occurs.

In the concluding speech, everyone spoke their affirmation, accepted the upcoming challenges and reverberated for the fulfillment of the same as the locals asserted that they are eagerly waiting for the commencement of the project.

APPENDIX 9.1

Detail of WBSEDCL-PIU Setup for WBEDGMP

West Bengal State Electricity Distribution Company Limited
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Tel:(033)2359-1891 . Fax:(033)2334 5607,Website: www.wbsedcl.in

OFFICE ORDER NO. 136

Dt: 14 .05.2019.

Sub:- Constitution of Committee for Project Implementation Unit (PIU) of WBSEDCL towards implementation of World Bank Financing Project for Distribution Network strengthening with HVDS, LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation of IT backbone for AMI & SCADA and other system strengthening scheme etc. of WBSEDCL.

The Committee is hereby constituted for Project Implementation Unit (PIU) of WBSEDCL towards implementation of World Bank Financing Project for Distribution Network strengthening with HVDS, LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation of IT backbone for AMI & SCADA and other system strengthening scheme etc. of WBSEDCL with the following officials:

1) Sri Subhadra Gopal Datta, ACE, Dist. Project Dept– Member & Nodal Officer (M. no. 7449300600)
2) Sri Pathik Kumar Nayek, ACE, Dist. Project-III – Member (M. no. 7449300843)
3) Sri Dipak Kumar Pal, ACE, IT&C Dept. – Member (M. no. 7449300243)
4) Sri Dhanesh Kumar Bhagat, AGM(F&A), Dist. Project-III – Member(M. no. 7449300837)
5) Sri Biswajit Chatterjee, SE(E),&RM, 24-Prgs.(S) Region – Member(M. no. 7449304040)
6) Sri Tapas Halder, SE(E), Dist. HQ – Member(M. no. 7449300817)
7) Sri Dipak Kumar Saha, Sr. Manager (HR&A) (DPD.) – Member(M. no. 7449300882)

The following component of the Project to be executed from the respective Department of WBSEDCL:

1) HVDS work in 13 nos. Districts : Dist. Project Deptt.
2) UG cabling work at Asansole & Tamluk Town & Construction of 33/11 KV. GIS : Dist. Project-III Dept.
3) Creation of IT backbone for rolling out AMI & SCADA: IT&C Dept.
4) Innovative schemes for Distribution system strengthening: Dist.(O&M) Dept.
5) Capacity Building: Dist. HQ.

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Office Order No. 137

Dt.: 24.05.2019

Sub:- Addendum to the O.O no. 136, dt. 14.05.2019 of Director (Dist.) i.r.o the Committee Constituted for Project Implementation Unit (PIU) of World Bank Financing Project for Distribution Network strengthening with HVDS, LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation of IT backbone for AMI & SCADA and other system strengthening scheme etc. of WBSEDCL.

In continuation with the O.O no. 136, dt. 14.05.2019 of Director (Dist.) i.r.o the Committee Constituted for Project Implementation Unit (PIU) of World Bank Financing Project Network strengthening, the functional area of the respective officers will be as follows:

Sl. no.	Area of Operation	Assigned Officer for the area	Contact no.
1	PIU Head for overall co-ordination	Sri Subhadra Gopal Datta, ACE, Dist. Project Dept	M. no. 7449300600
2	Contract & Procurement Management	Sri Pathik Kumar Nayek, ACE, Dist. Project-III	M. no. 7449300843
3	Engineering & Project Management	Sri Dipak Kumar Pal, ACE, IT&C Dept.Sri Tapas Halder, SE(E), Dist. HQ	M. no. 7449300243 M. no. 7449300817
4	Environment & Safety Management	Sri Biswajit Chatterjee, SE(E) &RM, 24-Parganas(S) Region	M. no. 7449304040
5	Financial Management	Sri Dhanesh Kumar Bhagat, AGM(F&A), Dist. Project-III	M. no. 7449300837
6	Social Management (Land & compensation etc. issues)	Sri Dipak Kumar Saha, Sr. Manager (HR&A) Dist. Project Dept.	M. no. 7449300882

All other terms of Reference of the said O.O will remain unchanged

24/5/19
(S. K. Dey)
Director (Distribution)
WBSEDCL

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Office Order No. 150

Dt: 12 .07.2019

Sub: Corrigendum to the Addendum to the O.O. No. 137, dt. 24.05.2019 of Director (Dist.) i.r.o the Committee Constituted for Project Implementation Unit (PIU) of World Bank Financing Project for Distribution Network strengthening with HVDS, LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation ofIT backbone for AMI & SCADA and other system strengthening scheme etc. of WBSEDCL

In continuation with Addendum to the O.O. No. 137, dt. 24.05.2019 of Director (Dist.) i.r.o the Committee Constituted for Project Implementation Unit (PIU) of World Bank Financing Project for Distribution Network strengthening with HVDS, LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation of IT backbone for AMI& SCADA and other system strengthening scheme etc. of WBSEDCL, the functional area of the total project work is further defined as follows:

Shri P.C. Charan, SE(E) DHQ (M No. 7449300806) is hereby nominated as member of PIU for area of operation under sl. No. 4 i.e. Engineering & Project Management, instead of Sri Tapas Halder, SE(E).

All other terms of Reference of the O.C No. 136 dated 14.05.2019 and its Addendum of Director (Dist.) will remain unchanged.

Sd/-
(S. K. Dey)
Director (Distribution
WBSEDCL

Memo No: Director (Distribution)/22/Cir./150/1320(1-xviii) Dt.12..07.2019

Copy forwarded for information and necessary action to:-

1) The Director (HR), WEBSEDCL
2) The CFO & Finance Advisor, WBSEDCL
3) The Executive Director(IT), WBSEDCL
4) The Chief Engineer, (Distribution)/Distribution Project/Project-III/IT&C/Communication/ P&E, Dist., WBSEDCL
5) Sri. Subhodra Gopal Datta, ACE, Dist. Project Deptt. WBSEDCL
6) Sri Pathik Kumar Nayek, ACE, Project-III,WBSEDCL
1) Sri Dipak Kumar Pal, ACE, IT&C Deptt., WBSEDCL
7) Sri Dhanesh Kumar Bhagat, AGM(F&A), Dist. Project-III, WBSEDCL
8) Sri Biswajit Chatterjee, SE(E) &RM, 24-Parganas(S) Region, WBSEDCL
9) Sri Tapas Halder, SE(E), Howrah Regional Office, WBSEDCL
10) Sri P.C. Charan, SE(E), Dist. HQ, WBSEDCL
11) Sri Dipak Saha, Sr. Manager(HR&A)Dist. Project Deptt., WBSEDCL
12) PS to CMD, WBSEDCL

12/7/19
Director (Distribution) WBSEDCL

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Office Order no. 177

Dt: 20.12.2019.

Sub: 2nd **Corrigendum to the Addendum to the O.O. No. 137, dt. 24.05.2019 of Director (Dist.) i.r.o the Committee Constituted for Project Implementation unit (PIU) of World Bank financing Project for Distribution Network strengthening with HVDS LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation of IT backbone for AMI & SCADA and other system strengthening scheme etc. of WBSEDCL**

Ref: 1. O.O No: **136 dated 14.05.2019**
2. 1st **Corrigendum O.O No:150 dated 12.07.2019.**

In continuation with Addendum to the O.O. No. 137, dt. 24.05.2019 and in view of 1st Corrigendum O.O No: 150 dated 12.07.2019 of Director (Dist.) i.r.o the Committee Constituted for Project Implementation unit (PIU) of World Bank financing Project for Distribution Network strengthening with HVDS LT AB Cabling, Underground cabling, Construction of 33/11 KV GIS, Creation of IT backbone for AMI & SCADA and other system strengthening scheme etc. of WBSEDCL, is further amended as follows:

1) Sri Tapas Das, ACE (E) DHQ (M No. 7449300803) is hereby nominated as member of PIU for area of operation under sl. No. 3 of O.O. No. 137, dt. 24.05.2019 i.e. Engineering & Project Management, **instead of Sri P.C.Charan, SE(E).**
2) Sri Buddhadeb Dutta, SE (E) REM cell (M No. 7449300846) is hereby nominated as member of PIU for area of operation under sl. No. 4 O.O. No. 137, dt. 24.05.2019 i.e. Engineering & Project Management, **instead of Sri Biswajit Chatterjee, SE(E).**

All other terms of Reference of the O.O. No. 136 dated 14.05.2019 and its Addendum of Director (Dist.) will remain unchanged.

20/12/19
(S.K.Dey)
Director (Distribution):
WBSEDCL

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Memo No:D/D/ World Bank/177/1472(1-XXI) Dt: 20.12.2019

Copy forwarded for information and necessary action to:-

1) The Director (HR), WBSEDCL
2) The CFO & Finance Advisor, WBSEDCL
3) The Executive Director (IT), WBSEDCL
4) The Chief Engineer, (Distribution/DPD/Project-III/IT &C/Communication/P&E, Dist.) ,WBSEDCL
5) Sri. Subhodra Gopal Datta, ACE, Dist. Project Deptt. WBSEDCL
6) Sri Pathik Kumar Nayek, ACE, Project-III, WBSEDCL
7) Sri Dipak Kumar Pal, ACE, IT&C Deptt., WBSEDCL
8) Sri Tapas Das, ACE (E) DHQ, WBSEDCL
9) The Addl CE, CMD cell, WBSEDCL
10) Sri Dhanesh Kumar Bhagat , AGM (F&A), Dist. Project-III, WBSEDCL
11) Sri Biswajit Chatterjee, SE(E) Kolkata Zone, WBSEDCL
12) Sri Buddhadeb Dutta, SE (E) REM cell, WBSEDCL
13) Sri P.C Charan, SE(E), Dist. HQ, WBSEDCL
14) Sri Dipak Saha, Sr. Manager (HR&A) Dist. Project Deptt., WBSEDCL
15) PS to CMD, WBSEDCL
16) World Bank team.

20/12/19
Director (Distribution): WBSEDCL

APPENDIX 9.2

Checklist for Supervision of Implementation of ESMP

CHECKLIST FOR SUPERVISION OF IMPLEMENTATION OF ESMP

Sl.No	Items to be monitored	Response	Comments/Justification
A.	**Permit, License and Certificate (every six months)**		
1.	Does the construction company have valid registration certificate under "The Building and Other Construction Workers (Regulation of employment and conditions of Service) Act, 1996"?	**Y /N / NA**	
2.	Does the contractor have valid licence under "The Contract Labour (Regulation and Abolition) Act, 1970"?	**Y /N / NA**	
3.	Does the Construction Company/Contractor obtained registration under the Interstate Workmen (Regulation of Employment and Condition of Services) Act 1979	**Y /N / NA**	
4.	Are all register and document (payment of wages, attendance and etc.) properly maintained?	**Y /N / NA**	
B.	**Community Safety and Site Security**		
1.	For GIS construction site/ DTRs located near the settlement/pathways is it barricaded/ fenced?	**Y /N / NA**	
2.	In case the excavation for poles/DTRs close to a pathway, reflective strips provided?	**Y /N / NA**	
3.	Are warning signage placed around the construction sites and at appropriate location?	**Y /N / NA**	

Sl.No	Items to be monitored	Response	Comments/Justification
C.	**Health and Safety of Worker (Safety to be monitored separately)**		
1.	When working at height are workers provided with full body harnesses and safety lifeline?	**Y /N / NA**	
2.	Are construction worker wearing helmets?	**Y /N / NA**	
3.	Are general PPE's like reflective jacket, mask, industrial shoe etc provided to all the construction workers?	**Y /N / NA**	
4.	Are first aid boxes provided and maintained by the contractors and is readily available during working hours?	**Y /N / NA**	
5.	Is firefighting equipment kept at the construction site?	**Y /N / NA**	
6.	Is appropriate number of urinals provided for the workers? ((1 unit for 15 male and 1 unit for 15 female).	**Y /N / NA**	
7.	Are toilets located away from the living quarters? Toilet would be located from 30 to 60 m from rooms/ dormitories.)	**Y /N / NA**	
8.	Are sufficient quantities of drinking water provided to labours? Enough drinking water to be provided at camp site, if any. (5 L per person to comply with IS 10500: 2012- Drinking Water Specification).	***Y /N / NA***	
9.	Are provisions of separate rest room crèche provided in case there are female workers	***Y /N / NA***	

Sl.No	Items to be monitored	Response	Comments/Justification
D.	**Environmental Management**		
1.	Has the excess excavated material form DTRs footing/Poles/GIS site etc been removed?	***Y /N / NA***	
2.	Water sprinkling system has been employed to reduce emission of PM10/PM2.5	***Y /N / NA***	
3.	Is excavated material properly kept such that they do not cause any obstruction to the community? (Please describe the measures taken in the comment box)	***Y /N / NA***	
4.	Have Sedimentation tank/ Oil water Separator been constructed in the GIS substation?	***Y /N / NA***	
5.	Has tree felling permission been obtained for the subproject, if applicable?	***Y /N / NA***	
6.	Is the number of trees felled more than the number specified in the permission? If yes specify reasons	***Y /N / NA***	

Sl.No	Items to be monitored	Response	Comments/Justification
7.	For forest land involved in the sub- project has Stage II Clearance been obtained? In case construction has begun on plots without forest clearance specify the total area of the plots.	**Y /N / NA**	
8.	For construction activity in forest areas has temporary woven wire mesh guards of about 2.4 m (8 ft.) high has been placed around the excavated areas?	**Y /N / NA**	
9.	Has bird guards and markers in HT lines as per the specification (IS-5613 (Part-II)?	**Y /N / NA**	
10.	Is silent generator used at the construction site?	**Y /N / NA**	
11.	Are noise generating machineries kept away from sensitive receptor?	**Y /N / NA**	
12.	Is the time of concrete casting work strategically planned not to cause nuisance to the surrounding people and environment? For GIS sub-station locations close to settlements is night-time work being undertaken? If yes, are permission being taken from Division/ Circle Office?	**Y /N / NA**	
13.	Have measures been adopted for reducing the usage of ground water for construction work? (Please mention the measures adopted)	***Y /N / NA***	

Sl.No	Items to be monitored	Response	Comments/Justification
E.	**Social Management**		
1.	Have construction activities resulted in the loss of standing crops? If yes has crop compensation been paid to the affected person?	***Y /N / NA***	
2.	In case of Procurement of private land compensation has been received by affected landowner before construction?	***Y /N / NA***	
3.	Has any common property been damaged/ destructed during the construction? If Yes, please mention the state of the reconstruction?	***Y /N / NA***	
4.	Have grievances been registered & redressed? If Yes, mention the cumulative and the no of cases this month.	***Y /N / NA***	

APPENDIX 9.3

Grievance Redressal Procedure of WBSEDCL

Step	GRIEVANCE REDRESSAL PROCEDURE
1	An agrieved consumer shall submit a concrete and detailed written petition about the grievance anlong with enclosures in 3(three) copies within 90 (ninety) days from the date of occurrence of the cause of action to the concern RGRO of his area / PGRO. If his grievance is the subject matter of any court case, he should furnish a copy of his planit and indicate the status of the court case or submit the order copy if the case is already resulted. The name, address, jurisdiction of RGRO and PGRO is given below: Name & address of PGRO : Chief Engineer(CRM),WBSEDCL, Vidyut Bhaban, Ground floor, Block - DJ, Sector - II, Salt Lake, Kolkata - 700 091. Telephone : 033-2334-5868 FAX : 033-2359-1943 (A PGRO working at the corporate level will, however, have jurisdiction over the entire area of the operation of WBSEDCL) Name & address of concerned RGRO ..... (To be filled up as per location of CCC/Office where such procdure will be displayed). (A RGRO working at region shall have jurisdiction coterminous with his official juridiction)
2	On receipt of the grievance petition from a consumer or the commission , the concern RGRO/PGRO should acknowledge the petition through a written communication within 7 (seven) working days from the date of receipt having/allaying a unique identification no (Consiqutive for each petition) follwed by year and date on which no is given.
3	If the grievance does not required any consultation with technical expert of the licensee or if it does not called a spot inspection, then the RGRO/PGRO shall, after giving reasonable opportunity to both parties,prepare a draft settlement order with analysis of the grievance rdressed and details of the compensation, if any, awarded in writting with direction to both parties to submit their views on the draft order within time frame fixed by the RGRO/ PGRO. On receiving the views on the draft order within time limit, if any, RGRO/PGRO shall fix up a date for further hearing to both parties following which he shall pass in this case of receiving any views on the draft order within time frame, RGRO/PGRO shall pass reasoned order.In case no such views received, PGRO/ RGRO shall pass reasoned order without hearing. Time limit for passing final order by RGRO/PGRO in this case shall be 40 (Forty) days from the date of sending acknoledgement to the petitioner.
4	If the grievance does required any consultation with technical expert of the licensee or if it does called a spot inspection or both, then the RGRO/PGRO (shall hold the said consultation and / or the spot inspection) shall,after giving reasonable opportunity to both parties,prepare adraft settlement order with analysis of the grievance redressed and details of the compensation, if any,awarded in writing with direction to both parties to submit their views on the draft order within time frame fixed by RGRO/PGRO. In this context, the views shall be provided by the licensee through any concerned officerin relation to the grievance other than RGRO or PGRO. On receiving the views on the draft order within time limit ,if any, the RGRO/PGRO shall fix-up a date for further hearing to both parties following which he shall in this case of receiving any views on the draft order within time frame, RGRO/PGRO shall pass reasoned order. In case no such views received, RGRO/PGRO shall pass reasoned order without hearing.Time limit for passing final order by RGRO/PGRO in this case shall be 60 (Sixty) days from the date of sending acknoledgement to the petitioner.
5	Each order of the RGRO/PGRO by which a consumer's grievance is finally disposed of shall contain information to the effect that the consumer may approach the Ombudsman for redressal of his grievance, if he feels dis-satisfied with the final order of RGRO/PGRO. Order shall mention full postal address,Telephone no:,e-mail address of Office the Ombudsman.
6	Written order copy (Certified) passed by RGRO/PGRO must be sent to the respective consumer and the licensee within 7 (Seven) working days from which the order is passed.
7	A reprsentation, in Annexure-I, in duplicate to the Ombudsman should normally be filled by the aggrieved consumer within 20 (twenty)working days: i) from the date of receiving an order from a RGRO/PGRO where the consumer is not satisfy with the order; or ii)from the date of expiry of the time limit where no order is received from the RGRO/PGRO within the time limit stipulated in step no. 3 & 4 ; or iii)after completition of 100 (one hundered) working days from the date of lodging of a complaint/grievance to a RGRO/PGRO where the licensee does not comply with the oeder of the RGRO/PGRO.

Format for filing Representation to the Ombudsman
(See Regulation 9.3)

Annexure - I

To
The Ombudsman,
West Bengal Electricity Regulatory Commission,
_____
_____
_____

Subject : Representation against an order of the GRO/CGRO of _____/ Representation against non-compliance of Order of GRO/CGRO by the licensee/Representation when the GRO/CGRO has not passed any Order on a grievance petition of the aggrieved consumer. Consumer's Service Connection No. : _____; Category _____; Location of Connection _____; Name of the Distribution Licensee _____; Consumer grievance no. with date given by the GRO/CGRO _____.

Sir,

[In this space please state the grievance in brief but please provide all relevant details]

Certified that the above information is complete and correct and nothing material has been omitted which will have effect on the case. I have filed/not filed any case pertaining to similar complaint in any Court of Law or under the provisions of the Electricity Act, 2003 with any other Authority (if any case/complaint has been filed, please enclose a copy of the plaint, a copy of any order received from any Court of Law etc.).

Yours faithfully,

(Signature with date)

Complainant's Name _____
Contact No./Telephone No. _____ (if any)
Postal Address : _____
_____

Encl. :

(a) Copy of the grievance petition submitted to the Grievance Redressal Officer
(b) Copy of Order, if any, passed by Grievance Redressal Officer
(c) Copy of any other relevant document in support (please specify)

INDIAN INSTITUTE OF SOCIAL WELFARE & BUSINESS MANAGEMENT

(Constituent Institute of University of Calcutta)

College Square West, Kolkata – 700 073 (West Bengal)