PART-4

Environmental & Social Impact Assessment (ESIA)
&
Environmental & Social Management Plan (ESMF)

THE WORLD BANK
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ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

HVDS & GIS SUB-PROJECT OF MURSHIDABAD DISTRICT UNDER WBEDGMP

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ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

FOR HVDS & GIS SUB-PROJECT OF MURSHIDABAD DISTRICT UNDER WBEDGMP WITH WORLD BANK FUND ASSISTANCE

Document No.: IISWBM/ESIA-WBSEDCL/2019-20/014 Version: 1.0

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
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Executed by

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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 HVDS & GIS at Murshidabad District 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.

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 HVDS & GIS sub-project in accordance with the set out scope of work and Terms of Reference (ToR).

WBSEDCL &IISWBM team members started field survey from 29th August 2020. The series of public consultation meeting conducted involving local people and Gram Panchayat Pradhan/Up-pradhan and members of selected GPs 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 involves conversion of LVDS in to HVDS and Installation of new GIS Substation in Murshidabad District of 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 Murshidabad District of West Bengal through strengthening and modernizing the distribution systems. Apart from benefits due to energy savings through the AT&C loss reduction and concurrent environmental benefits due to fact that energy saved is energy produced resulting in reduced GHGs emissions, implementation of the HVDS &GIS Sub-project derives several social benefits also. The reduction in DTR failure rate, enhanced power supply reliability and power quality, improved customer satisfaction. Improved power quality also enhanced the performance and life of consumer appliances thus lower repairing and maintenance cost to consumer. Lower DTR outage rate, reduced downtime of DTR and reduced breakdown of agricultural equipment, uplifted crop yield in agricultural areas, resulting community's economic boost.

The brief detail of scope of work for HVDS&GIS sub-project of Murshidabad District is presented in following table:

SNo	Particulars	Unit	Qty
Installation of New 33/ 11 kV GIS:			
1	33/ 11 kV Gas Insulated Sub-Station (2x10 MVA)	No	1
2	New 33 kV OH Line	Km	9.70
3	New 11 kV OH Line	Km	13.65
4	11 kV UG using 3Cx300 sq mm. XLPE	Km	2.0
5	33 kV 400 sq mm. XLPE UG Cable	Km	1.5
Implementation of HVDS:			
1	New 63 kVA, 11/0.433 kV Distribution Transformer on 9 mtr. long PCC Pole	No	44
2	Dismantling & re-erection of 63 kVA DTR on newly installed S/St by 9 mtr. long PCC Pole	No	152
3	New 25 kVA, 11/0.433 kV Distribution Transformer on 9 mtr. long PCC Pole	No	662
4	Dismantling & re-erection of 25 kVA DTR on newly installed S/St by 9 mtr. long PCC Pole	No	30
5	Dismantling & re-erection of 100 kVA DTR on newly installed S/St by 9 mtr. long PCC Pole	No	40
6	Erection of new 25 kVA DTR on existing St.	No	194
7	Erection of new 63 kVA DTR on existing St.	No	104
8	New 11 kV, 3-Ph Overhead Line on 9.0 mtr. PCC Pole by (3c x 95 + 1cx70) sq mm ABC	Km	47
9	New 11 kV, Overhead Circuit Line on 9 mtr. PCC Pole by ACSR Rabbit Conductor	Km	186
10	New LT 3-Ph Overhead Line on 8.0 mtr. PCC Pole by (3c x 50 + 1c x 16 + 1c x 35) sq mm ABC	Km	56
11	Phase conversion by LT 3-Ph (3c x 50 + 1c x 16 + 1c x 35) sq mm ABC Overhead Line on 8.0 mtr. PCC Pole	Km	1008
12	3 Ph 4W CT operated fully static AMR compatible Tri Vector Energy DTR meter	No	1226
13	Re-servicing with 2c x 4 sq mm PVC Cable	Km	310
14	Re-servicing with 4c x 25 sq mm PVC Cable	Km	5
15	Dismantling of 100 kVA DTR & returned to store	No	260
16	UG Cable laying work	Km	3
17	Dismantling & Re-fixing of 1P S/C	No	69300
18	Dismantling & Re-fixing of 3P S/C	No	1000
19	Dismantling of existing line with allied materials & returned to store	C-Km	1008

The location for the proposed GIS has been identified as per the WBSEDCL's guidelines for the purpose. The selected land (0.2 acre) for setting up proposed GIS Substations is at Cossimbazar under Berhampur Municipality of Murshidabad District. The proposed land would be procured by Berhampur Zilla Parishad as per West Bengal Land Procurement policy and would be transferred to WBSEDCL. The subject land is devoid of any encroachment no R&R and other social issues are involved.

The sub-project is expected to benefit about 7.10 million people covering 6004 sqkm area under Murshidabad District of West Bengal.

3.0POLICY& 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 I & II i.e. Conversion of LVDS into HVDS and setting up of GISs at Murshidabad District sub-project is classified as Low *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 sub-project area has been assessed to screen the potential environmental & social risks and impacts of various components of proposed sub-project activities. 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.

Murshidabad district lies between the 23º43'N and 24º52'N latitude and 87º49'E and 88º44'E longitude occupying an area of 6004 km². The analysis of Land Use and Land Cover of sub-project area indicate that out of total geographical area majority of land is agricultural crop land which accounts for75.12% followed by 14.7 % built-up rural area.

Air quality of the sub-project area is showing low to moderate level of air pollution particularly with respect to particulate pollutant (PM_{10}). The air quality recorded at selected load centres for conversion of LVDS in to HVDS as well as proposed GIS sites during the field survey i.e. September/November, 2020 air pollutants i.e. PM_{10}, $PM_{2.5}$ as well as major gaseous pollutants concentration were found well within the permissible national AAQS. The overall Air Quality Index (AQI) was also found in majority of places good to excellent i.e. 60 to 95. Similarly, ambient noise level of the majority of the project area showed that the value ranging from 55 to 65 dB which is well within prescribed limits.

The forest cover is 6.48 % of total geographical area with moderately dense forests 15% only and majority of which is open forests i.e. 85% as per State of forest report, 2019 of Forest Survey of India. As such, there is no Eco-Sensitive area including elephant corridors.

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 conversion of LVDS to HVDS and setting up of a GIS station.

Apart from benefits due to energy savings through the AT&C loss reduction and concurrent environmental benefits (i.e. reduction in GHGs emissions, etc), implementation of the HVDS & GIS Sub-project derives several social benefits also which includes:

- The reduction in DTR failure rate, enhanced power supply reliability and power quality, improved customer satisfaction.

- Improved power quality also enhanced the performance and life of consumer appliances thus lower repairing and maintenance cost to consumer.

- In conventional LVDS large numbers of end users are connected through LT lines and there is no control over connected load in practice. Often users connect loads to the system more than sanctioned loads which lead to DTR overloading and frequent outage. Unauthorized taping of power turns this problem even more severe.

- In HDVS only small number of consumer are connected to a single DTR and DTR sizing is optimized based on the consumers' sanctioned load, resulting no more over loading.

- Consumers feel ownership of the dedicated DTR thus they properly monitor the line and DTR. They also do not allow any unauthorized load to connect the system especially in agricultural areas. These eventually reduced the chances of power theft and DTR outage rate.

- In case of failure of DTR only few customers are affected and replacement or repair of small DTR is fast and cost effective to utility also.

- Lower DTR outage rate, reduced downtime of DTR and reduced breakdown of agricultural equipment, uplifted crop yield in agricultural areas, resulting community's economic boost.

- Enhanced power availability, quality and reliability, encourage more people to become entrepreneur which is beneficial to the society at large in terms of economic development.

The overall HVDS & GIS sub-project construction activity is on a very small spatial scale, and of a short duration. Hence environmental impacts during the construction phase are generally

insignificant and temporary. The assessed significance of likely environmental and social impact of conversion of LVDS in to HVDS and setting up of GIS at Murshidabad District 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	Very low on account of leakage	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
Damage to roads and transport infrastructure	Not anticipated	Not anticipated	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	Very Low	Not anticipated	Not anticipated	Not anticipated
Loss of livelihood	Not anticipated	Not anticipated	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 location for setting up of GIS sub-station, DTRs and additional HT/LT cable route alignment required for HVDS. 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 in the backdrop of requirement of robust and reliable electrical distribution infrastructure for sustained growth in economic activities in the area with reliable & un-interrupted supply of electricity to its citizens. The 'with' scenario of the HVDS & GIS sub-project is expected to provide a robust and reliable electrical network. The implementation of the HVDS & GIS Sub-project derives several benefits due to energy savings through the AT&C loss reduction and concurrent environmental benefits due to fact that energy saved is energy produced resulting in reduced GHGs emissions. The economic benefits of HVDS & GIS sub-project of Murshidabad District are likely to be Rs4722Lakhs with the pay-back period of four years.

The project preparation has considered several options/alternatives, during feasibility of route alignment of the additional HT/LT cable route required for implementation of HVDS. Since the most feasible route is to take it along existing RoW in most of the load centres, which has been considered 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 additional lines under the project have been so aligned that it takes care of above factors.

As regards GIS sub-station of Murshidabad District, Private land (0.20 acre) has been selected. The proposed land would be procured by Berhampur Zilla Parishad as per West Bengal Land Procurement policy and would be transferred to WBSEDCL. The subject land is devoid of any encroachment no R&R and other social issues are involved.

7.0PUBLIC CONSULTATION & DISCLOSURE

The public consultation process for the proposed HVDS & GIS Sub-project at Murshidabad District under WBEDGMP was conducted during the early stage of ESIA preparation i.e.

September 2020 after the lockdown in the country has been lifted. In compliance with this requirement, public consultation was carried out covering entire cross section of sub-project area with due precautions in light of prevailing pandemic situation in the country. 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 and crops	The agricultural land is not likely to be affected significantly due to proposed project. However, some crop may get damaged during construction period and suggested that adequate compensation should be given for crop damage, if any.
Electrocution and vandalism	The WBSEDCL should ensure the HVDS & GIS Sub-station along with HT lines are maintained in a good state of repair, with frequent monitoring and necessary corrective measures. It was agreed that no settle mentor 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 contractor would sprinkle water as and when necessary to minimize dust pollution, and construction to be done during the daytime only and to observe Noise regulations of CPCB.
Employment	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 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 9th September, 2020 at Office of the District Collector, Murshidabad to disclose the draft ESMF as well as ESIA & ESMP for HVDS & GIS sub-project for Murshidabad district under WBEDGMP and to get views and

suggestions from public on the "Possible Environmental and Social Impacts of the proposed HVDS & GIS sub-project for Murshidabad district. Total 35-40 participants attended (26 as per attendance list rest have not signed) the workshop which includes Hon'ble Sabhadipati Murshidabad Jilla Parishad, District Magistrate, Murshidabad, Shri Jagdish Prasad Meena, IAS, ADM, SDOs/BDOs, Sabhapati, Pradhans/Up-pradhans, Grampanchayat Members of selected area, RM Murshidabad along with other representatives of WBSEDCL Hq and Murshidabad District, IISWBM Team members, local residents including women and other stake holders. The various issues raised were responded, which were largely related to low voltage, frequent power failure and timely implementation of the works and public safety issues. The audience was given satisfactory replies to all issues and WBSEDCL has assured to commence the implementation of HVDS & GIS as soon as possible.

The draft ESIA shall be provided to key stakeholders and feedback received from stakeholders shall be incorporated into the final documents. The executive summary of final set of ESIA, shall be translated in local language and made available at Project Authority's state and sub-project offices (RM/DMs Murshidabad). The final documents in full will replace the draft documents in Project Authority's websites.

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 HVDS & GIS 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 HVDS & GIS sub-project. The details of budgetary provisions for implementation of ESMP for HVDS & GIS sub-project have been made.

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 HVDS & GIS sub-project and accordingly make required provisions for implementing the ESMP including the C-ESMP at the bidding stage itself.

9.0 INSTITUTIONAL ARRANGEMENTS & GRIEVANCE REDRESSAL MECHANISM

WBSEDCL has developed a Project Implementation Unit (WBSEDCL-PIU) for implementation of the HVDS & GIS 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 HVDS & GIS Sub-project under WBEDGMP. At the field level the Murshidabad Regional offices of WBSEDCL who would be responsible for implementing the technical aspects of the HVDS & GIS Sub-project under WBEDGMP would also be responsible for the implementation of the ESMP. In addition, the Contractor implementing the HVDS & GIS 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 HVDS & GIS 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.

The WBSEDCL PIU through the respective Region/Division Offices would monitor the implementation of the ESMP. The monitoring would be carried out through the subproject wise Monthly Progress Reports (MPR) submitted by the Murshidabad Region/Division Office of WBSEDCL. 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 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 HVDS & GIS at Murshidabad District 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 ofImpact), 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 a 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, if any, 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 construction of GIS and installation of poles/DTRs as well as laying the 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 damaged electrical poles(if any), disposal of excess transformers (if any), disposal of transformer oil (if any), etc.

- Assessment of the health and safety impacts of implementation of HVDS & GIS, 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 as well as GIS site 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 HVDS & GIS sub-project for Murshidabad District 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 HVDS & GIS sub-project at Murshidabad District 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.

As per the guidance and supervision of IISWBM team members WBSEDCL officers visited the project site on 28thAugust 2020. Initially, the detailed meeting was conducted at RM Murshidabad office to take the stock of present status of various feeders (11 and 33 kV HT & LT) as well as proposed sites for setting up of GIS. During the meeting, it was resolved that thepreliminarysurvey for selected feedershave been already undertaken to identify critical load centres under both the Divisions i.e.North Murshidabadand South Murshidabad so the Environmental and Social Impact Assessment Screening Study can be initiated for these areas immediately. Accordingly, WBSEDCL officers along with IISWBM team members visited the select area of Murshidabad District to understand the field condition and initiating the Environmental and Social Impact Assessment Study.

WBSEDCL & IISWBM team members started field survey from 29th August 2020. The series of public consultation meeting conducted involving local people and Gram Panchayat Pradhan/Up-pradhan and members of selected GPs along with the other stakeholders 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 HVDS & GIS Sub-project for Murshidabad District 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 HVDS & GIS sub-project design and proposed activities for conversion of LVDS to HVDS and setting up of GIS in Murshidabad District 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 HVDS & GIS sub-project.

Chapter 4 –Environmental& Social Baseline: This chapter describes baseline environmental& Social profile of the project area, within which the HVDS & GIS sub-project will be implemented. The baseline environmental& social conditions of the 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 HVDS & GIS 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 HVDS & GIS 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 HVDS & GIS sub-project.

Chapter 7 –Public Consultations and Information Disclosure: This chapter provides information on the public consultations carried out in HVDS & GIS sub-project areas 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 HVDS & GIS 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 HVDS & GIS 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.

2.0PROJECT 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 phenomenal growth in the last few years. The growth has been driven by trade, hotels, real estate, finance, insurance,

transport, communications, and other services.The state is now a 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 segments.

West Bengal implemented power sector reforms envisaged under the Electricity Act 2003 by way of unbundling erstwhile State Electricity Board with the 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 the last six years, a 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 the last six years. This has resultedinanenormous scope for the growth of the 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 a vast spread of LT Distribution network covering remote places, the 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** needs 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 uninterruptedly 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 a 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 the 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 the system and improving operational efficiencies.

- **Retaining existing large consumers:** The distribution utility faces another challenge in form of parallel licensees operating in the state with DVC and IPCL having overlapping areas near Asansol Town under the Burdwan district. 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.

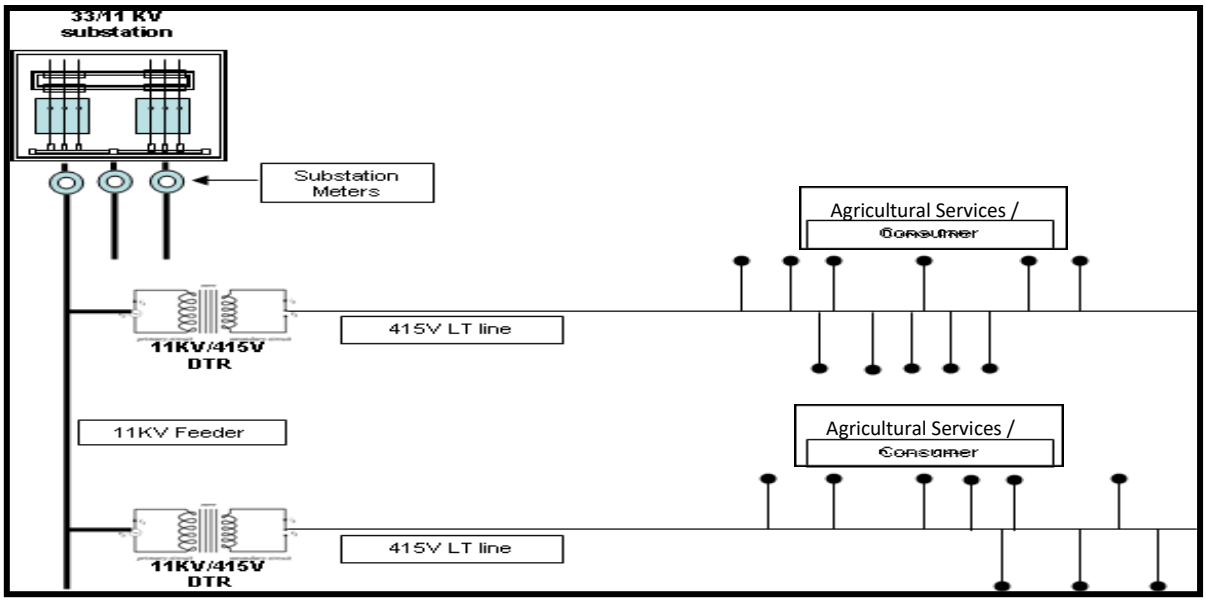
2.2 PROJECT OVERVIEW

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. Theselinesterminateata33kVsubstation,wherethevoltageisstepped-downto11kVforpower distribution to load points through a distribution network of lines at 11kV andlower.

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 from11kVto415VtoprovidethelastmileconnectionthroughLow-tension(LT)linestoindividual customers, either at 240V (as single-phase supply) or 415V (as three-phasesupply).

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 ruralareaswhereahighconcentrationofconsumersrequiresLTlinestocoveronlyshortdistances. Figure 2.1 presents electricity distribution in the existing LT network.

FIGURE 2.1: ELECTRICITY DISTRIBUTION IN EXISTING LT NETWORK

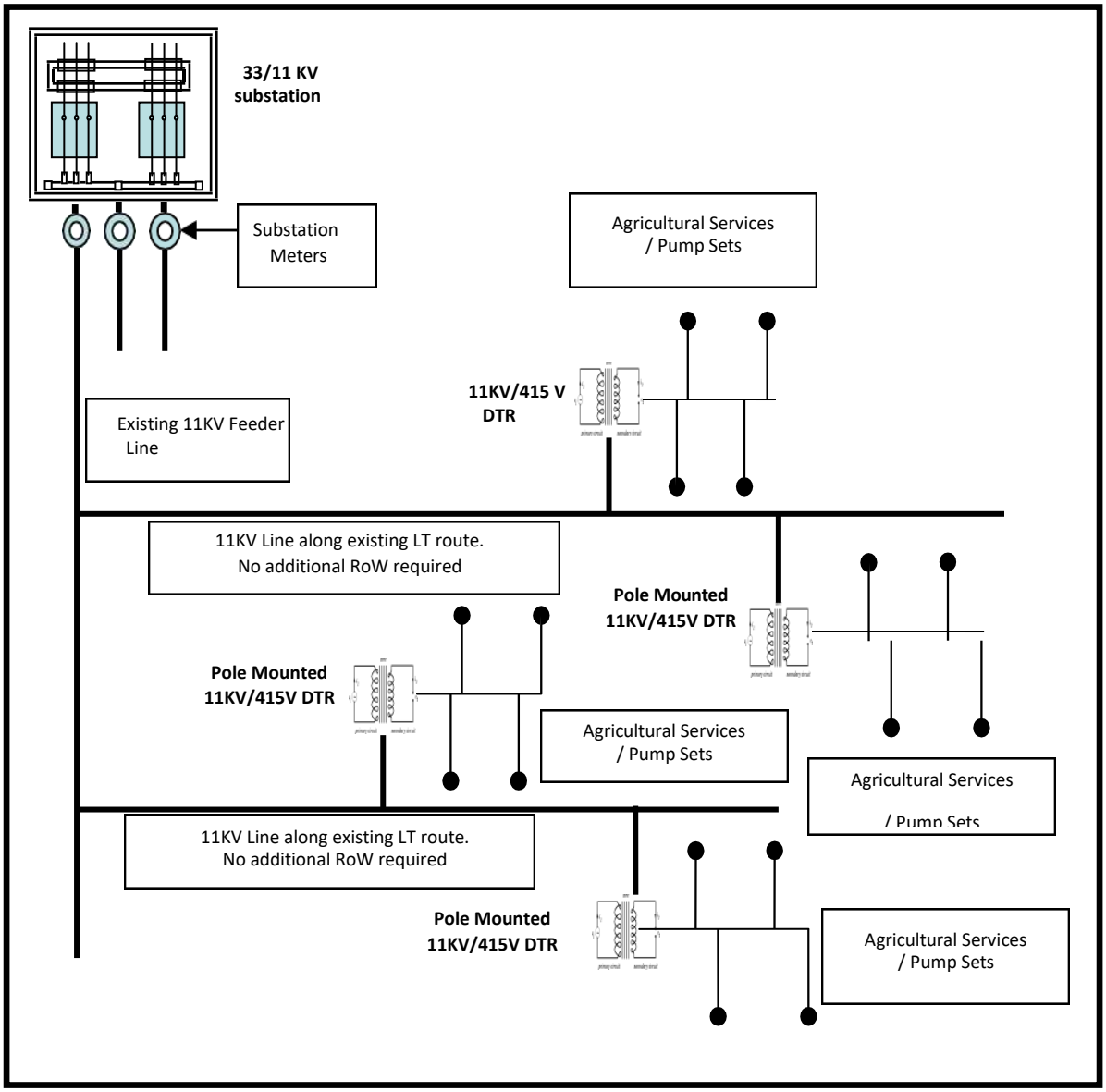


On the other hand, in rural areas, consumer concentration is dispersed over a relatively larger geographical area. As a result, lengthy LT lines are put in place which causes significant linelosses and voltage fluctuations. Consumers at the tail end of the LT line in particular face issues of low voltage. 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 unauthorized 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.

High Voltage Distribution System (HVDS)

A High Voltage Distribution System (HVDS) aims to address these issues in rural distribution by replacing existing 100/63 kVA transformers with large number of smaller capacity 3-phase distribution transformers (16/25 kVA) installed closer to the consumer load points, upgrading the voltage on Low Tension (LT) lines to 11kV lines, and replacing the existing conductors with LT Aerially Bunched (AB) cables connected to the 3-phase transformers. Electricity distribution using the HVDS network is depicted in Figure 2.2.

FIGURE 2.2: ELECTRICITY DISTRIBUTION USING THE HVDS NETWORK



Typical components of an HVDS installation include:

1. A 9 m PCC Pole
2. Small size one or more distribution transformers on 75x40 mm channel support
3. Extended service connection to the consumer using LT cable, ifrequired

AstheprojectinvolvesthereplacementofexistingLT lines with HT lines, there is very little additional construction work required as the existing poles are used. In some cases,

intermediary poles may be required to carry the HT line but these are along existingroutesandhence utilize theexistingRoW;no RoWis required for the LT lines and only standard electricity safety norms have to be followed. In less than 10% of cases, a new route for the HT lines may be undertaken if it provides a shorter distance to an 11kV feeder line; however, even in these cases, the RoWrequirements are insignificant as the utilities avoidtreeplantationsandinfieldsendeavortoerect the distribution poles on farm bunds rather than on cultivablelands.Further,asHVDSrequiressmallercapacityDTRs,thesearemountedoneithermono-polesorH-polesandtherefore, haveaminimal footprint.

Land &RoW Considerations

- No land required for HVDS as DTRs to be polemounted

- RoW:
  - Existing RoW to be used in majority of cases; as existing lines to be replaced, no additional RoWneeded as up to 11 kV RoW remain same;
  - Some intermediary poles may be erected, but these are few innumber;
  - In less than 10% cases new line may be laid if closer to 11Kv feeder; however, tree plantations are avoided to the extent possible.

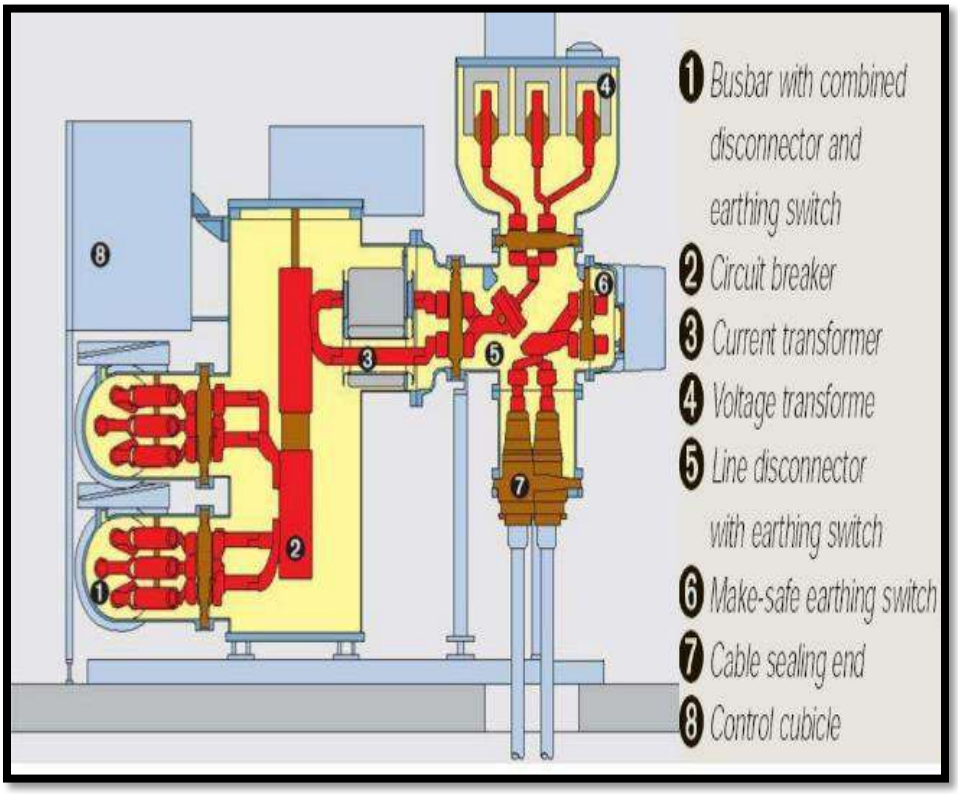
Extending the 11kV lines to as nearas the load-points as possible helps improve the quality of supply and reduces the line-losses normally seen with lengthy LT lines. In the HVDS system, LT over-head line is completely avoided, and instead, LTAB cable isused from DTR upto the consumer field, thus eliminating LT line faults. The project benefits include:

(i) Reduction in distribution transmission (DTR) failure rate;
(ii) Reduction in technical losses in thesystem;
(iii) Enhanced reliability & quality ofpower;
(iv) Enhanced customer satisfaction;and
(v) Avoidance of theft.

GAS INSULATED SWITCHYARD (GIS)

A gas-insulated switchyard (GIS) is a high voltage substation that uses a superior dielectric gas, Sulphur Hexafluoride (SF_6) for insulation purposes (Figure 2.3). The basic principle of gas-insulated equipment is that the high voltage current-carrying parts are within a metal enclosure and are held in a concentric configuration by cast epoxy spacer insulators. The space between the conductor and the enclosure is filled with SF6 gas under moderate pressure.

FIGURE 2.3: GAS INSULATED SWITCHYARD (GIS)



SF_6 is used in electrical power equipment because of its outstanding electrical, physical, and chemical properties enabling significant benefits for the electricity supply network:

- It insulates 2.5 times better than air (N_2)
- It has over 100 times better arc quenching capability than air (N_2)
- SF_6 also acts as a better heat dissipater than air.

In addition to this, LCA studies have proven that the use of SF_6 technology in the electrical distribution switchgear equipment results in lower overall direct and indirect environmental impacts compared to air-insulated switchyards.

There are significant numbers of benefits of GIS as follows:

Local Operator Safety

SF_6 has a substantial contribution to reducing accident risks. The total enclosure of all live parts in earth metal enclosures provides immanent protection against electric shock and minimizes the risks associated with human errors. The high-grade switchgear remains hermetically sealed for its whole service life.

Operational Reliability

SF_6 offers great operational reliability because inside the enclosed gas compartments, the primary conductors have complete protection against all external effects. The minimal use of synthetic reduces the fire load. The SF_6 insulation ensures complete freedom from oxidation for the contacts and screwed joints, which means that there is no gradual reduction in the current-carrying capacity of the equipment as it ages. There is no reduction in insulation capacity due to external factors.

Security of Supply

SF_6 insulated switchgear can also be used under difficult climatic conditions, for example, in humid areas with frequent condensations from temperature changes, and even in places with flooding potential and in areas where the reliability of the insulation might otherwise suffer from contamination, e.g. dust from industry or agriculture or saline deposits in coastal areas. Gas-insulated switchgear eliminates this possibility throughout the whole service life of an installation. In contrast to air insulation, whose insulating capacity reduces with increasing altitude, SF_6 insulated switchgear retain its full insulating capacity regardless of height above sea level. So larger and more costly special designs, or equipment with higher insulation ratings and therefore more costly, thus, avoided.

Space Requirement

Due to the high dielectric strength of the gas, the switchgear is compact with space requirements minimized. The excellent safety and low space requirement of SF_6 switchgear allow it to be sited directly in conurbations and close to load centers. Therefore, this fulfills one of the essentials of power distribution, namely, that substations should be placed as close as possible to load centers to keep transmission losses to a minimum to conserve resources and to minimize costs.

Economic and Ecological Features

The distinct economic benefit comes from the long service life and minimal maintenance expenditure due to gas-tight enclosures as well as reduced cost for land, buildings, transport, and commissioning.

Ecological and economic benefits arise from minimum transmission losses as a result of placing equipment close to load centers, reduced primary energy consumption, and emissions contribute to economically optimized power supply systems and the long service life of SF_6 switchgear also contributes to the conservation of resources.

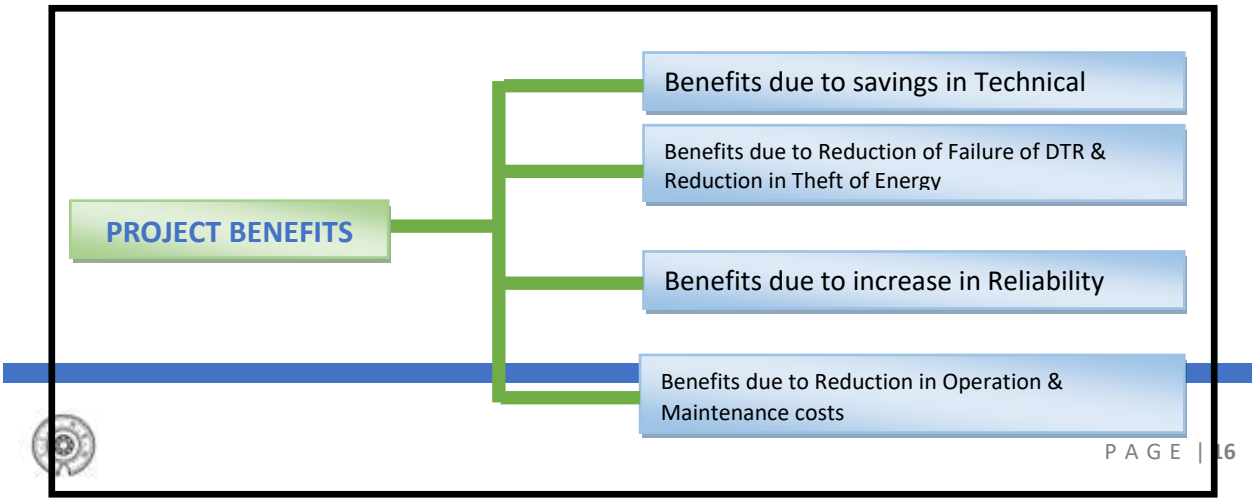
As the SF_6 installations are compact, need minimum maintenance, have extraordinarily high availability, and are independent of climatic impacts, they offer not only major ecological and economic advantages but can also be integrated seamlessly in any landscape or architecture of towns, cities or countryside. It leads to the possibility of reclamation of areas previously taken up by conventional substations.

2.3 PROPOSED PROJECT DEVELOPMENT OBJECTIVES AND BENEFITS

The development objective of the proposed project is to improve the availability and efficiency of electricity supply in Murshidabad District of West Bengal through strengthening the distribution systems. The prime benefits of proposed sub-project are presented in Figure 2.4. Key indicators to monitor progress towards achieving the development objective of the project are:

I. To meet up the increase in the load demand of thedistrict due to the load growth of existing consumers andtheaddition of new consumers.
II. To ensure increased customer satisfaction through reliability & quality of power.
III. To improve safety for consumers particularly in congested areas.
IV. To reduce line losses by taking the HV line almost up to the consumer load point.
V. To reduce commercial losses in the system byimproving billing and collection efficiency.
VI. To reduce AT&C losses in the system by 18.49% at the end of 2022.

FIGURE 2.4: PROJECT BENEFITS



2.4 PROJECT SITE SCENARIO

2.4.1 Location

The sub-project involves the Installation of HVDS & GIS Substations in Murshidabad District of West Bengal (Figure 2.5). The power map of Murshidabad District is presented in Figure 2.6.

FIGURE 2.5: LOCATION MAP OF MURSHIDABAD DISTRICT

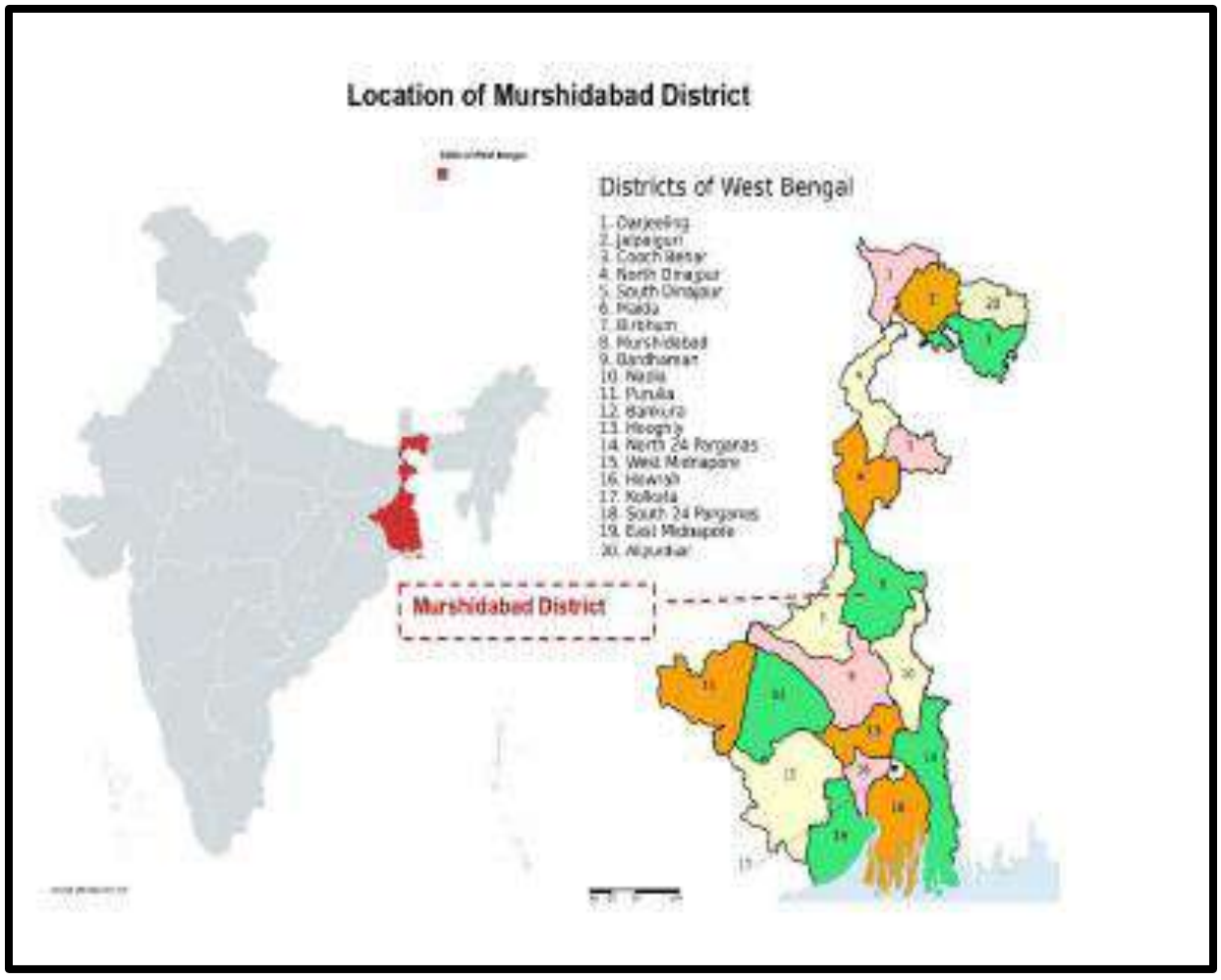
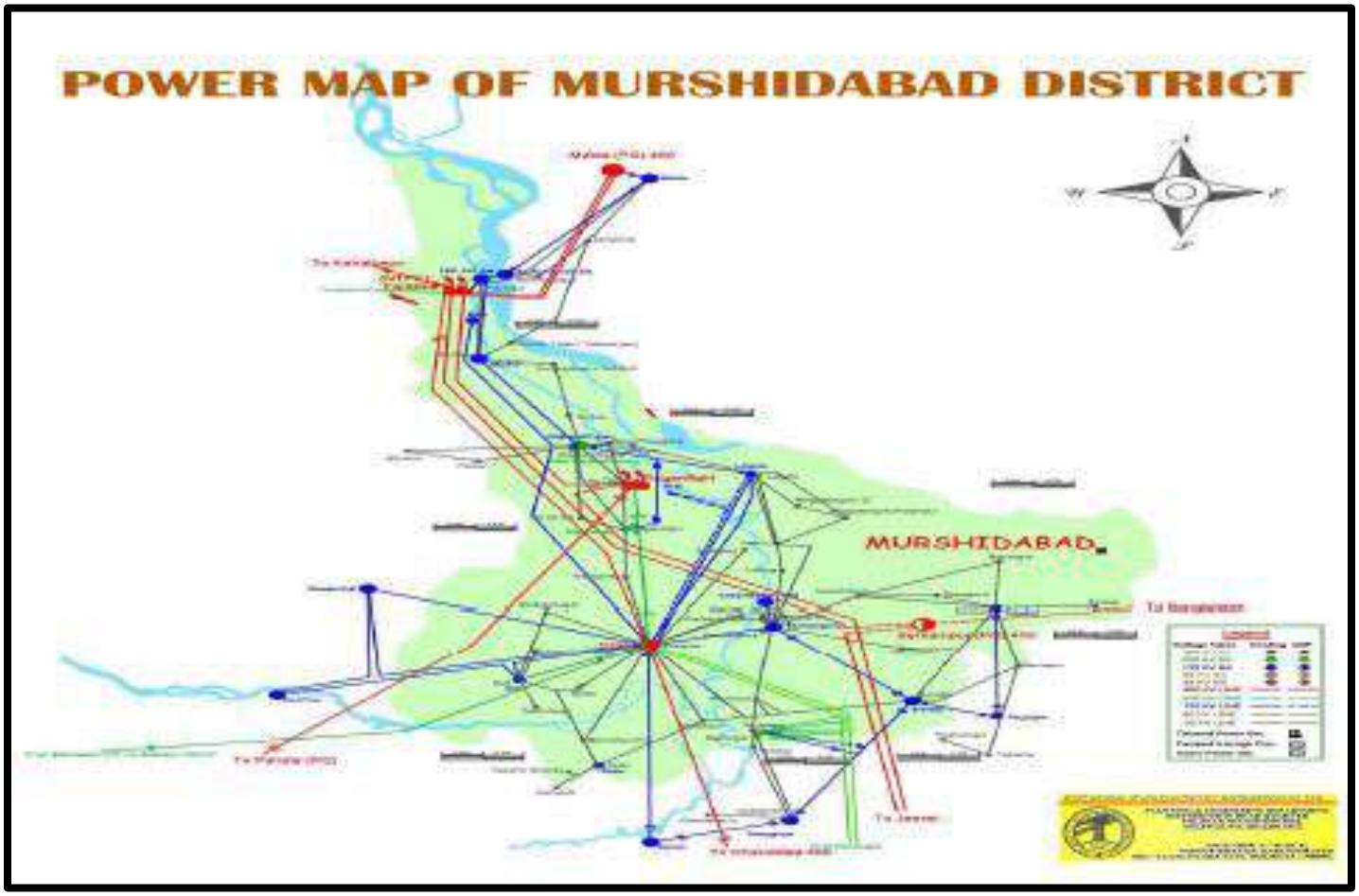


FIGURE 2.6: POWER MAP OF MURSHIDABAD DISTRICT



2.4.2 Consumer Details

The Category wise details of consumers in Murshidabad District of West Bengal are presented in Figure 2.7 and 2.8

FIGURE 2.7: CATEGORY WISE DISTRIBUTION OF CONSUMERS (BASED ON NOS OF CONSUMERS)

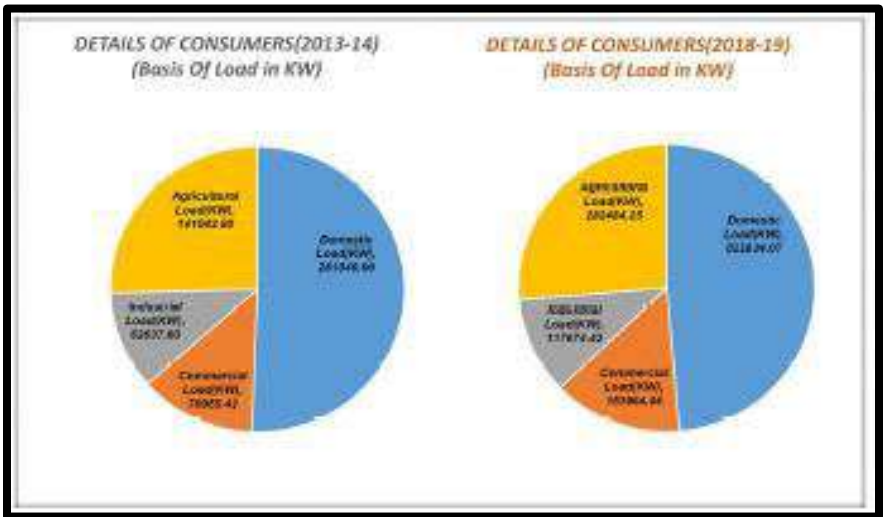
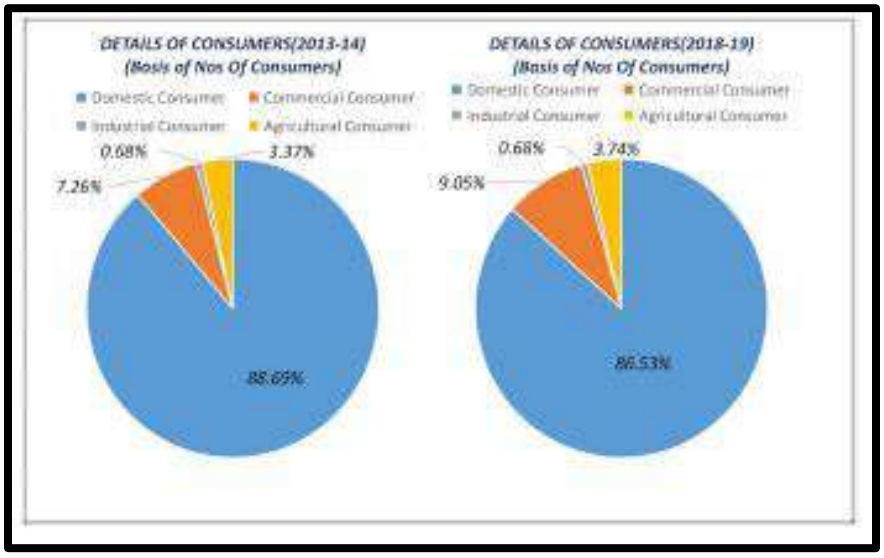
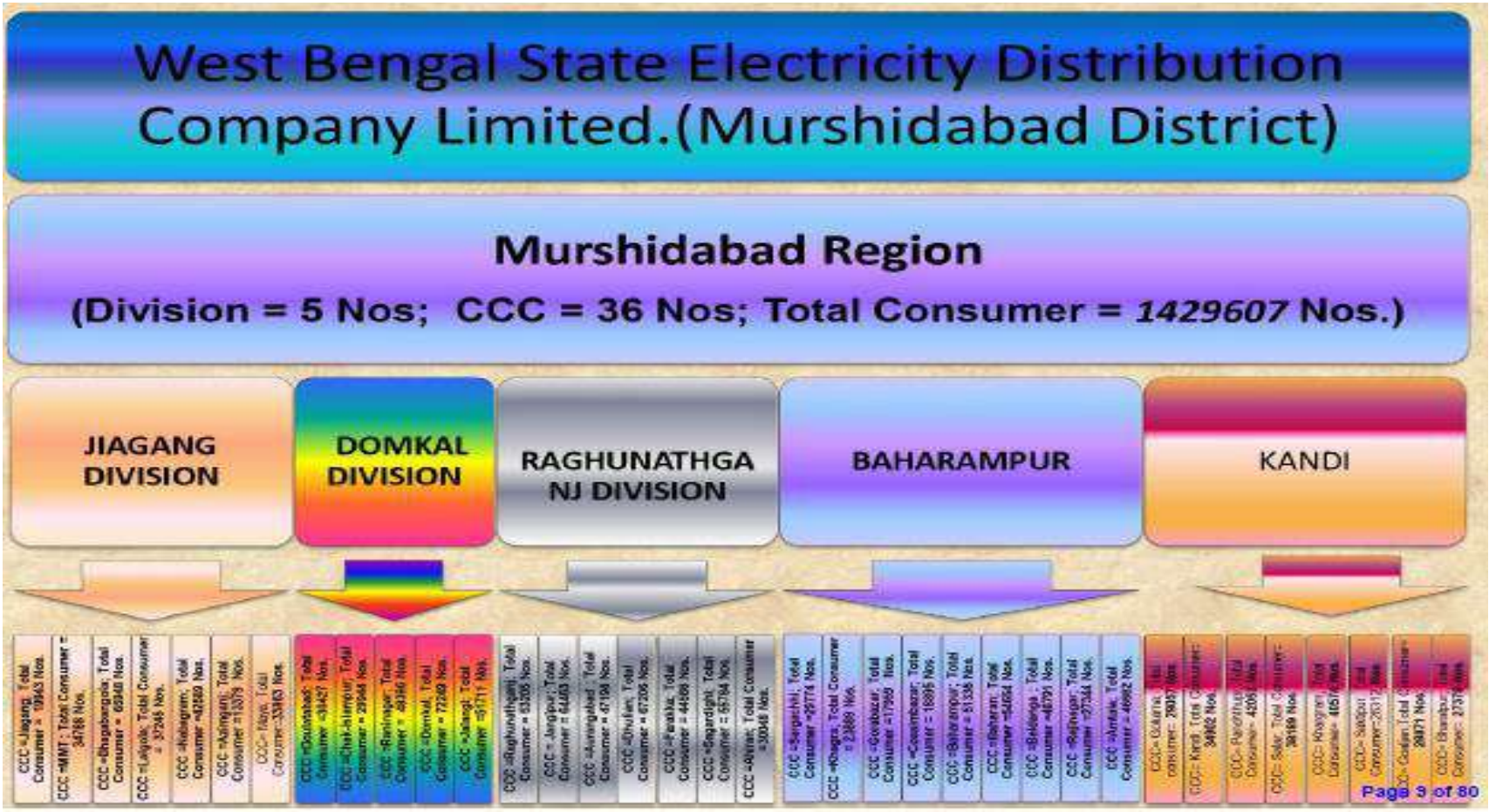


FIGURE 2.8: DISTRIBUTION OF CONSUMERS (BASED ON LOAD IN KW)



The Division and Customer Care Center wise detail of consumers in Murshidabad District are presented in Table 2.9.

FIGURE 2.9: CONSUMER PROFILE IN MURSHIDABAD DISTRICT



2.4.3 Annual Load Growth

The annual load growth in proposed HVDS sub-project area under Murshidabad District is presented in Table 2.1.

TABLE 2.1: ANNUAL LOAD GROWTH IN HVDS SCHEME AREA FORMURSHIDABAD DISTRICT

S. No	Name of Division	Name of CCC	Load details (MU)				Annual % load growth For	
			2013-14		2018-19			
			Energy Sold(MU) Collection	Demand In MU	Energy Sold(MU) Collection	Demand In MU	Scheme Area	Whole District
1	RAGHUNATH GANJ	RAGHUNATHGANJ	34.510	39.680	59.470	61.830	11.499	12.544
2		JANGIPUR	21.290	24.280	38.630	40.750	12.655	
3		AURANGABAD	20.080	25.260	40.880	45.420	15.279	
4		DHULIAN	23.590	27.600	50.000	53.590	16.211	
5		FARAKKA	12.930	15.650	28.820	30.580	17.387	
6		SAGARDIGHI	17.760	21.530	39.960	47.840	17.608	
7	KANDI	Kandi	12.650	23.360	24.670	36.160	14.292	
8		Bharatpur	6.450	10.420	15.690	22.410	19.457	
9		Salar	10.320	18.190	17.500	34.300	11.140	
10		Panchthupi	11.230	21.420	26.630	44.410	18.850	
11		Khargram	9.560	16.500	25.300	35.860	21.488	
12		Goaljan	9.380	13.480	21.210	27.250	17.725	
13		Saktipur	7.830	9.440	13.600	16.630	11.675	
14		Gokarna	6.840	14.830	13.510	22.680	14.583	
15	BERHAMPORE	KHAGRA	26.390	28.672	35.726	36.372	6.245	
16		GORABAZAR	24.477	27.877	32.631	33.445	5.919	
17		COSSIMBAZAR	16.321	18.217	24.555	25.394	8.512	
18		BERHAMPORE	32.334	39.579	51.531	53.335	9.770	
19		BAHARAN	14.408	18.615	27.122	29.345	13.486	
20		BELDANGA	25.872	34.056	31.282	34.576	3.871	
21		REJINAGAR	9.233	11.671	16.909	17.554	12.864	
22		AMTALA	14.246	17.370	23.830	24.909	10.837	
23		SARGACHI	0.000	0.000	16.801	17.476	#DIV/0!	
24	JIAGANJ	JIAGANJ	13.340	15.185	17.586	19.299	5.683	
25		MMT	18.871	25.654	27.170	30.539	7.562	
26		BHAGABANGOLA	17.159	20.850	30.307	32.990	12.050	
27		LALGOLA	28.126	30.730	41.037	43.373	7.848	
28		NABAGRAM	16.935	28.179	24.703	29.223	7.843	
29		AZIMGANJ	6.652	8.043	10.657	11.096	9.884	
30	DOMKAL	CHAK-ISLAMPORE	8.196	9.476	18.350	19.120	17.492	
31		DAULATABAD	9.833	13.544	19.070	21.150	14.165	
32		DOMKAL	18.711	23.256	40.070	43.070	16.451	
33		RANINAGAR	8.494	11.588	24.440	26.110	23.537	
34		JALANGI	13.540	18.572	22.880	26.960	11.063	
TOTAL			627.668	882.774	962.628	1086.048	12.544	

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 components, with the proposed contributions as follows:

Component I: Distribution system strengthening by way of implementing High Voltage Distribution System (HVDS) in Murshidabad District

Currently, several Distribution Transformers having higher capacity(100 KVA,63 KVA) are not located at their load centers,which results in a long length of LT lines causing high LT line loss. To reduce these losses, this higher capacity DistributionTransformers should be split into multiple nos. of lower capacity transformers and each of them should be placed near toloadcenter. This will improve the HT: LT ratio and reduce the technical losses.Further the single-phase,two-phase & three-phase LT lines are also old & in poor condition.For the Semi-Urban area havinghigher commercial loss, renovation of existing LT line by Aerial Bunched Cable is proposed in the theft-prone areas.Also, thedistribution transformer Sub-Stations which are very old, structures are old, damaged & rusted will be augmented.Renovation of HT & LT line will be done by replacement of old/ damaged cable/ conductor to improve the system reliability.

Component II: Construction of 1 no of 33/11KV GIS

Currently there are 40 Nos 33/11KV Sub-Station in Murshidabad district with a total installed capacity of 937.15 MVA.Most of the Sub-Station are running on saturation condition and requires installation of additional no of power Sub-Stations. Most of the 11KV feeder emanating from this Sub-Station are running under full load condition, resulting in poor voltage condition at the tail end of the existing 11kv feeder.Toovercome such a problem in the system new GIS Sub-Station has been proposed under the World-Bank funded project.The location for the proposed GIS has been identified as per the WBSEDCL's guidelines for the purpose (Appendix 3.2B). Figure 2.10 present the location of selected site for setting up proposed GIS sub-station. The detail of selected land for setting up proposed GIS Substations is as follows:

Location	Mouza	Municipality	District	Area of Land in Acres	Type of Land
Cossimbazar	Kalikapur	Berhampur Municipality	Murshidabad	0.20	Private Land

The proposed land would be procured by Berhampur Zilla Parishad as per West Bengal Land Procurement policy and would be transferred to WBSEDCL.The subject land is devoid of any encroachment no R&R and other social issues are involved (Appendix 6.1).

FIGURE 2.10: LOCATION OF THE PROPOSED GIS SITE AT COSSIMBAZAR UNDER BERHAMPUR MUNICIPALITY IN MURSHIDABADDISTRICT

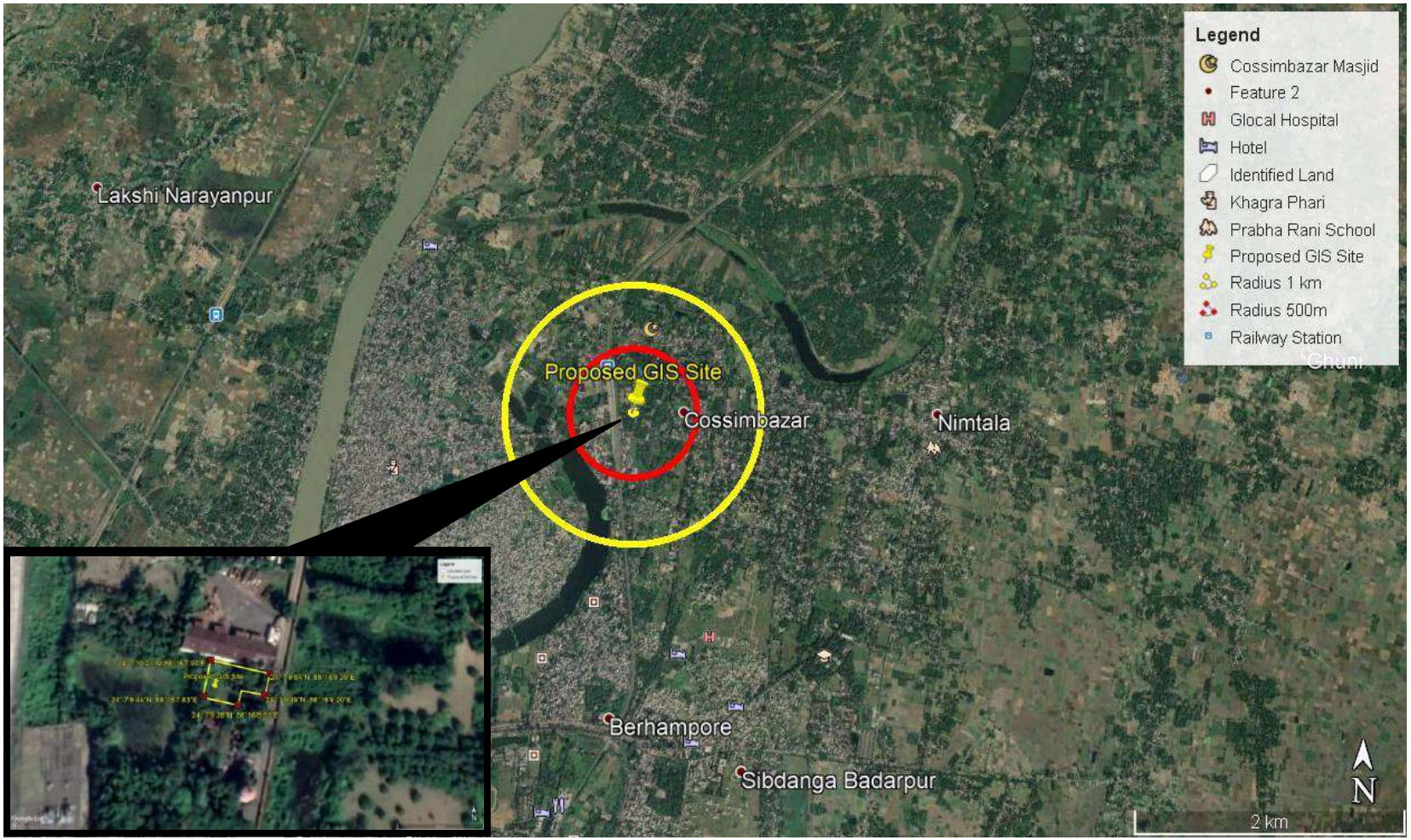


FIGURE 2.11: ACTUAL VIEW OF THE PROPOSED GIS SITE AT COSSIMBAZAR UNDER BERHAMPUR MUNICIPALITY IN MURSHIDABAD DISTRICT

The salient features of proposed sub-project are presented in Table 2.2.

TABLE 2.2: SALIENT FEATURES OF THE HVDS & GIS SUB-PROJECTOF MURSHIDABADDISTRICT

<table>
<tr><th>Particulars</th><th colspan="4">Details</th></tr>
<tr><td>Project Location</td><td colspan="4">Rural and Semi-Urban Areas in the District of Murshidabad, West Bengal.</td></tr>
<tr><td>Total Area of Coverage</td><td colspan="4">6004sq km</td></tr>
<tr><td>Total Number of Consumers</td><td colspan="4">1429607</td></tr>
<tr><td rowspan="20">Details of Scope of Work</td><td colspan="4">Installation of New 33/ 11 kV GIS S/STN along with 33 kV & 11 kV Line</td></tr>
<tr><td>SN</td><td>Particulars</td><td>Unit</td><td>Qty</td></tr>
<tr><td>1</td><td>33/ 11 kV Gas Insulated Sub-Station (2x10 MVA)</td><td>No</td><td>1</td></tr>
<tr><td>2</td><td>New 33 kV OH Line</td><td>Km</td><td>9.7</td></tr>
<tr><td>3</td><td>New 11 kV OH Line</td><td>Km</td><td>13.65</td></tr>
<tr><td>4</td><td>11 kV UG using 3Cx300 sq. mm. XLPE</td><td>Km</td><td>2.0</td></tr>
<tr><td>5</td><td>33 kV 400 sq. mm. XLPE UG Cable</td><td>Km</td><td>1.5</td></tr>
<tr><td colspan="4">Implementation of HVDS</td></tr>
<tr><td>SN</td><td>Particulars</td><td>Unit</td><td>Qty</td></tr>
<tr><td>1</td><td>New 63 kVA, 11/0.433 kV Distribution Transformer on 9 mtr. long PCC Pole</td><td>No</td><td>44</td></tr>
<tr><td>2</td><td>Dismantling & re-erection of 63 kVA DTR on newly installed S/St by 9 mtr. long PCC Pole</td><td>No</td><td>152</td></tr>
<tr><td>3</td><td>New 25 kVA, 11/0.433 kV Distribution Transformer on 9 mtr. long PCC Pole</td><td>No</td><td>662</td></tr>
<tr><td>4</td><td>Dismantling & re-erection of 25 kVA DTR on newly installed S/St by 9 mtr. long PCC Pole</td><td>No</td><td>30</td></tr>
<tr><td>5</td><td>Dismantling & re-erection of 100 kVA DTR on newly installed S/St by 9 mtr. long PCC Pole</td><td>No</td><td>40</td></tr>
<tr><td>6</td><td>Erection of new 25 kVA DTR on existing St.</td><td>No</td><td>194</td></tr>
<tr><td>7</td><td>Erection of new 63 kVA DTR on existing St.</td><td>No</td><td>104</td></tr>
<tr><td>8</td><td>New 11 kV, 3-Ph Overhead Line on 9.0 mtr. PCC Pole by (3c x 95+1cx70) sq. mm ABC</td><td>Km</td><td>47</td></tr>
<tr><td>9</td><td>New 11 kV, Overhead Circuit Line on 9 mtr. PCC Pole by ACSR Rabbit Conductor</td><td>Km</td><td>186</td></tr>
<tr><td>10</td><td>New LT 3-Ph Overhead Line on 8.0 mtr. PCC Pole by (3c x 50 + 1c x 16 + 1c x 35) sq. mm ABC</td><td>Km</td><td>56</td></tr>
<tr><td>11</td><td>Phase conversion by LT 3-Ph (3c x 50 + 1c x 16 + 1c x 35) sq. mm ABC Overhead Line on 8.0 mtr. PCC Pole</td><td>Km</td><td>1008</td></tr>
<tr><td>12</td><td>3 Ph 4W CT operated fully static AMR compatible Tri Vector DTR Energy meter.</td><td>No</td><td>1226</td></tr>
<tr><td>13</td><td>Re-servicing with 2c x 4 sq. mm PVC Cable</td><td>Km</td><td>310</td></tr>
<tr><td>14</td><td>Re-servicing with 4c x 25 sq. mm PVC Cable</td><td>Km</td><td>5</td></tr>
</table>

Particulars	Details			
	15	Dismantling of 100 kVA DTR & returned to store	No	260
	16	UG Cable laying work	Km	3
	17	Dismantling & Re-fixing of 1P S/C	No	69300
	18	Dismantling & Re-fixing of 3P S/C	No	1000
	19	Dismantling of existing line with allied materials & returned to store	Km	1008
Commissioning Schedule	The project is scheduled to be commissioned within 24 months from the date of notification of award.			

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

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 ofact.

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
		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 of33kV system in the State which authorizes 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

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
iv.	Ozone Depleting Substances (Regulation and Control) Rules,2000	As per the notification, certain control and regulation has been imposed on manufacturing, import, export, and use of these compounds.
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 restricts 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 water extraction required. As in the proposed sub-project water requirement is proposed to be met from the recycled water. However, in case groundwater extraction is required for proposed GIS substation the applicable required clearance would be taken from the concerned authority.

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

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project
		available. The salient features of the provisions of this policy are given in **Appendix 3.2.**
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 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 w.e.f. August2009 by MoEF shall be followed by WBSEDCL if required.
8.	Indian Treasure Trove Act, 1878as amended in1949	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 3.3presents 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 categories: 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 I& II i.e. Conversion of LVDS to HVDS and setting up of GIS at Murshidabad Districtsub-project is classified as Low Risk .This isdue 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.).

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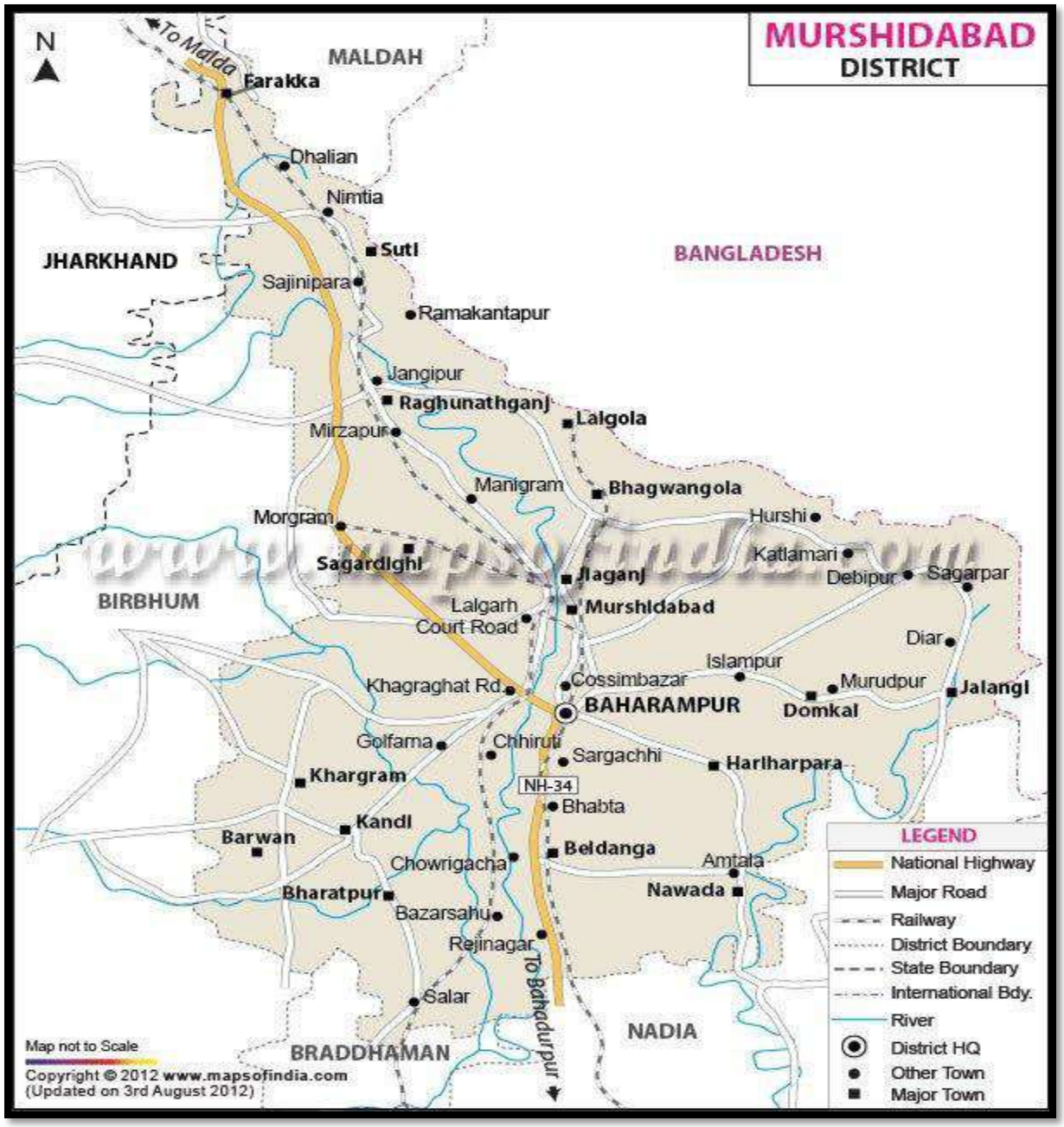
4.0 ENVIRONMENTAL & SOCIAL BASELINE

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 sub-project of Murshidabad District under the State of West Bengal. 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

Murshidabad district is a part of the Indian State of West Bengal. It is situated on the left bank of the river Ganga.Geographically Murshidabad is in the middle of West Bengal lying between 23º43'N and 24º52'N latitude and 87º49'E and 88º44'E longitude with HQ at Berhampur (Figure 4.1).It has a total area of 5316.11 sq. km. Padma River flows through the entire eastern boundary, separating the district from the districts of Malda and Rajshahi (Bangladesh). The district has an international border with Bangladesh covering a distance of 125.35 km of which 42.35 km is on land and the remaining is riverine.

FIGURE 4.1: LOCATION MAP OF MURSHIDABAD DISTRICT



4.2 ENVIRONMENTAL BASELINE

4.2.1 Geology

Geological set of Murshidabad from the geological point of view there are some eminent geologists the eastern bank of river Bhagirathi is an extended part of Sub-Vindhayan era. Apart from the northwestern part and eastern bank of river Bhagirathi the remaining part of this district belongs to recent era. All these major parts were formed, which are mainly recent alluvial depositions, due to depositional work of regional rivers and streams. The lithological composition is mainly sand, and clay dominated.

The river system composed of the Ganges and its distributaries, of which the most important are Bhagirathi, Jalangi, and Bhairab. Formerly large rivers with an active current, they are now merely spill channels of the great river which during the rains carry off a portion of flood water, but the remainder of the year have a very sluggish current.

4.2.2 Geomorphology

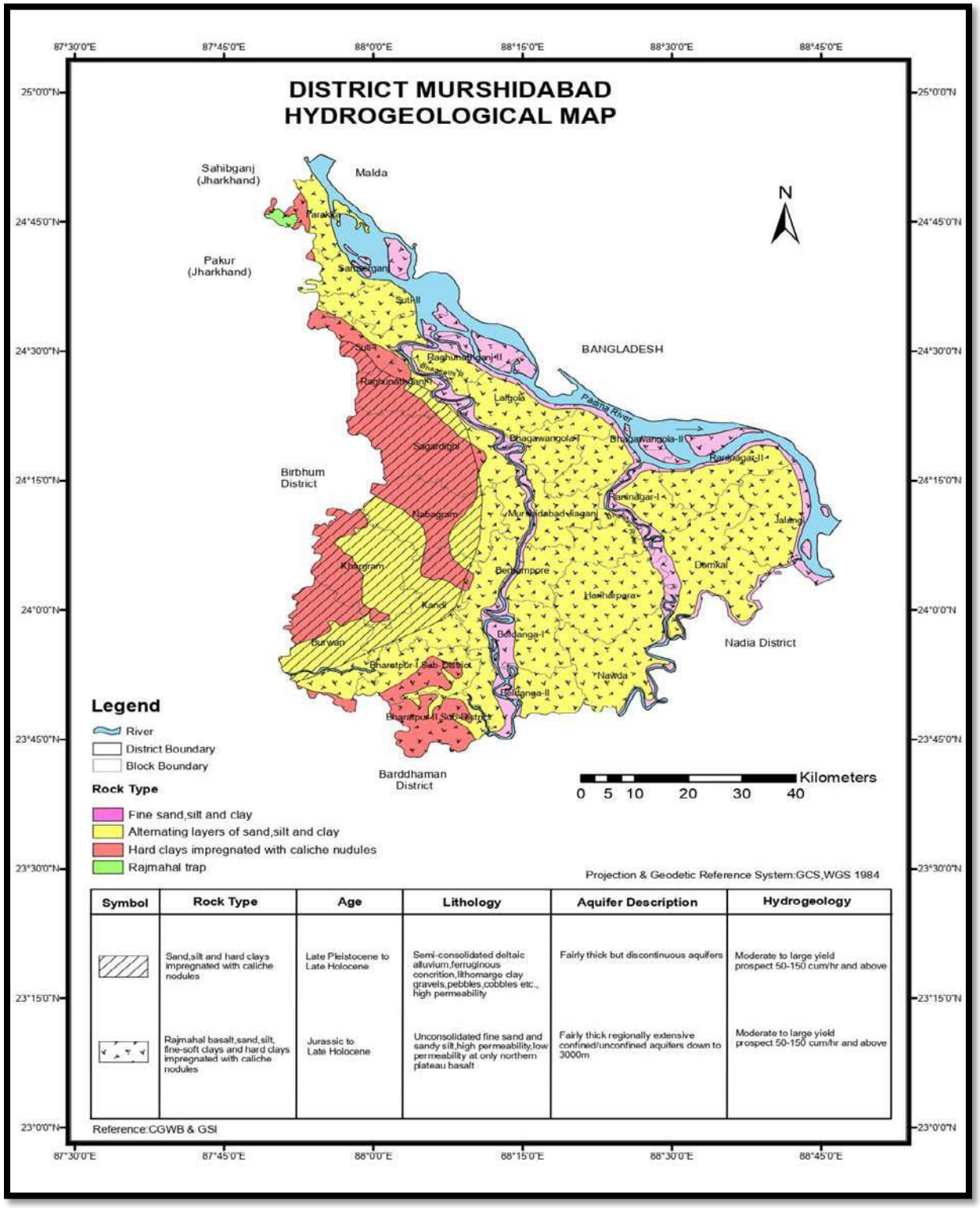
The Murshidabad district is entirely belongs to alluvial plane topography with meander scar, cut off/ abandoned channel, point bar, natural levee type landforms. The area under study, lying in eastern part of Bhagirathi river, is generally flat topography with surface elevation ranging from 2- 27 m above MSL. The slope of land is 0.60 m per km from north to south. Geomorphic unit is only Younger deltaic plain.

4.2.3 Hydrogeology

In Murshidabad district Ground water in the area occurs in a thick zone of saturation in the alluvium deposited by the river system. The aquifers made up of different grades of sand and gravel, extends down to a depth of 90-350m bgl in the east and 140 to 150m bgl in the west of Bhagirathi river, respectively. Groundwater generally occurs under water table condition in the east (Figure 4.2).

The average pre-monsoon depth to water level during 2011 was 1.3 to 15.2m bgl in dug wells and 4.5 to 23.1m bgl in piezometers whereas the average post-monsoon depth to water level during 2011 was 1.195 to 17.26m bgl in dug wells and 1.93 to 17.21m bgl in piezometers. The long term water level trend in 10 years (2002-2012) has been declining to the tune of 0.007 to 0.761m/yr and rising trend to the tune of 0.006 to 2.192 m/yr.

FIGURE 4.2: HYDROGEOLOGICAL MAP OF MURSHIDABAD DISTRICT

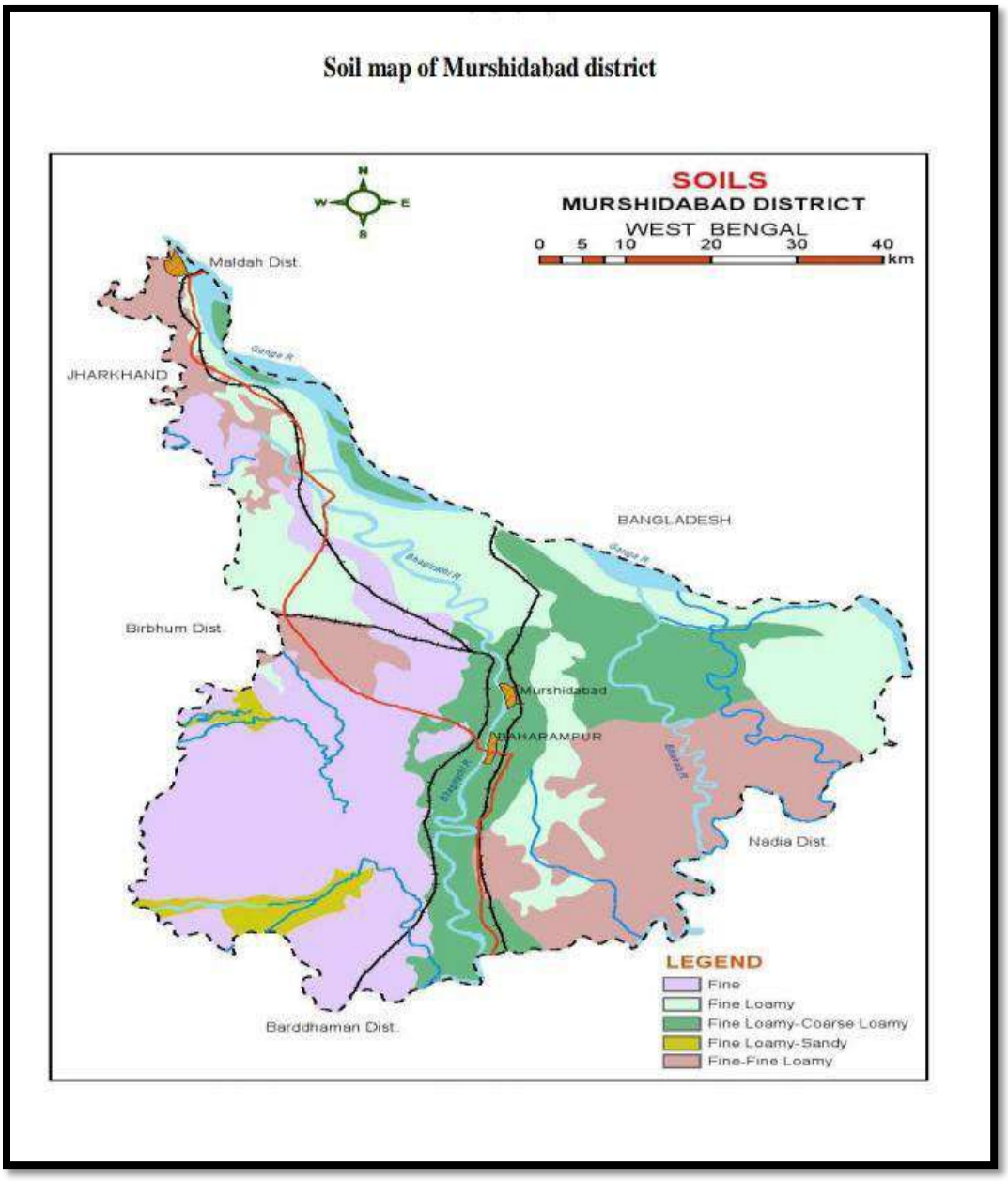


Symbol	Rock Type	Age	Lithology	Aquifer Description	Hydrogeology
	Sand,silt and hard clays impregnated with caliche nodules	Late Pleistocene to Late Holocene	Semi-consolidated deltaic alluvium,ferruginous concrition,lithomarge clay gravels,pebbles,cobbles etc., high permeability	Fairly thick but discontinuous aquifers	Moderate to large yield prospect 50-150 cum/hr and above
	Rajmahal basalt,sand,silt, fine-soft clays and hard clays impregnated with caliche nodules	Jurassic to Late Holocene	Unconsolidated fine sand and sandy silt,high permeability,low permeability at only northern plateau basalt	Fairly thick regionally extensive confined/unconfined aquifers down to 3000m	Moderate to large yield prospect 50-150 cum/hr and above

4.2.4 Soil

Soil of the Murshidabad district is known as 'Bagri' area, the soil is light alluvium type with comparatively light texture (Figure 4.3). The soil is low in organic carbon content and soil reaction is slightly acidic to neutral. Main types of soil in the study area are sandy soil, sandy loam, clay and clayey loam.

FIGURE 4.3: SOIL MAP OF MURSHIDABAD DISTRICT



4.2.5Land Use & Land Cover

The land use pattern of Murshidabad District is presented in Figure 4.4. The analysis of Land Use and Land Cover of Murshidabad District indicate that out of total geographical area of Murshidabad District i.e. 5324sqkm indicate that majority of land is agricultural crop land which accounts for 75.12% followed by 14.7 % built-up rural area (Figure 4.5).

FIGURE 4.4: LAND USE PATTERN OF MURSHIDABAD DISTRICT

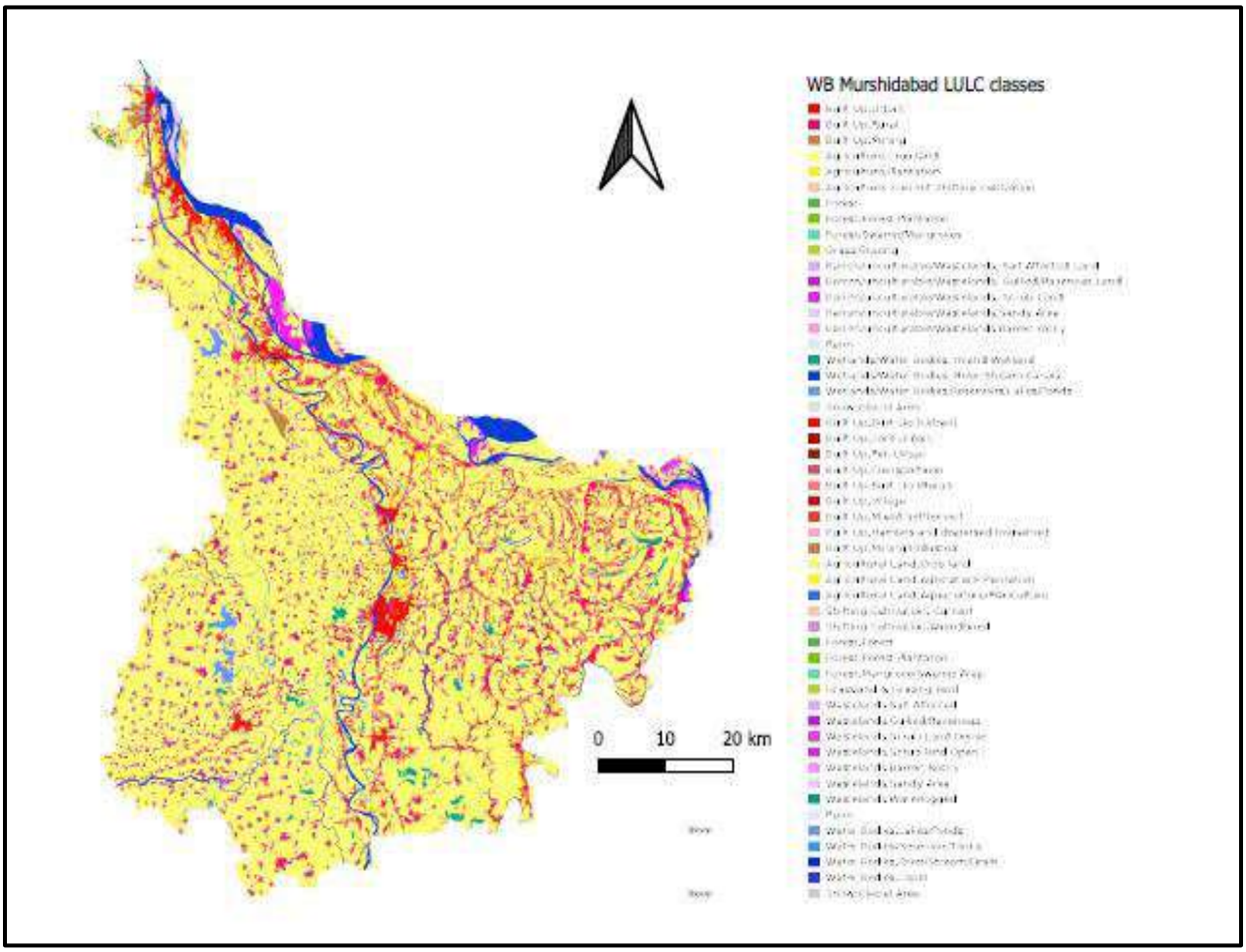
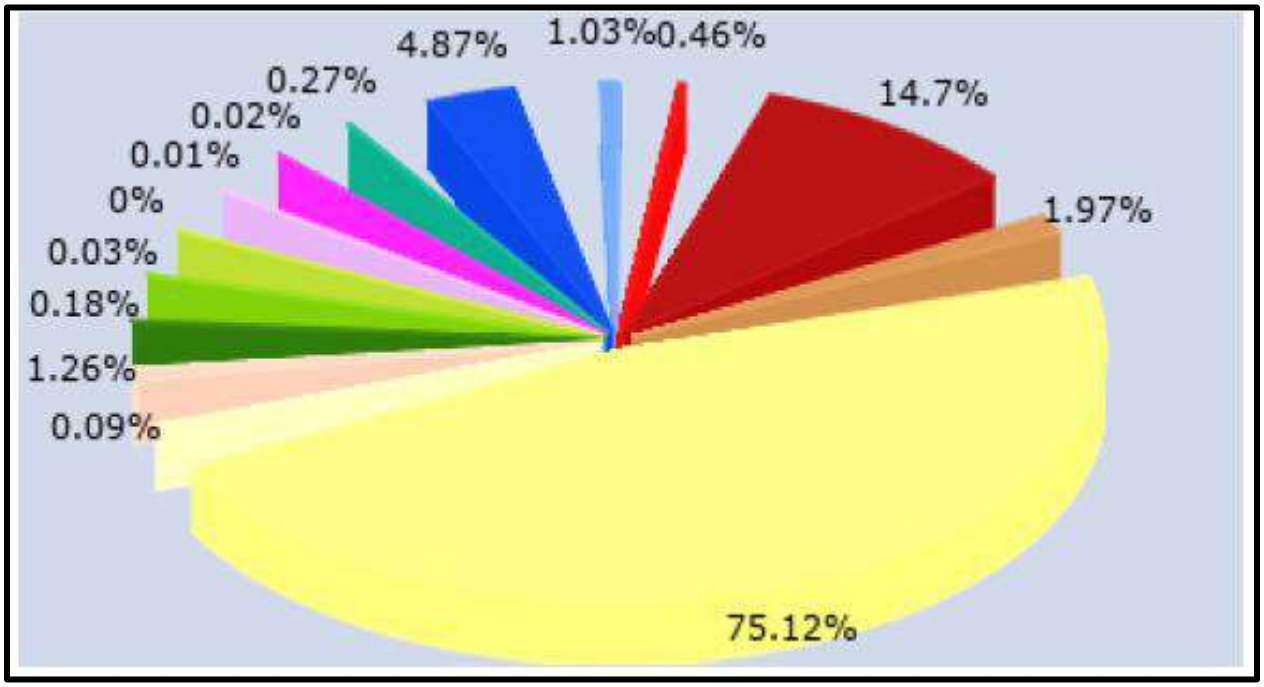


FIGURE 4.5: LAND USE LAND COVER OF MURSHIDABAD DISTRICT



LULC Class	Area (Sq.Km)	LULC Class	Area (Sq.Km)
Builtup,Urban	24.38	Builtup,Rural	782.37
Builtup,Mining	105	Agriculture,Crop land	3999.49
Agriculture,Fallow	4.79	Agriculture, Current Shifting Cultivation	67.14
Forest,Evergreen/ Semi evergreen	9.7	Forest,Forest Plantation	1.34
Grass/Grazing	0.24	Barren/unculturable/ Wastelands, Salt Affected land	0.31
Barren/unculturable/ Wastelands, Scrub land	0.99	Wetlands/Water Bodies, Inland Wetland	14.45
Wetlands/Water Bodies, River/Stream/canals	259.07	Wetlands/Water Bodies, Reservoir/Lakes/Ponds	54.74
Total			5324

4.2.6 Climate

Murshidabad has a tropical wet-and-dry climate. The annual mean temperature is approximately 27 °C ; monthly mean temperatures range from 17 °C to 35 °C . Summers are hot and humid with temperatures in the low 30s and during dry spells the maximum temperatures often exceed 40 °C during May and June. Winter tends to last for only about two and a half months, with seasonal lows dipping to 9 °C – 11 °C between December and January. On an average, May is the hottest month with daily average temperatures ranging from a low of 27 °C to a maximum of 40 °C, while January the coldest month has temperatures varying from a low of 12 °C to a maximum of 23 °C.

4.2.7 Air Quality

Air quality status of Murshidabad districts is shown in the Table 4.1. Air quality of the sub-project area is showing particulate pollutant (PM_{10})is within the NAAQS limit. Also, the gaseous pollutants level is considerably lower than national ambient standard (Figure 4.6). The analysis of monthly variation of air quality in Murshidabad District reveals that PM_{10} is within permissible national standard i.e. 100 ug/m^3except in winter months (Table 4.2-4.3& Figure 4.7-4.8).

TABLE 4.1: STATUS OF AMBIENT AIR QUALITY OF MURSHIDABAD DISTRICT

Districts	AQ-µg/m^3 (August 2020)		
	NO_2	PM_{10}	SO_2
Murshidabad	14.99	60.12	2.00
NAAQS*	80.00	100.00	80.00

*National Ambient Air Quality Standard, Ministry of Environment, Forest & Climate Change, Government of India, 2009
Source: WBPCB, 2019

FIGURE 4.6: COMPARISON BETWEEN NAAQS &AMBIENT AIR QUALITY OF MURSHIDABAD DISTRICT

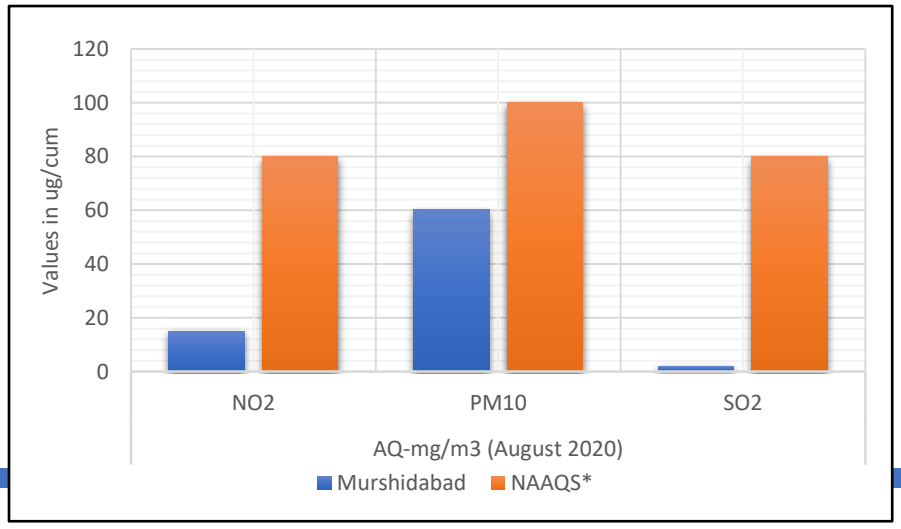


TABLE 4.2: MONTHLY VARIATION OF AMBIENT AIR QUALITY OF MURSHIDABAD DISTRICT DURING 2018-19

MONTH	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)
April'2018	47.18	163.80	9.75
May'2018	47.18	163.80	9.75
June'2018	47.18	163.80	9.75
July'2018	47.18	163.80	9.75
August'2018	47.15	162.77	9.77
Sept'2018	47.15	162.77	9.77
Oct'2018	47.15	162.77	9.77
Nov'2018	47.07	158.29	9.70
Dec'2018	47.07	158.29	9.70
Jan'2019	33.72	118.80	8.95
Feb'2019	30.19	113.78	9.06
Mar'2019	25.92	106.17	6.93

FIGURE 4.7: MONTHLY VARIATION OF AMBIENT AIR QUALITY OF MURSHIDABAD DISTRICT

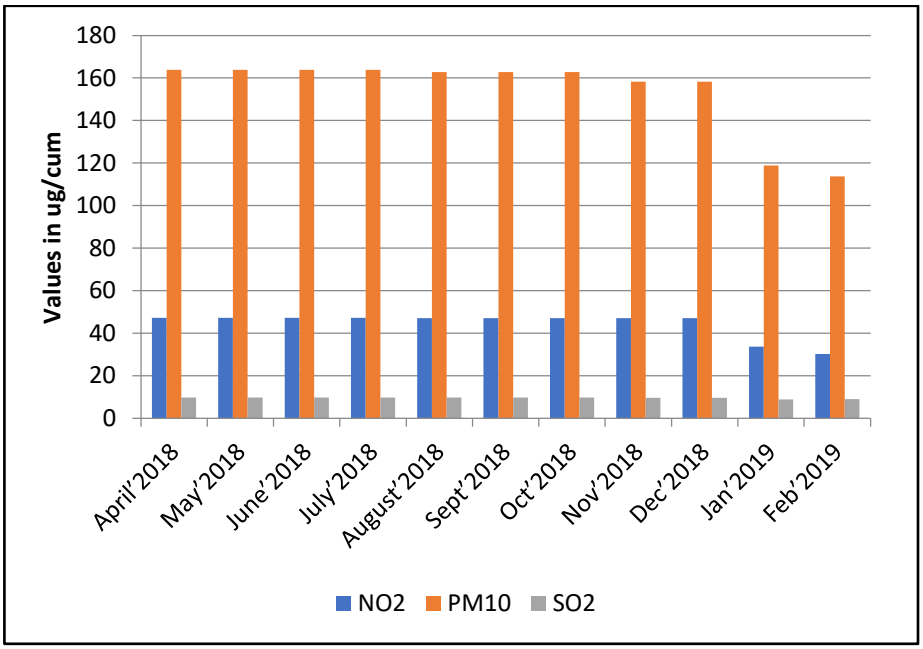
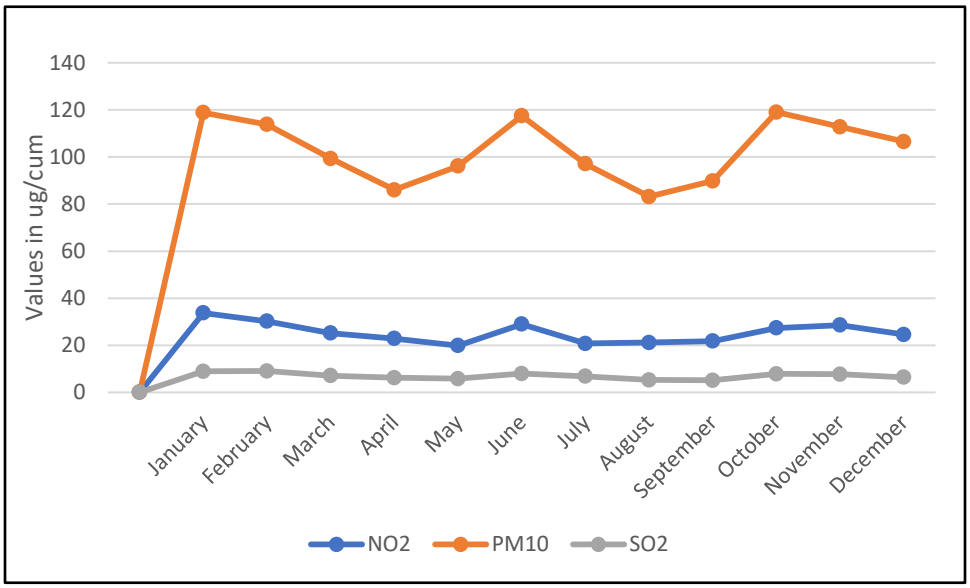


TABLE 4.3: MONTHLY VARIATION OF AMBIENT AIR QUALITY OF MURSHIDABAD DISTRICT DURING YEAR 2019

Month	NO2 ($\mu g/m^3$)	PM10 ($\mu g/m^3$)	SO2 ($\mu g/m^3$)	AQI
January	33.72	118.80	8.95	119
February	30.19	113.78	9.06	114
March	25.17	99.33	7.08	99
April	22.87	86.03	6.21	86
May	19.90	96.13	5.78	96
June	28.98	117.50	7.99	112
July	20.78	97.06	6.80	97
August	21.18	83.13	5.27	83
September	21.77	89.79	5.09	90
October	27.36	119.05	7.82	113
November	28.57	112.78	7.7	109
December	24.57	106.52	6.43	104
2019 Average	**25.42**	**103.33**	**7.02**	**102**

FIGURE 4.8: MONTHLY VARIATION OF AMBIENT AIR QUALITY OF MURSHIDABAD DISTRICT



The air quality recorded at selected load centres for conversion of LVDS to HVDS as well as proposed GIS sites during the field survey i.e. September/November 2020 air pollutants i.e. PM_{10}, $PM_{2.5}$ as well as major gaseous pollutants concentrations were well within the permissible national AAQS (Table 4.4 a &b). The overall Air Quality Index (AQI) was also found in majority of places good to excellent i.e.60 to 95 (Figure 4.9)

TABLE 4.4 (a): STATUS OF AIR QUALITY AT SELECTED HVDS & GIS SITESUNDER MURSHIDABAD DISTRICT- SEPTEMBER 2020

Location	PM 2.5 (ug/m³)	PM 10 (ug/m³)	NO_2 (ppb)	SO_2 (ppb)	CO (ppb)	O3 (ppb)	AQI
GhorapakhiaGangin HVDS	22.62	32.68	6.20	18.34	237.26	102.08	59
PatikabariDamdamapara HVDS	22.50	32.88	9.14	21.14	257.63	87.51	63
SabdarnagarBakultala HVDS	21.20	30.60	9.91	18.47	285.88	106.19	92
MADHUPUR POLLADANGA HVDS	19.84	28.57	15.59	20.41	318.29	90.65	63
Lokaipur HVDS	12.60	28.10	8.84	48.73	347.59	94.53	86
Bamuha HVDS	11.11	26.84	10.53	45.06	351.00	100.41	95
NAGRAJAL HVDS	23.23	33.55	4.89	14.15	240.02	116.68	53
MADAPUR HVDS	22.43	32.38	11.54	25.47	284.84	104.31	52
MAJDIA HVDS	24.29	34.99	22.54	51.46	331.97	92.39	54
Kebalrampur HVDS	25.10	36.45	4.59	15.41	335.35	111.99	91
KhidirpurBoltolapara HVDS	27.20	35.55	4.00	14.72	320.36	96.26	88
SwaruppurYadulla More HVDS	21.86	40.72	7.50	11.00	323.93	64.17	63
Malatipur HVDS	14.25	20.63	4.27	4.17	195.82	86.26	71
Kamurdiarh HVDS	11.79	16.92	12.28	4.66	225.49	58.62	77
DhanaipurBathan HVDS	14.59	21.04	3.67	4.93	197.33	89.18	41
Damodarpur HVDS	16.39	23.61	3.74	6.31	205.55	95.45	53
CHASKAPUR HVDS	25.37	36.64	16.19	37.07	270.01	106.60	87
DEBIDASPUR HVDS	22.27	32.09	7.46	22.66	233.74	110.33	78
TINPAKURIA HVDS	22.28	32.11	7.39	22.48	234.29	110.70	77
VillJethia HVDS	28.86	48.57	46.72	158.72	679.48	27.73	44
VillBharta HVDS	27.95	47.87	44.82	157.10	679.27	25.95	45
Bahadurpur HVDS	36.91	53.38	17.54	23.19	419.18	90.08	63
Andi School Para HVDS	37.19	54.24	43.77	81.22	479.24	63.48	44
Andi Bayan Para HVDS	36.82	53.96	44.46	80.70	470.07	63.17	38
Andi Motal Para HVDS	36.77	53.27	43.77	80.17	471.53	63.37	38
Bazarsau Bazar HVDS Site	16.82	24.25	26.11	45.54	435.18	46.80	94
Nihari Battala HVDS Site	16.66	23.99	29.82	41.66	454.42	42.71	87

Source: Recorded through Breezometer, September 2020

TABLE 4.4(b): STATUS OF AIR QUALITY AT SELECTED HVDS & GIS SITES UNDER MURSHIDABAD DISTRICT- NOVEMBER 2020

Location/Feeder	Date & Time	PM 2.5 (ug/cum)	PM 10 (ug/cum)	NO2 (ppb)	SO2 (ppb)	CO (ppb)	O3 (ppb)	AQI
Kashimbazar GIS S/Stn.	10.11.2020, 11:26 AM	30.40	47.96	23.56	19.39	367.15	90.38	54
Nagrajal Existing 25 kVA Berhampore (Madapur Colony)	10.11.2020, 12:30 PM	30.35	48.08	11.04	14.49	256.89	117.27	52
Nagrajal 100 kVA Rajdharpara GP	10.11.2020, 12:56 PM	30.35	48.08	11.04	14.49	256.89	117.27	52
Nagrajal Proposed 25 kVA DTR Site (Mathpara)	10.11.2020, 01:16 AM	30.35	48.08	11.04	14.49	256.89	117.27	52
HVDS Site near Hazarduari Monument	10.11.2020, 04:03 PM	28.55	48.82	26.32	15.77	419.54	88.53	56
HVDS Site near Mirzafar Residence	10.11.2020, 04:41 PM	37.61	60.04	45.55	15.01	509.90	56.94	47
100 kVA DTR near Kathgola Jain Temple	10.11.2020, 04:52 PM	37.53	59.85	45.57	14.62	508.58	56.90	47
100 kVA DTR near Katra Masjid	10.11.2020, 05:15 PM	37.51	59.87	46.49	15.62	513.81	57.58	47

Source: Recorded through Breezometer, November 2020

FIGURE 4.9 (a): STATUS OF AIR QUALITY AT SELECTED HVDS & GIS SITES UNDER MURSHIDABAD DISTRICT- SEPTEMBER 2020

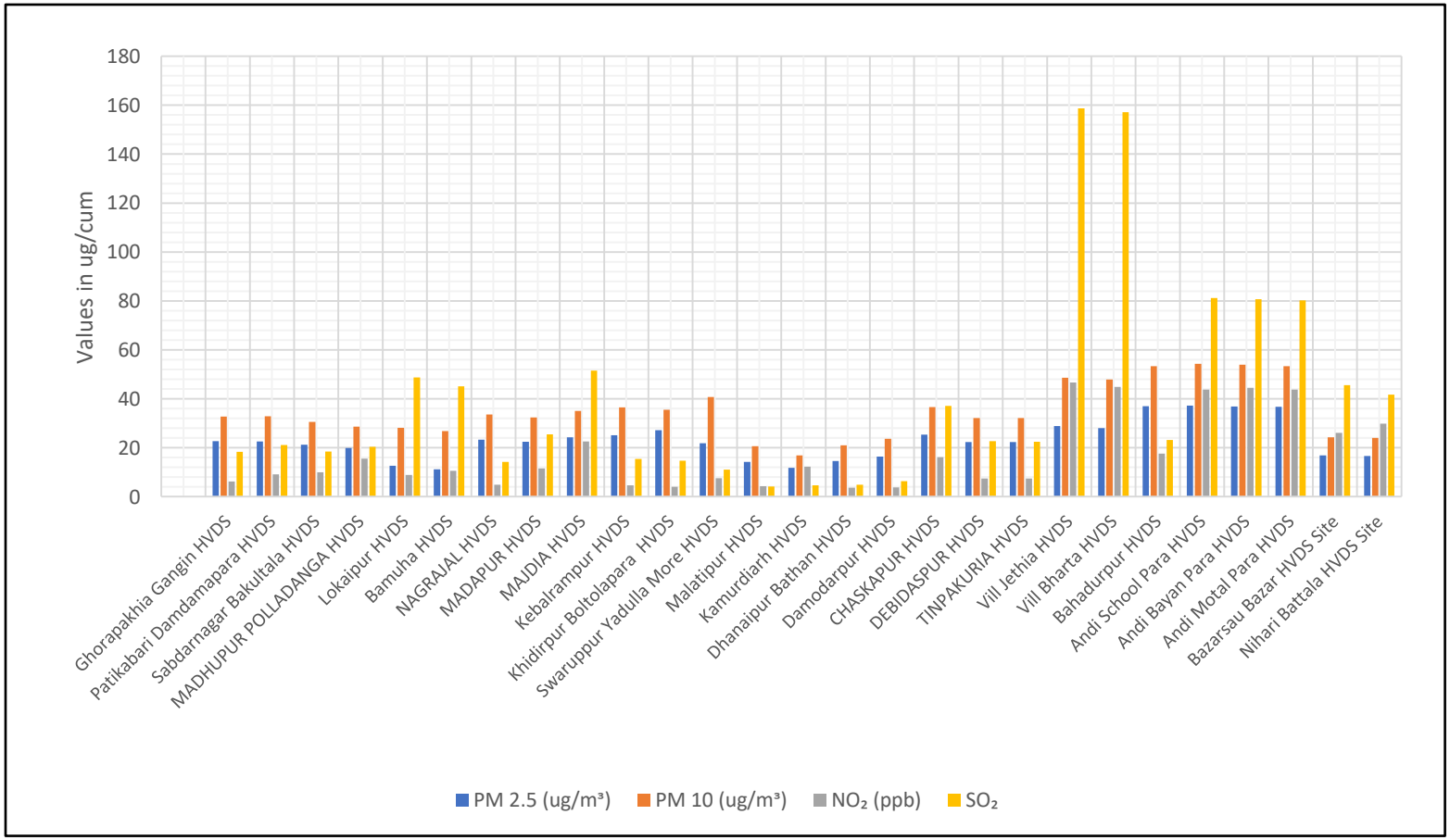
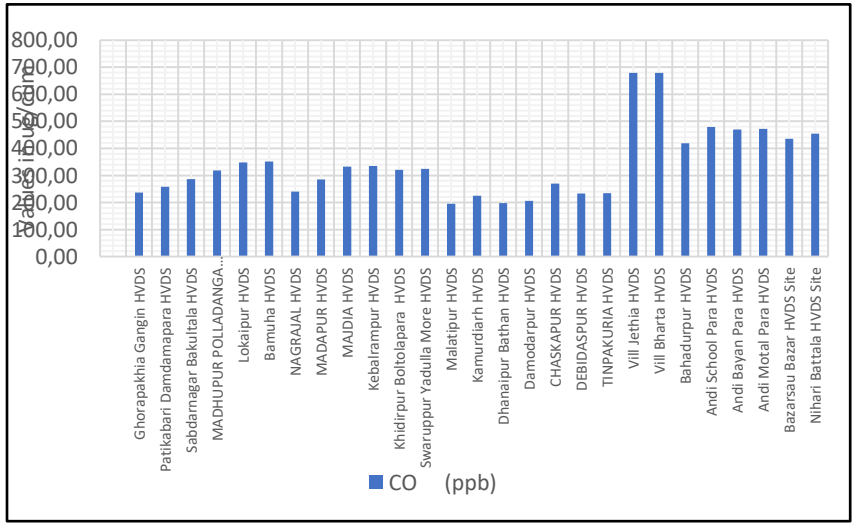
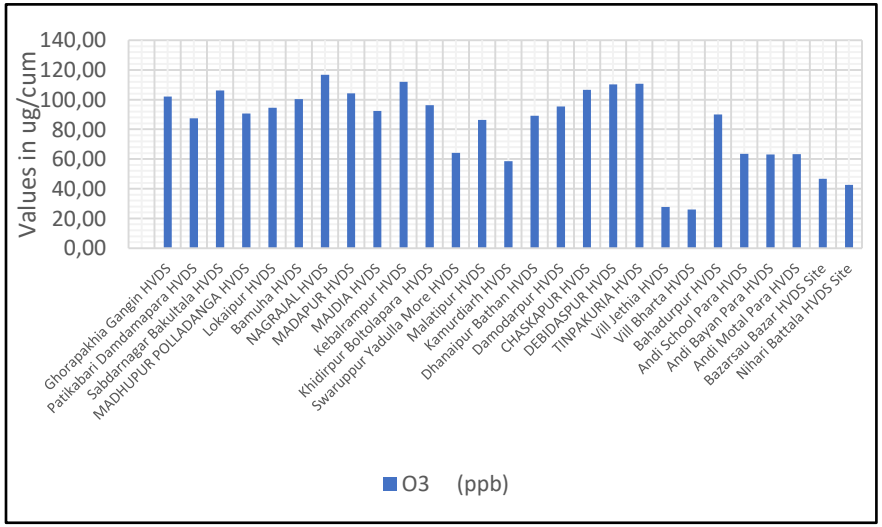
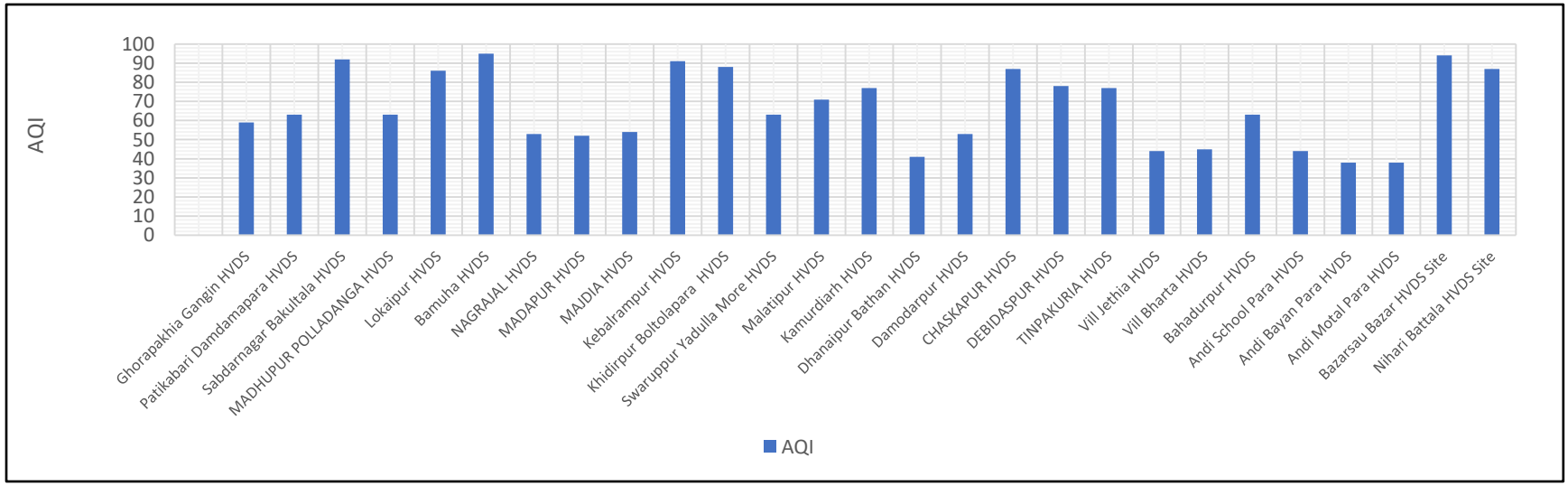


FIGURE 4.9 (b): STATUS OF AIR QUALITY AT SELECTED HVDS & GIS SITES UNDER MURSHIDABAD DISTRICT- SEPTEMBER 2020







4.2.8 Ambient Noise

The air noise level recorded at selected load centres for conversion of LVDS to HVDS as well as proposed GIS sites during the field survey i.e. September/November 2020 were well within the prescribed limits (Table 4.5 a & b).Average Leq value is near 60 dB.

TABLE 4.5 (a): STATUS OF AMBIENT NOISE LEVEL AT SELECTED HVDS & GIS SITES UNDER MURSHIDABAD DISTRICT- SEPTEMBER 2020

Location	Latitude	Longitude	Averaging Time (second)	Min (dB)	Max (dB)	Leq (dB)	Area Category*
GhorapakhiaGangin HVDS	24.5218033	88.0597233	60	51.00	87.00	72.00	Residential
PatikabariDamdamapara HVDS	23.86594	88.45519	60	52.10	81.00	68.70	Residential
SabdarnagarBakultala HVDS	23.92357	88.3873	60	49.30	78.80	66.10	Residential
MADHUPUR POLLADANGA HVDS	23.95742	88.47415	60	40.90	73.40	60.80	Residential
Lokaipur HVDS	22.47618	87.975399	60	34.12	61.15	46.18	Residential
Bamuha HVDS	24.568078	88.016839	60	46.12	74.25	52.35	Residential
NAGRAJAL HVDS	3.19992	59.53558	32	14.80	46.10	33.70	Residential
MADAPUR HVDS	51.49442	58.96051	23	42.20	57.60	51.30	Residential
MAJDIA HVDS	54.10012	50.55452	21	37.20	56.50	49.90	Residential
Malatipur HVDS	24.1019	88.51078	60	36.00	87.00	63.00	Residential
Kamurdiarh HVDS	23.99339	88.63343	60	33.00	86.00	54.00	Residential
DhanaipurBathan HVDS	24.22416	88.47328	60	50.00	84.00	62.00	Residential
Damodarpur HVDS	24.21985	88.43412	60	42.00	88.00	66.00	Residential
CHASKAPUR HVDS	24.642	87.9454	60	61.00	83.50	78.10	Residential
DEBIDASPUR HVDS	24.6601	87.966	60	56.10	80.90	74.60	Residential
TINPAKURIA HVDS	24.6545	87.9535	60	56.00	81.90	73.60	Residential
VillJethia HVDS	24.07607	87.9134	60	58.80	72.80	67.50	Residential
VillBharta HVDS	24.0688	87.9105	60	57.60	73.60	68.00	Residential
Bahadurpur HVDS	24.42029	88.24951	60	45.00	80.30	64.00	Residential
Andi School Para HVDS	23.95821	87.88895	60	41.40	58.80	54.50	Residential
Andi Bayen Para HVDS	23.99349	87.91291	60	32.40	56.40	46.10	Residential
Andi Motal Para HVDS	23.98953	87.9145	60	40.30	61.00	48.20	Commercial
Bazarsau Bazar HVDS	23.876333	88.185727	60	50.40	68.00	57.60	Commercial
Nihari Battala HVDS	23.858361	88.201318	60	45.30	71.90	60.80	Commercial

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

TABLE 4.5 (b): STATUS OF AMBIENT NOISE LEVEL AT SELECTED HVDS & GIS SITES UNDER MURSHIDABAD DISTRICT- NOVEMBER 2020

Location/Feeder	Latitude	Longitude	Averaging Time (Second)	Min (dB)	Max (dB)	Leq (dB)	Area Category
Kashimbazar GIS S/Stn.	24.11945 N	88.26915 E	60.00	58.70	90.00	82.30	Residential
Nagrajal Existing 25 kVA Berhampore (Madapur Colony)	24.09775 N	88.31622 E	60.00	65.70	80.70	74.00	Residential
Nagrajal 100 kVA Rajdharpara GP	24.08405 N	88.31637 E	60.00	63.60	90.00	81.40	Residential
Nagrajal Proposed 25 kVA DTR Site (Mathpara)	24.08731 N	88.3165 E	60.00	69.90	87.20	77.20	Residential
HVDS Site near Hazarduari Monument	24.18658 N	88.26866 E	60.00	62.40	81.60	73.50	Sensitive (Silent)
HVDS Site near Mirzafar Residence	24.20194 N	88.26472 E	60.00	48.30	75.50	62.30	Residential
100 kVA DTR near Kathgola Jain Temple	24.20954 N	88.26654 E	60.00	61.50	90.00	80.00	Silent
100 kVA DTR near Katra Masjid	24.18312 N	88.2873 E	60.00	74.00	90.00	83.90	Residential

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

4.2.9 Forest Cover

The Murshidabad District has a geographical area of 5324 km² constitutes approx. 6 % of the State's area. The total forest cover in Murshidabad District is 344.89 km^2 (Table 4.6) which is 6.48% of the District's total geographical area (Forest Survey of India, 2019). Out of the total recorded forest area, moderately dense forests 15.38%, and remaining is open forests i.e. 84.62%. The percentage contribution of various type of forest cover is presented in Figure 4.10. The analysis reveals that in Murshidabad District majority of the forest is open forest (approx. 85% of total forest cover).

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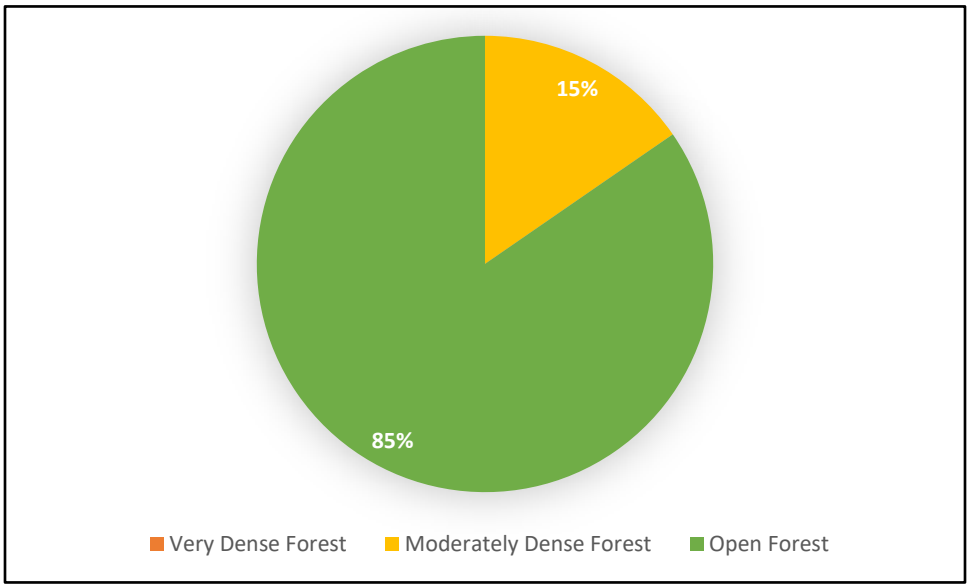
TABLE 4.6: STATUS OF FOREST COVER IN MURSHIDABAD DISTRICT

District	Geographical Area (sq.km)	Type of Forest Cover (sq.km)				% of Forest Cover
		Very Dense Forest	Moderately Dense Forest	Open Forest	Total Forest Cover	
MURSHIDABAD	5,324	0.00	53.06	291.83	344.89	6.48

Source: Forest Survey of India, 2019

FIGURE 4.10: PERCENTAGE DISTRIBUTION OF TYPE OF FOREST COVER IN MURSHIDABAD DISTRICT



The natural forest cover is fairly low, but there are a number of Bamboo plantation scattered over along with mango orchards. Many varieties of mango available in this district viz. Shadulla, Himsagar, Ranipasand, Begumpasand, Sharanga, Mulayamjam, Kohitur, Fajli and so on. Mulberry cultivation is popular in the areas famous for sericulture activities in Berhampore,

Islampur and Beldanga areas. In Jangipur, berkul cultivation was promoted for lac production. Litchi cultivation also famous in some areas of district.

4.2.10 Flora& Fauna

The flora of the district bears resemblance with those of the other deltaic districts of West Bengal. The dominant trees were as follows – Banyan (Ficus benghalensis), Pipal (Ficus religiosa), Mahua (Madhuca latifolia), Palas (Butea frondosa), Khend (Diospyros embryopteris), Sal (Shorearobusta), Babla (Acacia nilotica), Akashmoni (Acacia auriculiformis), Pitali (Trewianudiflora), Tamarind (Tamarindus indicus), Mango/Aam (Mangiflora indica), Jackfruit (Artocarpus integrifolia), Sisso (Dalbergia sissoo), Gamar (Gmelina arborea), Kadam (Anthocephalus chinensis), Haldu (Adina cordifolia), Gulmohar (Delonix regia), Ber (Zizyphusmuratianus), Neem (Azadirachta indica), Mahoginy (Sweteniamahogini), Jamun (Sizygiumcumini), Chatim (Alstoneascholaris), Radhachura (Peltaphoruminerme), Karanj (Pongamia pinnata), Bel (Aegle marmelos), Arjun (Terminalia arjuna), Litchi (Nephalium chinensis), Mulberry (Morus alba) and so on. List of common trees of Murshidabad is presented in Table 4.7.

TABLE 4.7: LIST OF COMMON TREES OF MURSHIDABAD (ROADSIDE & ORCHARDS)

Sl. No.	Scientific Name	Local Name	Family
1	*Shorearobusta*	Sal	Dipterocarpaceae
2	*Pterygotaalata*	Buddha Coconut	Sterculiaceae
3	*Pterospermumacerifolium*	Muchkunda	Sterculiaceae
4	*Ceiba pentandra*	White Cotton Tree	Bombaceae
5	*Bombax ceiba*	Red Silk Cotton Tree	Bombaceae
6	*Thespetiapupalnea*	Habul	Malvaceae
7	*Acacia nilotica*	Babul	Mimosadeae
8	*Dalbergia sisso*	Sisso	Papilionoideae
9	*Tamarindus indica*	Tamarind	Papilionoideae
10	*Pongamia pinnata*	Karanj	Papilionoideae
11	*Butea monosperma*	Palas	Papilionoideae
12	*Erythrina variegata*	Coral Tree	Papilionoideae
13	*Pithecollobium dulce*	Manila Tamarind	Mimosadeae
14	*Acacia auriculiformis*	Akashmoni/ Sonajhuri	Mimosadeae
15	*Albizia lebbeck*	Siris/ Silk Flower	Mimosadeae
16	*Samanea saman*	Raintree	Mimosadeae
17	*Peltaphorumpterocarpum*	Radhachura	Caesalpiniaceae
18	*Delonix regia*	Gulmohar	Caesalpiniaceae
19	*Cassia fistula*	Amaltas	Caesalpiniaceae
20	*Bauhinia acuminata*	Camel's Food/ Kanchan	Caesalpiniaceae
21	*Moringa oleifera*	Horse Radish Tree	Moringaceae
22	*Micheliachampaca*	Champak Tree	Magnoliaceae

Sl. No.	Scientific Name	Local Name	Family
23	*Ficus religiosa*	Pipal	Moraceae
24	*Ficus benghalensis*	Banyan	Moraceae
25	*Artocarpus heterophyllus*	Jackfruit	Moraceae
26	*Trema orientalis*	Charcoal Tree	Cannabaceae
27	*Casuarina equisitifolia*	Beefwood	Casuarinaceae
28	*Putranjivaroxburghii*	Childlife Tree	Euphoraceae
29	*Trewianudiflora*	Pituli	Euphoraceae
30	*Azadirachta indica*	Neem	Meliaceae
31	*Swietenia mahagoni*	Mahogany	Meliaceae
32	*Aegle marmelos*	Wood Apple Tree	Rutaceae
33	*Limoniaelephantum*	Elephant Apple Tree	Rutaceae
34	*Schleicheraoleosa*	Lac Tree	Sapindaceae
35	*Mangifera indica*	Mango	Sapindaceae
36	*Anacardium occidentale*	Cashewnut	Sapindaceae
37	*Spondias dulcis*	Hogplum	Sapindaceae
38	*Terminalia arjuna*	Arjun	Combretaceae
39	*T. bellina*	Bahera	Combretaceae
40	*T. catappa*	Malabar Almond	Combretaceae
41	*T. chebula*	Myrobalan	Combretaceae
42	*T. tomentosa*	Asan/Sain	Combretaceae
43	*Lagerstomea parviflora*	Jarul	Lythraceae
44	*Sizygiumcumini*	Jam	Myrtaceae
45	*S. jambos*	Jamrul	Myrtaceae
46	*Mimusopselengi*	Bakul	Sapotaceae
47	*Madhuca indica*	Mahwa Tree	Sapotaceae
48	*Manilkara achras*	Sapeda	Sapotaceae
49	*Alstoniascholaris*	Chhatim	Apocynaceae
50	*Holarrhenaautidysenterica*	Kurchi	Apocynaceae
51	*Tectona grandis*	Teak	Verbenaceae
52	*Bignonia sp.*	-	Bignoniaceae
53	*Anthocephaluscadamba*	Kadam	Rubiaceae
54	*Adina cordifolia*	Haldu	Rubiaceae
55	*Mitragyna parviflora*	Kelikadam	Rubiaceae
56	*Cocos nucifera*	Coconut	Palmaceae
57	*Areca catechu*	Betel Nut	Palmaceae
58	*Borassus flabelifier*	Fan Palm	Palmaceae
59	*Phoenix sylvestris*	Date Palm	Palmaceae
60	*Roystonea regia*	Bottle Palm	Palmaceae
61	*Livistone chinensis*	Chinese Palm	Palmaceae

The faunal wealth is fairly good, though wild animals of bigger type did not encounter now. There are a number of waterbodies (Beels, Swamp, River and Canal System, the avifauna is fairly rich. The important waterbirds are Little Grebe (Tachybaptus ruficollis), Lesser Whistling

Duck (Dendrocygnajavanica), Gadwall (Anus strepera), Northern Pintail (Anas acuta), Cotton Teal (Nattopuscoromanddianus), Red crested Pochard (Rhodonessarupina), Ferruginous Pochard (Aythanyroca), Garganey (Anas querquedula), White-Breasted Kingfisher (Halcyon synyrnenris), White-Breasted Waterhen (Amaurormisphoenicures), Purple Moorhen (Porphyrioporphyrio), Common Moorhen (Gallinula chloropus), Common Coot (Fulicaatra), Common Spine (Gallinagogallinago), Black tailed Godwit (Limosalimosa), Wood Sandpiper (Tringaglareola), Common Sandpiper (Actitishypoleucos), River Tern (Sterua aurantia), Whiskered Tern (Chidonias hybridus), Pheasant Tailed Jacana (Hydrophasianuschirurgus), Bronze-winged Jacana (Metopidius indicus), Grey-headed Lapwing (Vanellus cinereus), Little Cormorant (Phalacrocorax niger), Datar (Anhinga melanogaster), Little Egret (Egrettagarzetta), Large Egret (Casmerodius albus), Indian Pond Heron (Ardeolagrayii), Cattle Egret (Bubulcus ibis), Grey Heron (Ardea cinerea), and Asian Openbill Stork (Anastomusoseitans). In addition, Kites, Pheasants, Fowls, Partridges, Owls, Vultures, Pigeons, Dove, Woodpeckers, Sunbirds, Weaverbirds, Tailorbirds, Drongoes, Moyna, Babblers, Cuckoos, Sniffs, Larks, Orioles, Shrikes are also visible. Among the mammals, Black-faced Monkey, Jackals, Fishing Cat, Wild Hare and Civets were observed. Among the reptiles, Cobra, Darrash, Kraits, Water monitors were very common. Amphibian & freshwater fishes were also in abundance.

FIGURE 4.11 (A): EXISTING ENVIRONMENTAL & SOCIAL SETTING AT GHORAPAKHIA GANGIN LOAD CENTER'S EXISTING/PROPOSED DTRs UNDER AHIRANCCC OF RAGHUNATHGANJ DIVISION

FIGURE 4.11 (B): EXISTING ENVIRONMENTAL & SOCIAL SETTING AT SABDARNAGAR 10 MILE LOAD CENTER'S EXISTING/PROPOSED DTRs UNDER AMTALACCC OF BERHAMPORE DIVISION

FIGURE 4.11 (C): EXISTING ENVIRONMENTAL & SOCIAL SETTING AT NAGRAJAL LOAD CENTER'S EXISTING/PROPOSED DTRs UNDER BERHAMPORECCC OF BERHAMPORE DIVISION

FIGURE 4.11 (D): EXISTING ENVIRONMENTAL & SOCIAL SETTING AT KHIDIRPUR BOLTALAPARALOAD CENTER'S EXISTING/PROPOSED DTRs UNDER BAHARANCCC OF BERHAMPORE DIVISION

FIGURE 4.11 (E): EXISTING ENVIRONMENTAL & SOCIAL SETTING AT KAMURDIARHLOAD CENTER'S EXISTING/PROPOSED DTRs UNDER DOMKALCCC OF DOMKAL DIVISION

It is evident from existing environmental and social setting at selected load centres in rural and semi-urban area existing/proposed DTRs locations as well as HT/LT lines no trees would be required to be cut as thesearea located primarily along existing roads and no significant additional RoW would be required. However trimming of few road side tree species viz, Mango (*Mangifera indica*), Jackfruit (*Artocapus heterophylla*), Gulmohar (*Delonix regia*), Pipal (*Ficus religiosa*), Banyan (*Ficus benghalensis*), Litchi (Nephalium chinensis), Akashmoni (*Acacia auriculiformis*), Eucalypts (*Eucalyptus territicornis*), Kadam (*Authocephalos chinensis*), Radhachura (*Peltaphoruminermis*), Jamun (*Sizygiumcumini*), Sisso (*Dalbergia sisso*), Gamar (*Gmelina arborea*), Tamarind (*Tamarindus indica*), Babul (*Acacia nilotica*)Coconut (*Cocos nucifera*), Bettlenut (*Areca catechu*), Date Palm (*Phoenix dactylis*), Tamarind (*Tamarindus indica*), etc. may be required to maintain minimum clearance between conductor and tree canopy.

4.3 SOCIAL BASELINE

Murshidabad district comprises five subdivisions: Barhampur, Domkol, Lalbag, Kandi and Jangipur. Other than municipality area, each subdivision contains community development blocks which in turn are divided into rural areas and census towns. In total there are 29 urban units: 8 municipalities and 22 census towns. Baharampur and Kasim Bazar together form an urban agglomeration. Baharampur town is the headquarters of the district.

4.3.1 Demography

According to the 2011 census Murshidabad district has a population of 7,103,807 (Table 4.8). This gives it a ranking of 9th in India (out of a total of 640). The district has a population density of 1,334 inhabitants per square kilometre (3,460/sq mi)

TABLE 4.8: SALIENT FEATURES OF MURSHIDABAD DISTRICT

Country	India
State	West Bengal
Division	Malda
Headquarters	Baharampur
Total Area sq.km	5,324 km^2
Total Population (census 2011)	7,103,807
Density	480/km^2 (1,200/sq mi)
Website	http://murshidabad.gov.in

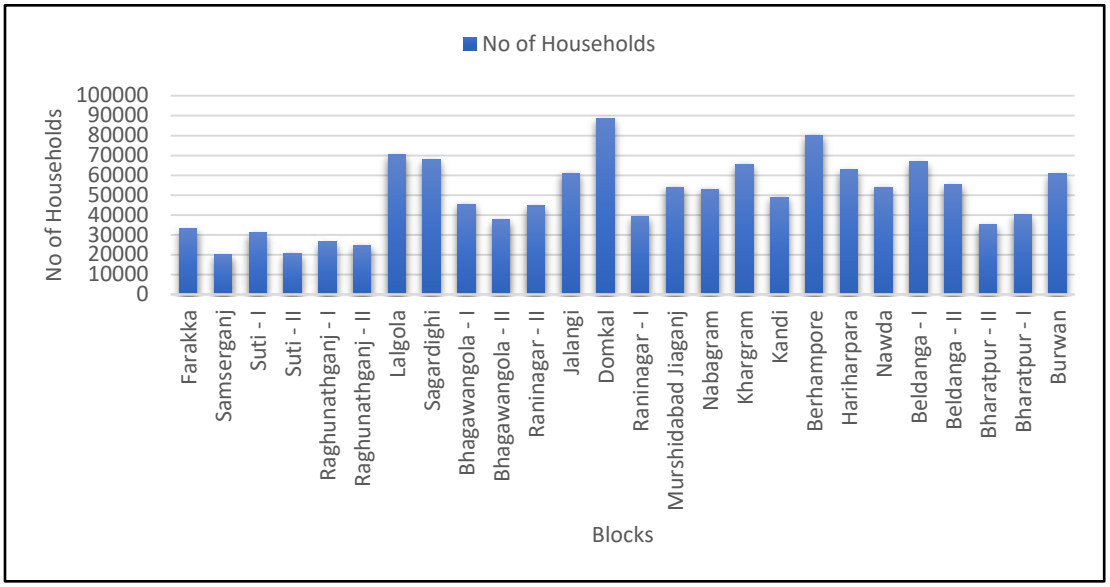
Households

As per the Census (2011) data, the total number of households in Murshidabad district is 12,86,200, out of which Domkal (6.88%) and Berhampore (6.23%) has the maximum number of households (Table 4.9). However, Samserganj block has the lowest (1.56%) number of households (Figure 4.12).

TABLE 4.9:BLOCK WISE DISTRIBUTION OF HOUSEHOLDS IN MURSHIDABAD DISTRICT

Name of the Block	No of Households
Farakka	33055
Samserganj	20080
Suti - I	30931
Suti - II	20658
Raghunathganj - I	26630
Raghunathganj - II	24712
Lalgola	70216
Sagardighi	67889
Bhagawangola - I	45336
Bhagawangola - II	37445
Raninagar - II	44505
Jalangi	60928
Domkal	88520
Raninagar - I	39199
Murshidabad Jiaganj	54029
Nabagram	52954
Khargram	65580
Kandi	48963
Berhampore	80188
Hariharpara	62609
Nawda	53962
Beldanga - I	66677
Beldanga - II	55268
Bharatpur - II	35032
Bharatpur - I	40102
Burwan	60732
Total	**1286200**

FIGURE 4.12: BLOCK-WISE DISTRIBUTION OF HOUSEHOLDS INMURSHIDABAD DISTRICT



Population

The rural population of the Murshidabad district is 5,703,115. Block wise distribution of population in Murshidabad district is presented in Table 4.10. The analysis reveals that Domkal and Berhampore blocks are the most populated among all the other blocks (Figure 4.13). The population of Domkal is the highest among the other blocks of Murshidabad district (6.38%).

The total male population of Howrah district is near about 2,917,822 that is 51.16% of the total rural population, whereas the female population is around 2,785,293, that is roughly 48.84% of the overall rural population of the Murshidabad district. (Figure 4.14).

TABLE 4.10: DISTRIBUTION OF POPULATION IN BLOCKS OF MURSHIDABAD DISTRICT

Name of the Block	Population
Farakka	167826
Samserganj	108718
Suti - I	150803
Suti - II	110767
Raghunathganj - I	133114

Name of the Block	Population
Raghunathganj - II	131236
Lalgola	335831
Sagardighi	310461
Bhagawangola - I	202071
Bhagawangola - II	158024
Raninagar - II	190885
Jalangi	252477
Domkal	363976
Raninagar - I	164675
Murshidabad Jiaganj	234565
Nabagram	227586
Khargram	273332
Kandi	220145
Berhampore	337623
Hariharpara	257571
Nawda	226859
Beldanga - I	310470
Beldanga - II	250458
Bharatpur - II	153474
Bharatpur - I	172702
Burwan	257466
Total	**5703115**

FIGURE 4.13: DISTRIBUTION OF POPULATION IN BLOCKS OF MURSHIDABAD DISTRICT

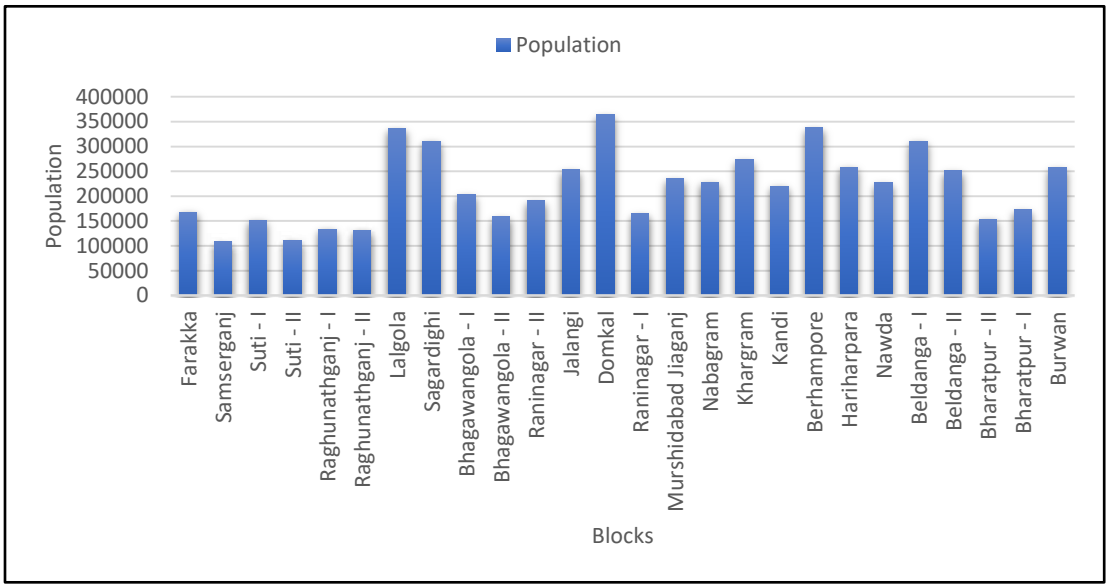
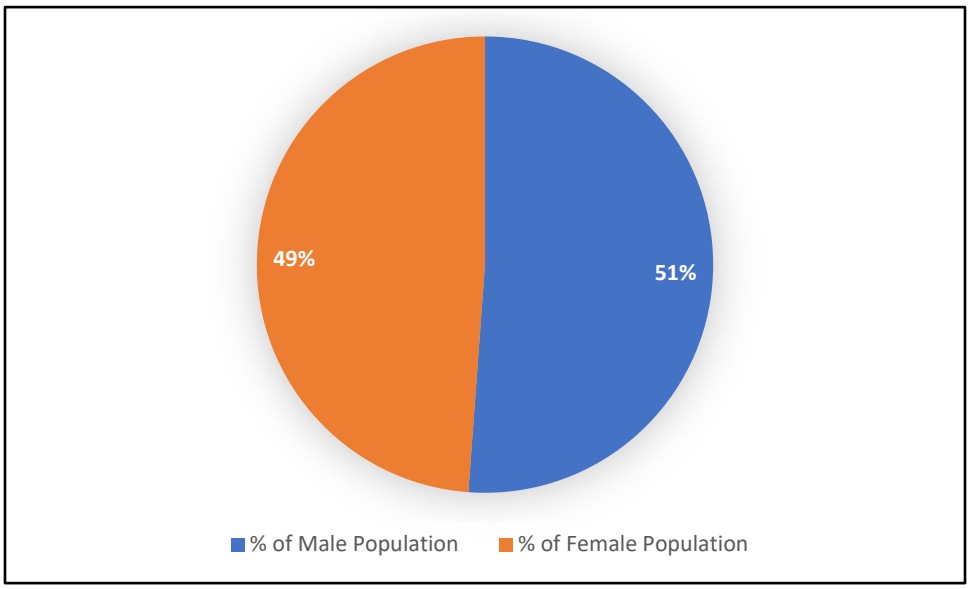


FIGURE 4.14: GENDER WISE DISTRIBUTION OF POPULATION IN MURSHIDABAD DISTRICT



Caste-wise Distribution

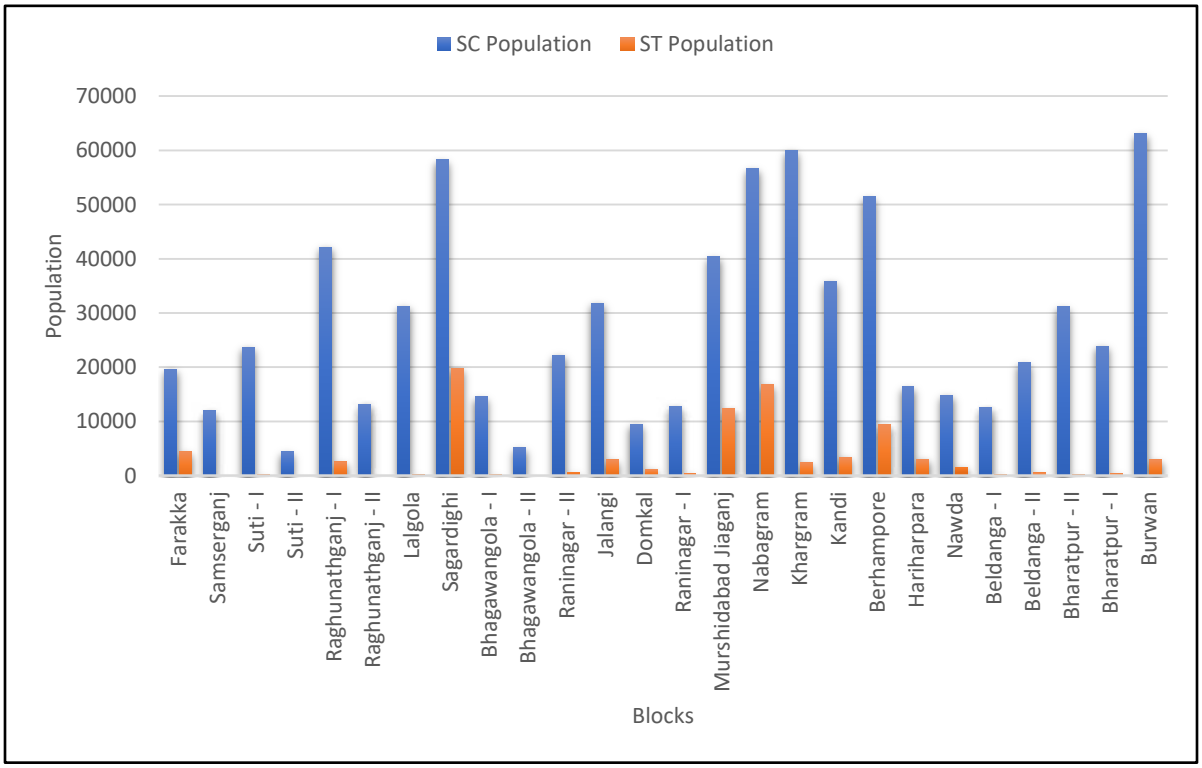
Among the 26 CD-Blocks of the Murshidabad district, Burwan has the highest (8.67%) SC population, whereas Sagardighi has the highest (23.03%) ST population (Table 4.11 and Figure 4.15).

TABLE 4.11: CASTE-WISE DISTRIBUTION OF POPULATION

Name of the Block	SC Population	ST Population
Farakka	19597	4435
Samserganj	11937	51
Suti - I	23645	253
Suti - II	4438	64
Raghunathganj - I	42146	2541
Raghunathganj - II	13176	24
Lalgola	31248	168
Sagardighi	58308	19811
Bhagawangola - I	14557	227
Bhagawangola - II	5218	45
Raninagar - II	22189	550
Jalangi	31831	2918
Domkal	9515	1219

Name of the Block	SC Population	ST Population
Raninagar - I	12831	404
Murshidabad Jiaganj	40442	12326
Nabagram	56622	16770
Khargram	59929	2442
Kandi	35859	3390
Berhampore	51458	9441
Hariharpara	16403	3040
Nawda	14804	1526
Beldanga - I	12621	244
Beldanga - II	20863	541
Bharatpur - II	31121	191
Bharatpur - I	23865	428
Burwan	63098	2955
Total	**727721**	**86004**

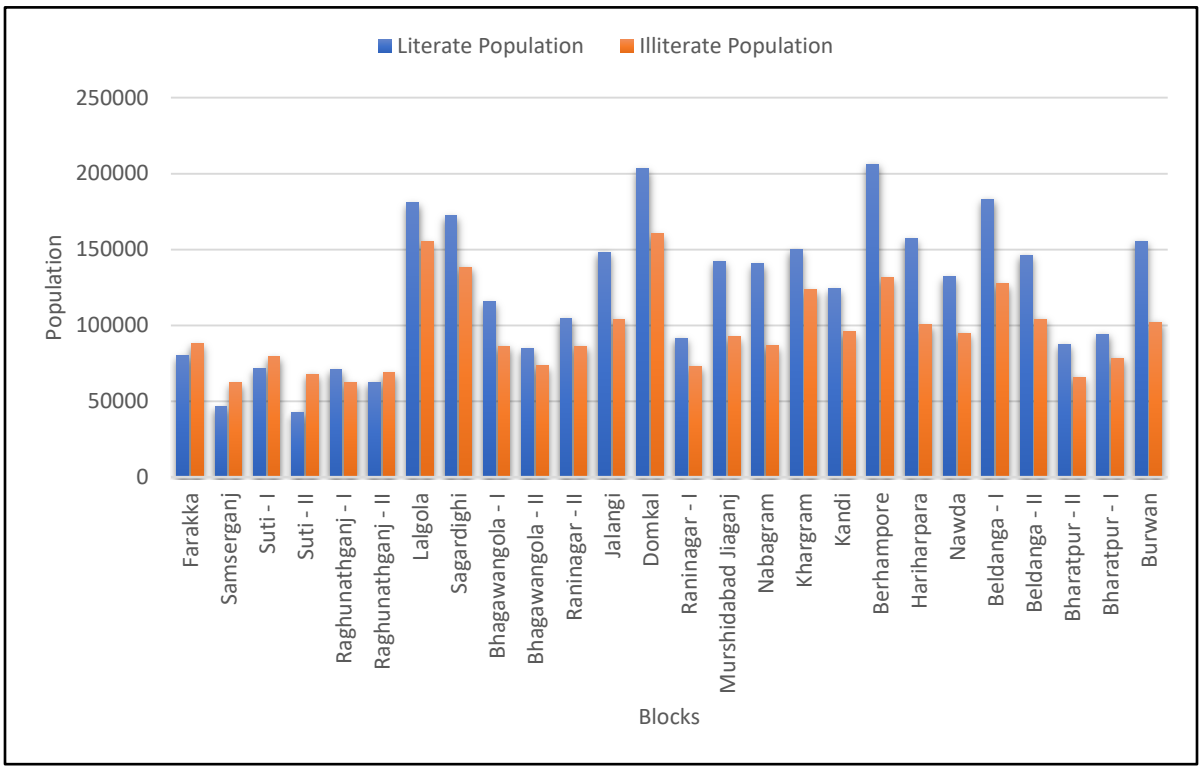
FIGURE 4.15: DISTRIBUTION OF SC& ST POPULATION IN MURSHIDABAD DISTRICT



Literacy

Among the 26 CD-Blocks of Murshidabad district, Berhampore has the highest Literacy rate i.e. 6.45%, whereas Domkal has the highest illiterate population i.e. 6.41 % (Figure 4.16).

FIGURE 4.16: STATUS OF LITERACY IN MURSHIDABAD DISTRICT



Religion

If we consider the religion-wise distribution of population in Murshidabad district, then the Muslims have the majority in this district followed by Hindus and others, as the Muslims have the percentage of 66.27%, and the Hindus have 33.21% , and others including Christians etc. have around 0.25%.

4.3.2 Transport

Surface transport (road and rail) is the most important way of transport. Buses are the most common form of transport, and they are easily available, and run to a wide range of destinations within and without the district. Bus transport is cheap (For example, a journey of 182 km to Kolkata from Baharampur costs about Rs. 135) Trucks carry majority of goods transported in the district. Overloaded trucks on the road are also a common sight, and they are a major reason road are in bad condition.

There are two major rail routes. The major line runs north–south and connects the district to Kolkata and North Bengal. There is another line that branches out from this line at Azimganj and connects the Sahebgunj loop at Nalhati (Birbhum.)

4.3.3 Places of Interest

Murshidabad, which was initially known as Muksudabad, is one of the biggest tourist spots in West Bengal. Various attractions in this district include, Hazardauri palace, Katra Masjid, Motijheel Park, Kathgola Gardens, KoshBagh, Nasirpur Palace, Jafarganj Cemetery, Murshidabad District Museum.

FIGURE 4.17: PLACES OF INTEREST IN MURSHIDABAD DISTICT

5.0 ENVIRONMENTAL& SOCIAL RISKS & IMPACT AND MITIGATION MEASURES

This Section assesses both negative and positive impacts associated with the conversion of LVDS to HVDS and setting up of proposed GIS sub-project in Murshidabad District 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.

The sub-project typically involves erection of a 9 m PCC and installation of one or more small size 63/25 kVA distribution transformers on a metal channel support frame. The installation thus requires a very small area of land to erect the pole on ground and take about one or two days for completing the erection. The HVDS system is an immobile power supply installation and does not have any components resulting into vibrations and noise or any kind of gaseous or liquid emissions. Furthermore, the planned activities are flexible in nature and the location of pole and the rute of the distribution line can be aligned to avoid potential damage, if any.

In view of the nature and size of the installation activities, potential environmental impacts of the rural and semi-urban HVDS & GIS sub-project are generally expected to be insignificant and mostly localized to the erection/construction site. The installation of GIS require savery minimal space and in the instant case for setting up of the proposed GIS an privateland of 0.20 acres has already been identified. The proposed land would be procured by Berhampur Zilla Parishad as per West Bengal Land Procurement policy and would be transferred to WBSEDCL. The subject land is devoid of any encroachment no R&R and other social issues are involved. The sub-project activities do not attract any requirements under The Environment (Protection) Act, 1986.

The potential impacts of the rural and semi-urban HVDS& GIS sub-project and the corresponding mitigation methods are discussed in subsequent sections.

5.1 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATIONMEASURES

The overall HVDS & GIS 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 HVDS is a fixed pole mounted power supply structure without any rotating or vibrating parts, hence, the structures will not have any negative impact during the operation phase.

To identify the likely environmental and social impact of proposed sub-project activities, various load centers were selected covering entire cross section area of sub-project area with special emphasis on typical rural/semi-urban land setting, forest area/tribal area, if any. For the purpose Vidyut Manchitra for Murshidabad Districti.e. presentation of existing electricity distribution network (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 installation of DTRs (63/25 KVA) along with route of new 11 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 DTRs site were also attempted to identify with sub-sequent field verification.

The detail of selected load centers under Murshidabad region along with likely environmental & social risks and impact of setting up of new DTRs (i.e. trifurcating existing 100 KVA DTRs) as well as HT line (new/up gradation of existing LT line) is presented in Table 5.1. Figure 5.1 to 5.9 present load center wise existing LVDS along with existing environmental and social setting and likely impact due to conversion into HVDS. The component wise likely environmental and social impacts are presented in subsequent section.

TABLE 5.1: DETAIL OF SELECTED LOAD CENTRES FOR IDENTIFICATION OF E&S RISKS & IMPACTS DUE TO IMPLEMENTATION OF HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT

Location of Load Centre	Type of Location (Rural/ Semi-Urban/ Urban)	Existing DTR Capacity (KVA)	Proposed DTR	Coordinates	Environmental & Social Issues
Sujnipara Feeder under Ahiran CCC of Raghunathganj Division					
GHORAPAKHIA GANGIN	Rural	63	25kVA	24.5283512, 88.0581595	No environmental & social issues involved as to be erected on existing 63 kVA structure.
			25 kVA	24.5218316, 88.05676	Vacant land for proposed DTR erection. No trees are there close to proposed site. No issues are there for drawl of 11kV HTOH line from existing line.
			25 kVA	24.5261616, 88.0553950	Vacant land for proposed DTR erection. No trees are there close to proposed site. No issues are there for drawl of 11kV HTOH line from existing line.
Sankarpur11 KV Feeder under Aurangabad CCC of Raghunathganj Division					
Bamuha	Rural	100	63 KVA	24.568078, 88.016839	To be erected on existing DTR. No environmental or social issues involved.
			25 KVA	24.567763, 88.016869	Land available for proposed DTR construction, no environmental or social issues were observed.
			25 KVA	24.568111, 88.017196	Vacant land for proposed DTR erection is already available. No trees are there close to proposed site.
Shaktipur Feeder under Shaktipur CCC of Kandi Division					
Bazarsau Bazar	Rural	100	63	23.876333 88.185727	No environmental & social issues involved as to be erected on existing 100 kVA structure. AIR QUALITY: 53 SOUND: 71.5 DB
			25	23.871978 88.186063	No trees or any other encroachment as well as vendors were observed at proposed site along the road. 11 kV HT line is also passing near the proposed site. AIR: 55 SOUND: 54 DB (140 METER HT LINE NEEDED)

Location of Load Centre	Type of Location (Rural/ Semi-Urban/ Urban)	Existing DTR Capacity (KVA)	Proposed DTR	Coordinates	Environmental & Social Issues
			25	23.87109 88.187234	Vacant land available along road and no trees or any other encroachment as well as vendors were observed at proposed site. 11 kV HT line is also passing near proposed site (165 METER HT LINE NEEDED) AIR:62 SOUND:65.2 DB
Lochanpur Feeder under ChakIslampur CCC of Domkal Division					
DhanaipurBathan	Rural	63	25kVA	24.22415, 88.47328	To be erected on existing DTR, therefore, no environmental or social issues are involved.
			25 kVA	24.21961, 88.47693	Vacant Land beside road with no trees or encroachments.
			25 kVA	24.22702, 88.46805	Vacant land available beside road for proposed DTR. No trees are there through which HT line will be drawn. 11KV is passing nearby.
Pamaipur Feeder under ChakIslampur CCC of Domkal Division					
Damodarpur	Rural	100	63 kVA	24.21985, 88.43412	No environmental or social issues are there as the proposed DTR is to be erected on existing DTR.
			25 kVA	24.21626, 88.4342	No trees or any other encroachment were observed at proposed site along the road.
			25 kVA	24.22655, 88.43405	Vacant land available beside road for the proposed DTR erection. No trees are there on site. 11KV Line is passing near the proposed land
Andi Feeder under Panchthupi CCC of Kandi Division					
ANDI SCHOOLMORE DTR	Rural	100	63	23.95821704 87.88895734	No environmental & social issues involved as to be erected on existing 100 KVA structures.
			25	23.99349448 87.91291215	No trees or any other encroachment as well as vendors were observed at proposed site along the road. 11 KV HT line is also passing through proposed

Location of Load Centre	Type of Location (Rural/ Semi-Urban/ Urban)	Existing DTR Capacity (KVA)	Proposed DTR	Coordinates	Environmental & Social Issues
					site.
			25	23.98953297 87.91450504	Vacant land available along road and no trees or any other encroachment as well as vendors were observed at proposed site. 11 KV HT line is also passing through proposed site (15 METER HT LINE NEEDED)

FIGURE 5.1: VIEW OF EXISTING HT/LT NETWORK OF SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT (AT GHORAPAKHIA GANGIN 63 KVA DTR UNDER SUJNIPARA FEEDER)

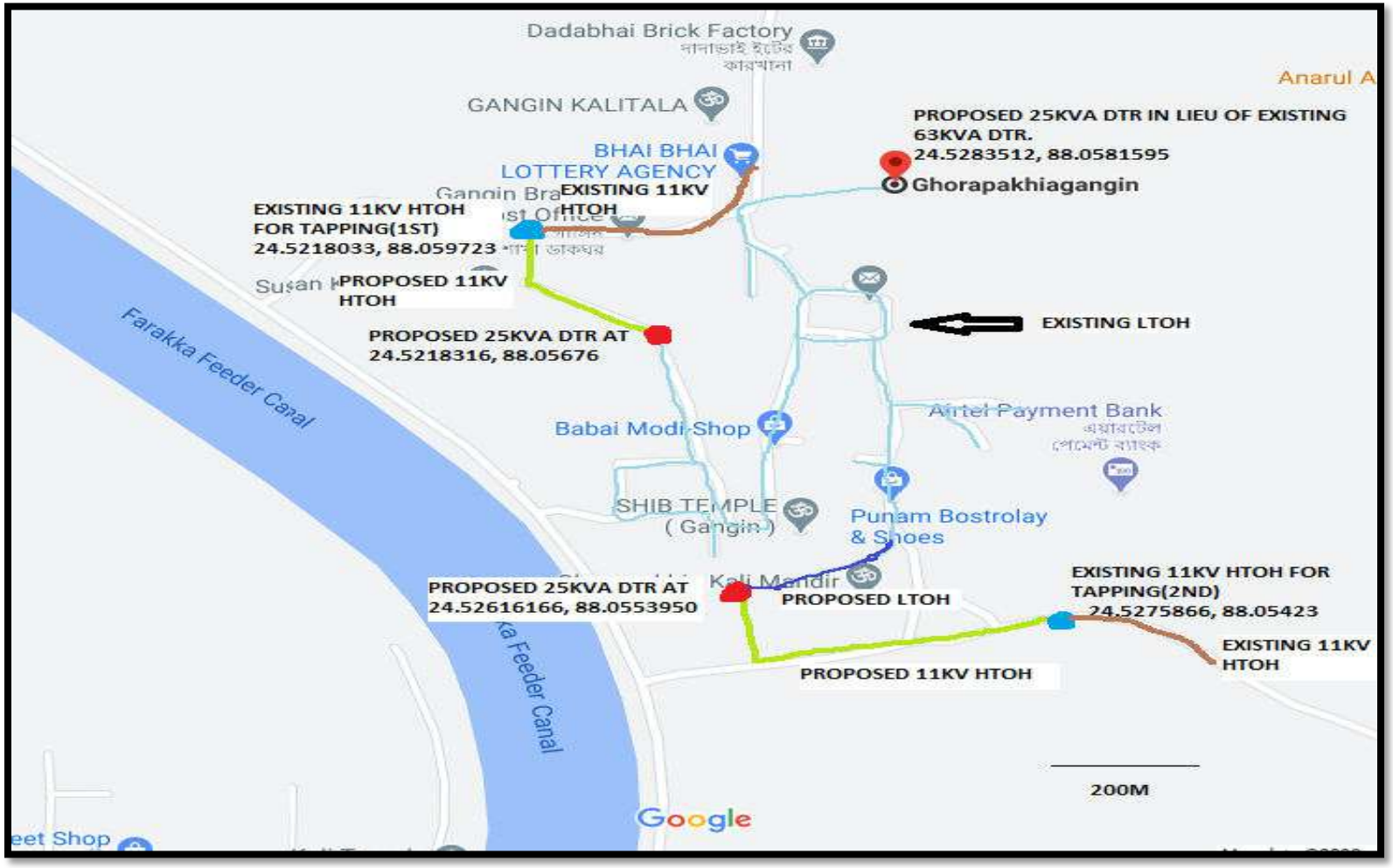


FIGURE 5.2: ENVIRONMENTAL & SOCIAL SETTING AT SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT
(LOCATION OF PROPOSED DTRs TRANSMISSION LINE FOR GHORAPAKHIA GANGINDTR (63kVA) UNDER AHIRAN CCC)

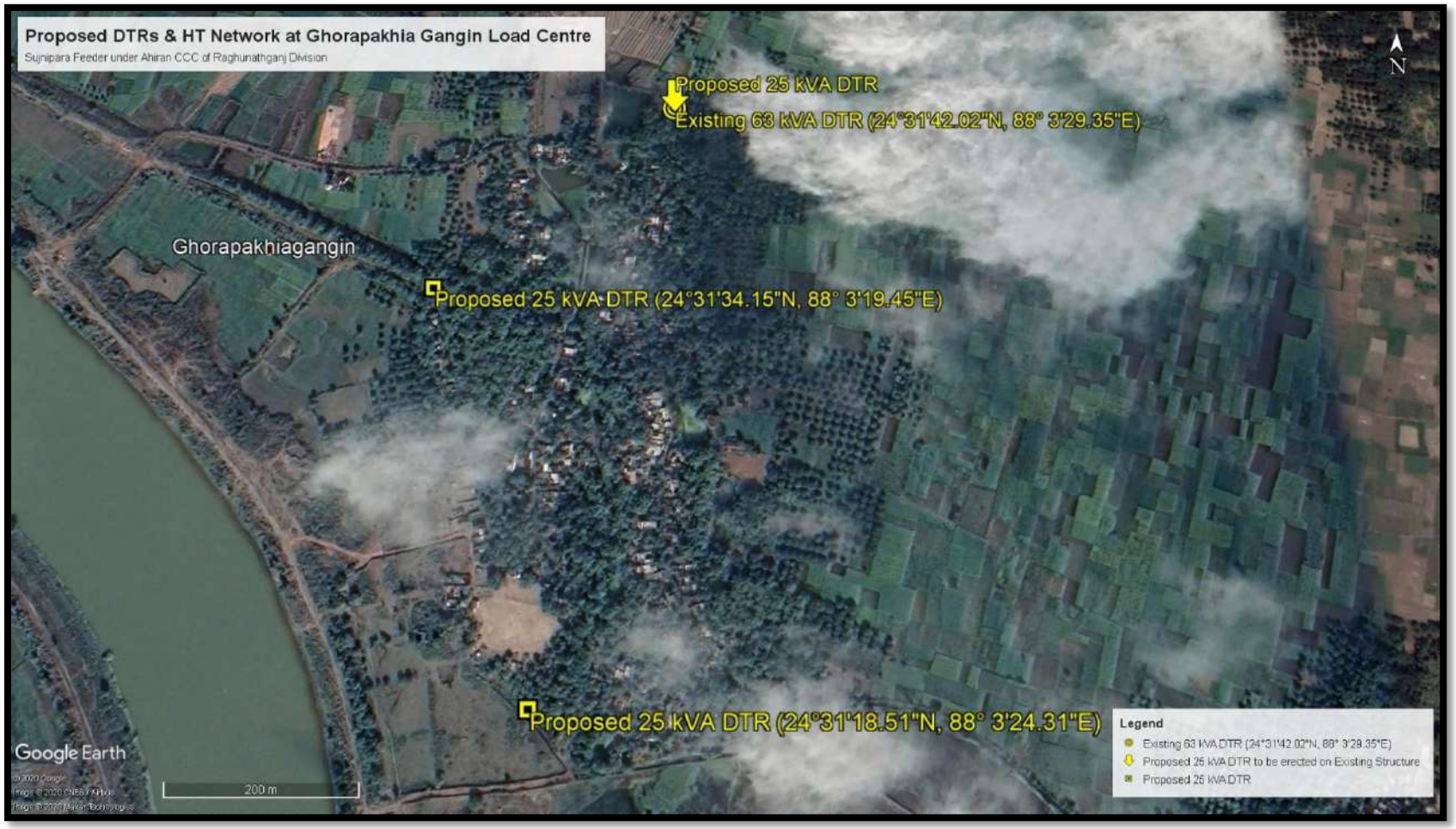


FIGURE 5.3: VIEW OF EXISTING HT/LT NETWORK OF SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT (AT BAMUHA 100 KVA DTR UNDER SANKARPUR FEEDER)

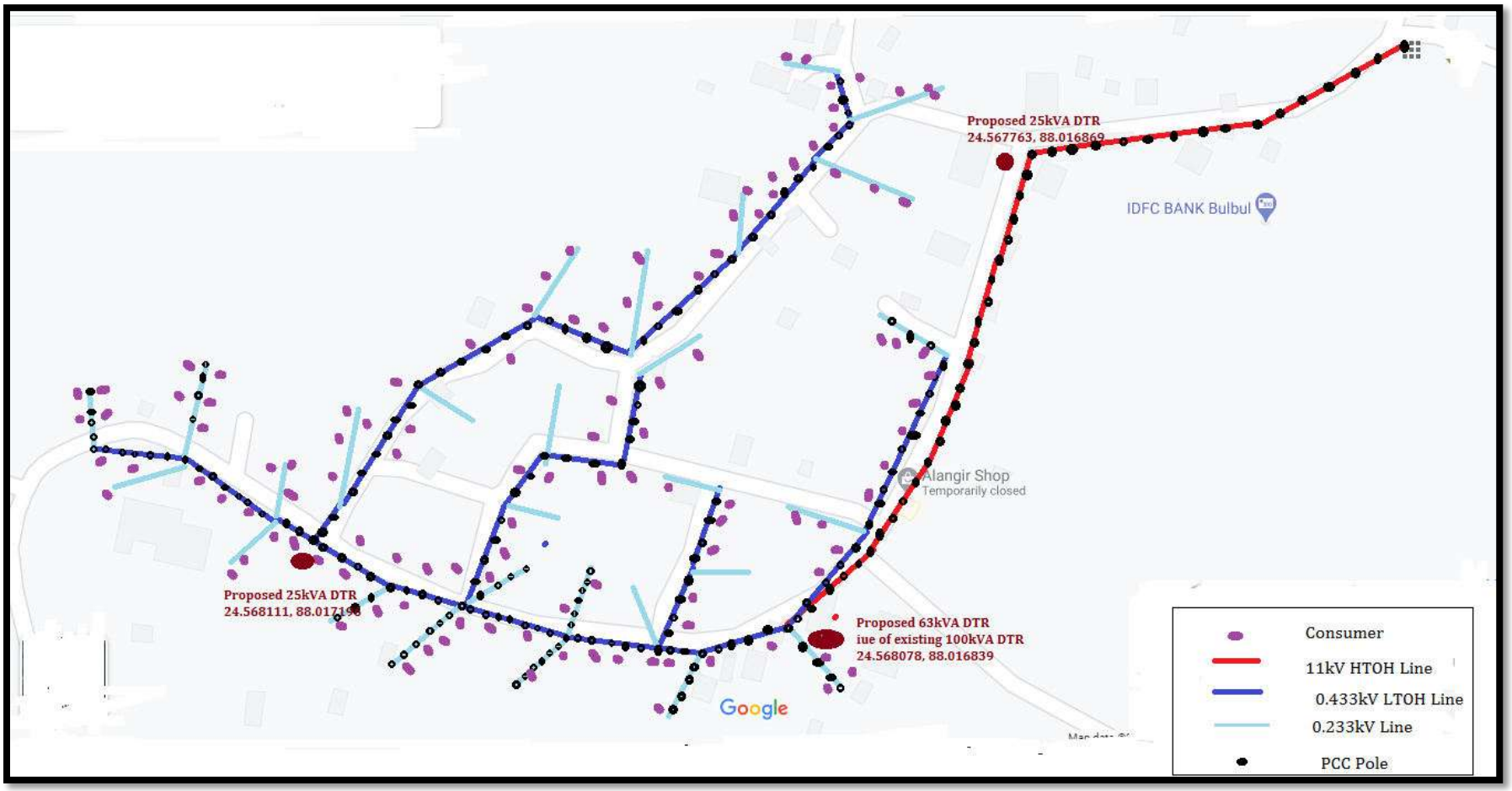


FIGURE 5.4: ENVIRONMENTAL & SOCIAL SETTING AT SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT
(LOCATION OF PROPOSED DTRs &TRANSMISSION LINE FOR TRIFURCATING BAMUHA DTR(100 kVA) UNDER AURANGABAD CCC)

FIGURE 5.5: VIEW OF EXISTING HT/LT NETWORK OF SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT (AT BAZARSAU BAZAR 100 KVA DTR UNDER SHAKTIPUR FEEDER)

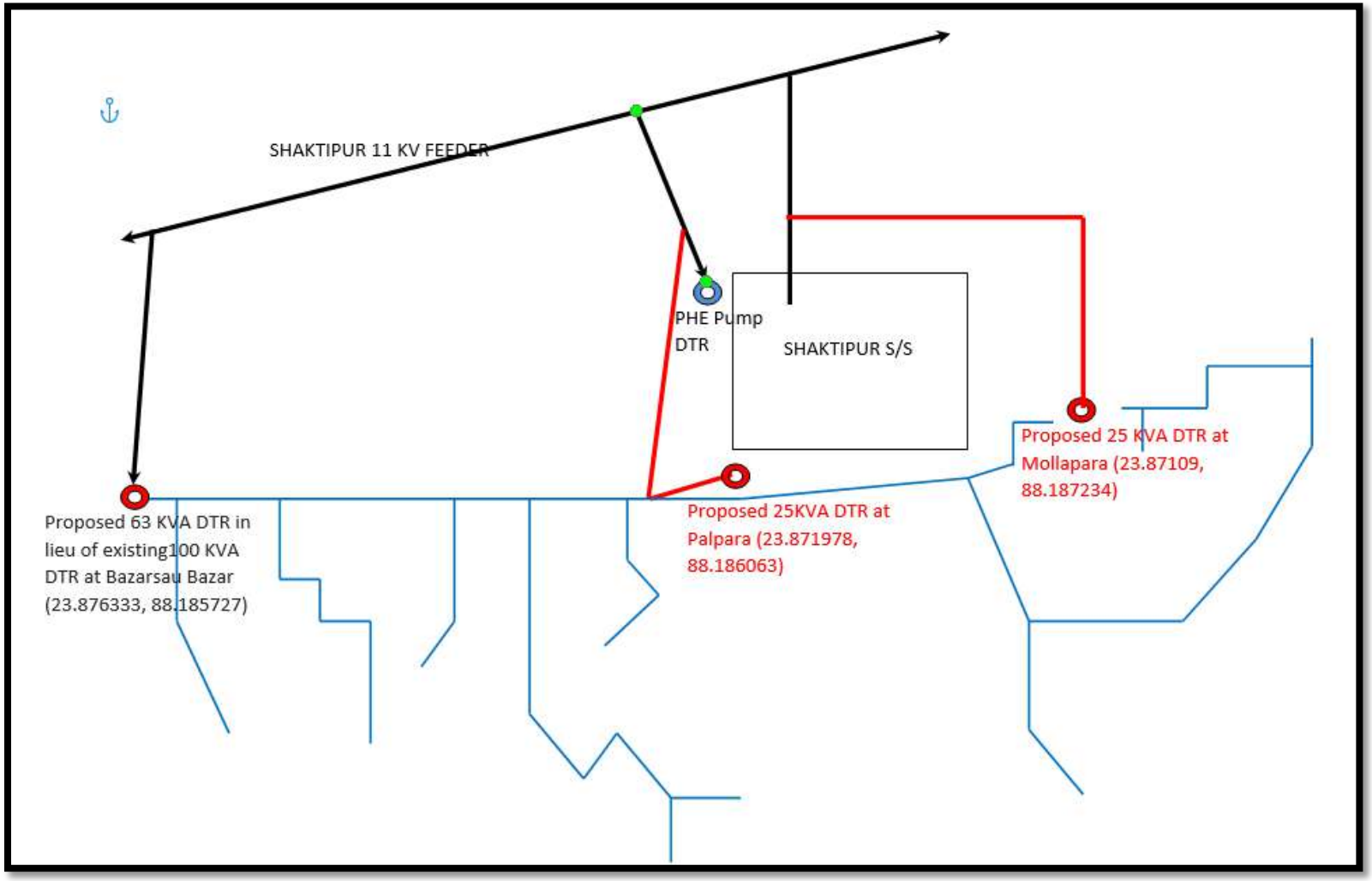
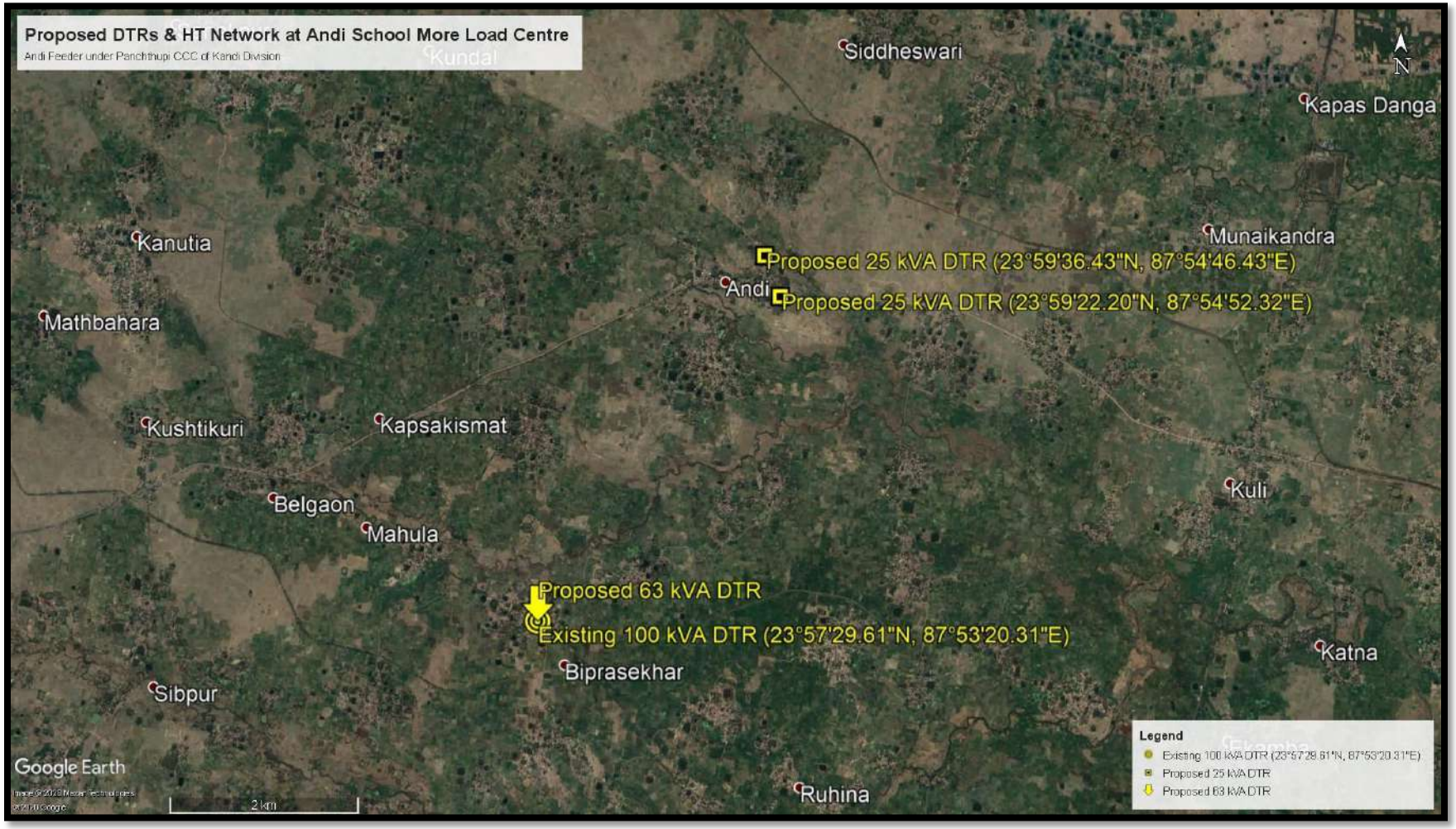


FIGURE 5.6: ENVIRONMENTAL & SOCIAL SETTING AT SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT
(LOCATION OF PROPOSED DTRs &TRANSMISSION LINE FOR BAZARSAU BAZAR100kVA DTR UNDER SHAKTIPUR CCC)

FIGURE 5.7: ENVIRONMENTAL & SOCIAL SETTING AT SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT
(LOCATION OF PROPOSED DTRs &TRANSMISSION LINE FOR TRIFURCATING DHANAIPUR BATHAN DTR(100kVA) UNDER LOCHANPUR FEEDER OF CHAK ISLAMPUR CCC)

FIGURE 5.8: ENVIRONMENTAL & SOCIAL SETTING AT SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT
(LOCATION OF PROPOSED DTRs &TRANSMISSION LINE FOR TRIFURCATING DAMODARPUR DTR(100kVA) UNDER PAMAIPUR FEEDER OF CHAK ISLAMPUR CCC)

FIGURE 5.9: ENVIRONMENTAL & SOCIAL SETTING AT SELECTED LOAD CENTRES FOR HVDS SUB-PROJECT AT MURSHIDABAD DISTRICT
(LOCATION OF PROPOSED DTRs & TRANSMISSION LINE FOR ANDI SCHOOL MORE DTR (100 kVA) UNDER ANDI FEEDER OF KANDI CCC)



5.1.1 Impact on Air Quality and Noise

The HVDS sub-project construction activity is a very short-term activity of about 1 or 2 days at a particular site and does not require any significant movement of men and material to the site. The vehicular movement may be limited to one or two vehicles. The pole erection and DTR installation will involve very limited groundwork without the use of any heavy machinery. Although GIS sub-project construction activity may continue for quite some time and may generate insignificant air and noise pollution. This would include emission from fugitive and exhaust air pollution from the movement of vehicle carrying construction material and machinery used during site clearance and leveling of site for GIS substation, excavation and filling up of pit for erection of poles/DTRs. However, this will too be temporary and intermittent only during construction phase hence will not affect the overall/existing Air Quality Index (AQI) of project area. Whereas the potential for dust generation and noise, if any, is expected to be insignificant and short- lived.

The principal source of noise during construction of GIS substation, the operation of the earth moving machineries has potential to generate high noise levels. These machineries may produce noise level of more than 70 dB (A) if not maintained properly. This can cause disturbance to the settlement, if located near (within 100-200 m) sub-station sites. During operation stage, there may be humming noise from the transformers which will be felt only to a distance of up-to 5 meters from the source and therefore not expected to cause nuisance.

To prevent air pollution the vehicle carrying construction material and machinery would move along the existing access road only. Vehicles which are having valid Pollution Under Control (PUC) Certificate would only be deployed for the purpose with regular check

To prevent excessive noise machineries involved in GIS substation construction, maintenance schedule would be prepared and maintained by the contractor. Night-time construction activity would be prohibited to eradicate/eliminate any disturbance to nearby population.

5.1.2 Emission of Green House Gas (GHG)

A gas insulated Sub-station (GIS) is a high voltage substation that uses a superior dielectric gas, Sulfur Hexafluoride (SF_6) for insulation purpose. The basic principle of gas insulated equipment is that the high voltage current carrying parts are within a metal enclosure and are held in a concentric configuration by cast epoxy spacer insulators. The space between the conductor and the enclosure is filled with SF_6 gas under desired pressure.

In proposed GIS sub-station (33/11 kVA) the SF_6 gas pressure is proposed to be maintained between 1.25 to 1.35 bar. The amount of SF_6 gas per vertical would be around 12 kg i.e. approx.8 kg in the breaker compartment and approximately 4 kg in bus bar compartment. So, in

total 8 verticals of 33/11 kVA GIS sub-station the total SF_6 likely to be used would be approx. 96 kg.

Sulphur hexafluoride (SF_6) is physiologically completely harmless for humans and animals. It has no ecotoxic potential. It does not deplete Ozone. However, due to its high global warming potential (23500 times of CO_2 according to the 5th Assessment Report of IPCC, 2014), it may contribute to man-made greenhouse effect if it is released into the atmosphere. However, in electrical switchgear, the SF_6 gas is always used in gas-tight compartments, greatly minimizing leakage. The SF_6 emission factor in GIS ranges from about 0.1 – 0.5 % per year (0.5 % per year is the maximum acceptable leakage rate according to IEC 62271-203). Considering even maximum permissible SF_6 emission factor the annual emission of SF_6likely to be only 0.096 kg which is equivalent to 2.256 tons/annum of CO_2 emission from proposed GIS to be setup at Cossimbazar under Berhampur Municipality of Murshidabad District. This makes the real impact of SF_6 emission on environment and Global warming quite negligible.

WBSEDCL would follow the strict and well-defined procedure for storage, handling and refilling of SF_6 gas cylinders. Every refill would be documented and any unusual variation in gas volume would be reported to WBSEDCL for review and rectification.

5.1.3Impact on Water Resources

The HVDS sub-project activities neither require use of water nor results into generation of any wastewater. However, GIS sub-project may require very small quantity of water for construction of sub-station which will be met from existing water resources. Recycled water for this purpose would be explored to be utilized if available. However, during operation phase, water may be used for domestic purpose for office and residential quarters at GIS substation site. Further, water may be required for earthling pit located at GIS substation site. No fuel and other lubricants are required at the sites. Hence, the project activity is not expected to have any impact on water quality or availability. The project activity of upgradation of existing LVDS to HVDS is being taken up to minimise the energy losses and quality of power supply. Hence no adverse impact on ground water availability is expected due to the upgradation to HVDS or setting up of GIS.

Water usage for construction work of GIS would be reduced by adopting following best practices:

- Preference to use of recycled water for construction activity wherever feasible;
- Use of buckets etc. to wash tools instead of using running water;
- Use of admixture in the concrete production to reduce water consumption.

5.1.4Impact on Drainage Pattern

The project activity is typically a standalone pole mounted DTR and does not require any significant area of land (i.e. 0.6 x 0.6 m only for each pole). The GIS Sub-station is proposed to be installed in private land of approx0.2 acres of land at Cossimbazar with proper drainage infrastructure including soak pits for excreta. Hence no significant adverse impact on local surface drainage pattern is expected.

5.1.5 Impact on Soil

Ground-work involvement in conversion of LVDS in to HVDS as well as setting up of GIS sub-station is minimal and not leading to any disturbance in soil. The detail of excavation of soil for HT/LT line poles foundation pits, DTRs poles foundation pits, UG cable trench and GIS foundation is presented in Table 5.2. The total quantity of excavation of soil for erection of poles for HT/LT lines including phase conversion workout to be 9979.08 cum and for erection of DTRs likely to be 1002.24 cum under proposed HVDS sub-project of Murshidabad District. Whereas setting up of GIS may lead to excavation of soil of 1922.97 cum. As the total excavation of soil covering the entire cross section area of Murshidabad District would be only 12904.29 cum while implementation of HVDS and GIS sub-project and 90% of which will be used in refilling/leveling activities and balance 10 % (1290.4 cum approx.) shall be disposed at appropriate/predefined places in consultation with local civic authorities. Therefore, the impact on soil would not be significant both due to the construction of electricity distribution network pole (i.e. erection of HT/LT lines & DTRs) and GIS substation.

Mitigation measures which would be considered to reduce impacts on soil during construction of electricity distribution networks/substation are given below:

- Excess excavated material from pole/DTR foundation laying has to be removed by the contractor immediately after completion of pole erection.
- Sitting of the distribution pole/DTR should be avoided in agricultural area and water-logged site to the extent possible.

TABLE 5.2: EXCAVATION OF SOIL FOR HVDS & GIS SUB-PROJECT OF MURSHIDABAD DISTRICT

Voltage	Type of Conductor	No of Poles/Ckt km	Type of Pole	Size of Pole Foundation Pit	Excavation of Soil/pole foundation pit (cum)	Excavation of Soil/ckt. km for pole foundation pit & per DTR/km UG Cable trench (cum)	Proposed New Line Ckt km/no of DTRs	Excavation of Soil (cum)
EXCAVATION OF SOIL FORPOLE FOUNDATION PITS FOR PROPOSED NEW HT/LT LINES & PHASE CONVERSION OF LT LINE UNDER HVDS:								
11 kV HT New Line	ACSR Rabit Conductor	17	9 M PCC	0.6x0.6x1.5m	0.54	9.18	185.6	1703.808
	ABC	30	9 M PCC	0.6x0.6x1.5m	0.54	16.2	46.4	751.68
1.1 kV LT-3Ph New Line	ACSR Rabit Conductor	25	8 M PCC	0.5x0.5x1.5m	0.375	9.375		-
	ABC	30	8 M PCC	0.5x0.5x1.5m	0.375	11.25	55.68	626.4
Phase Conversion LT-3Ph	ACSR Rabit Conductor	5	8 M PCC	0.5x0.5x1.5m	0.375	1.875		-
	ABC	15	8 M PCC	0.5x0.5x1.5m	0.375	5.625	919.5	5172.188
33/11 kV HT UG Cable						345	5.0	1725.00
							Sub total	9979.08
EXCAVATION OF SOIL FOR POLE FOUNDATION PITS OF PROPOSED NEW/RE-ERECTION OF DTRs UNDER HVDS:								
100 KVA DTRs		2	9 M PCC	0.6x0.6x1.5m	0.54	1.08	40	43.2
63 KVA DTRs		2	9 M PCC	0.6x0.6x1.5m	0.54	1.08	240	259.2
25 KVA DTRs		2	9 M PCC	0.6x0.6x1.5m	0.54	1.08	648	699.84

Voltage	Type of Conductor	No of Poles/Ckt km	Type of Pole	Size of Pole Foundation Pit	Excavation of Soil/pole foundation pit (cum)	Excavation of Soil/ckt. km for pole foundation pit & per DTR/km UG Cable trench (cum)	Proposed New Line Ckt km/no of DTRs	Excavation of Soil (cum)
							Sub total	1002.24
SETTING UP OF GIS:								
33 kv HT New Line	ACSR Rabit Conductor	11	12 M Rail	0.65x0.65x2m	0.845	9.295	9.7	90.1615
11 kV HT New Line	ACSR Rabit Conductor	17	9 M PCC	0.6x0.6x1.5m	0.54	9.18	13.65	125.307
33/11 kV HT UG Cable						345	3.5	1207.5
GIS DTRs Foundation & Other Infrastructure								500
							Sub total	1922.97
							Grand total	12904.29

5.1.6 Impact on Forest/Vegetation

No significant impact on existing forest is expected in electricity distribution networks strengthening activities due to avoidance forest/ecological sensitive areas or natural habitats. However, insignificant loss of vegetation may occur due to trimming/felling of trees within the RoW to maintain the required electric clearance between tree and conductor (applicable mostly in areas where bare conductor is used).

5.1.7 Impact on Wildlife

The project activity is typically a standalone pole mounted DTR and will be located in rural and semi-urban area. The structure is provided with suitably earthling. These activities are not falling under any protected area or wildlife sanctuaries or national parks or elephant corridors, etc. Therefore, no significant adverse impact due to the project activities is expected on the wildlife.

5.1.8 Impact of Hazardous & Other Waste

Under the proposed conversion of LVDS to HVDS at Murshidabad District number of DTRs would be relocated and approx. 260 numbers 100 KVA DTRs would be dismantled sent to respective divisional store for reuse or scrapped. While relocating these DTRs transformer oil may also be required to be changed as a part of routine maintenance. During operational phase transformer oil usually required be changed every 10- 15 years. The used transformer oil is categorized as hazardous wastes as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and its unscientific disposal may lead to contamination of ground water. Further, transformer oil may contain insignificant concentrationof Polychlorinated biphenyls (PCBs). The likely adverse environmental impact of handling transformer oil is very low.

WBSEDCL would ensure that used transformer oil is disposed in accordance to the Hazardous and Other Wastes (Management and Tran's boundary Movement) Rules, 2016. WBSEDCL would also obtain necessary authorisation form West Bengal State Pollution Control Board (WBPCB) under this regulation and comply with the responsibilities of generator i.e. maintaining of records, submission of annual returns. Similarly, e-waste generated would be governed by the provisions of the E-Waste Management rules 2016. The procedure for handling both hazardous waste and e-waste are presented in ***Appendix 3.1.***

The detail of other waste likely to be generated due to conversion of LVDS into HVDS and setting up of GIS at Murshidabad District are presented in Table 5.3. At the completion of the construction activities

construction site would be cleared of all the leftover materials and debris to avoid any chance of pollution. The likely adverse environmental impact of handling other waste is also very low. Moreover, to encourage efficiency and recycling the contractors/supplier shall be asked to take back all empty drums for reuse.

TABLE 5.3: WASTE MATERIALS LIKELY TO BE GENERATED DURING CONVERSION OF LVDS TO HVDS & GIS SUB-PROJECT AT MURSHIDABAD DISTRICT

Sl. No.	Particulars	Approx. Quantity	Storage Facilities	Recycled/Reuse/ Disposal
1	Transformers (100KVA)	260 no.	Existing transformer will be stored at respective Divisions Store yard for subsequent use.	Proposed to be reused by WBSEDCL to the extent possible and which are not reusable will be scrapped as per WBSEDCL norms.
2	LT conductor	1008 CKt-Km	Existing overhead conductors (LT) will be stored at respective Division Store and sub-station store yard for subsequent use.	LT conductors will be partially recycled and remaining will be scrapped as per WBSEDCL norms.
3	Insulators - LT 1.1KV Poles (@4(Avg.)/Pole*25200 poles)	100800 no.	Proposed to be stored in at respective Division Store and sub-station store yard for subsequent use.	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 local authority
4	Generation of Debris			
	Erection of New DTRs (100/63/25 KVA): Debris generated from excavation of	1002.24cum	Proposed to be temporarily stored near the DTR foundation	Approx. 90% will be used for refilling of excavated pit along with brick bat (BB) and remaining 10% would to the

Sl. No.	Particulars	Approx. Quantity	Storage Facilities	Recycled/Reuse/ Disposal
	pit for foundation of New DTRs/re-erecting existing DTRs		securely avoiding the traffic and other hindrances to local community	extent possible reused in filling-up of low-lying area adjacent new DTRs structures and/or disposed off in designated area by local authority.
	Erection of PCC Poles for HT/LT Lines: Debris generated from excavation of pit for foundation of poles	8254.08cum	Proposed to be temporarily stored near the pole foundation securely avoiding the traffic and other hindrances to local community	Approx 90% will be used for refilling of excavated pit along with brick bat (BB) and remaining 10% would to the extent possible reused in filling-up of low-lying area adjacent poles and/or disposed off in designated area by local authority.
	UG Cabling for HVDS (11kv HT): Debris generated from excavation of trench for UG cabling work	1725.00 cum	Proposed to be temporarily stored near the trench securely avoiding the traffic and other hindrances to local community	Approx80% will be used for refilling of excavated cable trenches and remaining 20% would be disposed off in designated area by local authority.
	GIS Sub-project:			
	Erection of Rail Poles for 33 kV HT Lines: Debris generated from excavation of pit for foundation of poles	90.16cum	Proposed to be temporarily stored near the pole foundation securely avoiding the traffic and other hindrances to local community	To the extent possible reused in filling-up of low-lying area adjacent poles and/or disposed off in designated area by local authority.
	Erection of PCC Poles for 11 kV HT Lines: Debris generated from excavation of	125.31cum	Proposed to be temporarily stored near the pole foundation	Approx 90% will be used for refilling of excavated pit along with brick bat (BB) and remaining 10% would to the

Sl. No.	Particulars	Approx. Quantity	Storage Facilities	Recycled/Reuse/ Disposal
	pit for foundation of poles		securely avoiding the traffic and other hindrances to local community	extent possible reused in filling-up of low-lying area adjacent poles and/or disposed off in designated area by local authority.
	UG Cabling for GIS (33/11kv HT): Debris generated from excavation of trench for UG cabling work	1207.5cum	Proposed to be temporarily stored near the trench securely avoiding the traffic and other hindrances to local community	Approx80% will be used for refilling of excavated cable trenches and remaining 20% would be disposed off in designated area by local authority.
	DTRs and Other Infrastructure foundation for GIS	500 cum	Proposed to be temporarily stored near the GIS foundation securely avoiding the spillage and other hindrances to local community	To the extent possible reused in filling-up of low-lying area adjacent GIS and/or disposed off in designated area by local authority.

5.1.9 Occupational Health and Safety

The occupational risk related to the conversion of LVDS in to HVDS as well as setting up of GIS sub-station is primarily due to fall from heights which might cause serious injuries. Electricity distribution network poles would be of different heights and height of the pole would be 9 m in case of 11/33 kV and 8 m in case of LT line but with due safety measures such incident would be avoided. Therefore, as such no significant adverse occupational health and safety risk due to the project activities is expected.

During the testing and charging of electrical lines and GIS substation, electricity insulating protective equipment like footwear (ISO 20345: 2004 Part-2), rubber gloves (IS 4770: 1991) would be provided to workers. In addition, provisions of the “Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations 2010” would be adhered to.

5.1.10 Community Health and Safety

During the construction of the foundation for the GIS, pits of poles/DTRs the excavation may pose some safety concerns for the inhabitants in the locality. This would be more relevant when the construction is carried out near a settlement or along a foot track or existing village road. However, considering the spatial involvement scale of operation of these activities impact on community health and safety would be insignificant.

During operation phase, the generation of Electro Magnetic Field (EMF) from 11/33 kV lines as well as noise generation from DTRs/GIS are likely to be insignificant.

For the foundation of poles/DTRs and GIS being constructed near settlement or access road, there are chances of accidents. During the construction period the construction areas shall be barricaded, if required. To facilitate easy identification of these areas during the night, warning lights and reflective tapes would be placed on the boundary for enhanced & clear visibility.

5.1.11Impact Due to Construction Labour Camp

The manpower requirement for erection of the HVDS is about 4 to 5 workers at each construction site. Moreover, the construction activity is of a very short duration of 1 or 2 days at a particular site. The worker requirement during construction of GIS would be around 40-60 workers only. The construction workers are generally employed from within the project villages. As such the project activity will not require setting-up of labour camp and hence no associated adverse impacts are expected. The skilled and outside workers preferably be accommodated in rented accommodations in nearby town/settlements 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.

The significance of likely environmental and social impact of conversion of LVDS in to HVDS and setting up of GIS at Murshidabad District are presented in Table 5.4.

TABLE 5.4: SIGNIFICANCE OF ENVIRONMENTAL AND SOCIAL IMPACTS OF HVDS & GIS SUB-PROJECTS AT MURSHIDABADDISTRICT

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	Very low on account of leakage	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
Damage to roads and transport infrastructure	Not anticipated	Not anticipated	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	Very Low	Not anticipated	Not anticipated	Not anticipated
Loss of livelihood	Not anticipated	Not anticipated	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

A summary of expected environmental impacts and the mitigation measures during the construction as well as operation phases are presented in Table 5.5.

TABLE 5.5: SUMMARY OF EXPECTED ENVIRONMENTAL IMPACTS AND THE MITIGATION MEASURES DURING CONSTRUCTION & OPERATION PHASE

Anticipated Impact	Mitigation Measures
Construction Phase:	
Loss of agricultural land for erection of poles, DTRs and construction of GIS	As per existing provisions of law land is not acquired for installation of pole and stringing of conductor/ABC. Moreover, most of the route alignment is along the road and very few poles are situated/to be installed in agriculture land hence no significant loss of agricultural land is envisaged. The land for GIS is also already available with WBSEDCL and no additional land is proposed to be acquired.
Loss of soil due to Excavation for pole/DTRs erection and GIS	The project activity is limited to erecting a pole with a small size transformer, and hence is not expected to have any impact on soil and geology at the site. The excavated soil at each pole shall range from0.375 - 0.845 m^3considering the pit size of 1.5 x 0.5 x 0.5, 1.5 x 0.6 x 0.6 m & 2.0 x 0.65 x 0.65 for 8 m PCC, 9 m PCC and 9 m Rail pole respectively for erecting LT and HT lines (11 & 33 kV) and 63/25 kVA DTRs. The 90-95 % of excavated soil will be used in refilling. However maximum effort to be taken to protect /preserve topsoil and reinstate it after completion of the construction.
Increase in air pollution	The construction activity is a very short-term activity of about one or two days and does not require any significant movement of men and material to the site. The vehicular movement may limit to one or two vehicles and short lived for one or two days. The pole erection and DTR installation will involve very limited groundwork. The water sprinkling would be undertaken while excavation and refilling of pits/foundation, if required to minimize fugitive emissions at construction sites.

Anticipated Impact	Mitigation Measures
Soil / water contamination due to spillage / leakage	The project components are solid electrical and mechanical components like cables, metal frames and transformer, and does not include use/handling of any chemicals, liquids at site. Contractor would ensure that construction materials should be stored in covered areas to ensure protection from any potential damages during handling and storage. Avoid storage along water bodies, if any.
Health and safety	Contractor would ensure that construction safety & health protocols/norms and use of PPE are communicated to the workers specially covering working at height, and electrical safety to increase safety awareness among the workers. Preventive measures for COVID-19 also would be communicated to all the worker and social distancing as well as other norms would be followed to protect worker.
Operational Phase	
Noise pollution	There may be a humming noise from the transformer, which may be felt up to only 5 meters distance from the transformer. However, the location of DTRs would be selected to the extent possible away from human habitation.
Contamination of soil due to leakage / spillage of oil during transportation and storage of transformers	The transformers are very small in size (25/63 KVA) and typically have low volume of oil storage. The leakage of oil from the transformer is very rare as the equipment is static and suitable seals are provided at joints as per standard design practices. Hence, the leakage of oil from the transformer, if any, is expected to be insignificant to cause any serious adverse environmental impact. During transfer of the non- functional transformers from site to the central workshop, preventive measures such as provisioning of secondary containment (trays) and spill control kit / absorption pad should be ensured. Appropriate tools would be used during handling and transport of the transformers to avoid damage and leak.

5.2 POTENTIAL SOCIAL IMPACTS AND MITIGATIONMEASURES

Apart from benefits due to energy savings through the AT&C loss reduction and concurrent environmental benefits (i.s. reduction in GHGs emissions, etc), implementation of the HVDS & GIS Sub-project derives several social benefits also.

5.2.1 Beneficial Social Impact

The objectives of the rural HVDS project include reduction in DTR failure rate, ensuring enhanced reliability & quality of power and enhanced customer satisfaction. Therefore, following positive impacts are expected from the implementation of the HVDS project:

Improved and Reliable Power Supply

In LVDS, an 11kv line is connected to a mother transformer (63kva or 100kVA) from which connections are provided for multiple consumers including commercial establishment and agri-pump sets connected through LT lines which can be 2-3 Km in length. It is difficult to monitor the load on the transformer and prevent overload and outages. Also, the voltage levels fall considerably at the tail end of the power line making it difficult to operate the various electrical appliances including pump sets, etc.

In HVDS, transformer of 25kVA or63 kVA depending on expected load flow is provided for each load center. Hence, overloading of the line is avoided.

Furthermore, it was observed that in the LVDS, transformers fail 1-3 times a year because of overloading, which is reduced considerably in the HVDS. It takes 2 days to fix a minor problem and up-to a week to fix a major problem. During that time there is no backup to run the various electrical appliances including pumps affecting the business as well as agricultural activity of farmers. However, in case of damage to transformer in HVDS, only limited consumers including farmers are affected.

Reduced Expenditure on Maintenance of Domestic & Agricultural Appliances

In LVDS, the domestic electrical appliances as well as pump sets are repeatedly damaged because of the low voltage power supply and frequent voltage fluctuations. At times, these have to be repaired 2-3 times a year and repair costs vary between INR 1,000 to INR 5,000 each time, depending on the type &size of the electrical appliances or pump set. As the HVDS provides better voltage profile, the damage to the electrical appliances as well as pump sets is substantially reduced, resulting in lower expenditure on repair and maintenance.

Employment Creation

The proposed HVDS work will ensure reliable electricity supply for commercial as well as agricultural purposes, thereby ensuring growth of business and micro and small-scale industry and creating employment.

5.2.2 Adverse Social Impact

As such no significant adverse social impact of proposed sub-project envisaged through screening of social impact during operation phase. However, the likely adverse social impacts and the mitigation measures during the construction phase are as follows:

Impact	Mitigation Method
Right of the Way for erecting poles and laying lines: As in majority of cases the existing LT lines (415 V) are being replaced with HT lines (11 KV) no significant additional RoW is required.	As the majority of the work involves replacing existing lines, no significant additional RoW requirement is there. In less than 10% of cases, a new line may be laid if an 11kV feeder is closer to load center. For erection of new LT/HT lines and DTRs the Government vacant land along the road avoiding trees, etc. if any would be selected in consultation with local authority.
Damage to crop and trees: Crops and trees may be damaged during the construction phase and also for the maintenance of the RoW; as the majority of work involves replacement of existing LT lines with HT, it is not expected that there will be any significant crop or tree damage in the process as RoW already exists.	Crop damage is limited as most of the civil work takes place in non-agricultural season. A clearance of 2.6 m between the conductor (up-to 11 KV) and the trees is to be maintained. This clearance is usually maintained through only pruning the trees and cutting of tree would not be required. However, in forest area AB cable would be used to minimize the impact on tree canopy pruning to maintain required clearance between conductor and tree. The damage to trees is mostly relevant in cases of coconut or palm tree cultivation but farmers are willing to maintain the clearance as the benefits from reliable supply of electricity far outweigh the cost of pruning of few trees. In case of any unavoidable damages, compensation to all APs at replacement/market cost shall be paid by WBESCDL following due process of assessment and computation by concerned local authorities.

Impact	Mitigation Method
Disruption of Power Supply: Power supply will have to temporarily discontinue to allow for construction activities. Also, power supply is disrupted during the maintenance activity	Replacement of LT lines would be undertaken in phased manner during the pre-scheduled time informing concerned consumers, so power supply does not significantly affect consumers due to the project work. Provision of AB switches for the transformers to enable the maintenance of transformer without disrupting the power supply
Impact on community health and safety due to exposure to electric currents, hazardous materials, electromagnetic fields etc.	Display danger signs at appropriate locations Display boards with precautions to be adopted by consumers, owners, occupiers, electrical contractors, electric workmen and suppliers Display of instructions for resuscitation of persons suffering from electric shock.
Impact on labour health and safety due to exposure to electric currents, hazardous materials, electromagnetic fields etc.	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 documents 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.

6.0 ANALYSIS OF ALTERNATIVES

This chapter presents an analysis of alternatives considered in the project preparation toavoid or minimize inevitable environmental and social impacts, by selecting the most optimal location for setting up of GIS sub-stations and additional HT/LT cable route alignment required for HVDS. 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.

6.1ANALYSIS OF WITH OR WITHOUT PROJECT SCENARIO

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

The 'with' scenario of the HVDS& GIS sub-project is expected to provide a robust and reliable electrical network as in conventional LVDS large numbers of end users are connected through LT lines and there is no control over connected load in practice. Often users connect loads to the system more than sanctioned loads which lead to DTR overloading and frequent outage. In HDVS only small numbers of consumers are connected to a single DTR and DTR sizing is optimized based on the consumers' sanctioned load, resulting no more over loading. Unauthorized taping of power turns this problem even more severe. The implementation of the HVDS & GIS Sub-project derives several benefits due to energy savings through the AT&C loss reduction and concurrent environmental benefits due to fact that energy saved is energy produced resulting in reduced GHGs emissions.

Improved power quality due to implementation of HVDS & GIS will enhanced the performance and life of consumer appliances thus lower repairing and maintenance cost to consumer. The reduction in DTR failure rate, enhanced power supply reliability and power quality will also lead to improved customer satisfaction. Lower DTR outage rate, reduced downtime of DTR and reduced breakdown of agricultural equipment, uplifted crop yield in agricultural areas, resulting community's economic boost. Enhanced power availability, quality and reliability, encourage more people to become entrepreneur which is beneficial to the society at large in terms of economic development.

The economic benefits of HVDS & GIS sub-project of Murshidabad District are likely to be Rs 4722.31 Lakhs with the pay-back period of four years. The Anticipated benefits over 5 years are as follows:

(a) First year 10% : 472.23
(b) Second year 20% : 944.46
(c) Third year 40% : 1888.92
(d) Fourth year 80% : 3777.85
(e) Fifth year 100% : 4722.31

If the HVDS & GIS sub-project is not implemented, there is every likelihood that the existing overhead electrical network would require very high O&M cost besides lots of consumer dissatisfactions and development of region. Moreover, existing OH electrical network would need investments for up-gradation to meet increasing power demand of Murshidabad region in the coming years.

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 of HVDS & GIS sub-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 feasibility of route alignment of the additional HT/LT cable route required for implementation of HVDS. For selection of optimum route, the following points are taken into consideration:

(i) The route of the proposed HT/LT lines 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.

In order to achieve this, WBSEDCL undertaken route selection for additional HT/LT distribution lines 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 is to take it along existing RoW in most of the load centres, which has been considered 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. 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.

Keeping above in mind the routes of proposed additional lines under the project have been so aligned that it takes care of above factors. As such different alternatives for 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 GIS SUB-STATION AREA ALTERNATIVES

For GIS substation site selection also analysis of 2-3 alternatives sites is usually carried out based on environment and social aspects and technical requirement. Such analysis considers various site specific parameters that include availability of infrastructure facilities such as access roads, water, distance from railheads, type of land (Government/ revenue/private land); social impacts such as number of families getting affected; Common Property Resources (CPR) including feasibility of acquisition. The finalization of substation land is done based on above analysis and site visit/verification. The social aspects are provided due weight age after technical requirement in decision making for selection/finalization of land for substation.

As per the WBSEDCL guidelines for selection of land for setting of GIS sub-station along with above factors an encroachment free Private land of 0.20 acres has already been identified. The detail of selected land is appended in Appendix 6.1.The proposed land would be procured by Berhampur

Zilla Parishad as per West Bengal Land Procurement policy and would be transferred to WBSEDCL. The subject land is devoid of any encroachment no R&R and other social issues are involved.

7.0 PUBLIC CONSULTATION ANDINFORMATION 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 HVDS & GIS sub-project for Murshidabad Districtunder 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 HVDS & GIS sub-project for Murshidabad District area 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 willcontinuously be engaged in various consultations throughout the project planning and implementation.

7.1OBJECTIVES OF PUBLIC CONSULTATION

During the field survey (i.e. September/November, 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 HVDS & GIS sub-project for Murshidabad District 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, PC and disclosure were conducted during September / November, 2020 at sub-project area to elicit views of public & other stakeholders.

7.3 APPROACH TO PUBLIC CONSULTATION

The roadmap ofpublic 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 • Grievance Redressal Mechanism It is a good practice to prepare a brief Public Information Booklet (PIB) for 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.

Project Stage	Consultation Activities
	Information dissemination to local authorities after completion of field survey and during the ESIA preparation: • Sub-project components • Proposed policies and procedures • A summary of impacts • Tentative implementation schedule • Roles and responsibilities of the sub-project proponents and local authorities
	Consultation with community and other key stakeholders: • When the drafts 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 • villages/wards for review and minimize grievances • Payment of crop compensation, etc to APs in public meeting to maintain transparency
Public Participation in Project Monitoring and Ex-Post Evaluation	• Establish Stakeholder Monitoring Group (SMG), consisting with affected people and civil society members. • 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.

7.4IMPACTS & BENEFITS OF HVDS & GIS 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 consumers and local authorities continues as the project preparation activities proceed in a project.

The information dissemination and consultation 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

The public consultations were undertaken covering entire cross section of sub-project area from 2nd to 7thSeptember, 2020 after lifting of country wise lockdown on 1st June, 2020 to understand the perception of local people as well as various other stakeholders about the project. During such consultation process all due precautions stipulated due to Covid-19 pandemic were followed to avoid any possible repercussions on spread of corona. They were asked to give their perception on the anticipated positive and negative impacts of the project (Appendix 7.1).The critical locations were selected for public consultation meetings considering the power load as well as vulnerability of area viz. tribal settlement as well as proposed site for setting up of GIS substation.

The detail of public consultation meetings is presented in Table 7.2. Detail of consumers and other stakeholder present during consultation meetings, various issues raised during meeting and suggestions made are presented in Appendix 7.2.

TABLE 7.2: DETAIL OF PUBLIC CONSULTATION MEETINGS FOR HVDS & GIS SUB-PROJECT OF MURSHIDABAD DISTRICT

DIVISION	CCC	LOCATION OF PUBLIC CONSULTATION	Date	Time	No of Participant		
					Male	Female	Total
Jiaganj	Lalgola	Bahadurpur GP Office	03/09/2020	12:00	5	7	12
Jiaganj	MMT	Near Kapasdanga High School	04/09/2020	12:30	11	01	12
JIAGANJ	NABAGRAM	INDRATALA, KHAIRAGACHI	03/09/20	4.15 P.M	10	4	14
Domkal	ChakISlampur	Damodarpur	03.09.2020	13:30	8	0	8
		DhanaipurBathan	03.09.2020	12:00	11	0	11

DIVISION	CCC	LOCATION OF PUBLIC CONSULTATION	Date	Time	No of Participant		
					Male	Female	Total
Domkal	Domkal	Kamurdiarh	02.09.2020	17:00	10	0	10
		Malatipur	02.09.2020	14:00	12	0	12
RAGHUNATHGANJ	AHIRAN	GHORAPAKHIA GANGIN	03/09/2020	12.30PM	9	2	11
RAGHUNATHGANJ	AURANG ABAD	LOKAIPUR	02.09.2020	12.00	11	0	11
RAGHUNATHGANJ	AURANG ABAD	BAMUHA	03.09.2020	13.00	9	1	10
RAGHUNATHGANJ	DHULIAN	CHANDNIDAHA	03.09.2020	15.15	11	0	11
RAGHUNATHGANJ	DHULIAN	CHASKAPUR	03.09.2020	16:20	12	0	12
RAGHUNATHGANJ	DHULIAN	TINPAKURIA	03.09.2020	14.10	08	0	08
RAGHUNATHGANJ	DHULIAN	TINPAKURIA	03.09.2020	13:15	15	0	15
BERHAMPORE	AMTALA	PATIKABARI DAMDAMAPARA	04.09.2020	11.05	13	05	18
BERHAMPORE	AMTALA	SABDARNAGAR 10 MILE	03.09.2020	15.18	09	07	16
BERHAMPORE	AMTALA	MADHUPUR POLLADANGA	03.09.2020	17.54	07	05	12
	BERHAMPORE CCC	Nagrajal	03/09/2020	15:00	09	0	09
		Madapur	03/09/2020	15:00	06	01	07
		Majdia	03/09/2020	14:00	02	0	02
BERHAMPORE	BAHARAN	Kebalrampur	04.09.2020	11.30	16	0	16
BERHAMPORE	BAHARAN	Khidirpur	04.09.2020	14.45	21	0	21
BERHAMPORE	BAHARAN	SwaruppurYadulla More	04.09.2020	16.55	17	0	17
BERHAMPORE	REJINAGAR CCC	KADAR ALI MORE	02/09/20	12 NOON	12	0	12
BERHAMPORE	REJINAGAR CCC	KASHIPUR HATTALA	02/09/20	1.30 PM	10	0	10
BERHAMPORE	REJINAGAR CCC	REJINAGAR STATIONPARA	02/09/20	3.00 PM	11	1	12
KANDI	BHARATPUR	SAHAPUR	07/09/20	08.55 AM	30	0	30
Kandi	Khargram CCC	Jethia Paschim Para	06.09.2020	11.30 am	07	0	07

DIVISION	CCC	LOCATION OF PUBLIC CONSULTATION	Date	Time	No of Participant		
					Male	Female	Total
Kandi	Khargram CCC	Village Bharta	06.09.2020	12.30 pm	07	0	07
KANDI	PANCHTHUPI CCC	ANDI SCHOOLPARA	04/09/20	1.40 PM	08	0	08
KANDI	PANCHTHUPI CCC	ANDI BAYANPARA	04/09/20	2.50 PM	07	0	07
KANDI	PANCHTHUPI CCC	ANDI MOTAL PARA	04/09/20	4.00 PM	07	0	07
KANDI	SHAKTIPUR CCC	BAZARSAU MOLLAPARA & PALPARA OF BAZARSAU VILLAGE	04/09/2020	3.30PM	11	1	12
KANDI	SHAKTIPUR CCC	SHAKTIPUR BAZARPARA DURGA MANDIR	04/09/2020	5.00PM	10	0	10

Public Consultation at HVDS site - MilanmoreManiknagar under Lalgola CCC of North Murshidabad Division

Public Consultation at HVDS Site - KodubariTuripara (Tribal Village) Under MMT CCC

Public Consultation at HVDS Site -AjantamalaSantalpara (Tribal Village) Under Nabagram CCC

Public Consultation at HVDS site - Malatipur under ChakIslampur CCC of Domkal Division

Public Consultation at HVDS site - Kamurdiarhunder ChakIslampur CCC of Domkal Division

Public Consultation at HVDS site - DhanaipurBathanpara under ChakIslampur CCC of Domkal Division

Public Consultation at HVDS site - Damodarpur under ChakIslampur CCC of Domkal Division

Public Consultation at HVDS site - GhorapakhiaGang in under Ahiran CCC of Raghunath Gunj Division

Public Consultation at HVDS site - Lokaipur under Aurangabad CCC of Raghunath Gunj Division

Public Consultation at HVDS site - Bamuha Area under Aaurangabad CCC of Raghunath Gunj Division

Public Consultation at HVDS site - Dhulian CCC of Raghunath Gunj Division

Public Consultation at HVDS site - Dangapara Area under Amtala CCC of Baharampur Division

Public Consultation at HVDS site - Sabdarnagar 10 Mile Area under Amtala CCC of Baharampur Division

Public Consultation at HVDS site - Patikabari-Damdama Para Area under Amtala CCC of Baharampur Division

Public Consultation at HVDS site - Nagrajal Area under Baharampur CCC of Baharampur Division

Public Consultation at HVDS site - Madapur Area under Baharampur CCC of Baharampur Division

Public Consultation at HVDS site - Majdia Area under Baharampur CCC of Baharampur Division

Public Consultation at HVDS site - Kebalrampur Area under Bharan CCC of Baharampur Division

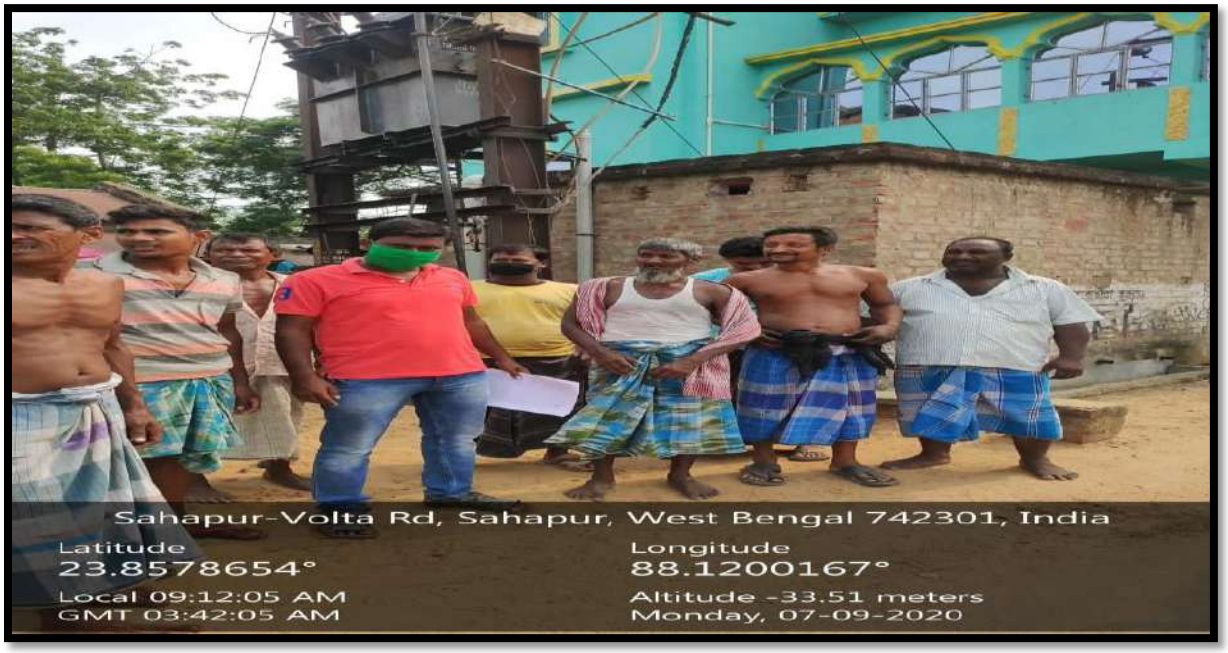
Public Consultation at HVDS site - Khidirpur Area under Bharan CCC of Baharampur Division

Public Consultation at HVDS site - Kadar Ali More under Rejinagar CCC of Baharampur Division

Public Consultation at HVDS site - Kashipur Hattala Para under Rejinagar CCC of Baharampur Division

Public Consultation at HVDS site - Rejinagar Station Para under Rejinagar CCC of Baharampur Division

Public Consultation at HVDS site - Sahapurunder Bharatpur CCC of Kandi Division



Public Consultation at HVDS site – Bazarsau Palpara under Shaktipur CCC of Kandi Division

All of them perceived reduction in power failure and voltage fluctuations due to implementation of HVDS & GIS sub-project. 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 crop damage, access and disruption of services during the period of construction. The details are presented in Table 7.3.

TABLE 7.3: 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	Increase in voltage level	180	100.0	Generation of air and noise pollution during construction work for installation of poles, DTRs & GIS	55	30.55
2	Reduction in power failure	155	86.11	Generation of Solid Waste i.e. excess debris, etc	38	21.11
3	Increase in business opportunity	140	77.77	Impact on crops during construction	48	26.66
4	Improve consumer satisfaction	152	84.44	Increase in accidents during construction	29	16.11
5	Improvements in quality of life	155	86.11	Impact on road side trees	37	20.55
6	Others (specify)	-	-	Others (specify)	-	-

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 HVDS & GIS sub-project 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, Pradhan, Up-Pradhan, Gram panchayat members and other local people) during the public consultation are presented in (Appendix 7.2).

The several social, environmental, health and safety issues related to proposed HVDS & GIS sub-project were raised and suggestions made by the local peoples as well as people representative during the public consultation meetings. The overall summary of issues raised during the implementation of proposed sub-project and suggestions made to resolve those issues and minimize their negative impact if any are presented in subsequent sections.

Some Problems with LVDS which were configured during interactions with the consumers includes-

- All the consumers have electricity connections at their domestic premises, Shops, industries and irrigation point.
- The duration of usage varies for various purposes of connections like for houses 24 hours, for shops and industries 6 to 8 hours and for irrigation purposes it is used seasonally.
- With LVDS connections there are lot of interruptions / fluctuations in voltage. This lead to the burning out of costly electrical gadgets. For example Motors had to be replaced / repaired 2-3 times a year because of this and it costs INR 10,000-12,000 to rewire a motor once.
- There are many challenges with the electricity supply especially in the evening time, the voltage gets low at which fan runs hardly and LEDs do not glow at its full capacity. There is an issue of power outage sometimes due to cutting down of Bamboo bushes and other trees by villagers. They shut down the distribution Transformer for their safety and easy working. If separate transformer will be provided for them by cutting down the LT line into two parts then these problems will be sorted out.

Due to overloading the fuse of the transformer fails frequently. The fuse cannot be replaced during the time power is supplied as the line needs to be shut down leading to loss of business as well as lot of discomfort to connected consumers.

- As there are many electric connections from one transformer in LVDS, the voltage is low. If everyone is using their heavy electrical gadgets then voltage would fall even more, especially at the tail end. As the transformer is common to all it is difficult to monitor the load on it.
- If the transformer fails, then everyone who has a connection to the transformer suffer as they would all lose power for as long as it took to fix the transformer. It would also take longer to raise a complaint and have the problem rectified as it would require coordination between all the people who have a connection to that transformer.
- As it is a common transformer it is difficult to prevent overloading of the transformer; no matter how high the capacity of the transformer is the people will overload it. Theft is also more in LVDS.
- With collective transformers, it is also difficult to force someone to cut / trim their trees if they are coming in way of the lines. This affects everyone.
- In case of power failure, the villagers register the complaint at WBSEDCL help line number

or contact directly visiting the concerned CCC and they solves the issue within due period of time.

The prime benefits of HVDS about which the consumers and other stakeholder have been informed includes-

- As every load center would have theirown independent transformer there would be no problem of overloading and voltage is better.
- Consumer would feel more responsible for the transformer and there would be no overloading.
- If there is a problem with the transformer the consumer can directly approach WBSEDCL without needing to coordinate with any others.
- If there is a fault in the transformer only that load center consumers are affected and not everyone. This was not possible earlier as everyone would be without power.

Disadvantages of HVDS were also discussed-

- No disadvantages with HVDS, most of the consumers were keen to have HVDS implemented as soon as possible
- Consumers have no problem with poles/DTR being put on their land or in maintaining clearance for the 11kv lines

A summary of prime concern 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 PRIME CONCERNS RAISED DURING ESIA CONSULTATION PROCESS

Concerns	Responses & Mitigation Measures
Impact on trees and crops	The agricultural land is not likely to be affected significantly due to proposed project. However, some crop may get damaged during construction period and suggested that adequate compensation should be given for crop damage, if any.
Electrocution and vandalism	The WBSEDCL should ensure the HVDS & GIS Sub-station along with HT lines are maintained in a good state of repair, with frequent monitoring and necessary corrective measures. 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 contractor would sprinkle water as and

Concerns	Responses & Mitigation Measures
	when necessary to minimize dust pollution, and construction to be done during the daytime only and to observe Noise regulations of CPCB.
Employment opportunity 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 maintenance of the ROW, and also the informal sector self-employment opportunities expected to blossom once power supply is boosted and stabilized.

The survey was conducted mainly in rural and semi-urban area of Murshidabad district and the people's reaction is very positive in most of the places and in very few places the reaction is neutral.

One separate multi-stakeholder consultation was conducted on 9thSeptember, 2020 at Office of the District Collector, Murshidabad to disclose the draft ESMF as well as ESIA & ESMP for HVDS & GIS sub-project for Murshidabad district under WBEDGMP and to get views and suggestions from public on the "Possible Environmental and Social Impacts of the proposed HVDS & GIS sub-project for Murshidabad district. Total 35-40 participants attended (26 as per attendance list rest have not signed) the workshop which includes Hon'ble Sabhadipati Murshidabad Jilla Parishad, District Magistrate, Murshidabad, Shri Jagdish Prasad Meena, IAS, ADM, SDOs/BDOs, Sabhapati, Pradhans/Up-pradhans, Grampanchayat Members of selected area, RM Murshidabad along with other representatives of WBSEDCL Hq and Murshidabad District, IISWBM Team members, 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 HVDS & GIS sub-project over existing system?
- Whether ESIA is completed or will be taken up now?
- What is the time limit for restoration of any damage after installation of pole/DTRs, if any?
- The HVDS & GIS project is to be completed in shortest possible time without any delays.
- What are the financial impacts of the Project? Is it a grant or loan?
- Whether there will be impact of the HVDS & GIS Sub-Project on consumers by increasing electricity tariff?
- Whether any expenditure will be recovered from local residents due to HVDS project?
- Whether consumers have to change their supply from single phase to three phase due

to HVDS 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 Appendix7.3. The various issues, apart from the above-raised were also responded, which were largely related to timely implementation of the works and public safety issues. One of the other main issues, raised was low voltage and frequent power failure leading to hardship to local people of this sub-project area. The audience was given satisfactory replies to all issues and WBSEDCL has assured that there will be great relief after implementation of HVDS as power quality will significantly improve.

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 contribute to the overall project success.

7.5 INFORMATION DISCLOSURE

The draft ESIA shall be put in a public place. Feedback received from stakeholders shall be incorporated into the final documents. The executive summary of final set of ESIA shall be translated in local language and made available at Project Authority's state and sub-project offices (RM/DMs Murshidabad). The final documents in full will replace the draft documents in Project Authority's websites. 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.

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.

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 &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 HVDS & GIS sub-project with budgetary provisions under WBEDGMP.

The ESMP outlined below addresses the identified potential negative impacts and mitigation measures of the proposed HVDS & GIS 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:						
Location of overhead line poles/ DTRs/GIS alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Pole/DTRs location and overhead alignment selection with respect to nearest dwellings	Setback distances to nearest houses – once	PIU-WBSEDCL	Part of overhead lines poles/ DTRs siting survey and detailed alignment survey and design
	Social inequities	▪ Ensure that all consumers receive project benefit. ▪ All LT feeder line are upgraded to HVDS connection irrespective of socio-economic status of the consumers	Route alignment and HVDS 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 and HVDS sketches	Once	PIU-ACE/SE(Environment & Safety Management)	At time of detailed survey for route alignment
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 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	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once	PIU-WBSEDCL	Part of tender specifications for the equipment
				Phase out schedule to be prepared in case still in use – once	PIU-WBSEDCL	Part of equipment and process design

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
Distribution line design	Exposure to electromagnetic interference	Line design to comply with the limits of electromagnetic interference from overhead power lines	Electromagnetic field strength for proposed line design	Line design compliance with relevant standards – once	PIU-WBSEDCL	Part of design parameters
GIS Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations.	Expected noise emissions based on GIS substation design	Compliance with regulations - once	PIU-WBSEDCL	Part of detailed siting survey and design
	Social inequities	Careful selection of site to avoid encroachment of socially, culturally and archaeological sensitive areas (i.e. sacred groves, graveyard, religious worship place, monuments etc.)	Selection of substation location (distance to sensitive area).	Consultation with local authorities-once	PIU-WBSEDCL	Part of detailed siting survey and design
Location of overhead line poles/ laying of distribution line & alignment and design	Impact on water bodies	Avoidance of such water bodies to the extent possible.	Pole location and overhead line alignment selection (distance to water bodies)	Consultation with local authorities– once	PIU-WBSEDCL	Part of pole sitting survey and detailed overhead line alignment survey and desig
	Social inequities	Careful route selection to avoid existing settlements and sensitive locations	Pole location and overhead line alignment selection (distance to nearest dwellings or social institutions)	Consultation with local authorities and land owners – once	PIU-WBSEDCL	Part of detailed pole sitting and overhead alignment survey and design
		Minimise impact on agricultural land	Pole location and overhead/ line alignment selection (distance to agricultural land)	Consultation with local authorities/ and land owners – once	PIU-WBSEDCL	Part of detailed pole sitting and overhead alignment survey and design
Lines through farmland	Loss of agricultural production	Use existing pole wherever possible	pole location and overhead line alignment selection.	Consultation with local authorities and design engineers – once	PIU-WBSEDCL	Part of detailed alignment survey and design
Noise related	Nuisance to neighbouring properties	GIS Substations sited and designed to ensure noise will not be a nuisance	Noise levels	Noise levels to be specified in tender documents – once	PIU-WBSEDCL	Part of detailed equipment design

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
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
		GIS Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	GIS Substation sewage design	Tender document to mention detailed specifications – once	PIU-WBSEDCL	Part of detailed GIS substation layout and design /drawings
Explosions /Fire	Hazards to life	Design of GIS substations to include modern fire-fighting equipment	GIS Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications – once	PIU-WBSEDCL	Part of detailed GIS substation layout and design /drawings
Construction Phase:						
Erection of poles, laying of lines and replacement 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 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 nighttime ▪ Regular and effective maintenance of construction equipment ▪ Maintain a Complaint Register at site	Number of complaints from neighbors/local authorities, if any	▪ Daily review during construction period	▪ Construction contractor, Social and Environment Member	▪ During construction
	▪ 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.	▪ Visual monitoring of storage arrangements ▪ Incidents of spillages at site. ▪ Number of	▪ 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
		▪ Maintain a Complaint Register at site	complaints from neighbours/local authorities, if any.			
	▪ 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 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,	▪ Use of personal protective equipment (PPEs) by workers ▪ Presence of cautionary signboards at appropriate locations ▪ Availability of first aid equipment ▪ Display of Ambulance and	▪ Daily for safety equipment At the time of initiation of work at each site.	Construction contractor, under guidance of the 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
		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	nearest hospital contact details.			
	▪ Crops and trees may be damaged during the construction phase and also for the maintenance of the RoW; however, this is unlikely as construction is ▪ season and the lines are laid along the roads/bunds	▪ Civil work to take place in non-agricultural season to minimize. ▪ Where possible, clearance of 2.6m between the conductor (11 KV) and tree should be maintained through pruning the trees (There is no need to cut the tree). ▪ Appropriate compensation will be provided for tree and crop and other damages.	▪ Work Schedule ▪ Route alignment and HVDS 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, equal pay for equal work, no child labour etc.	▪ Labour laws are being followed ▪ Welfare facilities are available	▪ Monthly	Construction contractor under the guidance of WBSEDCL Divisional Manager/Station Manager	During Construction
Operation Phase:						
Operation and maintenance of HVDS	Soil / water contamination	▪ Use of appropriate tools for handling of chemical / oil containers.	▪ No. of Incidents of leak /spillage	During daily rounds	Divisional Manager/Station Manager	During Operations Phase

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
	due to spillage / leakage of hazardous chemicals and oil during repair and maintenance	▪ Avoid storage along drainage / streams, if any. Provision of spill control kit / saw dust buckets at storage site to control spillage	▪ Availability and health of secondary containment ▪ Availability of spill control kit/saw dust buckets			
	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 due to proximity of tree branches	Maintaining RoW by pruning / cutting unsafe trees in RoW corridor	Visual inspection of unsafe trees	▪ Once every month for unsafe trees (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. ▪ The maintenance personnel are properly trained and qualified. Cautionary signboards / instructions to be displayed at appropriate places	▪ Use of personal protective equipment (PPEs) by workers ▪ Presence of cautionary signboards at appropriate locations	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
SF_6 management in GIS	Emission of most potent GHG causing climate change	Reduction of SF6 emission through awareness, replacement of old seals, proper handling & storage by controlled inventory and use, enhance recovery and applying new technologies to reduce leakage	Leakage and gas density/level	Continuous monitoring	Divisional Manager/Station Manager	During Operation and Maintenance phase
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 GIS 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

Activity / Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Parameter to be monitored	Measurement & frequency	Monitoring Responsibility	Implementation Schedule
Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of GIS substations & distribution line maintenance crews.	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
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 along RoW	Periodic pruning of vegetation to maintain requisite electrical clearance (RoW). 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 HVDS & GIS sub-project at Murshidabad District. 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 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 HVDS & GIS 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 HVDS & GIS SUB- PROJECT AT MURSHIDABAD DISTRICT UNDER WBEDGMP

S. No.	Item Particulars	Remarks/Notes
A	ESMP Measures, considered incidental to works, deem included in quoted bid price	These measures are to be essentially implemented by contractor and costs deem included in quoted bid price by contractor
B	ESMP Measures (viz Environmental Monitoring, Crop damage compensation, IEC Activities, External Evaluation& Monitoring of Implementation of ESMP, etc) considered additional requirement to be implemented by contractor or other external agency engaged by PMC/PIU	Costs are budgetary provisions. Contractor can make his own assessment and accordingly include in bid price.
C	ESMP Implementation Supervision by PMC-PIU	This shall be the responsibility of PMC under PIU. The cost of ESMP implementation supervision shall be borne by PMC.

*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 HVDS & GIS sub-project at Murshidabad District 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 HVDS & GIS sub-project at Murshidabaddistrictunder WBEDGMP. At the field level the MurshidabadRegional office of WBSEDCL who would be responsible for implementing the technical aspects of the HVDS & GIS sub-project at Murshidabaddistrictunder WBEDGMP would also be responsible for the implementation of the ESMP. Inaddition, the Contractor implementing the HVDS & GIS sub-project at Murshidabaddistrict 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 HVDS & GIS sub-project at Murshidabaddistrictunder 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 documentand 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 organizations 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 HVDS & GIS 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

S.No.	Particulars	Frequency	Reporting Responsibility	Monitoring responsibility
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
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 clean-up and removal of all waste materials/debris lying within the operational area			
2	Fabrication and Erection of MS barricades on GIS site as per design			
3	Stacking of sand-bags in polypropylene (used cement) bags, along inner side of both barricades, to prevent seepage /water logging of DTRs as well as GIS control room foundation.			
4	Provision of LED strip lighting to MS barricades as a safety measure during night hours (at GIS construction site)			
5	Installation of caution/sign/diversion boards in operational area as per requirement of specific stretch as per site assessment/requirement of traffic police			
6	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			
7	Ensure, no water logging occurs along barricaded operational area during rainy days			
8	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			
9	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			
10	Provision of water resistant tarpaulins at Operational area to cover barricaded area, during rainy days (as a contingent measure)			
11	Provision of water resistant tarpaulins at Operational area to cover tipper trucks carrying excavated material approved disposal sites to prevent enrooted dust and spills			
12	Provision of personal protection gear(PPE) for all workforce at operational area			
13	Provision of traffic wardens along operational areas, near tojunctions/intersections, wherever required			
14	All vehicles /equipment deployed at operational areas shall be less			

Sl No	Checklist Items prior to Operational Area Commencement	Provided		Remarks/ Notes
		Yes	No	
	than 5 years old, in good working condition and mandatorily have valid Pollution under Control Certificates, while being deployed on this project			
15	No workforce camps shall be set up at any of the operational areas. All workforces are to be provided with suitable type of rented accommodation, if required or can return to normal places of residence.			
16	All supervisory staff shall have wireless communication system (walkie-talkie) supplemented with mobile phones for better communication at operational area in case of emergency or otherwise			
17	First aid facilities and free emergency care facilities at operational area. Contents of first aid box shall be as per attached list)			

** 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 Operational area has been cleared off all types of waste materials			
2	Whether MS barricade have been moved to next segment of the operational area and site cleared			
3	Whether drain chutes along hitherto barricaded operational area has been checked for any blockages and cleared thereof if any.			
4	Whether all diversion and caution boards have been removed and previous boards has been restored, if any			
5	Whether all other site infrastructure like mobile tankers, Toilets, Drinking water kiosks have been moved to new places as per requirements			
6	Whether all grievances/complaints/requests/concerns received from people have been resolved. And confirm if any such issue /matter pending			

**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 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 HVDS & GIS installation.The work force shall also have experience in operation and maintenance of HVDS & GIS as per requirement of work.
3. Induction training of all workforce (at all levels), with particular emphasis on expected ESMP measures as well as environmental, health and safety requirements under the project
4. 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. The workforce shall strive to maintain a cordial communication channel with local people of operational areas, and any contentious issue(s) raised shall be responded politely and matter escalated to concerned designated E&S officer /social officer
7. To ensure public safety, minimal disruptions to traffic movement should be caused.
8. 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
9. 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
10. 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

11. Orientation of workforce to keep safe distances from moving equipment and all such areas shall be access regulated only for authorized workforce
12. 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
13. 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.
14. Deployment of Traffic wardens at or near road intersections(junctions) to ensure smooth movement of traffic alongside of barricaded area
15. Provision of onsite sanitation facility through deployment of well-maintained mobile toilet and mobile drinking water kiosk and ensure it is used by workforce
16. Conduct safety awareness drill periodically and award workforce who adhere and practice safety measures at operational areas

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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.

9.2.1Project 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.

9.2.2Grievance 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, Village/Nagar Panchayat/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

9.2.3Court 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.

9.2.4Grievance 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 Mehta

[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

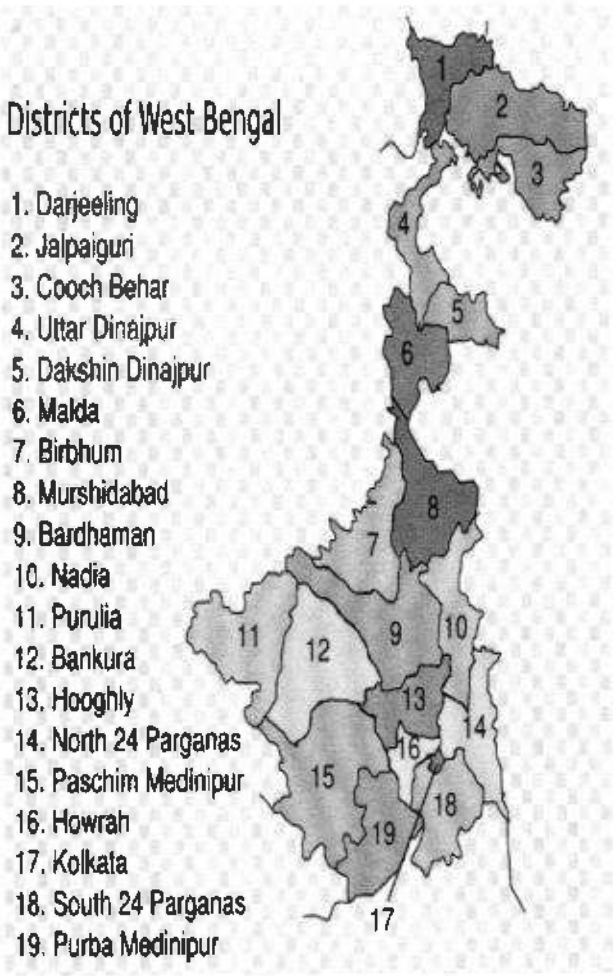
ANNEXURE - I

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.

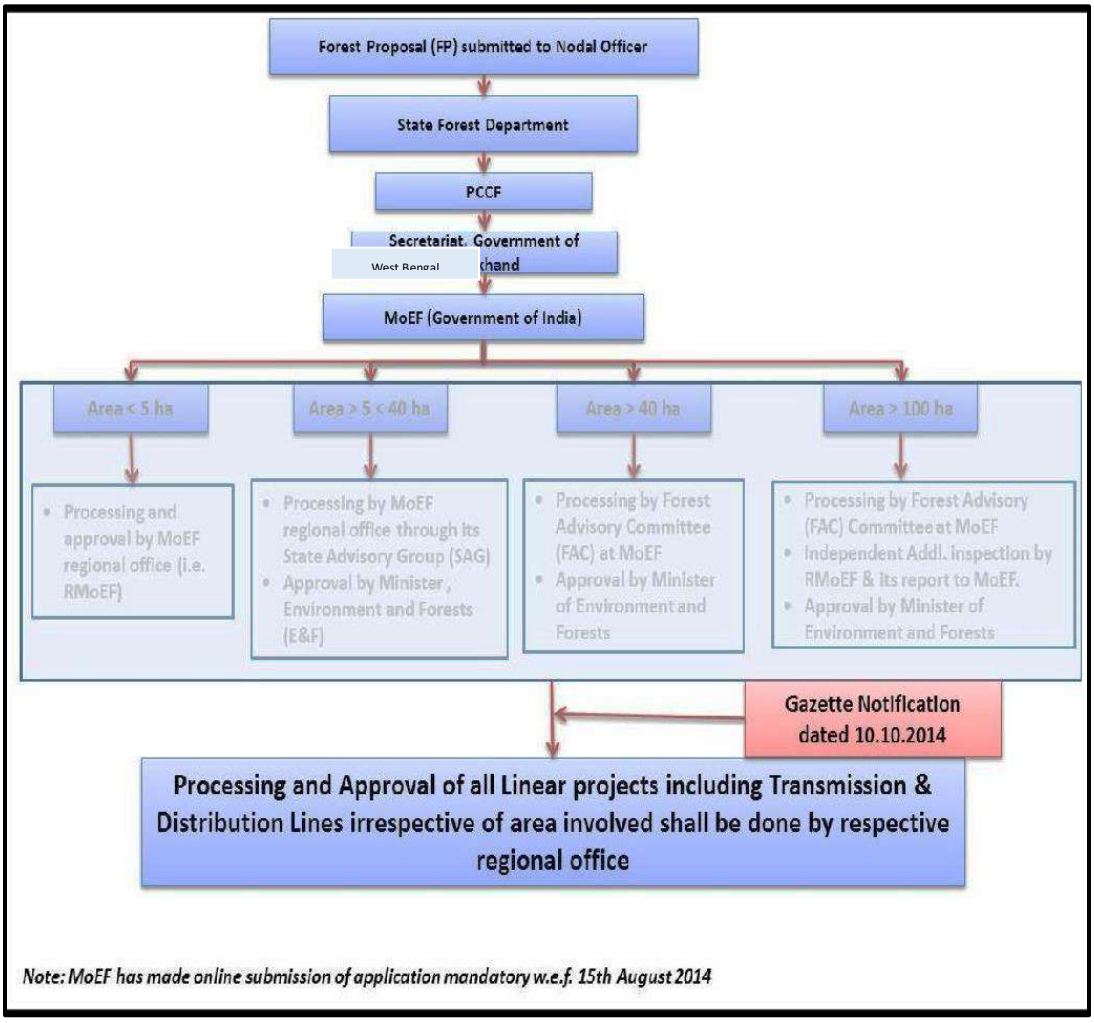
Wildlife Protection Act, 1972, as amended

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 3.3

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 7.1

Checklists & Questionnaires Used for Public Consultations for ESIA Study for HVDS & GIS Sub-project at Murshidabad District Under WBEDGMP

Appendix 7.1(A) – Checklist for Public Consultations for HVDS

Part A: Questions for Concern RM/DMs WBSEDCL:

- Overall explanation of the HVDS sub-project for concerned District:
  - What work is involved (replacing of lines, erecting additional poles, replacing distribution transformers etc.)?
  - What is the proposed geographical & type of users coverage of HVDS sub-project?
  - Would the work lead to any inconvenience to the users in the sub-project area – power outage, obstruction of paths?
  - Are there any risks to users / workers during conversion process (risk of electrocution etc.)?

- Are any poles or transformers 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 replacing 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 HVDS etc.?
  - If no, do you have plan to hold discussions with the selected users?

- What are the advantages of the HVDS; what benefits will the users get?

- Are there any disadvantages of HVDS?
  - For users
  - For maintenance staff?

- What are the challenges you 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 HVDS system will benefit you?
  - If yes, what are the benefits?

- Do you think there are any disadvantages to the HVDS system?

- Is there any issue in Implementation of HVDS (location of Poles of DTRs, RoW, etc)?

Appendix 7.1(B) – Checklist for Public Consultations for GIS

Part A: Questions for Concern RM/DMs WBSEDCL:

- Overall explanation of the GIS sub-project for concerned District:
  - What work is involved (construction of GIS, laying of additional 33 kv/11 kv lines for connecting proposed GIS and existing feeders, etc.)?
  - Is the land for proposed GIS have been identified?
    If yes, what is status of availability of land?
  - What is the geographical location of proposed GIS?
  - Would the construction work for GIS 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 local people / workers during construction/operation of GIS (emission of SF_6, risk of safety, EMF, electrocution etc.)?

- Is propose GIS being setup up on private land?
  - If yes, what is the process for acquiring land?

- Have any discussions been held with the local people regarding setting up of GIS?
  - If yes, when did the discussion take place; who were part of the discussions; what was the view of the local people regarding GIS?
  - If no, do you have plan to hold discussions with the selected stake holders?

- What are the advantages of the GIS; what benefits will the users get?

- Are there any disadvantages of GIS?
  - For users
  - For maintenance staff?

- What are the challenges you are likely to face in implementing the project?

Part B: Questions for Local People:

- 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 GIS system will benefit you?
  - If yes, what are the benefits?

- Do you think there are any disadvantages to the GIS?

- What are the likely Social Issues involved in construction and operation of GIS?

  -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 GIS?

  - Temporary increase of Air & Noise Pollution during construction phase
  - Disposal of Waste Material/Debris
  - Risks to local people/ workers during construction/operation of GIS (emission of SF_6, risk of safety, EMF, electrocution etc.)?

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 HVDS & GIS Sub-project of Selected District 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 GIS 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 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)