STATE PROJECT IMPLEMENTATION UNIT, NCRMP II, RELIEF AND REHABILITATION DEPARTMENT, GOVERNMENT OF MAHARASHTRA

Conversion of High Tension & Low Tension Over Head Distribution Network into HT& LT Underground Cable System in Satpati in Tehsil & District: Palghar Under NCRMP-II Project, Maharashtra

(IN-RRD-MAH-2622-CW-RFB)

Executive Summary - Environmental Impact Assessment

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EXECUTIVE SUMMARY

1.0 INTRODUCTION

The National Cyclone Risk Mitigation Project (NCRMP) is initiated by Ministry of Home Affairs, Government of India with the World Bank assistance for creating suitable infrastructure to mitigate the effects of cyclones in the coastal states of India. NCRMP focus is on ex-ante disaster risk mitigation in cyclone prone coastal states and union territories. Project is being implemented by the National Disaster Management Authority (NDMA) with support from the Ministry of Home Affairs Government of India.

The main objective of the NCRMP project are:

a. To minimize risk and vulnerabilities of coastal to cyclones
b. To strengthen the structural and non-structural cyclone mitigation efforts through creation of appropriate infrastructure which can help to mitigate the adverse impacts of cyclones
c. To strengthen the cyclone warning systems enabling quick and effective dissemination of warning and advisories at all levels
d. To build capabilities and capacities of people for cyclone risk mitigation in harmony with the conservation of coastal ecosystems.

The project has identified 13 cyclone prone States and Union Territories ('UTs'), with varying levels of vulnerability and Maharashtra is one of the 13 states covered in two Phases. Government of India has approved NCRMP Phase-II in July, 2015 for five years up to March, 2020 covering States of Goa, Gujarat, Karnataka, Kerala, Maharashtra and West Bengal at an outlay of Rs 2361.35Cr with the World Bank funding amounting to Rs1881.20Cr.

NCRMP Maharashtra Project Components:

The project components in Maharashtra include conversion of overhead electrical cable network to underground system in Alibag, Ratnagiri, and Satpathi towns and rehabilitation of select embankments and construction of Multipurpose Cyclone Shelters..

This EIA reports relates to "conversion of the overhead cable network to underground cable network for Satpati village".

An SPIU has been formed under the Relief and Rehabilitation Department, Government of Maharashtra for implementing the NCRMP- II project in Maharashtra state which will implement the project in coordination with various government agencies like MSEDCL, Harbour Division of PWD, Kharland Development Authority, and State Disaster Management Authority.

2.0 BRIEF DESCRIPTION OF THE PROJECT

Project Components

Proposed project involves conversion of overhead electrical cable network (HT & LT) to underground cable network for Satpati village, upgradation of electrical system to match the requirement of UG cabling network and dismantling of existing overhead cable system.

Salient features of the project are given in the table below and the project area is represented in the **Figure 1.1.**

- Laying of armoured underground cable (HT & LT) through trenching and through trenchless methods. Excavation of earth and construction of trenches for laying cable.
- Development of overhead cable network (2.0 km) in congested areas of the Satpati village
- Installation of Ring Main Units in the Electrical network (Incoming & Outgoing Feeders)-14 nos.
- Installation of 5 new pole mounted distribution transformers (1 no-315 kVA & 3 no-200 kVA and 1 no 100 kVA)
- Installation of new DP structures for existing DTs (8 Nos with fuse)
- Provision of other components of electrical network like LT distribution boxes, LT Feeder Pillars, LT Mini Pillar Box etc.
- Shifting of existing 1 Ph consumer meter outside premises and connecting cable to multi-consumer buildings
- Installation of 9 m steel tubular street light poles with LED fitting and accessories
- Dismantling of existing overhead electrical network & transportation to nearest collection area (Palghar store at approx 10 km from Satpati)

Salient Features of Project

S. No.	Features	Description
1	Sub-station Feeding the Area	1 at Valan, palghar (33/11 kV) Geographical coordinates are 19^0 41'35.4" N & 72^0 43'12.4 E
2	Project Area	Satpati Village
3	Type of Cable System	Underground with some sections overhead[1]
4	Length of HT line	6.43
5	Length of LT line	20.66 km
6	Nos. of Distribution Transformer	New DT – 5 Nos Capacity Augmentation – 8 Nos
7	Cable laying methodology	Trenching and Trenchless (Horizontal Directional Drilling)
8	Depth of trench	1.2 m below ground level
9	Width of trench	800 mm-1000 mm
10	Height of pole mounted transformer	1.5 m above ground level

[1]Cable remains overhead in congested areas of Custom, Jalja and Machhimar market

11	Land Acquired and R & R	Nil. Project components will be within the government's land (in RoW of road)
12	No of RMUs	14 Nos.

Source: DPR

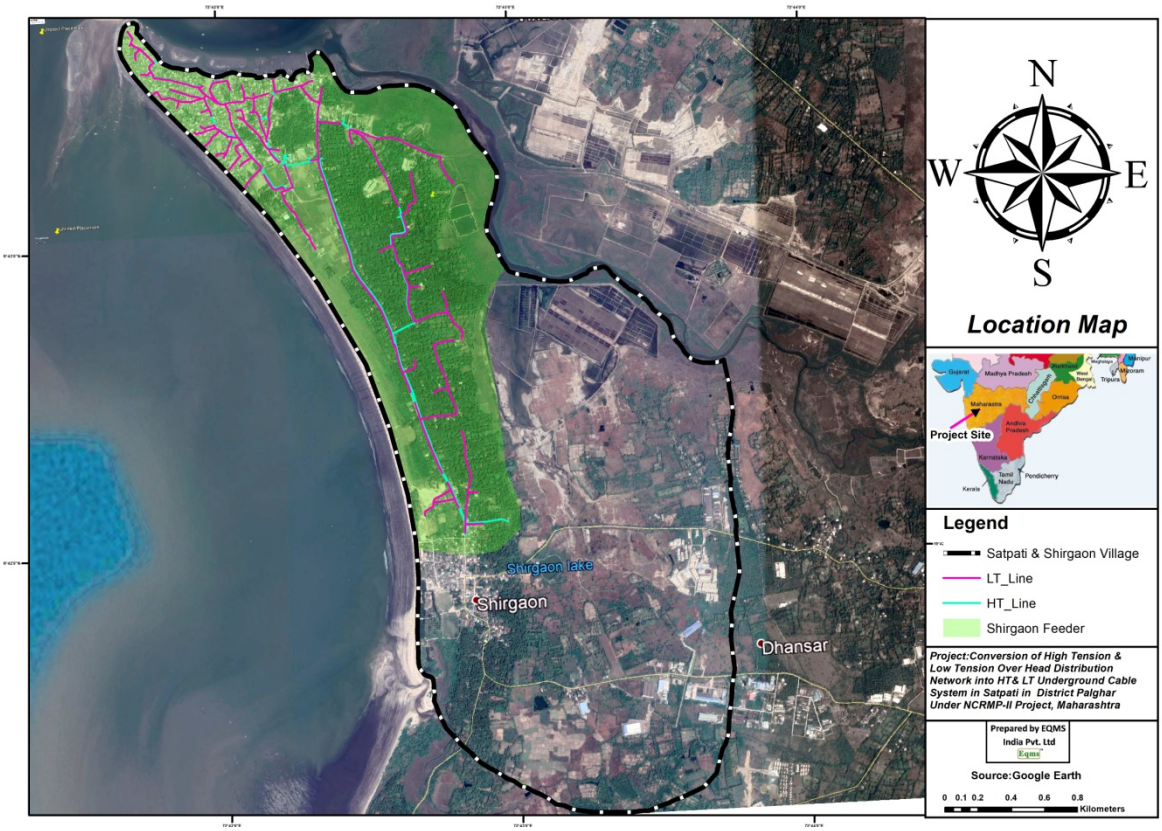


Figure 1.1 : Map of Project Area

The underground cable networking site is located within the Satpati Village. Satpati Village is well connected from Palghar and Mumbai through New Satpati Road and Mahim Srigaon road. Bus services are available to connect Satpati village to Palghar, Mumbai and other areas like Shrigaon and Mahim. Other than buses, three wheelers also ply in the area which serves as public transport. The nearest railway station is Palghar railway station located about 6.8 km in southeast direction to the Satpati. Nearest airport is Mumbai International Airport which is at approx. 110 km from Satpati village in south direction.

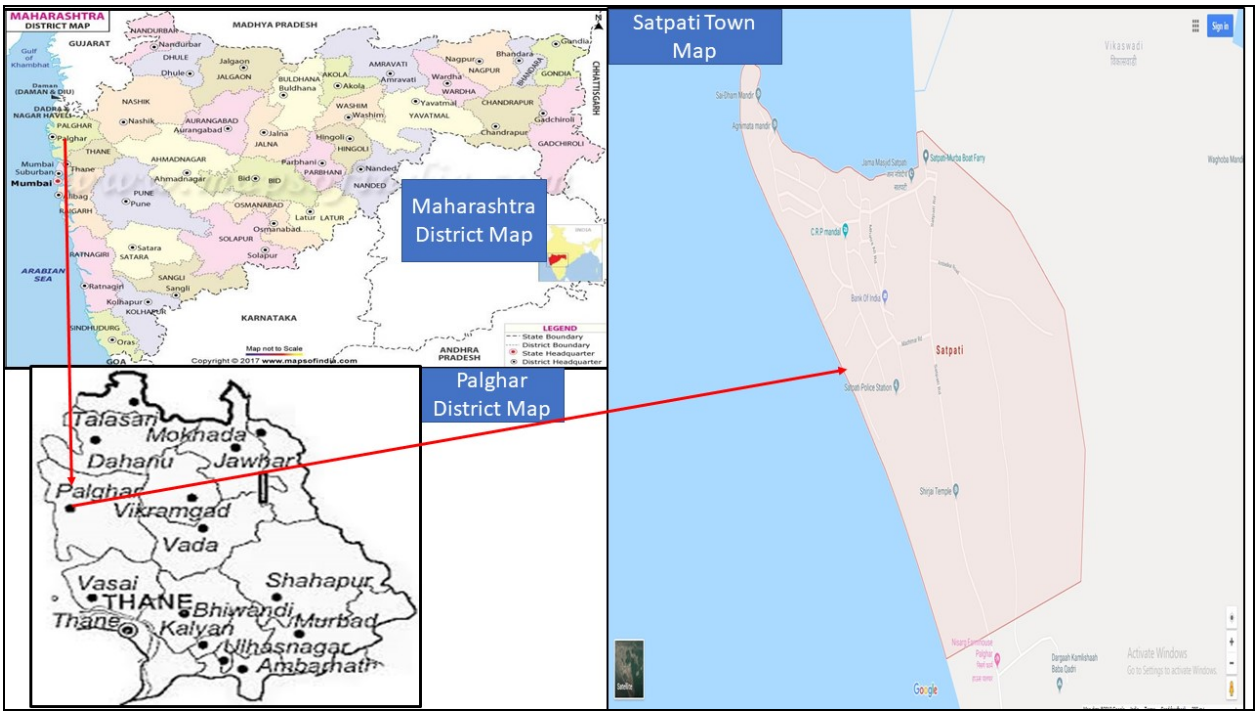


Figure 1.2 Location map of the Project Area

Existing Utilities

No major private or public property will be affected due to the project. If any property is damaged accidentally during cable laying, provision of cost for restoration of steps/compound wall/underground utilities which may gets accidentally damaged during cable laying has been made in DPR as per recommendation of SIA studies.

Underground utilities in area include drainage system, water supply pipeline and BSNL telecom cable. As per DPR, there is no interface of the proposed cable alignment with any of the underground utilities. But there could occur accidental damage of these utilities. Provision has also been made in DPR for restoration of the underground utilities as per recommendation of EIA/SIA studies. Provision with an emergency repair crew by the Contractors is also proposed as part of the project planning

Roads will be affected due to proposed trenching, different types of roads which will be affected includes: bitumen roads (3736.8 sq. m), paver block (332.16 sq. m) and RCC road (83.04 sq. m). Cost of restoration of roads is also included in the DPR.

Above ground utilities which may get affected are drains, manholes, roads and street lights. No drains or manholes are likely to be disrupted as per current planning but there are chances of accidental damage to these above ground utilities. Provision has been kept in DPR for restoration of these structure as per recommendation of EIA/SIA studies. Street light and transmission lines are provided on common poles in project area thus there is

requirement of installation of new street lights if the existing poles will be dismantled. Provision is kept for new 365 nos of street in the DPR.

3.0 NEED AND BENEFITS OF THE PROJECT

The project is planned with a view of protecting the electrical infrastructure from the cyclone risks. Failure of the electrical infrastructure leads to disturbances to essential services in cyclone induced emergency situations. The direct beneficiaries are the habitats of the project area with a total population of 17032 (6399 customers at present). The technical and other benefits expected from the project are:

- Easy transmission of power across densely populated urban areas
- High life of the UG cable system, Reduced Transmission Loses and Better Monitoring System
- The system becomes Aesthetic with high public acceptance
- Protection against Electro Magnetic Radiations, fewer interruption and lower maintenance cost
- High level of personal and public safety, less seasonal impacts on the system, minimum land use

4.0 NEED FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

As project involves lot of excavation, construction, dismantling works will have some impacts on overall environment of the area. EIA will support in identifying the potential environment and social impacts of the projects within influenced area and to recommends the mitigation and monitoring measures for eliminating or minimising these impacts in a systematic manner. EIA is conducted based on NDMA's Environment and Social Management Framework of the project. As per ESMF, the Satpati underground cabling project requires preparation of Environment Impact Assessment Study. The World Bank Safeguard requirements as per OP 4.01 also requires preparation of Environmental Impact Assessment Study for all "Category A" project like the proposed Satpati underground cabling project. Based on the mitigation and monitoring measures provided in EIA actions are planned during implementation and operation of the project

5.0 APPLICABILITY OF LEGAL AND REGULATORY FRAMEWORK ON PROJECT

The project has been evaluated for applicability of all National and State Laws, Rules and Regulations as well as Operational policies and guidelines of World Bank. The Acts, rules and guidelines applicable for the project are critically analysed to list out the statutory and regulatory requirements including permits/NOC to be obtained by MSEDCL/ SPIU during planning phase and by Contractor during implementation phase. The detailed requirements under each rule/regulations are mentioned in main report. Some of the key important legislations and requirements applicable for the project are listed below.

i. *Environment Protection Act-1986*

Coastal Regulation Zone Notification 2011Certain section of proposed underground cabling project falls in CRZ requiring permission under this notification.

ii. *The Forest (Conservation) Act, 1980 and amendments and Rules 1981 & Maharashtra Felling of Tree (Regulation) Act 1964*

Existing and proposed cable traverses through the Mangroves (0.42 km) and from 50 m mangrove buffer area (0.68 km) and proposed UG cable will traverse within

the mangrove area (0.37 km) and within the 50 m buffer area of mangroves (0.60 km). Mangroves are present in the Shegadpada area. Permission should be obtained from forest department for dismantling of existing cable and laying the proposed cable. Also 193 nos of trees exists along the alignment but outside the operational area. At present, no impacts on these trees is anticipated. However some of the tree species are protected under “Maharashtra Tree Felling Act. 1964”

iii. *Air (Prevention and Control of Pollution) Act, 1981, 1987*

Many project activities involves air pollution generation and management for installation and operation of construction camp involving DG Set, Hot Mix Plants, etc. for road restoration. Under this consent is required from state pollution control board.

iv. *Water (Prevention and Control of Pollution) Act, 1974, 1988*

Domestic sewage may generate from labour camps and also run-off from construction camp which may pollute the surface water bodies. Consent to Establish and Consent to operate for sewage and run-off generation from labour camp site and construction camp site required from state pollution control board

v. *Noise Pollution (Regulation and Control Act) 2000 and amendment till date (Noise Rules 2010)*

Noise level monitoring is required to be done at baseline level and as per the standards Noise levels to be maintained at each activity.

vi. *Hazardous and other waste (Management and Transboundary Movement) Rules, 2016 as amended*

Many activities on site required oil/lubricants e.g. DG sets & machinery Transformer oil from old transformer from which used oil will be generated as waste. Authorization from state pollution control board is required for the same.

Manufacture Storage, & Imports of Hazardous Chemicals (Amendment) Rules, 2000 Many a time’s construction work may require storage of the hazardous substance like fuel for project activities or operation of DG sets. Permit for storage of hazardous material is required if the quantity of hazardous material exceeds the threshold limits defined in the Rules and applicable as and when required.

vii. *Construction and Demolition Waste Management Rules , 2016*

No specific permit is required. Just comply with the handling and disposal requirements of the rules

viii. *Central Motor Vehicle Act 1988 and amendment, Central Motor Vehicle Rules, 1989 and amendments till date Applicable, The Maharashtra Motor Vehicle Rules 1989*

Rule to be followed for all the vehicles at site during construction & operation phase. PUC is required for all vehicles at site.

ix. *Maharashtra Minor, Mineral Extraction (Development and Regulation) Rules 2013*
Project need minor minerals (like sand, aggregate, murram, etc). Authorizations and permissions required for excavation, use of sand etc. is required from district magistrate office.

x. *The Gas Cylinder Rules 2016*
Applicable if contractor store more than the exempted quantity of gas cylinder. Gas cylinders will be required for the welding activity. Permission required from Chief Controller of explosives.

xi. *Ancient Monuments and Archaeological Sites and Remains Act, 1958*
Not Applicable, No Archaeological site is within 300 m from the project area. However for any chance finding of archaeological article/artefact, information should be given to ASI immediately and work shall be resumed only after getting approval from ASI

xii. *Building and Other Construction Workers (Regulation Of Employment And Conditions Of Service) Act, 1996*
Mandatory for contractors to provide safety health and welfare measures for all construction labour as per the Act and Rules

The details of administrative authority for each above applicable legislation is given in chapter 2 of EIA.

Assessment is made wrt to the applicability of the World Bank Operational Policies on Project. It is found that OP 4.01 OP4.11, and OP 4.36 are triggered for the project. Also IFC EHS general guidelines, IFC EHS guidelines for Electric Power Transmission and Distribution and IFC & EBRD guideline for Workers accommodation: processes and standards are applicable for the project. As per World Bank policy 4.01, project is categorized as “Category A” as the project is spread over large spatial extent and has impact of low to high significance. However, the anticipated impacts can be mitigated by taking appropriate mitigation measures. Environmental standards to be maintained during project implementation and operation stage includes the following:

1. National Ambient Air Quality Standards, 2009
2. Noise Standards, CPCB
3. OSHAS Noise Exposure Limits for the Work Zone
4. Drinking water Quality Standards-IS:10500:2012

6.0 ANALYSIS OF ALTERNATIVE

Analysis of alternatives is carried out for analytical comparison of the operational effectiveness, costs and environmental and social risks of the proposed developmental options. It has been carried out for following three:

1. "With" and "Without Project" scenario considering the four major aspects, i.e. cyclone & earthquake resilient electrical cable network, uninterrupted power supply and reduced power loses
2. Planning of cable route and
3. Type of cable, poles and excavation methodology.

The selected alternatives were assessed in tandem with preparation of DPR and are included in the project design. It is found that the proposed underground cable system is cyclone and earthquake resilient and due to design improvement, power loses and power failure will be significantly reduced. Thus, the proposed UG cable system is found to be a better than the existing overhead cable system. The proposed UG cable system involve excavation or laying the cable through HDD may disturb the physical, biological and social environment. Such locations are bypassed in new proposed alignment. Thus, new proposed alignment is recommended for development of project due to minimal impact on sensitive receptors. RSJ poles are strongest among the options available and are adopted to be used for this project. Cable laying will be combination of both trenching & HDD method. HDD is preferred in the narrow and busy stretches to minimize the socio-economic impact

7.0 PROJECT IMPACT AREA

Project activities majorly involves excavation of trenches, installation of new DTs, installation of poles for AB/overhead cable, digging of pilot holes for laying cable through HDD, and dismantling of existing electrical system. All these activities may have direct and indirect impact on the physical, biological and social environmental components.

As per the ESMF, direct project influence area due to cable laying operation can be considered equal to double the width of the cable laying trench.

Direct impact zones area considered are

a. The maximum width of the trench is 1.2 m therefore an area of 2.4 m or say 2.5 m is considered as corridor of direct impact
b. Pilot holes locations for HDD cabling,
c. RMU installation locations and
d. Temporary usage areas viz construction/labour camps areas and material storage areas

Indirect impact zone is considered are

a. The road width where trenching is proposed in case of single lane road or up to median in case of double lane road,
b. The area likely to be impacted due to traffic diversions, traffic congestion in nearby habitats due to construction in whole of the village

8.0 ENVIRONMENTAL SCREENING OF PROJECT AREA

Environmental screening for project area has been carried out as per the guidelines provided in ESMF of NCRMP- II project and based on the primary field data collected secondary data.Following are the outcomes of the screening of the project area:: .

a. **No national park, wildlife sanctuary, biosphere reserve, notified wetland or IBA** exists within 10 km radius area of Satpati.
b. Forest Area:
   - Chikupada Forest but cable doesnot traverse through this forest
   - All mangroves are declared as protected forest as per the High Court Order. Cable is traversing through mangroves near Shegadpada area
c. **Tree Cutting**: No tree cutting is anticipated at this stage.
d. **Rivers:** Water bodies in project area include Shirgaon lake, Banganga River, Arabian sea. Cable doesnot interface with any of the waterbody.
e. **CRZ Area and Mangroves** : Some of the stretches of the LT/HT line traverses through the CRZ Area. Details of the same is provided in Table 4.2 in line with details given in CRZ map of the area provided
f. **Archaeological and Historical Site**s: No archaeological structure exists in the project area. Shirgaon fort is at approx. 500 m from the project area. Also Hutatma Samarak is historical placed present in the project area. Cable will be laid through trenching on the road abutting
g. Cable is traversing through the roads having sensitive receptors like religious locations, educational institutes, health institutes, public buildings, trees, forest, mangroves, wetlands, ponds, lakes, rivers, private properties and congested areas. However, none of these sensitive receptors are getting affected due to cable laying works. Access of these receptors and the other buildings will get affected so alternative access arrangements shall be made for these receptors and all the other buildings by the contractor. No structure (steps, boundary wall etc) is getting affected in UG cable laying process however if any incidental or accidental damages occurs during execution, they shall be repaired and restored by the Contractor immediately. (At road crossing points, cable will be laid through HDD only. No trenching will be undertaken at crossings)..

9.0 BASELINE DESCRIPTION

The environmental conditions of area to be affected due to proposed project were established through extensive literature review, field monitoring, laboratory analysis, stakeholder consultation and data interpretation. Secondary data from literature search were also obtained from the Govt. sources i.e. Indian Meteorological Department, CPCB publications, CGWA and other Govt. Sources. Latest primary baseline environmental monitoring has been conducted for two weeks as per CPCB guidelines during 16th Nov to 28th Nov 2018 and the strip mapping was carried out during April 2018. Area have rural setting and the project area is undisturbed by any major pollution sources like industries & traffic. There are no industries or heavy traffic nearby project area. There is only one major

road in the village which connects it to the Palghar. In addition, project area unlike Alibag and Ratnagiri project is substantially small and comprise of one feeder only. Thus, air quality monitoring study was carried out for two weeks time considering no variation trend in the air quality in the project area. Adequate samples are drawn for water and soil quality from the project area and also noise monitoring study was carried out at three locations broadly at it is done for the Alibag and Ratnagiri projects.

Primary data is collected for the Satpati village, however strip maps are prepared for 2.5 m of the corridor of direct impact and are given in Volume 1 of this report. Specific attention is given to collect the data pertaining to direct impact zone due to cable laying, HDD pilot hole area, material storage area, and proposed construction camps. Other than this, study area was extended upto 10km radius of activity area for identification of protected areas and other sensitive locations. Summary of baseline data along with pre-assessment of impacts of the project area is given below:

Environmental baseline Status

S. No.	Environmental Component	Baseline Scenario	Sensitivity Level of baseline scenario	Environmental Impact Probability due to Project Activities
1.	Connectivity & Traffic Pattern	Good road connectivity. Low Traffic Volume.	May lead to traffic congestion due to excavation and road blockage	Moderate
2.	Air quality	PM_{10}-82-116 µg/m^3, $PM_{2.5}$ -40 - 66 µg/m^3, SO_2-5.4-9.2 µg/m^3, NO_2-9.0 – 18.3 µg/m^3	The overall air quality of the project area is within the prescribed National ambient air quality standard of 2009 except two location where PM values are slightly higher than the standard	Low-Moderate (project implementation phase only) (project is likely to generate dust during trenching which is likely to be site specific (trenching area only) and due to transportation and traffic diversions.
3.	Noise Level	Day Time Leq level varies from 53.2 dB(A)to 64.6.3 dB(A)and Night Time varies from Leq= 43.0 dB(A) to 54.2 dB(A)	Within the norms both during night and during day time as per prescribed Ambient Noise level standards	Low-Moderate (project implementation phase only) (noise is likely to be generated only due to transportation and trenching activity majorly.
4.	Flood/Inundation Hazard	Flooding/inundation during monsoon and during cyclones	High flood/inundation	Will be high if construction is

			prone area during cyclone and during monsoon	continued during rainy season.
5.	Seismicity	III	Moderate seismic risk zone	No direct impact from project activities, however new poles shall be installed considering the seismicity of the area
6.	Topography	Almost Flat (0-25 m amsl)	--	Nil as project unlikely to change any topography aspects of the area
7.	Drainage	Area is drained by Banganga River/creek and Arabian sea. Proper drainage system is provided in the village. However area is lowlying and is prone ti flooding/inundation during cyclone and high waves during monsoon	Water body will be affectedNo drain or	Low Drains iin village area may get blocked due to disposal of the excavated muck in the drains
8.	Flora & Fauna	No major flora and fauna within project activity areas. Existing cable lines runs within and buffer areas of mangroves. No protected area (wild life sanctuaries or national parks) exists within 10 km of project activity areas. No forest area will be impacted due to project development	No significant bio-diversity. No endangered or threatened species. Native species of trees.	Low. Care need to be undertaken while dismantling and installing the cable within the mangroves and 50 m buffer area of mangroves
9.	Demography	Project area is rural area with population of 17032	Rural but populated	Low to Moderate (temporary impact to due to excavation, traffic diversions and inconvenience to habitat residing close to excavation areas)
10.	SW quality	No water body traverses through the project area. Bangaga river/creek is at Northern boundary of the project area	Not Potable	Low
11.	GW Quality	GW is potable	No major impact anticipated	Low
12.	Soil Quality	Sandy clay with moderate fertility	Not polluted	Low
13.	Geology	Deccan traps (Hard rock)	--	None

14.	Land Use	About 12.37% of the land is under settlement, about 34.15% land is under vegetation, about 31.83% of the land is open scrub land, and 9.28% land is under agriculture and rest of the land is under other uses	--	Low (land use will change temporarily for construction camp/labour camp area if installed on vacant land, however, it will get restored after the project completion)
15.	Climate (temperature, rainfall, wind speed, wind direction, humidity)	The climate of the Satpati is typical as of the west coast of India, with plentiful, regular and seasonal rainfall during the monsoon season	--	None
16.	GW Levels	2-5 m bgl	--	Low

10.0 ENVIRONMENTAL IMPACT ASSESSMENT

The impacts anticipated vary from low to high significance but most of the impacts are associated with construction phase and are short term, site specific and temporary in nature. Major impacts are anticipated on traffic, socio-economy & aesthetics and Occupational health and safety, air quality and noise during construction stage. The impacts envisaged are manageable and mitigable, if the suggested mitigation measures and environment management plan are implemented. During operation phase impacts are anticipated majorly on the occupational health and safety of the workers. Analysis of significance of the impacts pre & post implementation of the mitigation measures is given below:

Impact Assessment and Evaluation

S. No.	VECs	Impact Significance -Pre-mitigation measures	Impact Significance – Post mitigation measures
Project Implementation Phase			
1.	Due to Setting up of Construction Camp, material storage and debris disposal areas	Temporary, short term and moderate significance	Temporary, short term and low significance
2.	Due to Setting up of Labour camps	Temporary, short term and moderate significance	Temporary, short term and low significance
3.	Due to Material Sourcing and Transportation	Temporary, short term and moderate significance	Temporary, short term and low significance
4.	Due to Utility Shifting	Temporary, short term and moderate-high significance	Temporary, short term and low significance
5.	Occupational Health and Safety	Short term temporary and high significance.	Short term temporary and low significance.

6.	Due to Site Clearance and Preparation for Excavation of Trenches	Temporary, short term and moderate significance	Temporary, short term and low significance
7.	Due to Execution of Trenching Work and Restoration of Affected Utilities	Temporary, short term and moderate-high significance	Temporary, short term and low significance
8.	Due to Cable Pulling, Laying and Jointing at Inspection Chambers	Temporary, short term and low significance	Temporary, short term and low significance
9.	Due to Backfilling of Trenches and Road Restoration, Clean-up Operation and Restoration	Temporary, short term and low significance	Temporary, short term and low significance
10.	Due to Cable Laying through HDD	Temporary, short term and low significance	Temporary, short term and low significance
11.	Due to Preparation for and Laying of Overhead Cable and Installation of New Street Lights	Temporary, short term and moderate significance	Temporary, short term and low significance
12.	Due to Dismantling of Existing Overhead electrical Set-up	Temporary, short term and low significance	Temporary, short term and low significance
13.	Due to Blockage of Drainage System	Temporary, short term and moderate significance	Temporary, short term and low significance
14.	Due to Increased Traffic during Cable Laying and Dismantling Works	Temporary, short term and moderate significance	Temporary, short term and low significance
15.	Due to Waste Generation and Management	Temporary, short term and moderate significance	Temporary, short term and low significance
16.	Impact on Archaeological monuments	Temporary, short term and low significance	Temporary, short term and low significance
17.	Impact on Air Environment	Temporary, short term and low to moderate significance	Temporary, short term and low significance

18.	Impact on Noise Environment	Temporary, short term and low to low to high significance	Temporary, short term and low to moderate significance
19.	Impact on Water Quality	Short term temporary and low significance.	Short term temporary and low significance.
20.	Impact on Water Resources	Short term temporary and low significance.	Short term temporary and low significance.
21.	Impact on Land Use	Short term temporary and low significance.	Short term temporary and low significance.
22.	Impact on Soil Quality	Short term temporary and low significance.	Short term temporary and low significance.
23.	Impact on Ecology	Long term, permanent and moderate significance	Long term, permanent and low significance
24.	Impact due to Natural Disaster on Project Components	Short term, temporary, irreversible and high significance	Short term, temporary, irreversible and low-moderate significance
Operation Phase (Operation, Maintenance & Repair)			
1.	Occupational Health and Safety	long term, irreversible and significant	Short term temporary and low significance.

11.0 PUBLIC CONSULTATION AND DISCLOSURE

Stakeholder's view and perception was assessed through public consultation meetings in two stages. Stakeholders include general public, peoples' association, local bodies and Government Departments. Locals and local bodies voiced that the proposed project is overall beneficial for the project and will make the electrical system cyclone resilient. Not only resilience but the aesthetics of the village shall improve significantly. Improved electrical infrastructure shall lead to uninterrupted operation of the ice factories in the project area which shall allow fishermen to do their business in a smooth manner even during rains as this major business gets affected everyear during rains. Some suggestions are made by public to improve the project implementation. Inclusion of these opinions have strengthened the EMP as the measures suggested directly address the issues which will be raised by public during project implementation and thus will enhance the social acceptability of the project.

Environment impact assessment report will be disclosed at the SPIU (NCRMP) website. Executive summary will also be disclosed in local language as well at SPIU and NCRMP website.

12.0 ENVIRONMENT MANAGEMENT PLAN AND BUDGET

The Environmental Management Plan (EMP) is synthesis of all proposed mitigation and monitoring actions, set to a time frame with specific responsibility assigned and follow-up actions defined. Prepared EMP is a plan of actions for avoidance, mitigation and management of the negative impacts assessed due to project activities. A detailed set of mitigation measures have been compiled in view of the likely impacts associated with the proposed project. EMP provides a management schedule of time and sequence of

implementation of the proposed mitigation measures. It also includes plans for pollution prevention, environmental guidelines & standards, emergency management plan, institutional framework, grievance readdress mechanism, capacity building, environment monitoring plan and environment management budget.

Institutional Framework for EMP Implementation

Environmental and social management plan will be implemented by EHS cell of contractor (comprising of Environment, Social and Safety Officers) under supervision of MSEDCL, TPQA and SPIU/PMC.. MSEDCL already have functional safety cell which shall be named as EHS (Environment, Health and Safety) cell. Safety Cell officer will be given additional responsibility of environment and social management plan implementation. These officials shall also be given required training for discharging additional responsibility of environmental and social management. Contractor will appoint environment and Safety officer (ESO) for implementation of the EMP.

Environment Monitoring Plan

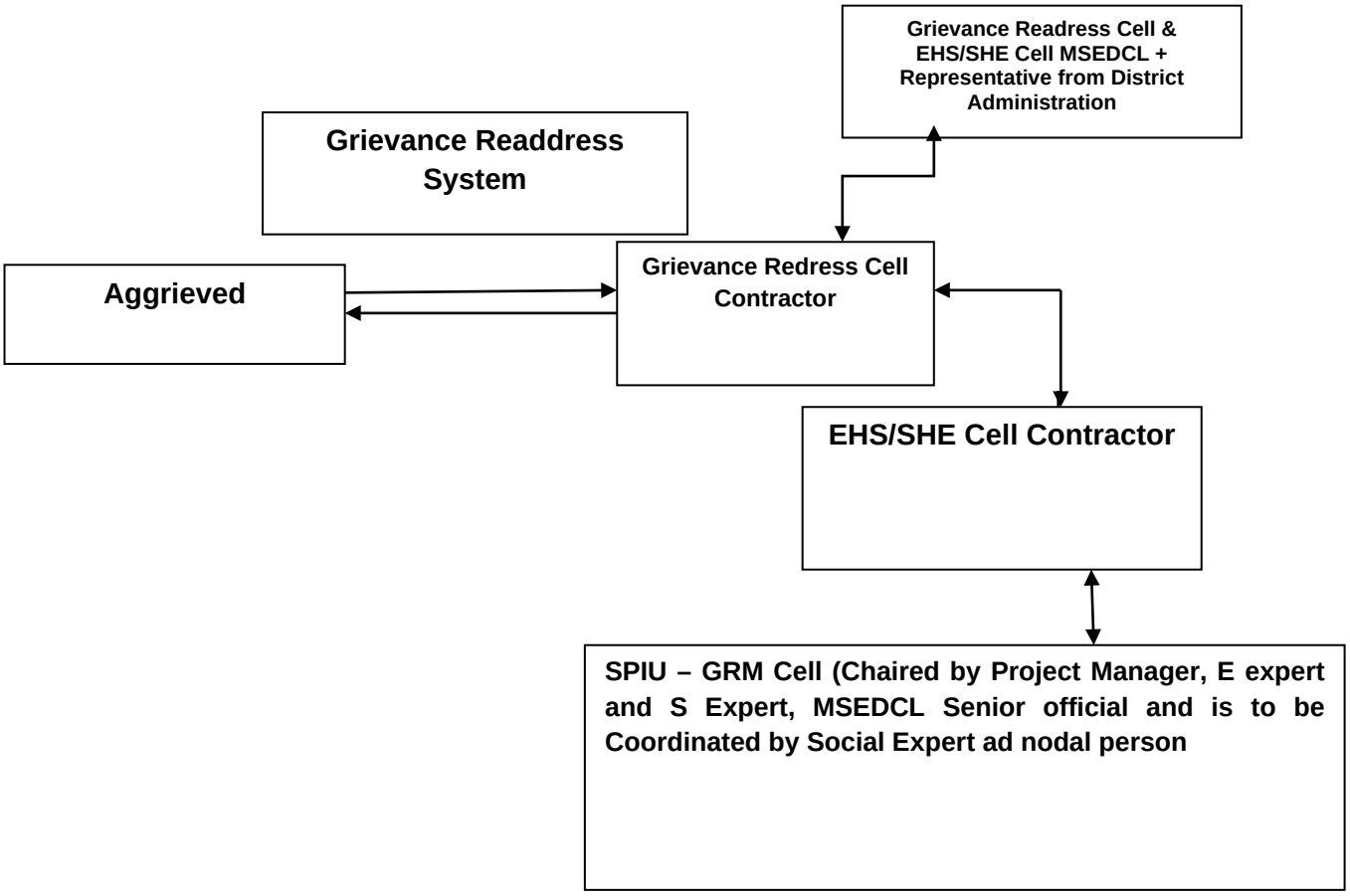
Key monitoring indicators are defined as the environmental parameters which may get impacted during different project stages and environment monitoring plan is prepared for these key indicators for e.g. drinking water quality, air quality, noise level, soil quality, occupational health & safety, community issues, solid waste disposal, sanitation, labour camps and construction camp

Environmental Management Budget

Budget for environmental management both during construction and operation phase is estimated and budgeted.

13.0 GRIEVANCE READRESS MECHANISM

The Grievance Redress Mechanism (GRM) will be established at each level with two tier structure. First tier will be MSDECL and second tier at SPIU level. The EHS cell of MSEDCL will be responsible to address the concerns of the aggrieved person at first stage. The EHS cell at MSEDCL shall have representative deputed by the District Collector who shall participate in the readdressal mechanism and facilitate early response of the grievance. EHS cell will designate a dedicated email, phone number for receipt of grievances. The response to the complaint with resolution will be communicated back to the aggrieved person within 15 days. In case, grievance cannot be resolved at MSDECL level, then it will be escalated to SPIU level for further resolution. SPIU will put up this to Grievance redress committee comprising of project Director, representative deputed by the District Collector, EHS officer SPIU, Chief Engineer (Infra) MSEDCL and EHS officer MSDECL. Any aggrieved person can send written communication to EHS cell of MSEDCL through email or using other modes of communication like phone call or drop his/her complain to drop box (to be installed at MSDCL office). The GRM will be displayed at each active site along with name of MSEDCL EHS officer, dedicated email and phone number. The GRM mechanism is shown in figure below.


Grievance Readress Cell & EHS/SHE Cell MSEDCL + Representative from District Administration
Grievance Readdress System
Aggrieved
Grievance Redress Cell Contractor
EHS/SHE Cell Contractor
SPIU – GRM Cell (Chaired by Project Manager, E expert and S Expert, MSEDCL Senior official and is to be Coordinated by Social Expert ad nodal person

14.0 TRAINING AND CAPACITY BUILDING

The staff and workers at the site shall be given environmental trainings to enhance their understanding of EMP requirements and ensure effective implementation of EMP. Both Contractor/MSEDCL should organise such training for EHS cell members and workers as the case be. These trainings shall be organized by contractor through third party or can take help of PMC for organizing the trainings

- Training for usage of personal protective equipment
- Training for usage of firefighting equipment
- Training for working on heights
- First aid training
- Training for quality and environment management systems
- Training for implementation of EMP
- Training for implementation of Emergency Response Plan

15.0 Reporting

Following reporting schedule is recommended.

- The contractor shall submit the monthly compliance report including various aspects such as material sourcing, waste disposal, compliance to statutory conditions, incident and accident public grievances, work progress, traffic management etc. to MSEDCL and MSEDCL shall forward the reports to SPIU and SPIU with the support of PMC shall review the reports
- TPQA shall undertake periodical Audits and provide orientation including status of EMP and SMP implementation and submit periodical reports to SPIU and PMC shall verity its reports and submit a quarterly report to SPIU on EMP compliance status.
- SPIU supported by PMC will submit a Quarterly progress report to PIU and World Bank.

16.0 Documentation, Updation and Record Keeping

The following reference documents shall be maintained and available with contractor and PIU for implementation at construction site

1. EMP
2. Environmental Standards
3. SoPs and Method Statements for each project activity (to be prepared by contractor)

The EMP shall be updated regularly based on change in regulatory requirements, WB /IFC EHS guideline and finding of annual independent audit findings. List of records to be maintained at site is provided in main report.

17.0 Mechanism for Feedback And Adjustments

As part of the feedback mechanism, MSEDCL and TPQA shall monitor project compliance based on monitoring reports, audit and inspection reports with respect EMP, EMoP and applicable laws, rules and regulations. MSEDCL will report to SPIU/PMC on a quarterly basis. In case, any deviation from the contract requirements with respect to proposed EMP is observed, the same shall be corrected within a fortnight through contractor and TPQA and records maintained for the same. MSEDCL The EHS officer will analyse the grievance received through interaction with representative deputed by the District Collector, contractor EHS officer along with TPQA and the contractor will also visit the site to verify the complaint. will also verify the facts reports through periodic site visits. If required SPIU/PMC shall verify the facts through site verification.

Public involvement shall be encouraged and ensured throughout the lifecycle of the project. The MSEDCL shall gather and maintain information on any damage or public concern that may be raised by the local people, NGOs and local authorities. While immediate solutions are to be worked out with the help of contractor, a detailed report will be submitted to the SPIU for information or detailed consideration. The MSEDCL and TPQA shall be responsible to bring it to the notice of the SPIU/PMC. Resulting decisions shall be communicated back to MSEDCL and TPQA and contractor for correction and future implementation