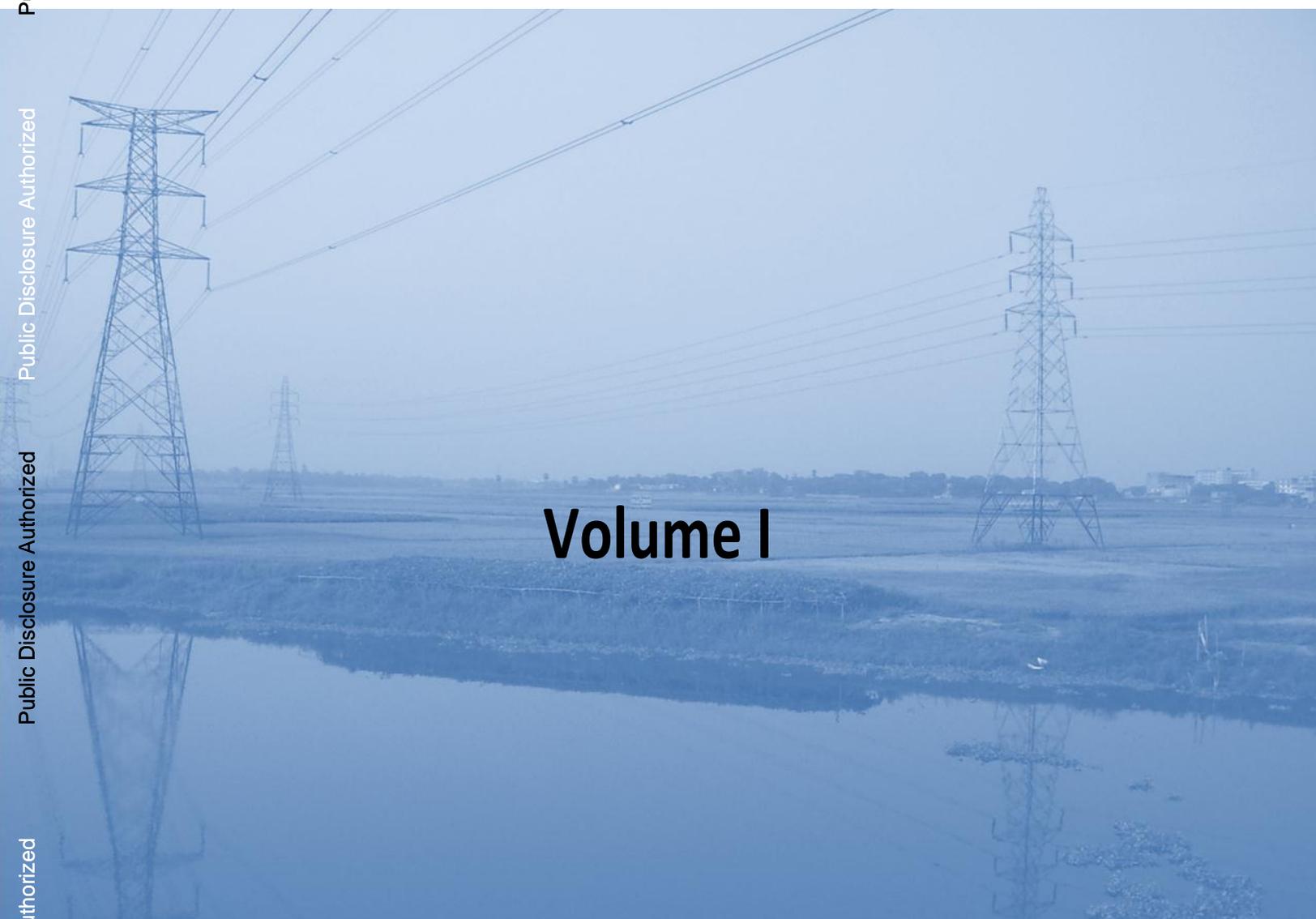


Environmental & Social Policy & Procedures (ESPP)



Volume I

Meghalaya Power Transmission Corporation Ltd.

Meghalaya Power Distribution Corporation Ltd.

February, 2015

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Abbreviation

ADB	:	Asian Development Bank
ADCs	:	Autonomous District Councils
BoD	:	Board of Directors
CA	:	Compensatory Afforestation
CBD	:	Convention on Biological Diversity
CEA	:	Central Electricity Authority
CEM	:	Chief Executive Member
CF	:	Conservator of Forests
CKM	:	Circuit Kilometers
CPCB	:	Central Pollution Control Board
CPTD	:	Compensation Plan for Temporary Damages
CSGS	:	Central Sector Generation Scheme
DFO	:	Divisional Forest Officer
DL	:	Distribution Line
DPR	:	Detail Project Report
EA	:	Environmental Assessment
EAMP	:	Environment Assessment Management Plan
E & F	:	Environment & Forests
E&S	:	Environmental and Social
EMF	:	Electro Magnetic Fields
EPA	:	Environment Protection Act
ESMP	:	Environmental and Social Management Plan
ESMU	:	Environmental and Social Management Unit
ESPP	:	Environmental and Social Policy Procedures
FEAR	:	Final Environmental Assessment Report
GDP	:	Gross Domestic Product
GHG	:	Green House Gas
GoMe	:	Government of Meghalaya
GRC	:	Grievance Redressal Committee
HT	:	High Tension
IEAR	:	Initial Environmental Assessment Report
kV	:	Kilo-volt
kWh	:	Kilo-watt hour
LT	:	Low Tension
MDONER	:	Ministry of Development of North Eastern Region
MoEF	:	Ministry of Environment& Forests
MU	:	Million Units
MVA	:	Million Volt Amperes
MW	:	Mega Watts
MeECL	:	Meghalaya State Electricity Corporation Limited

MePTCL	:	Meghalaya Power Transmission Corporation Limited
MePDCL	:	Meghalaya Power Distribution Corporation Limited
NBWL	:	National Board for Wildlife
NE	:	North East
NEC	:	North Eastern Council
NO	:	Nodal Officer
NOC	:	No Objection Certificate
NPV	:	Net Present Value
NSDP	:	Net State Domestic Product
OP	:	Operational Policy
O & M	:	Operation & Maintenance
PCB	:	Polychlorinated Biphenyl
PCCF	:	Principal Chief Conservator of Forests
PMU	:	Project Management Unit
RFCTLARRA	:	The Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013
R & R	:	Rehabilitation & Resettlement
RoW	:	Right of Way
SIA	:	Social Impact Assessment
SF6	:	Sulfur Hexafluoride
SIMP	:	Social Impact Assessment and Management Plan
SPCB	:	State Pollution Control Board
T&D	:	Transmission and Distribution
TL	:	Transmission Line
WB	:	World Bank

EXECUTIVE SUMMARY

1 India's North East Region (NER) stretches across the eastern foothills of the Himalayan mountain range and is comprised of seven states including Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. Geographically the region is connected to the other parts of the country through a small “chicken neck” corridor in the State of West Bengal. With a total population of 45.6 million (2011 census), the sparsely populated NER accounts for about 3.7 percent of India’s total population and covers 7.9 percent of India’s total geographical area. The vast majority of the region’s population lives in rural areas, accounting for 82 percent of the total population as against compared to the national average of 69 percent (2011). A large part of the NER is hilly and, recognized as one of the globe’s biodiversity hotspots. Forests cover over 2/3rd of the area, twice exceeding the policy target of 33%. This sparsely populated region is characterized by extraordinary ethnic, cultural, religious and linguistic diversity, with more than 160 Scheduled Tribes (out of 630 in the country) comprising over 400 distinct sub tribal groups, and a large and diverse non-tribal population as well.

2 **Regional Power Transmission and Distribution.** The North Eastern Region (NER) in India is endowed with rich energy resources but faces significant bottlenecks in electricity access and availability levels. The per capita power consumption in NER is one-third of the national average. The region has a shortfall of about 500 MW installed capacity against peak demand of about 1950 MW. No significant generation capacity has been added in the recent past. Therefore, inadequate power supply continues a critical constraint to sustainable growth and economic development in the NER. Some states are generally not able to draw even their allocated share of power from the Central Generating Stations (CGS) through the grid due to poor/ inadequate intra/ interstate transmission and distribution network and no capacity addition towards transmission/distribution power system not done due to fund constraints. The transmission and distribution (T&D) losses are also drastically high (up to 50%) across most of the States as a large number of remote hilly areas are connected through long low tension lines, resulting in low voltages and poor quality of power at consumer end. While generation capacity addition of about 4000 MW program over present installed capacity is already underway, adequate transmission and distribution infrastructure to transmit and distribute this power to consumers within the North-Eastern States is the need of the day.

Project Context

3 In order to create/ augment proper infrastructure of T&D in NER. Government of India (GoI) has formulated a “Composite scheme for transmission and distribution (T&D) in NER” capable of delivering adequate power to most consumers with reliability, aiming to improve the inter-state and intra-state transmission and sub-transmission infrastructure and reduce system losses in all the NER states. The Govt. of India (GoI) has approached the World Bank to provide US\$ 1500 million of IBRD funding support to portion of the scheme “**NER Power System Improvement Project (NERPSIP)**” in three investment tranches each being US\$ 500 million for strengthening, augmentation of the intra-state and interstate transmission and distribution schemes (33kV and above and above) and undertake capacity building initiatives across six NER States of Assam, Manipur, Mizoram, Meghalaya, Tripura and Nagaland for World Bank & GoI funding. Ministry of Power (MoP), GoI has appointed POWERGRID, as the **Central Implementing Agency (IA)** to the six North East States for the Project. However, the ownership of the assets shall be with the respective State Governments/ State Utilities, which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of Assets at their own cost.

4 The project’s first investment tranche would be implemented over a seven year period (2014-2021) and has two major components, namely:

- a) Priority investments for strengthening of intra-state transmission and distribution systems;
- b) Technical Assistance for Institutional Strengthening and Capacity Building of power utilities and departments.

5 **Meghalaya.** In the above background, Meghalaya state, one of the states in NER, is contemplating major expansion and augmentation of its transmission & distribution network in near future by implementing projects with the help/grant from GoI and other Multilateral Funding Agencies like the World Bank and ADB. Given the unique socio-economic, cultural and environmental resources in Meghalaya State Electricity Corporation Limited (MeECL) and its holding companies for distribution and transmission i.e. MePTCL and MePDCL respectively is committed to manage them sustainably. To meet this objectives, plans have been made by MePTCL/MePDCL to prepare an Environment and Social Policy and Procedures (ESPP) to serve as a guiding instrument. MePTCL/MePDCL assimilates environmental and social management procedures into its corporate functioning and also layout management procedures and protocol to address them. It outlines MePTCL’s & MePDCL’s commitment to deal with environmental and

social issues relating to its transmission & distribution projects with a framework for identification, assessment and management of environmental and social concerns at both organizational as well as project levels. For this, POWERGRID, with proven credentials in management of environmental and social issues of large number of power transmission projects both within and outside the country has been mandated to prepare an ESPP for MePTCL/MePDCL. Thus, it enables MePTCL/MePDCL;

- To establish clear procedures and methodologies for the environmental and social screening, planning, review, approval and implementation of subprojects to be financed under the Project;
- To specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to sub-projects;
- To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESPP;
- To ensure adequate financial provisions to meet the management measures to be undertaken to mitigate the impacts.

6 MePTCL/ MePDCL also believes that the ESPP is dynamic and living document, which shall be further upgraded in light of the experiences gained from field implementation and other relevant factors while mainstreaming the environmental and social concerns in its corporate functioning.

MePTCL's/MePDCL's Environment & Social Policy

Environment & Social Policy Statement

*“MePTCL/MePDCL is fully aware of the rich natural and cultural heritage of Meghalaya and aspires to fulfill its commitments towards sustainable development through early identification, assessment, and avoidance of the environmental and social issues at both planning and implementation and operational phases. It is also committed to comply with all statutes, customary laws, by following principles of **Avoidance, Minimization, and Mitigation** of inescapable issues with complete transparency and due social responsibility”.*

Meghalaya at a Glance

7 The state of Meghalaya lies between latitudes 25⁰02' and 26⁰07' North and longitudes 89⁰49' and 92⁰50' East and spread over an area of 22,429 sq. Km. The state shares 496 km long international border with Bangladesh along the south and west direction. It is also bordered by Assam in the north and east. On all other sides of the state lies an extensive plain drained by the river Brahmaputra (in the north and west) and the river Surma and its tributaries (in the south). Meghalaya now connected with the rest of the country through a broad gauge network. The first rail link connecting Mendipathar in North Garo Hills District with Guwahati was commissioned in 2014. The other rail link between Guwahati and Byrnihat is also under progress.

8 About 77.08% of the area is classified as forests. About 86% of the population belongs to Schedule Tribes whose lives are intrinsically woven with that of the forests and other natural resources. Besides forests, the State has vast natural resources of coal, limestone, uranium, kaolin, granite etc. The local flora and fauna bear a very close affinity and resemblance with the floral and faunal components of the Indo-Malayan and Indo-Chinese sub-regions. The State is located in the bio-geographic zone of 9B-North-East hills and possesses an extremely rich bio-diversity. The state is now striving to march ahead and utilize the available natural resources as the same holds the key for economic development.

9 The whole Meghalaya except for Shillong Municipal area is covered under Schedule Six of the Constitution. This schedule provide for administration of tribal areas as autonomous areas.. The administration of the autonomous areas is vested in the district council. These councils are endowed with legislative, judicial executive and financial powers. They are also expected to oversee the traditional bodies in local tribes. Following these special constitutional provisions the state has 11 districts and 3 Autonomous District Council (ADC). In addition at village, level the village council (Dorbar/ Syiem) looks after the administration. The village council has both administrative and judicial powers within the village and is responsible for providing permission for any activities which are undertaken in area within their jurisdiction. There are three Autonomous District Councils (ADCs) in Meghalaya are the Khasi Hills Autonomous District Council, the Jaintia Hills Autonomous District Council and the Garo Hills Autonomous District Council. All three administrative Units have been established under the VI Schedule of the Indian Constitution. The leader in the District Council is appointed by the Governor of Meghalaya as the Chief Executive Member (C.E.M.) of the District Council.

10 The population of Meghalaya as per census 2011 was 29,66,889, with a density of 132 persons per square km. Total ST Population of the state as per the Census 2011 is 25,55,861. The Khasis, Jaintias and Garos are the main tribes. The Garos inhabits western Meghalaya, the Khasis in central part, and the Jaintias in the eastern Meghalaya. The Khasi, Jaintia, Bhoi, War, collectively known as the Hynniewtrep people predominantly inhabit the districts East of Meghalaya, also known to be one of the earliest ethnic groups of settlers in the Indian sub-continent. The Garo Hills is predominantly inhabited by the Garos. Out of total population of Meghalaya, 20.07% people live in urban regions. Like other states, Meghalaya is also witnessing urbanisation.

11 The predominant tribes i.e. Khasis, Jaintias, and Garos practice the unique matrilineal culture, where the youngest daughter/female member is the custodian of ancestral property. However, administration of the property is usually in the hands of the maternal uncle. The Garo society is matrilineal and inheritance is through the mother. Inheritance of property among the Garos is generally linked with matrimonial relations, and although men may have no property to pass on, they have an important say in deciding to whom it should pass. The heiress is generally, the youngest daughter or the Nokna. If the nokna is unmarried, as she often is, since selection generally takes place before she get married, the father will try to get a young man from his own lineage, commonly the son of his own sister, as the husband of the heiress. The nokna's husband is called the Nokrom. Historically, the Garos did not own land - whatever land they hold in possession, they do so without any ownership documents and the land belonged to the tribe as a collective property, cultivated under a cooperative system. Theoretically, land is owned by the Nokma, and new sections are distributed among the households each year.

12 In the Garo Hills area, the community of land ownership and enjoyment is in vogue. All the village inhabitants are entitled to cultivate whatever land they require, but traditionally no individual member enjoys absolute ownership right over the land cultivated by him. As soon as he stops making effective use of the land, his rights cease to exist and the land goes to the joint possession of the villages community. Therefore, after seeking no - objection from the clans / community, individual pattas are issued by the District Council which have legal and permanent individual ownership right. Among the Khasi as well as the Garo and Jaintia, land belongs to clans, communities, and individual. Mapping of area belonging to different owners does not exist. Villagers still adopt the practice of making a river, tree, or a hillock as a landmark for their boundaries. In keeping with the social structure, there are two main classes of land in Khasi- Jaintia hills, namely Ri-Raid (community

owned land over which no one has proprietary, heritable, and transferable right except right of use and occupancy) and Ri-Kynti (essentially privately owned land and have proprietary, heritable and transferable rights). In the Khasi & Jaintia Hills the traditional chiefs are Syiems, Lyngdohs, Sirdars, Wahadars, Dolloi, Pator and Rangbah Shnongs or Village Headmen. They look after the administration of the Syiemships, Elaka and Villages according to the customs and tradition. These traditional socio – political systems, or self-governing institutions and by and large, functions in a democratic manner.

13 Meghalaya is mainly an agricultural state with about 80% of its total population depending entirely on agriculture for their livelihood. Traditionally the tribal people in the Northeast including those in Meghalaya practiced shifting cultivation on the hill slopes and settled cultivation in the river valleys. With relatively low density of population and long Jhum (shifting cultivation) cycles, these communities could manage their livelihood. The forests of Meghalaya are rich in biodiversity and endowed with rare species of orchids and medicinal plants. Meghalaya stands fifth (77.08%) in terms of percentage of forest cover with respect to geographic area. Un-classed forest in Meghalaya is recorded about 88.15% of total forest land. This category of forest mainly shows private and community held forest. These forests can be classified as village forests, group of village forests, restricted forests, sacred forests/groves etc. These forests are managed and protected by individual (for individually held forest), village-headman, village elder, village council etc. and plays significant role in providing natural resources and livelihood to individuals, communities of villages.

14 Several Sacred Groves are identified in Meghalaya. These sacred groves (called as ‘law Kyntang’, ‘Law Niam’ and ‘Law Lyngdoh’ in Khasi hills, ‘Khloo Blai’ in Jaintia hills, and ‘Asheng Khosi’ in Garo hills¹) are owned by individuals, clans or communities, and are under direct control of the clan councils or local village Dorbars/Syiemships/Dolloiships/ Nokmaships. Some of these Sacred Groves are habitats of Hoolock Gibon. Mawphlang Sacred Grove is an Important Bird Area (IBA) and located near Mawphlang village in East Khasi Hills district, 25 km from Shillong.

15 In addition there are Five protected areas are spread across Meghalaya state (refer **Table 1** below). These include Balpakram National Park, Siju Wildlife Sanctuary and Baghmara Pitcher Plant Sanctuary in South Garo District while Nokrek National Park is located in East Garo Hills, South

¹ Tripathi, R. S. (2005). *Sacred Groves of North-East India and Their Floristic Richness and Significance in Biodiversity Conservation*

Garo Hills and West Garo Hills and Nongkhylllem Wildlife Sanctuary is in Ri-Bhoi (North Khasi Hills). The State of Meghalaya has elephant reserve in Garo Hills and West Khasi Hills District region, area covering approximately 4830 sq. km.; 3500 sq. Km already notified and balance 1331 sq. km. is in the process of notification. These elephant habitats are connected by 6 elephant corridor namely Saipung-Narpuh (5 km wide corridor connects Saipung Reserve Forest with Narpuh II Reserve Forest and is bordering North Cachar Hill of Assam), Baghmara-Balpakram (connecting Balpakram National Park with Baghmara Reserve Forest), Siju-Rewak (corridor connecting Siju Wildlife Sanctuary with Rewak Reserve Forest), Rewak-Imangiri (corridor connects Rewak Reserve Forest with Imangiri Reserve Forest), **Nokrek-Imangiri**(corridor connects forest in and around Imangiri Reserve Forest with Nokrek National Park and adjacent areas), **Ranggira-Nokrek** (connecting Ranggira, Sanchangiri and Galwang village Reserve Forest).

Table 1: Protected areas in Meghalaya

S.N	Protected Areas	Districts	Major Habitats
1	Balpakram National Park	South Garo Hills	Tigers, Elephants, Bison, Black Bear, Leopards, Sambar deer, White-winged Duck, White-rumped Vulture, Grey Sibia
2	Nokrek National Park	East Garo Hills, South Garo Hills and West Garo Hills	Elephants, Hoolock Gibbons, Red Panda, White-rumped Vulture, Slender-billed Vulture, Grey Sibia
3	Nongkhylllem Wildlife Sanctuary	Ri-Bhoi (North Khasi Hills)	White-rumped Vulture, Slender-billed Vulture, Wood Snipe Gallinago, Rufous-necked Hornbill
4	Siju Wildlife Sanctuary	South Garo Hills	Siberian ducks, Grey Hornbill, Peacock Pheasant
5	Baghmara Pitcher Plant Sanctuary	South Garo Hills	Elephant, Pitcher Plant

16 Due to its undulating topography In Meghalaya, there are 259 wetlands estimated covering total area of 29987 ha. Umiam Lake, Nongknum Island and Ranikor riverine area are important wetland sites of Meghalaya.

17 Power Industry in Meghalaya had been under the control of the erstwhile Meghalaya State Electricity Board (MeSEB) and has been restructured with effect from 31st March 2010. The Generation, Transmission, and Distribution businesses were transferred to four successor companies with effect from 1st April 2012, viz., Meghalaya Energy Corporation Limited (MeECL), the Holding Company and Meghalaya Power Distribution Corporation Limited (MePDCL), the Distribution Utility, Meghalaya Power Generation Corporation Limited (MePGCL), the Generation Utility;

Meghalaya Power Transmission Corporation Limited (MePTCL), the Transmission Utility. In coordination with State Load Despatch Centre, MePGCL is generating power from 7(seven) generating stations, which are hydro base with total installed capacity of 314.7MW generating about 870 MU of energy annually, {(Umiam Umtru Stage I&II (4x9+2x10) MW), Umiam Umtru Stage III & IV (4x30 MW), Umtru Power Station (4x2.8 MW), Sonapani Mini H.E.P.-1.5 MW and Myntdu Leshka H.E.P. (2 x 42 + 1 x 42) MW}. The energy generated is being sold to MePDCL. MePGCL is contributing about 46% of the required energy in the State; about 24% from Old stations of Umiam, Umtru Power Stations and about 20% from Myntdu Leshka H.E. Project. However, it is observed that total availability of power in the state is 192 MW (average) and 260 MW (Maxm) during Nov. '14. Peak demand of the state is projected about 343 MW. Due to shortage of rain water in the catchment area particularly during off monsoon, the generation from the own stations reduces. Deficit is being met through purchased from other Central Generating Stations, and on short term basis the power is procured through the power exchange, bilateral and swapping.

18 MePTCL operates a transmission network spread over 226.82 CKM at 220 kV lines, 990.81 CKM at 132 kV lines, and 4.22 CKM at 400 kV lines through 17 sub-stations with total transformation capacity of about 1615 MVA. As on March 2013, MePDCL operates 1,917.62 CKM of 33 kV lines, 12,087.07 CKM of 11 kV lines and 11,664.92 CKM of LT line (440V) including 8026 nos. of Distribution transformers of various ratings with transformation capacity of 915.45 MVA. An abstract of subprojects for the tranche-1 under expansion/augmentation of power system network in the State of Meghalaya is presented in **Table 2**.

TABLE 2: SUMMARY OF SUBPROJECTS IN TRANCHE- I UNDER NERPSIP

Sl. No.	Name of the subproject	Quantity (Nos.)	Capacity Addition (Ckt. Km/MVA)	Estimated Cost (in Millions)*
1.	220/132 kV Transmission lines (New)	3	416 Ckt.km.	5900.30
2	220/ 132/33kV substations (New/Augmentation)	4	940 MVA	
3.	33 kV Distribution lines (New Strengthening/Re-conductoring)	11	372 Ckt.km.	1435.30
4.	33/11kV substations (New/Augmentation)	13	120 MVA	

*The estimated cost includes consultancy fees, contingencies and IDC

Stakeholder analysis

19 Stakeholder's analysis has been undertaken to identify the issues and the concerns of various stakeholders who are supposed to be either directly or indirectly impacted/benefited or assume a position wherein they can have a significant role to influence the project. The Stakeholder's analysis has been carried out to identify existing relationship and also to understand the roles, responsibilities and relations of these stakeholders in context of shaping the environment and social issues with respect to proposed project. The details of the key stakeholders identified at various levels from national level up to village council level and their issues & expectations with respect to proposed project. The process of consultation with stakeholders involves formal and informal discussion. A wide range of issues were discussed with various stakeholders that might have environmental / social concern. Some of the key issues are listed below:

1. Environment Issues

- Impact on forest and biodiversity area e.g. national parks, sanctuary, bio-reserves, etc.
- Impact due to waste (Used Oil or E-waste), oil spills, sanitation;
- Occupational health and safety during implementation (labor camps including HIV/ AIDS issues), operation and maintenance phases of the project;
- Soil erosion and slope un-stability;
- Leakage of SF₆ gas, the potent greenhouse gas; and
- Any other adverse environment issues.

2. Social and Institutional Issues

- Securing land for substation;
- Temporary damages to land, crops, trees or other vegetation or other than forestland or structures during construction;
- Community participation involvement of the during planning, implementation and operation phases of the project/sub-project cycle;
- Health and Safety risk including HIV/AIDS;
- Tribal/vulnerable groups;
- Gender / Women participation; and
- Participation and inter-agency coordination.

Impacts – Social

20 This section identifies the potential social impacts of the proposed projects in terms of the nature, magnitude, extent and location, timing and duration of the anticipated impacts. These impacts are both positive or negative relating to the project design stage, construction stage or the project operation and decommissioning stage.

i. Positive Impacts

- Improved accessibility of power;
- Employment creation;
- Improvement of investment climate;
- Improved road infrastructure;
- Short term local employment opportunities for women during construction phase as laborers and also for catering & selling local products to camp workers etc.;
- Less reliance of fossil fuels like firewood, charcoal etc.;
- Capacity Building.

ii. Negative Impacts

- Loss of land;
- Loss to standing crop;
- Restriction of land use and land rights;
- Temporary loss of access to Common Property Resources
- Health and Safety risk including HIV/AIDS.

Impacts - Environment

21 This section identifies the potential environmental impacts of the proposed projects. These impacts are both positive or negative relating to the project design stage, construction stage or the project operation and decommissioning stage.

i. Positive Impacts

- Enhanced and reliability in Power supply resulting in less dependence on fossil fuels including firewood, charcoal etc.

ii. Negative Impacts

- Clearance of tree within RoW
- Impacts on forest, wildlife habitats and migratory birds
- Impacts on drainage, soil erosion & water resources
- Impacts on traffic and road infrastructure
- Aesthetic appeal of area
- Impacts from likely oil spillage
- Effect of electromagnetic (EMF) fields
- Air quality, noise and vibration
- Leakage of green house gases (SF6)
- Chances of accident involving wild animal i.e. elephant
- Health & hygiene
- Impacts on Aviation and Communication

The potential E & S issues identified shall be managed within the applicable regulatory framework and international best practices.

Policy, Legal and Regulatory Framework

22 MePTCL undertakes its Transmission/ Distribution system (33 kV and above) activities within the purview of Constitutional provisions, Policy, Legal, and Regulatory Framework for environmental and social issues applicable to power transmission & distribution. In addition, the requirements of multilateral funding agencies are also considered in the management procedures for addressing environmental and social issues.

23 The Constitution of India provides for protection of the environment and its improvement as a fundamental duty and the Directive Principles of State Policy under Article 51 A (g) and Article 48 A respectively. The Apex Court has widened the scope of Article 21 (Right to Life) bringing environmental impacts under its ambit. Similarly, the constitutional provisions in regard to social safeguards are enshrined in the Preamble to the Constitution, such as justice, social, economic and political; liberty of thought, expression, belief, faith and worship; equality of status and of opportunity; fraternity assuring the dignity of the individual and the unity and integrity of the Nation. Fundamental Rights and Directive Principles guarantee the right to life and liberty. Health, safety

and livelihood been interpreted as part of this larger framework. The provisions on social safeguards are contained in Articles 14, 15, 17, 23, 24, 25, 46, 330, 332, etc.

24 **Sixth Schedule:** In addition to basic fundamental rights, special provisions have been extended to the Tribal Areas in the North Eastern region under the 6th Schedule [Articles 244(2) and 275(1)] in addition to basic fundamental rights.. The Sixth Schedule provides for administration of certain tribal areas as autonomous entities. The entire Meghalaya state except Shillong Municipal Council areas falls under the ambit of Sixth Schedule of the Constitution for the administration of the Scheduled Tribe Areas. There are three Autonomous District Councils (ADCs) in Meghalaya viz.

- Khasi Hills Autonomous District Council
- Jantia Hills Autonomous District Council
- Garo Hills Autonomous District Council

Under Sixth Schedule of the Constitution, the District Councils (ADCs) enjoy Legislative, Administrative and Judicial powers over the following items.

- Land other than reserve forests;
- Forest other than reserve forest;
- Use of any land or water course for agricultural purposes;
- Regulation in the practice of Jhum or other forms of shifting cultivation;
- Establishment of village or town administration including village or town police and public health and sanitation;
- Appointment and succession of Chiefs and their powers;
- Regulation on law of Inheritance of property;
- Marriages;
- Social customs

25 **Environment:** Mandatory environmental requirements for MePTCL/MePDCL at state level include: sanction of GoMe under section 68(1) of the Electricity Act, 2003; Forest clearance under the Forest (Conservation) Act, 1980; During the currency of operations, Regulations on Batteries (Management and handling) Rules, 2001 regarding disposal of used batteries, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 regarding disposal of used transformer oil, Ozone Depleting Substances (Regulation and Control) Rules, 2000 putting restrictions on use of ozone depleting substances come into force and required voluntary enforcement

and provisions under Biological Diversity Act, 2002, E-waste (Management and Handling) Rules, 2011 regarding maintaining records & handling of electronic wastes, and the Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

26 The Forest (Conservation) Act, 1980 is the key legislation through which the environmental impacts of transmission projects are managed since the current regulation does not require an Environmental Impact Assessment for transmission lines. The legislation requires compensatory afforestation for any forest land diverted for non-forest use in twice the area diverted with afforestation undertaken by the respective state Forest Department. A national fund CAMPA has been created for this purpose. In case projects pass through or are located in designated protected areas, clearances from the Wildlife Board are also required. MePTCL/MePDCL has decided to undertake assessment of environmental impacts even for cases where not statutorily mandated in order to confirm compliance with its own policy highlighted in paragraph 6 above.

27 **Social:** Mandatory Social requirements for MEPTCL/MEPDCL at State level include provisions of section 67 & 68 (5 & 6) of the Electricity Act, 2003 for the calculation of compensation for any temporary damages. Involuntary land acquisitions, if any done, for securing private lands for construction of sub-stations, fall under the realm of The Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013 (RFCTLARRA). The provisions of Indian Treasure Trove Act, 1878 as amended in 1949 covers chance finds. The Right to Information Act, 2005 (RTI) ensures citizens to access information under the control of public authorities.

28 **The World Bank (WB)** Operational Policies OP 4.01, 4.04, 4.11 & 4.36/ADB's Safeguard Policy Statement 2009 (SPS 2009) for Environmental and Social Considerations outline funding agencies policy and procedures for Environmental Assessment (EA) of different developmental projects. Depending upon the issues and impacts, the projects are categorized as A, B, and C warranting larger and specialized focus for A and the least for C. This project, as per the WB guidelines, is categorized as A. Likewise, OP 4.10 and 4.12 outlines policy guidelines for managing issues related to tribal people and involuntary resettlement.

29 **The Meghalaya Transfer of Land (Regulation) Act, 1971** (Act 1 of 1972) is still in operation and prohibits transfer of land from tribal to non-tribal. But the GoMe has already issued an Exemption Certificate that the provisions of Section 11(d)(i) of the aforesaid act (as amended) shall

not apply in relation to all purchases/acquisition of land by MeECL/MePGCL/MePDCL/MePTCL, However, letter of acceptance from the landowners that they are willing to part land followed by an NOC from the respective Dorbar/ Nokma/ Doloi/ Headman/ Sordar and District Council that the said land is free from encumbrances is must.

30 **RFCTLARRA, 2013** has replaced the Land Acquisition Act, 1894 and has come into force from 1st January 2014. The new act i.e. RFCTLARRA, 2013 authorizes State Govt. (i.e. GoMe) or its authorized Government agency to complete the whole process of acquisition of private land including Social Impact Assessment (SIA), Action Plan for R&R (i.e. Rehabilitation and Resettlement) & its implementation and the MePDCL/MePTCL responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation.

31 **Safeguards against land acquisition:** Conducting Social Impact Assessments (SIA) has been made mandatory under this new act and results of these assessments are shared with all the stakeholders and public hearing held which makes the process transparent and informed. Subsequently, an entitlement package that includes both compensation (for land/structure and assets to land and structure) and R&R as necessary is prepared. Further to this, individual awards are passed and all documents are disclosed in the public domain through local administration and internet.

32 The flow chart of the land acquisition process with schedule prescribed for various activities is illustrated in **Figure 1** below. The entitlements with regard to compensation and assistances towards land acquisition or loss of any assets or livelihood for all categories of people being affected due to land acquisition is briefly outlined in **Table 3 & 4** below:

Table 3: Minimum Compensation for Land Acquisition

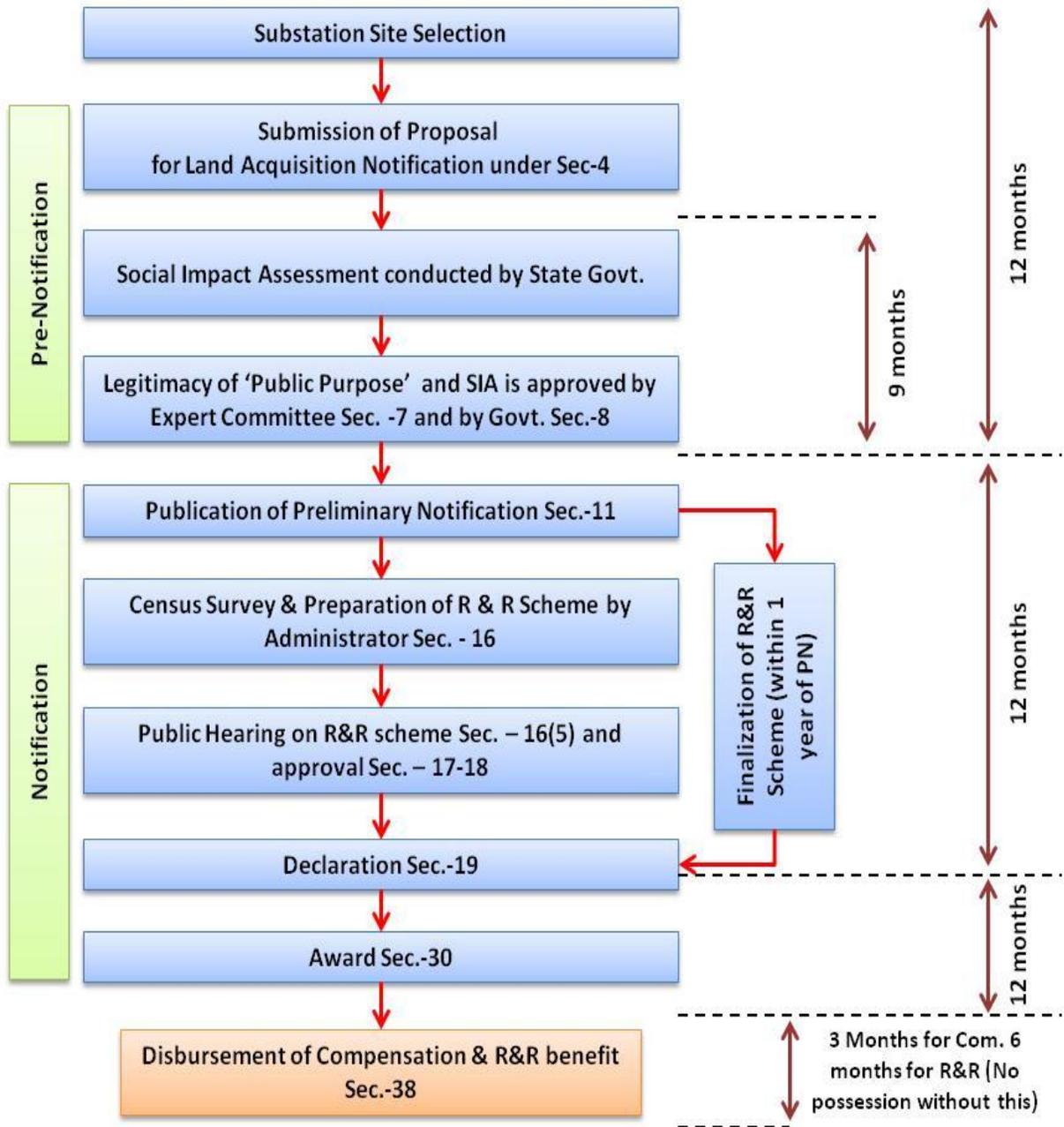
Comprehensive Compensation Package (First Schedule)	
Eligibility for Entitlement	Provisions
<p>The affected families</p> <ul style="list-style-type: none"> ▪ Land Owners: <ol style="list-style-type: none"> 1. Family or company whose land/other immovable properties have been acquired; 2. Those who are assigned land by the Governments under various schemes; 3. Right holders under the Forest Rights Act, 2006 	<p>Determination of Compensation :</p> <p>1. Market value of the land</p> <ul style="list-style-type: none"> • as specified in the Indian Stamp Act, 1899 or • the average of the sale price for similar type of land situated in the village or vicinity, or • consented amount of compensation as agreed in case of acquisition of lands for private companies or for public private partnership project. <p>whichever is higher</p> <p>Market value x Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).</p> <p>2. Value of the assets attached to land:</p> <p>Building/Trees/Wells/Crop etc. as valued by relevant govt. authority;</p> <p>Total compensation = 1+2</p> <p>3. Solatium: 100% of total compensation</p>
<p>(*) Precise scale shall be determined by the State Govt.</p> <p>The indicative values of multiplier factor based on distance from urban areas as provided in the act.</p>	
Radial Distance from Urban area (Km)	Multiplier Factor
0-10	1.00
10-20	1.20
20-30	1.40
30-40	1.80
40-50	2.00

Table 4: Minimum R&R Entitlement Framework

Comprehensive R&R Package (Second Schedule)		
Sl. No.	Elements of R& R Entitlements	Provision
1.	Subsistence grant/ allowance for displaced families	Rs. 3000 per month per family for 12 months

2.	The affected families shall be entitled to:	(a) Where jobs are created through the project, mandatory employment for one member per affected family or (b) Rupees 5 lakhs per family; or (c) Rupees 2000 per month per family as annuity for 20 years, with appropriate index for inflation; The option of availing (a) or (b) or (c) shall be that of the affected family
3.	Housing units for displacement: i) If a house is lost in rural areas: ii) If a house is lost in urban areas	i) A constructed house shall be provided as per the Indira Awas Yojana specifications. ii) A constructed house shall be provided, which will be not less than 50 sq. mts. in plinth area. In either case the equivalent cost of the house may also be provided in lieu of the house as per the preference of the project affected family. The stamp duty and other fees payable for registration of the house allotted to the affected families shall be borne by the Requiring Body.
4.	Transportation cost for displaced families	Rs 50,000/- per affected family
5.	Resettlement Allowance (for displaced families)	Onetime Rs 50,000/- per affected family
6.	Cattle shed/ petty shop cost	Onetime financial assistance as appropriate for construction as decided by St. Govt. subject to minimum of Rs.25,000/-
7.	Artisan/small traders/others (in case of displacement)	Onetime financial assistance as appropriate as decided by St. Govt. subject to minimum of Rs.25,000/-
<p>Special Provisions for SCs/STs: In addition to the R&R package, <i>SC/ST families will be entitled to the following additional benefits:</i></p> <ol style="list-style-type: none"> 1. One time financial assistance of Rs. 50,000 per family; 2. Families settled outside the district shall be entitled to an additional 25% R&R benefits; 3. Payment of one third of the compensation amount at very outset; 4. Preference in relocation and resettlement in area in same compact block; 5. Free land for community and social gatherings; 6. In case of displacement, a Development Plan is to be prepared 7. Continuation of reservation and other Schedule V and Schedule VI area benefits from displaced area to resettlement area. 		

Figure 1: Activity Chart RFCTLARRA, 2013



Project Cycle – Integrating Environment and Social Issues/ Concerns and Mitigatory Measures

33 Stakeholder analysis and impact assessments had enabled identifying issues. The same are now placed in the project cycle so as to draw management measures for addressing the same. Key milestones in MEPTCL/MEPDCL’s transmission/distribution (33 kV and above) projects are;

1. Project Conceptualization
2. Project Planning
3. Approval
4. Detailed Design and Tendering
5. Project Implementation
6. Operation & Maintenance
7. Review and Monitoring and Evaluation.

Environmental and Social Concerns

34 Environmental Concerns

- Clearing/lopping of Trees within Right of Way (RoW);
- Clearing of Ground Vegetation for Movement of Machinery;
- Disposal of Used Transformer Oil;
- Disposal of Used Battery;
- Disposal of E-waste; and
- Leakage/use of SF6 gas.

35 Social Concerns

- Loss to Standing Crop;
- Change in Land Prices;
- Temporary Loss of Access to Common Property Resources;
- Restriction on Land Use;
- Loss of livelihood due to acquisition of private agricultural land;
- Loss of common property resources due to acquisition of revenue land; and
- Loss of homestead, if any.

36 Management measures to address the issues and concerns in respect of social and environment are presented in **Tables 5 and 6** respectively.

Table 5: Social Management Measures

Sl.	Potential Issues	Management Measures
1	Loss of land	For Tranche-1, land for construction of substation is a major issue as land for only five distribution substations is available with the Utility. For remaining 3 transmission and 10 distribution substations land, MePTCL/MePDCL shall secure/acquire land either through direct purchase on willing buyer & willing seller basis on negotiated rate or through involuntary acquisition as per provisions of RFCTLARRA, 2013. However, efforts will be made to secure such land wherein possibility of physical relocation is not envisaged.
2	Change in land use and population relocation due to towers/poles	As per existing law, land for tower/pole and right of way is not acquired and agricultural activities are allowed to continue after construction activity and MePTCL/MePDCL pays compensation for all damages including cost of land below tower to its owner without acquiring it. Hence change in land use and resultant relocation of people is not envisaged in T&D projects.
3	Change in land use and population relocation for substations	<p>Due to inherent flexibility in locating substation and very small size of land, MePTCL/MePDCL avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged.</p> <p>However, securing lands is an issue as lands will be required for construction of substations. Keeping in this in view, and in case, lands may have to be secured, the same it can be accomplished through following three methods;</p> <ol style="list-style-type: none"> 1. Purchase of land on willing buyer & Willing Seller basis on negotiated rate; 2. Voluntary Donation; and 3. Involuntary Acquisition. <p>In case of procurement of land through private purchase, MePTCL/MePDCL shall ensure that compensation/rate for land is not less than the rate provided in the new land acquisition act, 2013. In order to comply with this provision MePTCL/MePDCL may organize an awareness camp where provisions of new act in respect of basis/modalities of compensation calculation shall be explained to land owners with specific State provision if any. In the case of voluntary donation of land, the following shall be ensured:</p>

Sl.	Potential Issues	Management Measures
		<ul style="list-style-type: none"> • The land user(s) will not be subjected to undue pressure for parting of land; • All out efforts shall be made to avoid any physical relocation/displacement due to loss of land; • The MePTCL/MePDCL shall facilitate in extending ‘gratitude’ to the land donor(s) in lieu of the ‘contribution’ if so agreed. The same shall be documented and monitored for compliance. • All land donations (as well as purchases) will be subject to a review/ approval from a committee comprising representatives of different sections including those from the POWERGRID and GoMe. <p>Involuntary land acquisitions will be as per the new RFCTLARR Act of 2013.</p>
	Right of Way	Land for tower and right of way is not acquired as agricultural activities can continue. However, the project shall pay full compensation to all the affected persons/ community for any damages sustained during the execution of work. Accordingly, MePTCL/MePDCL has formulated appropriate management plan in the form of Compensation Plan for Temporary Damage (CPTD) to minimize the damages and provide compensation plan for temporary damages in consultation with the state government and affected persons and/ or community.
4	Impact on Tribal	Majority of the population of Meghalaya are tribal as per census 2011. Total ST Population of the state as per the Census 2011 is 25,55,861 which is approximately 86% of the population. The project is being implemented in the tribal areas (Sixth Schedule provision of the Indian Constitution) of Meghalaya and bulk of the beneficiaries is expected to be tribal. Thus, the need for a separate Tribal Peoples’ Development Framework/ Plan (TPDP) as per O.P.4.10 is not required under this project. Irrespective of this, Sixth Schedule provision stipulates that all projects do need to secure prior consent of the village council. Further Tribal Development Framework as well as Tribal Development Plan is enshrined in RFCTLARRA, 2013 which makes consultations in tribal areas mandatory and provides for enhanced entitlements for the tribal people.
6	Gender/ women participation	Women involvement will be planned through formal and informal group consultations so that their participation is ensured during preparation and implementation of the project.

Sl.	Potential Issues	Management Measures
7	Induced secondary development during construction	MePTCL/MePDCL operations are short-lived and do not induce secondary developments during construction.
8	Health and safety of worker/employee/community	During construction the health and safety aspects of workers and nearby community shall be implemented through contractors with due diligence and compliance of required regulation/guideline through a safety plan MePTCL/MePDCL uses best available technology for lines and do not cause any hazards to health and safety.
9	“Chance finds” or discovery of any archaeological artifacts, treasure etc. during excavation	Possibilities of such phenomenon in T&D project are quite remote due to limited and shallow excavations. However, in case of such findings, MePTCL/MePDCL will follow the laid down procedure in the Section-4 of Indian Treasure Trove Act, 1878 as amended in 1949.
10	Inter Agency Coordination	Exclusive bodies will be set up at state/ district levels for over-seeing, reviewing and guiding the project

Table 6: Environment Management Measures

Sl. No	Potential Issues	Management Measures
1	Minimising adverse impact on natural forests	MePTCL/MePDCL endeavors to circumvent / lessen environmentally sensitive areas such as forest and other ecologically fragile / sensitive areas through optimization of route including use of modern tools like GIS/GPS and other modern techniques.
2.	Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees
3.	<ul style="list-style-type: none"> ▪ Vegetation damage ▪ Habited Loss 	To minimise damage to vegetation and habitat fragmentation, MePTCL/MePDCL utilises hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.
4.	<ul style="list-style-type: none"> ▪ Habitat fragmentation ▪ Edge effect on flora & fauna 	MePTCL/MePDCL maintains only a 3m wide strip for O&M and allows for regeneration of vegetation in the other one or two strips and beneath the transmission lines to avoid habitat fragmentation and edge effect. In hilly area this can possibly be totally avoided

Sl. No	Potential Issues	Management Measures
5.	Chances of accident involving elephant in the specified corridor due to placing of poles	MePDCL shall try to avoid such area to the extent possible. However, in case avoidance is not possible, suitable design modification in the pole like provision of spike guards, barbed wire fencing or any other arrangement shall be incorporated in such location
6.	Erosion of soil and drainage along the cut and fill slopes in hilly areas	MePTCL/MePDCL would ensure that all cut and fill slopes in TL/DL are adequately protected using standard engineering practices including bio-engineering techniques wherever feasible. All drainage channels along or inside substations shall be trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water.
7.	Chemical contamination from chemical maintenance techniques	MePTCL/MePDCL does not use chemicals for forest clearance/RoW maintenance
8.	Poly- Chloro-Biphenyls (PCBs) in electrical equipment	MePTCL/MePDCL use mineral oil in electrical equipments. Specification of oil containing PCB less 2 mg/kg (non – detectable level) stated in the tender document
9.	Induced secondary development during construction	MePTCL/MePDCL operations are short-lived and do not induce secondary developments during construction
10.	Avian hazards from transmission/distribution lines and towers	Avian hazards mostly encountered in bird sanctuaries area and fly path of migratory bird predominantly related to nesting site. Although the incidence of avian hazards is rare due to the distance between the conductors. MePTCL/MePDCL shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
11.	Air craft hazards from transmission lines and towers	MePTCL/MePDCL as per the requirement of IS 5613 of July'94 provides aviation markers, night-lights for easy identification of towers in notified/selected areas.
12.	Health and safety of worker/employee/community	During construction the health and safety aspects of workers and nearby community shall be implemented through contractors with due diligence and compliance of required regulation/guideline through a safety plan. MePTCL/MePDCL uses best available technology for lines and do not cause any hazards to health and safety.

Sl. No	Potential Issues	Management Measures
13.	Fire Hazards	<p>Fire hazards are mostly occurred in forest area. However, MePTCL/MePDCL uses state of art automatic tripping mechanism for its transmission/distribution and substation that disconnect the line in fraction of seconds to prevent fire hazards. The Forest Department also take precaution like maintaining fire line in the cleared forest area to avoid spread of fire</p> <p>Firefighting instruments including fire extinguishers are kept in appropriate place for immediate action in case of any fire hazard.</p>
14.	Pollution	Although pollution is not an issue with transmission/distribution projects still MePTCL/MePDCL will make efforts to further minimise it. Sites are cleared of all the leftover materials and debris to avoid any chance of pollution.
15.	GHG (SF ₆ Gas)	Although leakage of SF ₆ is not a major issue, MePTCL/MePDCL will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

37 Other potential environmental and social issues/ concerns and their management measures are described in an EMP, a sample of which is in the Annex to the summary. It will be implemented during the execution of the project. Since many provisions of the EMP are to be implemented by the Contractor, to ensure its proper implementation and monitoring, the EMP forms a part of the contract document.

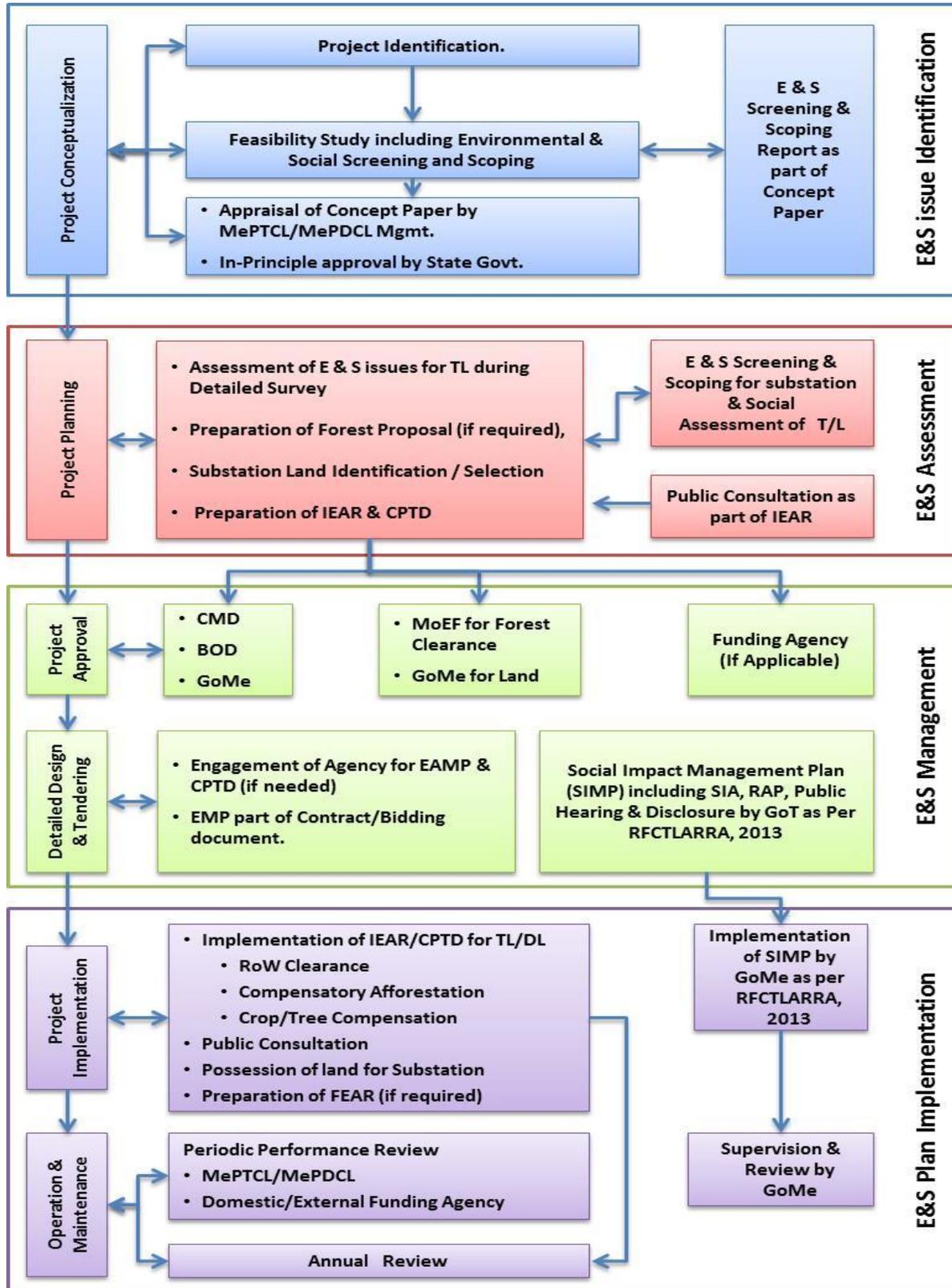
MEPDCL/MePTCL Environment and Social Management Procedures (ESPP)

38 MePTCL/MePDCL has developed comprehensive Environment and Social (E&S) management procedures and incorporated them to its project cycle, to ensure that its operation eliminates or minimizes adverse environmental and social impacts. The E&S management procedures identify the relevant issues at early stage of project cycle and follow the basic philosophy of sustainable development along with Principles of Avoidance, Minimization and Mitigation. These three guiding principles are employed in a project right from very beginning i.e. at the time of Project conceptualization & Planning Stage by studying different alternatives line routes for selection of most optimum route to avoid involvement of forests/ biodiversity/Eco-sensitive zone including

animal/bird path, protected areas, human habitations etc. to the extent possible. If necessary/required, tall towers are also provided to avoid/minimize the impact. In case it becomes unavoidable due to terrain and line route passes through protected areas additional studies would be conducted by independent agencies to ascertain the impacts and to plan management measures to minimize/mitigate such impacts. A Terms of Reference (ToR), for such assessment, which can be customized for a particular situation/ location/ concern has been prepared and is placed at **Annexure 16** of the main report.

39 Likewise for substation land, MePTCL/MePDCL identifies number of potential substation sites based on data collected as per the checklist (**Annexure 15** of the main report) and a comprehensive analysis for each alternative site is carried out. The analysis considers various site specific parameters that includes infrastructure facilities such as access roads, railheads, type of land viz. Govt., revenue, private land, agricultural land; social impacts such as number of families getting affected; and cost of compensation and rehabilitation giving due weightage to each. Environmental & Social Management process dovetailed in project cycle for appropriate and timely action is outlined in **Figure 2**.

Figure 2: Environment and Social Management Procedures



Environment and Social Risk Assessment

40 **Environmental and Social Risk Assessment** is a vital part of MePTCL/MePDCL environmental and social management strategies. The risk assessment process identifies existing risks, and forecast future potential risks in its power transmission/distribution projects. It is a scientific process that includes cost benefit analysis. The environment and social management procedures developed by MePTCL/MePDCL evaluate these risks, both qualitatively and quantitatively, and prioritise them. Based on prioritisation, environment and social management options are selected. MePTCL/MePDCL's Risk Management process involves risk preparedness, risk mitigation and the sharing of liabilities (via internal arrangements and insurance). Responsibilities in the event of occurrence of a risk have been illustrated in **Table 7**.

Table 7: MePTCL/MePDCL's Risk Responsibility Framework

Risk	Key Role-players			
	GoMe	MePTCL/MePDCL	Contractor	Insurers
Non Compliance				
➤ Regulatory ²	✓	✓	✓	-
➤ Contractual ³	-	-	✓	-
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health ⁴ etc.	-	✓	-	-
Force Majeure				
➤ Insurable	-	-	-	✓
➤ Non-Insurable	✓	✓	-	-
Inclusion/ Exclusion of concerned Communities/ NGOs	✓	✓	-	-
Public interest mitigation	✓	✓	-	-

² Regulatory like working in forest/protected areas without statutory clearances.

³ Contractual like noncompliance of condition of clearance like fuel supply to labourer to avoid tree felling, no-work during night times, etc.

⁴ Impact of health like any case of prolonged exposure to Electro-Magnetic Field (EMF).

Implementation Arrangements

41 MePTCL/MePDCL realizes that ESPP implementation requires a robust and efficient institutional framework. To ensure quality and enabling organizational support structure for effective implementation of the ESPP, MePTCL/MePDCL shall set out procedures and work culture which will promote total involvement of all its personnel. To attain assigned goal following shall be ensured:

- A synchronized system of functioning adopted by Corporate Planning which monitors all activities in the organization and ESMU for TL/DL at Corporate Office
- An emphasis on intradepartmental approach to all projects, delineation of departmental responsibilities and the delegation and decentralization of authority resulting in a fast response and quick adjustment to change
- A commitment to provide at all times the best possible time bound quality service in all areas of its operations.

42 MePTCL/MePDCL commitment to the ESPP shall have to be developed with these principles. To ensure effective implementation of its ESPP, MePTCL/MePDCL will focus on:

- Strengthening the implementation of the ESPP by deployment of appropriately trained personnel at key levels;
- Reinforcing in-house capabilities by working with specialized external agencies;
- Placing dedicated manpower with specialization in the respective field to deal with and manage the environment and social issues;
- Reviewing progress of the ESPP implementation internally or through external agencies

43 Corporate office will have overall responsibility for construction, operation, and maintenance of transmission/ distribution systems apart from providing necessary support services.

44 For the NERPSIP, the implementing agency (IA) is POWERGRID with its mandate for design and implementation supervision for the project. In consultations with the states, it has put up a tiered structure as follows:

- **Central Project Implementation Unit (CPIU)** - A body responsible for coordinating the preparation and implementation of the project and shall be housed within the IA's offices at

Guwahati. The “Project-In-Charge” of IA & Head of each of the SPCU shall be a member of CPIU.

- **State Project Coordination Unit (SPCU)** – A body formed by the Utility and responsible for coordinating with IA in preparing and implementing the project at the State level. It consist of experts across different areas from the Utility and shall be headed by an officer of the rank not below Chief Engineer, from MePTCL/MePDCL.
- **Project Implementation Unit (PIU)** – A body formed by the IA, including members of MSPCL on deputation, and responsible for implementing the Project across the State, with its personnel being distributed over work site & working in close association with the SPCU/ CPIU. PIU report to State level “Project Manager” nominated by the Project-in-Charge of IA. The IA will have a Core team stationed at the CPIU on permanent basis and other PMC officers (with required skills) will visit as and when required by this core team.

Grievance Redressal Mechanism (GRM)

45 GRM has been made an integral part during planning, survey, implementation, operation and maintenance stage of the project. MePTCL/MePDCL shall constitute a Grievance Redressal Committee (GRC) headed by Superintending Engineer (SE) to address the grievances that may arise during the planning, implementation and operation phases of the project. The GRC includes members from the utility and others comprising of Local Administration, Village Panchayat Members, Affected Families representative and reputed persons from the society.

46 In case of transmission/ distribution line, GRM is built in the tree & crop compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. For substation and DTs (where land acquisition is involved), GRM is an integral part under the RFCTLARRA, 2013. Public hearings shall be held in the affected areas to bring out the main findings of the SIA, to seek feedback on the findings and to seek additional information and views for incorporating the same in the final documents. Detailed procedure of the same has been given under RFCTLARRA, 2013. MePTCL/MePDCL will interact closely with the State authorities and district administration during implementation of SIMP.

Annex – Sample Environmental Management Plan

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
Pre-construction							
1	Location of overhead line towers/ poles/ underground distribution lines and 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.	Tower location and overhead/underground alignment selection with respect to nearest dwellings	Setback distances to nearest houses – once	Implementing Agency (IA)	Part of overhead lines tower/poles/ laying of underground cable sitting survey and detailed alignment survey and design
2	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	IA	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	IA	Part of tender specifications for the equipment
					Phase out schedule to be prepared in case still in use – once		
3	Transmission/ 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	IA	Part of design parameters
4	Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations.	Expected noise emissions based on substation design	Compliance with regulations - once	IA	Part of detailed siting survey and design

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		Social inequities	Careful selection of site to avoid encroachment of socially, culturally and archaeological sensitive areas (i. g. sacred groves, graveyard, religious worship place, monuments etc.)	Selection of substation location (distance to sensitive area).	Consultation with local authorities/ autonomous councils -once		Part of detailed siting survey and design
5	Location of overhead line towers/poles/ laying of underground distribution line & alignment and design	Impact on water bodies	Avoidance of such water bodies to the extent possible. Avoidance of placement of tower inside water bodies to the extent of possible	Tower/pole location and overhead/ underground line alignment selection (distance to water bodies)	Consultation with local authorities– once	IA	Part of tower/pole sitting survey and detailed underground /overhead line alignment survey and design
		Social inequities	Careful route selection to avoid existing settlements	Tower/pole location and	Consultation with local authorities/	IA	Part of detailed tower/pole sitting and overhead/ underground alignment survey and design
			Minimise impact on agricultural land	Tower location and overhead/underground line alignment selection (distance to agricultural land)	Consultation with local authorities/ autonomous councils and land owners – once		
			Careful selection of site and route alignment to avoid encroachment of socially, culturally and archaeological sensitive areas (i. g. sacred groves, graveyard, religious worship place, monuments etc.)	Tower/pole location and overhead/ underground line alignment selection (distance to sensitive area)	Consultation with local authorities/ autonomous councils -once		

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
6	Involuntary resettlement or permanent land acquisition for substation.	Social inequities	Compensation and R&R measures as per provision of RFCTLARRA,2013	Compensation and monetary R&R measures implementation before possession.	As per provisions of Act.	State Govt.	Prior to award/start of substation construction.
7	Encroachment into protected area/ precious ecological area	Loss of precious ecological values/ damage to precious species	Avoid encroachment into such areas by careful site and alignment selection (National Parks, Wildlife Sanctuary, Biosphere Reserves/Biodiversity Hotspots)	Tower/pole location and overhead/ underground line alignment selection (distance to nearest designated ecological protected/ sensitive areas)	Consultation with local forest authorities - once	IA	Part of detailed siting and alignment survey /design
			Minimize the need by using RoW wherever possible	Tower/pole location and overhead/ underground line alignment selection	Consultation with local authorities and design engineers - once	IA	Part of detailed sitting and alignment survey /design
8	Line through identified Elephant corridor / Migratory bird	Damage to the Wildlife/ Birds and also to line	Study of earmarked elephant corridors to avoid such corridors, Adequate ground clearance, Fault clearing by Circuit Breaker, Barbed wire wrapping on towers, reduced spans etc., if applicable	Tower/pole location and overhead/ underground line alignment selection. Minimum/maximum ground clearance	Consultation with local forest authorities – once. Monitoring – quarterly basis	IA	Part of detailed sitting and alignment survey /design and Operation
			Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/reflectors, Bird guard, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	Tower/pole location and overhead/ underground line alignment selection	Consultation with local forest authorities - once	IA	Part of detailed sitting and alignment survey /design and Operation

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
9	Line through forestland	Deforestation and loss of biodiversity, edge effect	Avoid encroachment by careful site and alignment selection	Tower/pole location and overhead/ underground line alignment selection (distance to nearest protected or reserved forest)	Consultation with local authorities – once	IA	Part of detailed sitting and alignment survey/design
			Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers – once		
			Measures to avoid invasion of alien species	Intrusion of invasive species	Consultation with local forest authorities - once		
			Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations – once for each subproject		
			Consultation with autonomous councils wherever required	Permission/ NOC from autonomous councils	Consultation with autonomous councils – once during tower		
10	Lines through farmland	Loss of agricultural production/change in cropping pattern	Use existing tower or footings wherever possible	Tower/pole location and overhead/ underground line alignment selection	Consultation with local authorities and design engineers – once	IA	Part of detailed alignment survey and design
			Avoid sitting new towers on farmland wherever feasible	Tower/pole location and overhead/ underground line alignment selection	Consultation with local authorities and design engineers – once		Part of detailed sitting and alignment survey /design
11	Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance	Noise levels	Noise levels to be specified in tender documents – once	IA	Part of detailed equipment design
12	Interference with drainage patterns/Irrigati	Flooding hazards/ loss of agricultural	Appropriate sitting of towers to avoid channel interference	Tower/pole location and overhead/ underground line	Consultation with local authorities and design	IA	Part of detailed alignment survey and design

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	on channels	production		alignment selection (distance to nearest flood zone)	engineers – once		
13	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	Equipment specifications with respect to potential pollutants	Tender document to mention specifications – once	IA	Part of detailed equipment design /drawings
			Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Substation sewage design	Tender document to mention detailed specifications – once	IA	Part of detailed substation layout and design /drawings
	Equipments submerged under flood	Contamination of receptors	Substations constructed above the high flood level(HFL) by raising the foundation pad	Substation design to account for HFL (elevation with respect to HFL elevation)	Base height as per flood design- once	IA	Part of detailed substation layout and design /drawings
14	Explosions /Fire	Hazards to life	Design of substations to include modern fire fighting equipment	Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications – once	IA	Part of detailed substation layout and design /drawings
			Provision of fire fighting equipment to be located close to transformers				
Construction							
15	Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance- once at the start of each construction phase	IA (Contractor through contract provisions)	Construction period

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
16	Physical construction	Disturbed farming activity	Construction activities on cropping land timed to avoid disturbance of field crops (within one month of harvest wherever possible).	Timing of start of construction	Crop disturbance – Post harvest as soon as possible but before next crop – once per site	IA (Contractor through contract provisions)	Construction period
17	Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints received by local authorities – every 2 weeks	IA (Contractor through contract provisions)	Construction period
		Noise, vibration, equipment wear and tear	Turning off plant not in use.	Construction equipment – estimated noise emissions and operating schedules	Complaints received by local authorities – every 2 weeks	IA (Contractor through contract provisions)	Construction period
18	Construction of roads for accessibility	Increase in airborne dust particles	Existing roads and tracks used for construction and maintenance access to the line wherever possible.	Access roads, routes (length and width of new access roads to be constructed)	Use of established roads wherever possible – every 2 weeks	IA (Contractor through contract provisions)	Construction period
		Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Access width (meters)	Access restricted to single carriage – way width within RoW – every 2 weeks	IA (Contractor through contract provisions)	Construction period
19	Construction activities	Safety of local villagers	Coordination with local communities for construction schedules, Barricading the construction area and spreading awareness among locals	Periodic and regular reporting /supervision of safety arrangement	No. of incidents- once every week	IA (Contractor through contract provisions)	Construction period

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		Local traffic obstruction	Coordination with local authority/ requisite permission for smooth flow of traffic	Traffic flow (Interruption of traffic)	Frequency (time span)- on daily basis	IA (Contractor through contract provisions)	Construction period
20	Temporary blockage of utilities	Overflows, reduced discharge	Measure in place to avoid dumping of fill materials in sensitive drainage area	Temporary fill placement (m ³)	Absence of fill in sensitive drainage areas – every 4 weeks	IA (Contractor through contract provisions)	Construction period
21	Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance control (area in m ²)	Clearance strictly limited to target vegetation – every 2 weeks	IA (Contractor through contract provisions)	Construction period
			No use of herbicides and pesticides				
22	Trimming /cutting of trees within RoW	Fire hazards	Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.	Species-specific tree retention as approved by statutory authorities (average and max. tree height at maturity, in meters)	Presence of target species in RoW following vegetation clearance – once per site	IA (Contractor through contract provisions)	Construction period
		Loss of vegetation and deforestation	Trees that can survive pruning to comply should be pruned instead of cleared.	Species-specific tree retention as approved by statutory authorities	Presence of target species in RoW following vegetation clearance - once per site	IA (Contractor through contract provisions)	Construction period

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
			Felled trees and other cleared or pruned vegetation to be disposed of as authorized by the statutory bodies.	Disposal of cleared vegetation as approved by the statutory authorities (area cleared in m ²)	Use or intended use of vegetation as approved by the statutory authorities – once per site	IA (Contractor through contract provisions)	Construction period
23	Wood/vegetation harvesting	Loss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities)	Illegal wood /vegetation harvesting (area in m ² , number of incidents reported)	Complaints by local people or other evidence of illegal harvesting – every 2 weeks	IA (Contractor through contract provisions)	Construction period
24	Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings/ substation foundation disposed of by placement along roadsides, or at nearby house blocks if requested by landowners	Soil disposal locations and volume (m ³)	Acceptable soil disposal sites – every 2 weeks	IA (Contractor through contract provisions)	Construction period
25	Substation construction	Loss of soil	Loss of soil is not a major issue as excavated soil will be mostly reused for filling. However, in case of requirement of excess soil the same will be met from existing quarry or through deep excavation of existing pond or other nearby barren land with agreement of local communities	Borrow area sitting (area of site in m ² and estimated volume in m ³)	Acceptable soil borrow areas that provide a benefit - every 2 weeks	IA (Contractor through contract provisions)	Construction period
		Water pollution	Construction activities involving significant ground disturbance (i.e. substation	Seasonal start and finish of major earthworks(P ^H ,	Timing of major disturbance activities –prior to	IA (Contractor through	Construction period

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
			land forming) not undertaken during the monsoon season	BOD/ COD, Suspended solids, others)	start of construction activities	contract provisions)	
26	Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground cover left undisturbed	Ground disturbance during vegetation clearance (area, m ²)	Amount of ground disturbance – every 2 weeks	IA (Contractor through contract provisions)	Construction period
				Statutory approvals	Statutory approvals for tree clearances – once for each site		
27	Substation foundation/Tower erection disposal of surplus earthwork/fill	Waste disposal	Excess fill from substation/tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner.	Location and amount (m ³) of fill disposal	Appropriate fill disposal locations – every 2 weeks	IA (Contractor through contract provisions)	Construction period
28	Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	Location of hazardous material storage; spill reports (type of material spilled, amount (kg or m ³) and action taken to control and clean up spill)	Fuel storage in appropriate locations and receptacles – every 2 weeks	IA (Contractor through contract provisions)	Construction period
29	Construction schedules	Noise nuisance to neighbouring properties	Construction activities only undertaken during the day and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(A)])	Daytime construction only – every 2 weeks	IA (Contractor through contract provisions)	Construction period
30	Provision of facilities for construction	Contamination of receptors (land, water,	Construction workforce facilities to include proper sanitation, water supply and	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste	IA (Contractor through	Construction period

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	workers	air)	waste disposal facilities.		disposal facilities – once each new facility	contract provisions)	
31	Influx of migratory workers	Conflict with local population to share local resources	Using local workers for appropriate asks	Avoidance/reduction of conflict through enhancement/ augmentation of resource requirements	Observation & supervision–on weekly basis	IA (Contractor through contract provisions)	Construction period
32	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible	Usage of existing utilities	Complaints received by local people /authorities - every 4 weeks	IA (Contractor through contract provisions)	Construction period
			Ensure existing irrigation facilities are maintained in	Status of existing facilities			
			Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in m ³)			
		Repair /reinstate damaged bunds etc after construction completed	Status of facilities (earthwork in m ³)				
		Social inequities	Land owners/ Farmers compensated for any temporary loss of productive land as per existing regulation.	Process of Crop/tree compensation in consultation with forest dept.(for timber yielding tree) and Horticulture deptt.(for fruit bearing tree)	Consultation with affected land owner prior to implementation and during execution.	IA	During construction
33	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimised, use of existing roads.	Design basis and construction procedures (suspended solids in receiving waters;	Incorporating good design and construction management practices – once for	IA (Contractor through contract provisions)	Construction period
			Limit site clearing to work areas				

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
			Regeneration of vegetation to stabilise works areas on completion (where applicable)	area re-vegetated in m ² ; amount of bunds constructed [length in meter, area in m ² , or volume in m ³]	each site		
			Avoidance of excavation in wet season				
			Water courses protected from siltation through use of bunds and sediment ponds				
34	Nuisance to nearby properties	Losses to neighbouring land uses/values	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction management practices – once for each site	IA (Contractor through contract provisions)	Construction period
			As much as possible existing access ways will be used	Design basis and layout	Incorporating good design engineering practices– once for each site		
			Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m ²)	Consultation with affected parties – twice – immediately after completion of construction and after the first harvest		
		Social inequities	Compensation will be paid for loss of production, if any.	Implementation of Tree/Crop compensation (amount paid)	Consultation with affected parties – once in a quarter	IA	Prior to construction

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
35	Flooding hazards due to construction impediments of natural drainage	Flooding and loss of soils, contamination of receptors (land, water)	Avoid natural drainage pattern/ facilities being disturbed/blocked/ diverted by ongoing construction activities	Contract clauses (e.g. suspended solids and BOD/COD in receiving water)	Incorporating good construction management practices-once for each site	IA (Contractor through contract provisions)	Construction period
36	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment stored at secure place above the high flood level(HFL)	Store room level to be above HFL (elevation difference in meters)	Store room level as per flood design-once	IA	Construction period
37	Inadequate siting of borrow areas (quarry areas)	Loss of land values	Existing borrow sites will be used to source aggregates, therefore, no need to develop new sources of aggregates	Contract clauses	Incorporating good construction management practices – once for each site	IA (Contractor through contract provisions)	Construction period
38	Health and safety	Injury and sickness of workers and members of the public	Safety equipment's (PPEs) for construction workers Contract provisions specifying minimum requirements for construction camps Contractor to prepare and implement a health and safety plan. Contractor to arrange for health and safety training sessions	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	IA (Contractor through contract provisions)	Construction period
39	Inadequate construction stage monitoring	Likely to maximise damages	Training of environmental monitoring personnel	Training schedules	Number of programs attended by each person – once a year	IA	Routinely throughout construction period

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
			Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	Respective contract checklists and remedial actions taken thereof.	Submission of duly completed checklists of all contracts for each site - once		
			Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Compliance report related to environmental aspects for the contract	Submission of duly completed compliance report for each contract – once		
Operation and Maintenance							
40	Location of line towers/poles and overhead/ underground line 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.	Compliance with setback distances (“as-built” diagrams)	Setback distances to nearest houses – once in quarter	MePTCL/ MePDCL	During operations
41	Line through identified bird flyways, migratory path	Injury/ mortality to birds, bats etc due to collision and electrocution	Avoidance of established/identified migration path (Birds & Bats). Provision of flight diverter/reflectors, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	Regular monitoring for any incident of injury/mortality	No. of incidents- once every month	MePTCL/ MePDCL	Part of detailed siting and alignment survey /design and Operation
42	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment installed above the high flood level (HFL) by raising the foundation pad.	Substation design to account for HFL (“as-built” diagrams)	Base height as per flood design – once	MePTCL/ MePDCL	During operations

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
43	Oil spillage	Contamination of land/nearby water bodies	Substation transformers located within secure and impervious sump areas with a storage capacity of at least 100% of the capacity of oil in transformers and associated reserve tanks.	Substation bunding (Oil sump) (“as-built” diagrams)	Bunding (Oil sump) capacity and permeability - once	MePTCL/ MePDCL	During operations
44	SF6 management	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	MePTCL/ MePDCL	During Operations
45	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 work days due to illness and injuries)	Preparedness level for using these technologies in crisis – once each year	MePTCL/ MePDCL	Design and operation
			Safety awareness raising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff /workers covered – once each year		
			Preparation of fire emergency action plan and training given to staff on implementing emergency action plan				
			Provide adequate sanitation and water supply facilities	Provision of facilities	Complaints received from staff /workers every 2 weeks		

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
46	Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (number of injury incidents, lost work days)	Preparedness level for using these technology in crisis – once a month	MePTCL/ MePDCL	Design and Operation
			Security fences around substations	Maintenance of fences	Report on maintenance – every 2 weeks		
			Barriers to prevent climbing on/ dismantling of transmission towers	Maintenance of barriers			
			Appropriate warning signs on facilities	Maintenance of warning signs			
			Electricity safety awareness raising in project areas	Training /awareness programs and mock drills for all concerned parties	Number of programs and percent of total persons covered – once each year		
47	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of substations & transmission/ 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	MePTCL/ MePDCL	Operation
			Preparation and training in the use of O&M manuals and standard operating practices				
48	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	MePTCL/ MePDCL	Operation

Clause No.	Project activity stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
49	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using chlorofluorocarbons (CFCs), including halon, should be phased out and to be disposed of in a manner consistent with the requirements of the Govt.	Process, equipment and system design	Phase out schedule to be prepared in case still in use – once in a quarter	MePTCL/ MePDCL	Operations
50	Transmission/distribution line maintenance	Exposure to electromagnetic interference	Transmission/ distribution line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance (meters)	Ground clearance - once	MePTCL/ MePDCL	Operations
51	Uncontrolled growth of vegetation	Fire hazard due to growth of tree/shrub /bamboo along RoW	Periodic pruning of vegetation to maintain requisite electrical clearance. No use of herbicides/pesticides	Requisite clearance (meters)	Assessment in consultation with forest authorities - once a year(pre-monsoon/post-monsoon)	MePTCL/ MePDCL	Operations
52	Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance.	Noise levels {dB(A)}	Noise levels at boundary nearest to properties and consultation with affected parties if any - once	MePTCL/ MePDCL	Operations

1. Project Context

1 India's North East Region (NER) stretches across the eastern foothills of the Himalayan mountain range and is comprised of seven states including Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. Geographically the region is connected to the other parts of the country through a small “chicken neck” corridor in the State of West Bengal. With a total population of 45.6 million (2011 census), the sparsely populated NER accounts for about 3.7 percent of India’s total population and covers 7.9 percent of India’s total geographical area. The vast majority of the region’s population lives in rural areas, accounting for 82 percent of the total population as against compared to the national average of 69 percent (2011). A large part of the NER is hilly and, recognized as one of the globe’s biodiversity hotspots. Forests cover over 2/3rd of the area, twice exceeding the policy target of 33%. This sparsely populated region is characterized by extraordinary ethnic, cultural, religious and linguistic diversity, with more than 160 Scheduled Tribes (out of 630 in the country) comprising over 400 distinct sub tribal groups, and a large and diverse non-tribal population as well.

2 The North Eastern Region (NER) in India is endowed with rich energy resources but faces significant bottlenecks in electricity access and availability levels. The per capita power consumption in NER is one-third of the national average. The region has a shortfall of about 500MW installed capacity against peak demand of about 1950 MW. No significant generation capacity has been added in the recent past. Therefore, inadequate power supply continues a critical constraint to sustainable growth and economic development in the NER. Some states are generally not able to draw even their allocated share of power from the Central Generating Stations (CGS) through the grid due to poor/inadequate intra/interstate transmission and distribution network and no capacity addition towards transmission/distribution power system not done due to fund constraints. The transmission and distribution (T&D) losses are also quite high (up to 50%) across most of the States as a large number of remote hilly areas are connected through long low tension lines, resulting in low voltages and poor quality of power at consumer end. While generation capacity addition of about 4000 MW program over present installed capacity is already underway, adequate transmission and distribution infrastructure to transmit and distribute this power to consumers within the North-Eastern States is the need of the day.

3 In order to create/ augment proper infrastructure of T&D in NER keeping in mind future requirement, the Government of India (GoI) has drawn a “Composite scheme for transmission and

distribution (T&D) in NER” capable of delivering adequate power to most consumers with reliability, aiming to improve the inter-state and intra-state transmission and sub-transmission infrastructure and reduce system losses in all the NER states. This in background, GoI has approached the World Bank to provide US\$ 1500 million of IBRD funding support to a portion of the scheme christened: “NER Power System Improvement Project (NERPSIP)”. The investments are proposed to be made in three different tranches, each being US\$ 500 million. The key objectives include strengthening, augmentation of the intra-state and interstate transmission and distribution schemes (up to 33kV) and undertake capacity building initiatives across six NER States of Assam, Manipur, Mizoram, Meghalaya, Tripura and Nagaland. Ministry of Power (MoP), GoI has appointed POWERGRID, the CTU, as the Design cum Implementation Supervision Consultant (i.e. Project Management Consultant- PMC) and now redesignated as Implementing Agency (IA) to six North Eastern States for the said project. However, the ownership of the assets shall be with the respective State Governments/State Utilities, which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of Assets at their own cost.

4 The first tranche under the NERPSIP would be implemented over a seven year period (2014-2021) and has two major components, namely:

- Priority investments for strengthening of intra-state transmission and distribution systems;
- Technical Assistance for Institutional Strengthening and Capacity Building of power utilities and departments.

1.1 State Specific Details – Meghalaya

5 The State of Meghalaya is spread over an area of about 22,429 sq. km with a population of more than 2.9 million. The State of Meghalaya faces significant bottlenecks in electricity access and availability levels. In co-ordination with State Load Despatch Centre, MePGCL is generating power from 7(seven) generating stations, which are hydro base with total installed capacity of 314.7MW generating about 870 MU of energy annually, {(Umiam Umtru Stage I&II (4x9+2x10) MW), Umiam Umtru Stage III & IV (4x30 MW), Umtru Power Station (4x2.8 MW), Sonapani Mini H.E.P.-1.5 MW and Myntdu Leshka H.E.P. (2 x 42 + 1 x 42) MW}. The energy generated is being sold to MePDCL. MePGCL is contributing about 46% of the required energy in the State; about 24% from Old stations of Umiam, Umtru Power Stations and about 20% from Myntdu Leshka H.E. Project.

However, it is observed that total availability of power in the state is 192 MW (average) and 260 MW (Maxm) during Nov. '14. Peak demand of the state is projected about 343 MW. Due to shortage of rain water in the catchment area particularly during off monsoon, the generation from the own stations reduces. Deficit is being met through purchased from other Central Generating Stations, and on short term basis the power is procured through the power exchange, bilateral and swapping.

6 Besides this, the present Intra-State transmission system of the State is quite old & weak and is unable to cater to the growing power requirements of the State. Although the present T&D system covers many areas of the State, it is inadequate in its reach and due to non-availability of redundant T&D system, outage of any transmission system element results in long term power shortages making the system highly unreliable. Besides, some of the network elements have undergone long term outage due to break-down. Therefore, it has become essential to address the above situation through remedial measures in the transmission and distribution (T&D) system. Accordingly, phase-wise strengthening of transmission & sub-transmission system has been proposed.. Summary of subprojects to be implemented in the State in Tranche -1 under NERPSIP along with capacity addition and cost is shown in **Table- 1.1** below.

TABLE 1.1: SUMMARY OF SUBPROJECTS IN TRANCHE- I UNDER NERPSIP

Sl. No.	Name of the subproject	Quantity (Nos.)	Capacity Addition (Ckt. Km/MVA)	Estimated Cost (in Millions)*
1.	220/132 kV Transmission lines (New)	3	416 Ckt.km.	5900.30
2	220/ 132/33kV substations (New/Augmentation)	4	940 MVA	
3.	33 kV Distribution lines (New Strengthening/Re-conductoring)	11	372 Ckt.km.	1435.30
4.	33/11kV substations (New/Augmentation)	13	120 MVA	

***The estimated cost includes consultancy fees, contingencies and IDC**

7 The prime objective of the project/subproject is to improve the power sector in the State of Meghalaya and capacity building to achieve sustainable development in the long term. The Project is expected to facilitate connection to remote/virgin area, to enhance the capacity & reliability of the system, to improve voltage profile & to reduce losses and ultimately to enhance satisfaction for all categories of consumers which in turn will spur growth & overall development in the whole State.

2. Environment and Social Context – Meghalaya

8 Environment and Social Policy and Procedures (ESPP). As the MePTCL/MePDCL is contemplating major expansion and augmentation of its transmission & distribution network in near future by implementing projects with the help/grant from GoI and Multilateral Funding Agencies like the World Bank, ADB, it attaches high significance towards managing environment and social issues and the associated concerns. In this context, POWERGRID, with proven credentials in management of environmental and social issues of large number of power transmission projects both within and outside the country has been mandated to prepare Environment and Social Policy and Procedures (ESPP) for MePTCL/MePDCL.

9 The MePTCL/MePDCL's ESPP is based on POWERGRID's ESPP with updation/incorporation of state specific requirements/processes including central legislations after extensive review and gap analysis with active participation/support of MePTCL/MePDCL officials and field verifications. The ESPP of MePTCL/MePDCL assimilates environmental and social management procedures into its corporate functioning and also layout management procedures and protocol to address them. It outlines MePTCL/MePDCL's commitment to deal with environmental and social issues relating to its transmission & distribution projects with a framework for identification, assessment and management of environmental and social concerns at both organizational as well as project levels. Thus, it enables MePTCL/MePDCL:

- To establish clear procedures and methodologies for the environmental and social screening, planning, review, approval and implementation of subprojects to be financed under the Project;
- To specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to sub-projects;
- To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESPP;
- To ensure adequate financial provisions to meet the management measures to be undertaken to mitigate the impacts.

Environment & Social Policy Statement of MePTCL/MePDCL

MePTCL/MePDCL is fully aware of the rich natural and cultural heritage of Meghalaya and aspires to fulfill its commitments towards sustainable development through early identification, assessment, and avoidance of the environmental and social issues at both planning and implementation and operational phases. It is also committed to comply with all statutes, customary laws, by following principles of **Avoidance, Minimization, and Mitigation** of inescapable issues with complete transparency and due social responsibility.

10 MePTCL/MePDCL also believes that the ESPP is dynamic and living document, which shall be further upgraded in light of the experiences gained from field implementation and other relevant factors while mainstreaming the environmental and social concerns in its corporate functioning.

2.1 Approach/ Methodology

11 The ESPP has been prepared following a region/ state specific environmental and social assessments which involved generating information through both primary and secondary sources including consultations and library research. The methodology adopted to identify the potential environment and social impacts is based on experience gained from implementation of similar projects and baseline assessments of work activities anticipated in this proposed project. The methodology takes in to account wide range of receptors:

- Physical & chemical environment (e.g. air, water, soil, noise etc.);
- Biological environment (Plants, animals, birds, forest, wildlife etc.);
- Communities, social groups and individuals (loss of land, loss of agricultural production, tribal, vulnerable groups (women and backward classes), socio-economic condition, health and safety risks).

12 The basic approach involved broadly the following:

- Review of environment & social baseline information from secondary source of the project area;
- Review of existing national & state specific legislations and policy and procedures of multi-lateral agencies;
- Review of project related documents;
- Stakeholders Consultations.

2.2 Consultation/ Participation

13 Consultations with key stakeholders including local, state, regional, central government entities and key ministries at the state level and central level as well as with World Bank officials were undertaken to know views and concerns about environmental and social issues /concerns of the project. This activity ensured appropriate participation and gathering views from the environment and social perspective of all the stakeholders' which is integrated in this ESPP to be adopted during different stages of the project implementation.

2.3 Structure of the Report

14 **Chapter 1& 2** provides the context from a regional, state and project level with social and environmental scenarios as well as approach and methodology adopted for conducting assessments and preparing ESPP. **Chapter 3** presents an overview of Meghalaya state in respect of its social, economic, cultural, environment, infrastructure and administrative fronts. Stakeholder Analysis is presented in **Chapter-4**. While Chapters 1-3 lays foundation to both social and environmental front, subsequently, **Chapters 5 and 6** deal with issues, impacts and measures thereof in respect of social and environmental aspects. Integrating social and environmental management into the overall project cycle is made in the next chapter. The remaining **chapters (8 to 12)** deal with implementation arrangements, capacity building, grievance redressal mechanism and monitoring and evaluation & budget.

3. Meghalaya- An overview

15 The state of Meghalaya lies between latitudes 25⁰⁰2' and 26⁰⁰7' North and longitudes 89⁰⁰49' and 92⁰⁰50' East and spread over an area of 22,429 sq. Km. The state shares 496 km long international border with Bangladesh along the south and west direction. It is also bordered by Assam in the north and east. The eastern part is bounded by the Karbi Hills which is a continuation of the Meghalaya plateau. On all other sides of the state lies an extensive plane drained by the river Brahmaputra (in the north and west) and the river Surma and its tributaries (in the south). Meghalaya now connected with the rest of the country through a broad gauge network. The first rail link connecting Mendipathar in North Garo Hills District with Guwahati was commissioned in 2014. The other rail link between Guwahati and Byrnihat is also under progress. There are four National Highways NH 40, NH 44, NH 51, and NH 62 in the State having a total length of 706.56 km. which have a sufficiently wide coverage linking the important places within the State and with neighbouring state Assam, through which other states like Manipur, Mizoram, Nagaland and Tripura are accessible.

16 Besides forests, the State has vast natural resources of coal, limestone, uranium, kaolin, granite etc. The local flora and fauna bear a very close affinity and resemblance with the floral and faunal components of the Indo-Malayan and Indo-Chinese sub-regions. The State is located in the bio-geographic zone of 9B-North-East hills and possesses an extremely rich bio-diversity. About 77.08% of the area is classified as forests. About 86% of the population belongs to Schedule Tribes whose lives are intrinsically woven with that of the forests and other natural resources. The state is now striving to march ahead and utilize the available natural resources as the same holds the key for economic development. Yet, it is a challenging task as the state is characterized by geographical isolation, inadequate infrastructure facilities, communication bottlenecks, and low capital formation.

3.1 History

17 The Khasis, the Jaintias, and the Garos form the major ethnic group of original inhabitants of the State. At the time of Indian independence in 1947, present day Meghalaya constituted two districts of Assam and enjoyed limited autonomy within the state of Assam. A movement for a separate Hill State began in 1960. The Assam Reorganisation (Meghalaya) Act of 1969 accorded an autonomous status to the state of Meghalaya. The Act came into effect on 2 April 1970, and a semi-autonomous state of Meghalaya was born out of Assam. In 1971, the Parliament passed the North-

Eastern Areas (Reorganization) Act, 1971, which conferred full statehood to Meghalaya on 21 January 1972, with a Legislative Assembly of its own.

3.2 Governance and Administration

18 The whole Meghalaya except for Shillong Municipal area is covered under Schedule Six of the Constitution. This schedule provide for administration of tribal areas as autonomous areas.. The administration of the autonomous areas is vested in the district council. These councils are endowed with legislative, judicial executive and financial powers. They are also expected to oversee the traditional bodies in local tribes. Following these special constitutional provisions the state has 11 districts and 3 Autonomous District Council (ADC). In addition at village, level the village council (Dorbar/ Syiem) looks after the administration. The village council has both administrative and judicial powers within the village and is responsible for providing permission for any activities which are undertaken in area within their jurisdiction.

19 Three Autonomous District Councils (ADCs) in Meghalaya are the Khasi Hills Autonomous District Council, the Jaintia Hills Autonomous District Council and the Garo Hills Autonomous District Council. All three administrative Units have been established under the VI Schedule of the Indian Constitution. The leader in the District Council is appointed by the Governor of Meghalaya as the Chief Executive Member (C.E.M.) of the District Council. On the advice of the C.E.M., some members are appointed by the Governor as Executive Members, who along with the C.E.M. constitute the Executive Committee of the District Council and exercise their executive powers. The CEM or his representative oversees the democratic process of election of the Head man (Sordars/Dolloi, /Nokma), who heads the village council. The ADCs have executive as well as judiciary power in relation to land disputes and social conflicts.

TABLE 3.1: ADMINISTRATIVE SETUP IN MEGHALAYA

Sl. No.	Autonomous District Council	District Name	Headquarters	Block Name
1.	Khasi Hills Autonomous District Council(KHADC)	East Khasi Hills District	Shillong	1 Myllichem
				2 Mawphlang
				3 Mawsynram
				4 ShellaBholaganj
				5 Pynursla
				6 Khatarshnong Laitkroh

Sl. No.	Autonomous District Council	District Name	Headquarters	Block Name		
		West Khasi Hills District	Nongstoin	7 Mawkynrew		
				8 Mawryngkneng		
				9 Mairang		
				10 Mawthadraishan		
				11 Nongstoin		
				12 Mawshynrut		
				South West Khasi Hills District	Mawkyrwat	13 Mawkyrwat
						14 Ranikor
		RiBhoi District	Nongpoh	15 Umsning		
				16 Umling		
				17 Jirang		
		2.	Jaintia Hills	West Jaintia Hills District	Jowai	18 Thadlaskein
						19 Laskein
						20 Amlarem
				East Jaintia Hills District	Khliehriat	21 Khliehriat
						22 Saipung
		3.	Garo Hills	East Garo Hills District	William Nagar	23 Dambo Rongjeng
24 Songsak						
25 Samanda						
West Garo Hills District	Tura			26 Rongram		
				27 Dadenggiri		
				28 Selsella		
						29 Tikrikilla
						30 Gambegre
						31 Dalu
						North Garo Hills District
33 Kharkutta						
South West Garo Hills District	Ampati	34 Betasing				
		35 Zikzak				
South Garo Hills District	Baghmara	36 Baghmara				
		37 Gasuapara				

Sl. No.	Autonomous District Council	District Name	Headquarters	Block Name
				38 Ronggara
				39 Chokpot

Source: <http://meghalaya.gov.in:8080/megportal/stateprofile>

3.3 Demographic Profile

20 According to 2011 census, the population of the state is 29,66,889 with a density of 132 persons per square km. The total population growth in this decade was 27.95 percent while in previous decade it was 29.94 percent. Literacy rate in Meghalaya has seen upward trend and is 74.43 percent as per 2011 population census. The male literacy rate (75.95 percent) is marginally higher than the female literacy rate (at 71.88 percent). This is an improvement over the literacy rates of 2001 census. In 2001, literacy rate in Meghalaya stood at 62.56 percent of which male and female literacy rates were 71.18 percent and 50.43 percent respectively. Sex Ratio in Meghalaya is 989, which is above national average of 940 as per census 2011. The details of population as per Census 2011 are presented in **Table 3.2**.

21 Out of total population of Meghalaya, 20.07% people live in urban regions. The total urban population is 5,95,450 of which 2,97,572 are males and while remaining 2,97,878 are females. Like other states, Meghalaya is also witnessing urbanisation. In Meghalaya, around 79.93 percent of the total population live in the rural areas. Total population of rural areas of Meghalaya is 2,371,439.

22 Total ST Population of the state as per the Census 2011 is 25,55,861. The Khasis, Jaintias and Garos are the main tribes. The Garos inhabits western Meghalaya, the Khasis in central part, and the Jaintias in the eastern Meghalaya. The Khasi, Jaintia, Bhoi, War, collectively known as the Hynniewtrep people predominantly inhabit the districts East of Meghalaya, also known to be one of the earliest ethnic groups of settlers in the Indian sub-continent. The Garo Hills is predominantly inhabited by the Garos, belonging to the Bodo family. The principal languages used in Meghalaya are Khasi, Pnar and Garo with English as the official language of the State. The main ethnic communities, each having its own distinctive customs and cultural traditions are the Khasis (of Mon-Khmer ancestry), the Garos (of Tibeto-Burman origin) and the Jaintias said to be from South East Asia. The common trait binding all three communities is matrilineal system i.e. the family lineage is taken from the mother's side. As per the matrilineal culture the property passes through the female. The youngest daughter is the custodian of ancestral property. However, administration of the

property is usually in the hands of the maternal uncle. Lineage is from the female line and the husband's earning becomes part of the matrilineal property.

TABLE 3.2: DEMOGRAPHIC PROFILE

Sl. No	New District	Old Dist.	Geographical Area (Sq. km.)	Population	Male Population	Female population	Growth Rate (%)	Sex Ratio	Literacy (%)	Density/km
1	East Khasi Hills	East Khasi Hills	2,748.00	825,922	4,10,749	4,15,173	24.96	1011	84.15	301
2	West Garo Hills	*West Garo Hills	3,677.00	643,291	3,24,159	3,19,132	24.09	984	67.58	175
3	South-west Garo hills									
4	East Jaintia Hills	*Jaintia Hills	3,819.00	395,124	1,96,285	1,98,839	32.10	1013	61.64	103
5	West Jaintia Hills									
6	West Khasi Hills	*West Khasi Hills	5,247.00	383461	1,93,715	1,89,746	29.53	980	77.87	73
7	South-west Khasi Hills									
8	East Garo Hills	*East Garo Hills	2,603.00	317917	1,61,223	1,56,694	26.87	972	73.95	122
9	North Garo Hills									
10	RiBhoi	RiBhoi	2,448.00	258,840	1,32,531	1,26,309	34.26	953	75.67	106
11	South Garo Hills	South Garo Hills	1,887.00	142,334	73,170	69,164	40.95	945	71.72	75
Total			22,429.00	29,66,889	4,91,832	4,75,057	27.94	966	60.16	132.27

Source: Census 2011, * These districts are further carved out on 7th Aug. 2012

3.4 Land, Agriculture and Forests

23 The state of Meghalaya comprises of Khasi, Garo and Jaintia hills. The elevation ranges from 60 m to 1,950 m above MSL. It is linked to the Borail Range, an offshoot of the Himalayan Mountains.

24 The predominant tribes i.e. Khasis, Jaintias, and Garos practice the unique matrilineal culture, where the youngest daughter/female member is the custodian of ancestral property. However, administration of the property is usually in the hands of the maternal uncle. The Garo society is matrilineal and inheritance is through the mother. Inheritance of property among the Garos is generally linked with matrimonial relations, and although men may have no property to pass on, they have an important say in deciding to whom it should pass. The heiress is generally, the youngest daughter or the Nokna. If the nokna is unmarried, as she often is, since selection generally takes place before she get married, the father will try to get a young man from his own lineage, commonly the son of his own sister, as the husband of the heiress. The nokna's husband is called the Nokrom. Historically, the Garos did not own land - whatever land they hold in possession, they do so without any ownership documents and the land belonged to the tribe as a collective property, cultivated under a cooperative system. Theoretically, land is owned by the Nokma, and new sections are distributed among the households each year.

25 In the Garo Hills area, the community of land ownership and enjoyment is in vogue. All the village inhabitants are entitled to cultivate whatever land they require, but traditionally no individual member enjoys absolute ownership right over the land cultivated by him. As soon as he stops making effective use of the land, his rights cease to exist and the land goes to the joint possession of the villages community. Therefore, after seeking no - objection from the clans / community, individual pattas are issued by the District Council which have legal and permanent individual ownership right. Among the Khasi as well as the Garo and Jaintia, land belongs to clans, communities, and individual. Mapping of area belonging to different owners does not exist. Villagers still adopt the practice of making a river, tree, or a hillock as a landmark for their boundaries. In keeping with the social structure, there are two main classes of land in Khasi- Jaintia hills, namely Ri-Raid (community owned land over which no one has proprietary, heritable, and transferable right except right of use and occupancy) and Ri-Kynti (essentially privately owned land and have proprietary, heritable and transferable rights). In the Khasi & Jaintia Hills the traditional chiefs are Syiems, Lyngdohs, Sirdars, Wahadars, Dolloi, Pator and Rangbah Shnongs or Village Headmen. They look after the administration of the Syiemships, Elaka and Villages according to the customs and tradition. These traditional socio – political systems, or self-governing institutions and by and large, functions in a democratic manner. The organization of the traditional Khasi Institutions is a four-tier structure;

- (i) Ka Dorbar ka Hima pyllun (Full State Durbars).

- (ii) Ka Dorbar ki laiphew shnongs (Durbars of the thirty states / villages traditional the affairs of the constituent village.
- (iii) Ka Dorbar ki kyntoit or ka Dorbar pyllun is a small council.
- (iv) Ka Durbar Shnong (village or Local Durbar) which is the smallest council of people at the village level. It meet frequently, has administrative, financial and judicial functions.

However, certain exeptions like the “Sirdar Tynger” is the council comprising of the various neighboring villages in the War area of Meghalaya bordering Bangladesh.

26 Meghalaya is mainly an agricultural state with about 80% of its total population depending entirely on agriculture for their livelihood. Major food crops are Rice and Maize. Potato, Ginger, Turmeric, Black Pepper, Areca nut, Tezpatta, Betelvine, Short-staple cotton, Mesta, Mustard and Rapseed etc. are some of the important cash crops in the State. Beside food crop, the state is also renowned for its Horticultural crops like Orange, Lemon, Pineapple, Guava, Litchi, Banana, Jack fruits, and temperate fruits such as Plum, Pear, Peach, etc.

27 Traditionally the tribal people in the Northeast including those in Meghalaya practiced shifting cultivation on the hill slopes and settled cultivation in the river valleys. With relatively low density of population and long Jhum (shifting cultivation) cycles, these communities could manage their livelihood. The forests of Meghalaya are rich in biodiversity and endowed with rare species of orchids and medicinal plants. Meghalaya stands fifth (77.08%) in terms of percentage of forest cover with respect to geographic area. Different types of forest cover (district wise) are elaborated in the **Table 3.3**. This table shows that more than 60% of all the districts are covered by forest.

TABLE 3.3: DISTRICT WISE FOREST COVERS

District	Geographical Area	Very Dense Forest	Mod. Dense Forest	Open Forest	Total	Percent of GA
Area in sq. Km.						
East Garo Hills	2603	61	1087	1093	2241	86.09
North Garo Hills*						
East Khasi Hills	2820	0	1079	737	1816	64.40
East Jaintia Hills*	3819	100	1561	885	2546	66.67
West Jaintia Hills*						

District	Geographical Area	Very Dense Forest	Mod. Dense Forest	Open Forest	Total	Percent of GA
RiBhoi	2376	162	1144	790	2096	88.22
South GaroHilis	1849	43	1001	604	1648	89.13
West GaroHills	3715	0	1292	1654	2946	79.30
South-west Garo Hills*						
West Khasi Hills	5247	83	2525	1387	3995	76.14
South-west Khasi Hills*						
Grand Total	22429	449	9689	7150	17288	77.08

Source: State Forest Report, 2013; * These districts are further carved out on 7th Aug. 2012

28 Un-classed forest in Meghalaya is recorded about 88.15% of total forest land. This category of forest mainly shows private and community held forest. These forests can be classified as village forests, group of village forests, restricted forests, sacred forests/groves etc. These forests are managed and protected by individual (for individually held forest), village-headman, village elder, village council etc. and plays significant role in providing natural resources and livelihood to individuals, communities of villages.

29 Several Sacred Groves are identified in Meghalaya. These sacred groves (called as ‘law Kyntang’, ‘Law Niam’ and ‘Law Lyngdoh’ in Khasi hills, ‘Khloo Blai’ in Jaintia hills, and ‘Asheng Khosi’ in Garo hills⁵) are owned by individuals, clans or communities, and are under direct control of the clan councils or local village Dorbars/Syiemships/Dolloiships/ Nokmaships. Some of these Sacred Groves are habitats of Hoolock Gibon. Mawphlang Sacred Grove is an Important Bird Area (IBA) and located near Mawphlang village in East Khasi Hills district, 25 km from Shillong.

3.5 Protected Areas & Wetlands

30 Five protected areas are spread across Meghalaya state (refer **Table 3.4**). All these protected areas located in South Garo Hills, Ri-Bhoi, East Garo Hills and West Garo Hills district. These protected areas are abode to a diverse range of flora and fauna. Baghmara Pitcher Plant Sanctuary is known for its Pitcher Plants.:

⁵ Tripathi, R. S. (2005). Sacred Groves of North-East India and Their Floristic Richness and Significance in Biodiversity Conservation

TABLE 3.4: PROTECTED AREAS IN MEGHALAYA

Sl. No.	Protected Areas	Districts	Major Habitats
1	Balpakram National Park	South Garo Hills	Tigers, Elephants, Bison, Black Bear, Leopards, Sambar deer, White-winged Duck, White-rumped Vulture, Grey Sibia
2	Nokrek National Park	East Garo Hills, South Garo Hills and West Garo Hills	Elephants, Hoolock Gibbons, Red Panda, White-rumped Vulture, Slender-billed Vulture, Grey Sibia
3	Nongkhylllem Wildlife Sanctuary	Ri-Bhoi (North Khasi Hills)	White-rumped Vulture, Slender-billed Vulture, Wood Snipe Gallinago, Rufous-necked Hornbill
4	Siju Wildlife Sanctuary	South Garo Hills	Siberian ducks, Grey Hornbill, Peacock Pheasant
5	Baghmara Pitcher Plant Sanctuary	South Garo Hills	Elephant, Pitcher Plant

31 Meghalaya has 9 Important Bird Areas (IBA) which are shown in **Figure 3.1**. List of these IBA sites are provided in below **Table 3.5**.

TABLE 3.5: IBA SITE IN MEGHALAYA

Sl. No	IBA site name	Location (Districts)	Area
1.	Balpakram Complex	South Garo Hills	26,947 ha
2.	Mawphlang Sacred Grove	East Khasi Hills	>100 ha
3.	Nokrek National Park	East, West and South Garo Hills	4,748 ha
4.	Nongkhylllem Wildlife Sanctuary	Ri-Bhoi	14,900 ha
5.	Norpuh Reserve Forests	Jaintia Hills	16,110 ha
6.	Riat Khwan-Umiam	East Khasi Hills and Ri-Bhoi	>1,500 ha
7.	Saipung	Jaintia Hills	15,000 ha
8.	Upper Shillong	East Khasi Hills	1,296 ha
9.	Cherapunjee: Cliffs, Gorges And Sacred Groves	East Khasi Hills	10,000 ha

Source: ibcn.in/wp-content/uploads/2011/12/31-754_776-Meghalaya.pdf

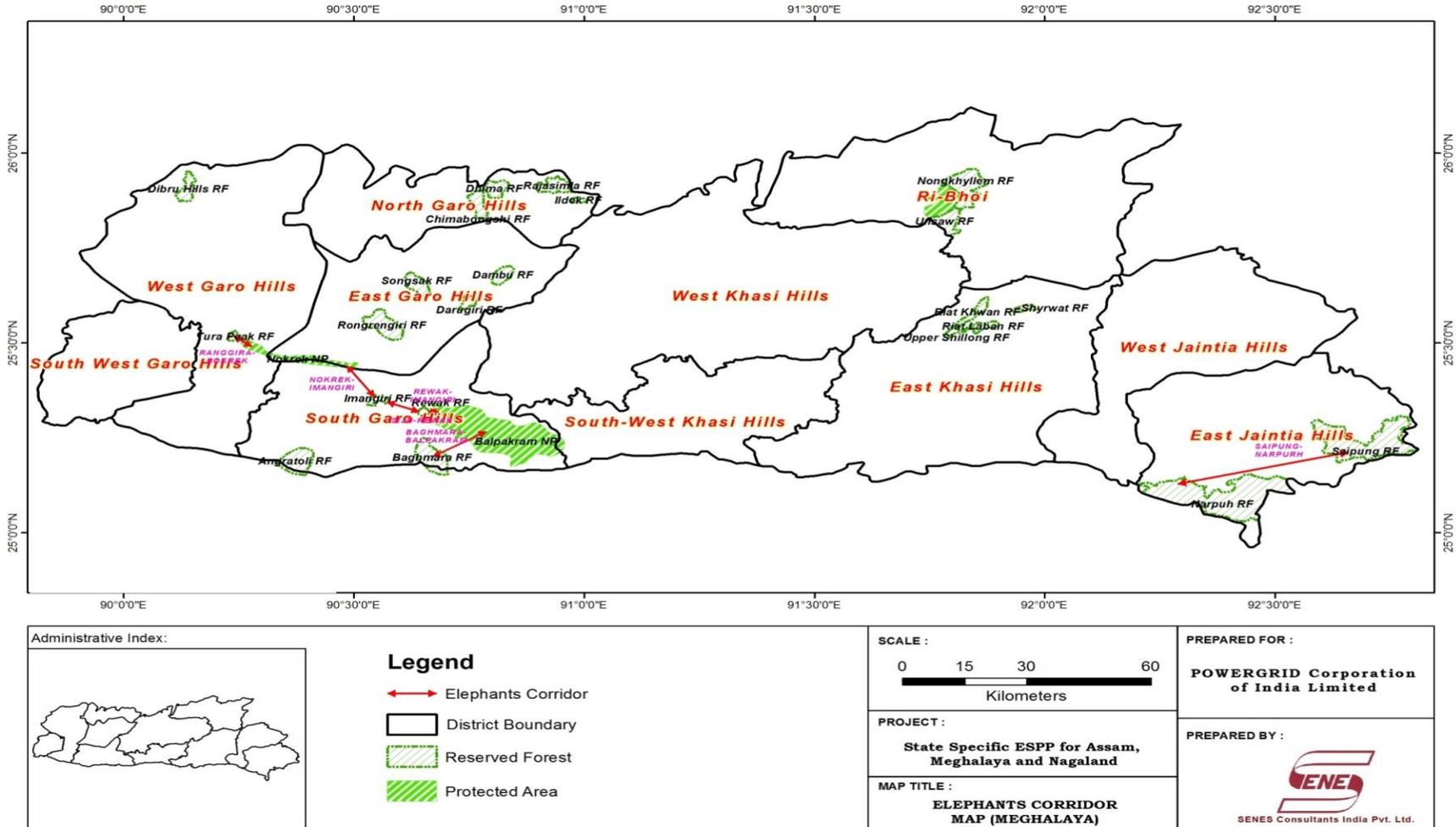
32 The State of Meghalaya has elephant reserve in Garo Hills and West Khasi Hills District region, area involved approximately 4830 sq. km.; 3500 sq. Km already notified and balance 1331 sq. km. is in the process of notification. These elephant habitats are connected by 6 elephant corridor as follows (refer **Figure 3. 1**) viz.

- **Saipung-Narpuh:** This 10-11 km long and 5 km wide corridor connects Saipung Reserve Forest with Narpuh II Reserve Forest and is bordering North Cachar Hill of Assam. Major Settlements in the corridor are Khoingoi, Mulchang, Saitwal and Bombaithal Lynju.
- **Baghmara-Balpakram:** This corridor, connecting Balpakram National Park with Baghmara Reserve Forest, is vital in maintaining about 600 sq. km. of elephant habitat. Elephants, during their movement, generally pass through Dambuk, Jhongkhol, DambukAtong and Hathibhel villages. Length of this corridor is 6 km. and width is 4.5 km.
- **Siju-Rewak:** This 2 km. long and 3.5 km. wide corridor connecting Siju Wildlife Sanctuary with Rewak Reserve Forest is very important passage for elephants. Arteka village is the major settlement in this corridor.
- **Rewak-Imangiri:** This corridor connects Rewak Reserve Forest with Imangiri Reserve Forest and passes through clan land and settlement. Length of this corridor is 8-9 km. and width is 2.5 km. Major habitations in this corridor are Tholigre, Nakatagre, Jadigittim, Depri, Khosigre, Garengre and Damukgittum.
- **Nokrek-Imangiri:** The elephant corridor connects a large stretch of forest in and around Imangiri Reserve Forest with Nokrek National Park and adjacent areas. Due to inaccessibility of the corridor area by road and comparatively low human density in the area, the corridor is safe. This corridor is 10 km. long and 3-4 km. wide. Major settlements in this corridor are Dadugre, Rekmanger, Nepalikhunti, Pharamgre, Dobagre, ImanAsakgre, Arukgre, Jetragre and ImanDurabanda.
- **Ranggira-Nokrek:** Elephants from Ranggira, Sanchangiri and Galwang village Reserve Forest areas use this corridor to move on to Nokrek National Park area via Bismagre, Bibragre, Sakalgre and Mandalgre private forest. Chasingre, Phigugre, Major settlement in this 7-8 km. long and 1.5-2 km. wide corridor are Chibragre, Ganol, Sangma, Boldorenggre and 2nd Police Battalion campus.

33 In Meghalaya, 259 wetlands have been estimated covering total area of 29987 ha. Umiam Lake, Nongknum Island and Ranikor riverine area are important wetland sites of Meghalaya.

- **Umiang Lake** is a man-made reservoir formed by putting a dam across the Uminag River for the Umiang-Hydro-Electric Project. Also known as Barapani Reservoir the water body is spread across 10.24 sq km.
- **Nongknum River Island:** This is the biggest River Island in Meghalaya and the second biggest island in Asia, after Majuli Island in Assam. Located about 14 Km from Nongstoin, the district head quarter of West Khasi Hills, it is 20 - 25 sq km in area. The area is surrounded by the two Rivers, i.e. Phanliang and Namliang forms the Nongknum Island.
- **Ranikor:** This is an isolated place located around 140 Km from Shillong in the India-Bangladesh border. It is one of the largest wild fishing spot left in the state of Meghalaya. This is also important bird area.

FIGURE 3. 1: FOREST AND WILDLIFE HABITATS IN MEGHALAYA



3.8 Economy

34 The economy of Meghalaya is basically agrarian as it is rural based with Agriculture playing a predominant role in the state's economy. Since, 81% of the state's population depends on agriculture and horticulture, employment and income generation also depends to a great extent on both⁶.

35 At current prices, Meghalaya's Gross State Domestic Product (GSDP) was about INR 204 billion in 2012-13. The state's GSDP expanded at a Compound Annual Growth Rate (CAGR) of 13.7% between 2004-05 and 2012-13.

36 The state provides excellent institutional support through various central and state government agencies, namely North East Council, Ministry of Development of North Eastern Region, and Meghalaya Industrial Development Corporation. Meghalaya has a literacy rate of 74.43%. The state has a strong higher education infrastructure. Moreover, a majority of the local population speaks and understands English. In addition to the central government's incentives for investments in the northeast region, the state offers a host of industrial incentives. Agro-processing, horticulture, minerals, tourism, electronics, and IT have been identified as thrust sectors for development and promotion.

37 The comprehensive detail about Meghalaya State is placed at **Annexure-1**

3.9 Power Scenario

38 Power Industry in Meghalaya had been under the control of the erstwhile Meghalaya State Electricity Board (MeSEB) with effect from 21st January 1975. Government of Meghalaya (GoMe) unbundled and restructured the Meghalaya State Electricity Board with effect from 31st March 2010. The Generation, Transmission, and Distribution businesses of the erstwhile Meghalaya State Electricity Board were transferred to four successor companies with effect from 1st April 2012, viz.,

- Meghalaya Energy Corporation Limited (MeECL), the Holding Company
- Meghalaya Power Distribution Corporation Limited (MePDCL), the Distribution Utility
- Meghalaya Power Generation Corporation Limited (MePGCL), the Generation Utility; and
- Meghalaya Power Transmission Corporation Limited (MePTCL), the Transmission Utility

⁶ http://meghalayasfac.nic.in/meg_profile.php

39 In co-ordination with State Load Despatch Centre, MePGCL is generating power from 7(seven) generating stations, which are hydro base with total installed capacity of 314.7MW generating about 870 MU of energy annually, {(Umiam Umtru Stage I&II (4x9+2x10) MW), Umiam Umtru Stage III & IV (4x30 MW), Umtru Power Station (4x2.8 MW), Sonapani Mini H.E.P.-1.5 MW and Myntdu Leshka H.E.P. (2 x 42 + 1 x 42) MW}. The energy generated is being sold to MePDCL. MePGCL is contributing about 46% of the required energy in the State; about 24% from Old stations of Umiam, Umtru Power Stations and about 20% from Myntdu Leshka H.E. Project. However, it is observed that total availability of power in the state is 192 MW (average) and 260 MW (Maxm) during Nov. '14. Peak demand of the state is projected about 343 MW. Due to shortage of rain water in the catchment area particularly during off monsoon, the generation from the own stations reduces. Deficit is being met through purchased from other Central Generating Stations, and on short term basis the power is procured through the power exchange, bilateral and swapping.

- As on August 2013, MePTCL operates a transmission network spread over 226.82 CKM at 220 kV lines, 990.81 CKM at 132 kV lines, and 4.22 CKM at 400 kV lines through 17 substations with total transformation capacity of about 1615 MVA.
- As on March 2013, MePDCL operates 1,917.62 CKM of 33 kV lines, 12,087.07 CKM of 11 kV lines and 11,664.92 CKM of LT line (440V) including 8026 nos. of Distribution transformers of various ratings with transformation capacity of 915.45 MVA.

3.9 Road Ahead

40 As the state strives to march ahead, the need for basic economic infrastructure assumes high significance. Geographical isolation can be countered only through modern, reliable, quick and cheap methods of communication and transport facilities. This will have to be coupled with other facilities such as power, telecommunications, banking institutions etc. Thus the economic infrastructural developments emerge as a prerequisite for development and growth. One of the key basic requirements relate to 'power'.

41 Meghalaya recognizes that electricity plays an important role in the economic and social development of an economy. Performance of all important sectors, ranging from agriculture to commerce and industry as well as social sectors like health are largely depend on the desired availability of quality power. In fact, the consumption of electricity is an index of development for measuring the standard of living. The State has only one source of generation i.e. hydro. The state is

endowed with natural sources potential for hydropower generation, without much damage to environment. Peak demand of the State is 343 MW and average availability of power is 192 MW. There remains a shortfall to the tune of 150 to 180 MW which is being met from Central Generation Schemes. Efforts are underway not only to bridge the gap but also ensure that adequate power is made available in future for industry and other infrastructural development in order to enable boosting of State economy. To achieve such ambitious target/ goal, Meghalaya has planned for major expansion and augmentation of its transmission and distribution network with sustainability. The ESPP has been designed to identify, address, and mitigate any adverse environmental and social issues during project implementation. Details of proposed expansion/ augmentation of power system network in the State of Meghalaya with the financial support amounting to Rs. 776.93 Crores from GoI and The World Bank is placed at **Annexure 2**.

4. Stakeholder Analysis

42 Stakeholder's analysis has been undertaken to identify the issues and the concerns of various stakeholders who are supposed to be either directly or indirectly impacted/benefited or assume a position wherein they can have a significant role to play on project implementation. The Stakeholder's analysis has been carried out to identify existing relationship and also to understand the roles, responsibilities and relations of these stakeholders in context of shaping the environment and social issues with respect to proposed project. The details of the key stakeholders identified at various levels from national level up to village/panchayat level and their issues & expectations with respect to proposed project has been provided in **Table 4.1**. The process of consultation with stakeholders involves formal and informal discussion. A wide range of issues were discussed with various stakeholders that might have environmental/ social concern. These are listed below.

TABLE 4.1: KEY STAKEHOLDERS AND THEIR EXPECTATIONS/ISSUES

No.	Levels	Key Stakeholders	Expectations and Issues
A	National Level	Government of India	Improvement of overall power scenario of State and timely implementation of project to achieve the intended objective.
		Ministry of Power	
		World Bank	Strengthening of T&D networks of State & Capacity development of Utility and ensuring implementation of environment and social safeguards.
		POWERGRID	Implementation of project with intended benefits like providing electricity supply to remote or unconnected area,
B	Regional Level	DONER	Proper coordination for project implementation
		NEC	
C	State Level	State Power Corporations	Timely implementation projects & Operation and Maintenance of the power systems development under this project. Improvement in availability of power supply, reduction in T&D losses.
		Autonomous District Council	Coordination and approvals for utilization/acquisition of land within ADC areas and for carrying out other physical interventions in these areas as necessary.
		State Forest Department	Protection of forest and protected areas, timely processing of approvals for utilization of forest land with minimum loss or implication to state forest
		Utilities like Water supply, PHE, Oil & gas, etc.	During implementation –coordination for timely shifting of utilities as necessary and

No.	Levels	Key Stakeholders	Expectations and Issues
			secured power supply to enhance efficiency of their activities.
		State Legal Department	Coordination - conflict management as necessary
		State Finance Department	Coordination - timely fund flow and utilization submission to the GoI and WB.
		District Administration - Revenue Department	Land acquisition - securing land for the project implementation on a timely basis Conflict management, compensation assessment/payment under RoW.
		Local NGOs	Proper information dissemination at the local community level and act as watch dog to oversee implementation as per applicable legal provisions.
		Media	Coordination for information dissemination
D	District Level	Revenue department	Land Acquisition - importantly for private acquisition. Timely conflict management
E	Village Level	Village council heads, members, etc.	For acquisition of village land and/or for establishment of transmission/distribution lines within their administrative areas with total transparency and involvement of all concerned.
		Informal groups	Local community leaders, elders, community groups, women groups - coordination as necessary
		SC/ ST	Vulnerable groups - consulted to address any adverse issues identified under the project.

5. Issues, Impacts and Management Measures - Social

43 Key social/ institutional issues emanating from stakeholder analysis relate to the following:

- Securing land for substation;
- Temporary damages to land, crops, trees or other vegetation or other than forestland or structures during construction;
- Community participation i during planning, implementation and operation phases of the project/ sub-project cycle;
- Inter-agency coordination;
- Health and Safety risk including HIV/AIDS;
- Tribal and other vulnerable group;
- Gender and women participation

5.1 Impacts- Social

44 This section identifies the potential social impacts of the proposed projects in terms of the nature, magnitude, extent and location, timing and duration of the anticipated impacts. These impacts are both positive or negative relating to the project design stage, construction stage or the project operation and decommissioning stage.

i. Positive Impacts

- Improved accessibility of power;
- Employment creation;
- Improvement of investment climate;
- Improved road infrastructure;
- Short term local employment opportunities for women during construction phase as laborers and also for catering & selling local products to camp workers etc.;
- Less reliance of fossil fuels like firewood, charcoal etc.;
- Capacity Building.

ii. Negative Impacts

- Loss of land;

- Loss to standing crop;
- Restriction of land use and land rights;
- Temporary loss of access to Common Property Resources
- Health and Safety risk including HIV/AIDS.

5.2 Management Framework - Social

45 Based on the issues to be addressed and impacts likely to occur, appropriate management measures have been drawn for implementation to mitigate the possible impacts due to proposed project interventions. While for positive impacts, enhancement measures are suggested; for negative impacts suitable mitigation measures has been included. Details of potential socials issues and its management framework and measures are outlined in ESPP. Apart from this MePTCL/MePDCL has developed a standard Environment Management Plan for its transmission and distribution projects which shall be made part of contract document for proper implementation by the Contractor. Summary of potential social issues and corresponding management measures is provided below in **Table 5.1**. Key principles governing the drawing of management measures and some ‘definitions’ are presented initially for a better reading of the measures.

5.3 Principles

46 The basic principles that guide this Social Management Framework (SMF) are:

- Avoidance socially sensitive areas while planning project activities;
- Minimisation of impacts when project activities occur in socially sensitive areas;
- Mitigation of any unavoidable negative impacts arising out of its projects;
- Optimization of land requirement; and
- Greater transparency through involvement of village council an , community and other stakeholders.

5.4 Definitions

47 Following definitions will be applicable unless otherwise stated specifically;

- **Project Affected Area:** Refers to the area of village or locality under a project for which land will be acquired under RFCTLARRA’13 through declaration by Notification in the

Official Gazette by the appropriate Government or for which land belonging to the Government will be cleared from obstructions.

- **Project Affected Family:** includes a person, his or her spouse, minor sons, unmarried daughters, minor brothers, unmarried sisters, father, mother and other relatives residing with him or her and dependent on him or her for their livelihood; and includes "nuclear family" consisting of a person, his or her spouse and minor children.
- **Project Affected Person (PAP):** Any tenure holder, tenant, Government lessee or owner of other property, or non-titleholder who on account of the project has been affected from such land including plot in the abadi or other property in the affected area will be considered as PAP.

TABLE 5.1: MANAGEMENT MEASURES TO ADDRESS POTENTIAL SOCIAL ISSUES

Sl.	Potential Issues	Management Measures
1	Loss of land	For Tranche-1, land for construction of substation is a major issue as land for only five distribution substations is available with the Utility. For remaining 3 transmission and 10 distribution substations land, MePTCL/MePDCL shall secure/acquire land either through direct purchase on willing buyer & willing seller basis on negotiated rate or through involuntary acquisition as per provisions of RFCTLARRA, 2013. However, efforts will be made to secure such land wherein possibility of physical relocation is not envisaged.
2	Change in land use and population relocation due to towers/poles	As per existing law, land for tower/pole and right of way is not acquired and agricultural activities are allowed to continue after construction activity and MePTCL/MePDCL pays compensation for all damages including cost of land below tower to its owner without acquiring it. Hence change in land use and resultant relocation of people is not envisaged in T&D projects.
3	Change in land use and population relocation for substations	Due to inherent flexibility in locating substation and very small size of land, MePTCL/MePDCL avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged.

Sl.	Potential Issues	Management Measures
		<p>However, securing lands is an issue as lands will be required for construction of substations. Keeping in this in view, and in case, lands may have to be secured, the same it can be accomplished through following three methods;</p> <ol style="list-style-type: none"> 1. Purchase of land on willing buyer & Willing Seller basis on negotiated rate; 2. Voluntary Donation; and 3. Involuntary Acquisition. <p>In case of procurement of land through private purchase, MePTCL/MePDCL shall ensure that compensation/rate for land is not less than the rate provided in the new land acquisition act, 2013. In order to comply with this provision MePTCL/MePDCL may organize an awareness camp where provisions of new act in respect of basis/modalities of compensation calculation shall be explained to land owners with specific State provision if any. In the case of voluntary donation of land, the following shall be ensured:</p> <ul style="list-style-type: none"> • The land user(s) will not be subjected to undue pressure for parting of land; • All out efforts shall be made to avoid any physical relocation/displacement due to loss of land; • The MePTCL/MePDCL shall facilitate in extending ‘gratitude’ to the land donor(s) in lieu of the ‘contribution’ if so agreed. The same shall be documented and monitored for compliance. • All land donations (as well as purchases) will be subject to a review/ approval from a committee comprising representatives of different sections including those from the POWERGRID and GoMe. <p>Involuntary land acquisitions will be as per the new RFCTLARR Act of 2013.</p>
	Right of Way	<p>Land for tower and right of way is not acquired as agricultural activities can continue. However, the project shall pay full compensation to all the affected persons/ community for any damages sustained during the execution of work. Accordingly, MePTCL/MePDCL has formulated appropriate management plan in the form of Compensation Plan for Temporary Damage (CPTD) to minimize the damages and provide compensation plan for temporary damages in consultation with the state government and affected persons and/ or community.</p>

Sl.	Potential Issues	Management Measures
4	Impact on Tribal	Majority of the population of Meghalaya are tribal as per census 2011. Total ST Population of the state as per the Census 2011 is 25,55,861 which is approximately 86% of the population. The project is being implemented in the tribal areas (Sixth Schedule provision of the Indian Constitution) of Meghalaya and bulk of the beneficiaries is expected to be tribal. Thus, the need for a separate Tribal Peoples' Development Framework/ Plan (TPDP) as per O.P.4.10 is not required under this project. Irrespective of this, Sixth Schedule provision stipulates that all projects do need to secure prior consent of the village council. Further Tribal Development Framework as well as Tribal Development Plan is enshrined in RFCTLARRA, 2013 which makes consultations in tribal areas mandatory and provides for enhanced entitlements for the tribal people.
6	Gender/ women participation	Women involvement will be planned through formal and informal group consultations so that their participation is ensured during preparation and implementation of the project.
7	Induced secondary development during construction	MePTCL/MePDCL operations are short-lived and do not induce secondary developments during construction.
8	Health and safety of worker/employee/community	During construction the health and safety aspects of workers and nearby community shall be implemented through contractors with due diligence and compliance of required regulation/guideline through a safety plan MePTCL/MePDCL uses best available technology for lines and do not cause any hazards to health and safety.
9	“Chance finds” or discovery of any archaeological artifacts, treasure etc. during excavation	Possibilities of such phenomenon in T&D project are quite remote due to limited and shallow excavations. However, in case of such findings, MePTCL/MePDCL will follow the laid down procedure in the Section-4 of Indian Treasure Trove Act, 1878 as amended in 1949.
10	Inter Agency Coordination	Exclusive bodies will be set up at state/ district levels for over-seeing, reviewing and guiding the project

48. Implementation viz., operationalization of the management measures necessarily needs to be done in the realm of regional/ national/ international legal and regulatory stipulations. The same is discussed below.

5.5 Legal and Regulatory Framework

49. The applicable acts, regulations, and relevant policies in the context of the project are presented in **Table 5.2**. The Project Authority will ensure that project implementation are consistent with provision of such legal framework.

TABLE 5.2 : LEGAL AND REGULATORY PROVISIONS - SOCIAL

Sl. No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
1. Constitutional Provisions		
1	6 th Schedule of the Constitution & Autonomous District Council	<p>Provisions provide Special Power to ADC for the support/ development of Tribal. Consent of the District council is required for any activity required on the land owned by them. Each ADC has number of village council and the consent of the village councils is required for the any activity under it's Jurisdiction.</p> <p>The Sixth Schedule provides for administration of tribal areas as autonomous entities. The administration of an autonomous district is vested in a District Council and of an autonomous region, in a Regional Council. These Councils are endowed with legislative, judicial, executive and financial powers. These institutions were expected to integrate these areas with the modern system of administration while preserving the traditional autonomy and local self-governing institutes of the tribal people.</p>
II. Provisions Law of the Land/Rules		
2.	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. As and when this Act becomes effective and adopted by the State of Meghalaya then MEPTCL\MEPDCL, too shall be bound by and would need to comply with relevant provisions of the Act. The salient features of the provisions of the new RFCTLARRA, 2013 are given in Annexure 3 .
3.	Electricity Act, 2003 (EA, 2003)	<p>Under the provisions of Section 68(1):-Prior approval of the Govt. of Meghalaya (GoMe) is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State which authorizes MEPTCL/MePDCL to plan and coordinate activities to commission a new Transmission/distribution project.</p> <p>Under Section 164:- GoMe, may by order in writing, authorize</p>

Sl. No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
		MePTCL/MePDCL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. MePTCL/MePDCL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoMe may think fit to impose and to the provisions of the Indian Telegraph Act, 1885, any of the power which the Telegraph authority possesses. The salient features of the Electricity Act 2003 are given in Annexure 4 .
4.	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.
5.	The Meghalaya Transfer of Land (Regulation) Act, 1971 (Act 1 of 1972)	This prohibits transfer of land from tribal to non-tribal. But the GoMe has already issued an Exemption Certificate that the provisions of Section 11(d)(i) of the aforesaid act (as amended) shall not apply in relation to all purchases/acquisition of land by MeECL/MePGCL/MePDCL/MePTCL, However, letter of acceptance from the landowners that they are willing to part land followed by an NOC from the respective Dorbar/ Nokma/ Doloi/ Headman/ Sordar and District Council that the said land is free from encumbrances is must.
6.	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	<p>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.</p> <p>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 this act has also been linked with forest clearance process under Forest (Conservation) Act, 1980 w.e.f. August 2009 by MoEF which MePTCL/MePDCL need to comply with.</p>
7.	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.

Sl. No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
8.	Indian Treasure Trove Act, 1878 as amended in 1949	<p>The act provides for procedures to be followed in case of finding of any treasure, archaeological artifacts' etc. during excavation.</p> <p>Possibilities of such discoveries are quite remote due to limited and shallow excavations. However, in case of such findings, MePTCL/MePDCL will follow the laid down procedure in the Section-4 of act.</p>
III. World Bank OP (Operational Policy)		
10.	OP 4.12 – Involuntary Resettlement	<p>This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by the involuntary taking of land. To avoid or minimize involuntary resettlement and, where this is not feasible, assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher</p>
10.	OP 4.10 – Indigenous Peoples	<p>This policy contributes to the Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples. Such Bank-financed projects include measures to (a) avoid potentially adverse effects on the Indigenous Peoples' communities; or (b) when avoidance is not feasible, minimize, mitigate, or compensate for such effects Bank-financed projects are also designed to ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate and gender and inter generationally inclusive. The project shall ascertain broad community support for the project based on social assessment and free prior and informed consultation with the affected Tribal community, if any.</p>

5.6 Mitigation Measures

50. The likely/associated social impact of transmission & distribution line projects are not far reaching and are mostly localized to near vicinity/ RoW. Many such impacts can be minimized through careful route selection and siting of substations. Sound design/ engineering variations also play a major role in planning effective mitigative measures depending upon the site

situation/location. The major social issues that need attention and proper care under this project are as follows;

- a) Substation: For Tranche-1, land for construction of substation is a major issue as land for only five distribution substations is available with the Utility. For remaining 3 transmission and 10 distribution substations land, MePTCL/MePDCL shall secure/acquire land either through direct purchase on willing buyer & willing seller basis on negotiated rate or by invoking provisions of RFCTLARRA, 2013. However, efforts will be made to secure such land wherein possibility of physical relocation/displacement is not envisaged. Details of land availability status of substations is provided in **Table – 5.3** :

TABLE - 5.3: LAND AVAILABILITY FOR SUBSTATION

Sl. No.	Name of the substation	Scope of work	Land Status
A. Transmission Substation			
1	220/132/33 kV New Shillong (GIS)	New	MePTCL/MePDCL has already identified land for these substations and the required lands shall be secured either through direct purchase on willing buyer & willing seller basis on negotiated rate or by invoking provisions of RFCTLARRA, 2013 (refer para 51 & 52).
2	132/33 kV Mynkre	New	
3	132/33 kV Phulbari	New	
B. Distribution Substation			
4	33/11 kV Distribution Substation (15 Nos.)	New/ Augmentation	Land for 5 substations i.e. <i>Phulbari, Tikaria, New Shillong, SE Falls & Jongsha</i> is available with MePTCL/MePDCL. For remaining 10 substations the required land shall be secured either through direct purchase on willing buyer & willing seller basis on negotiated rate or by invoking provisions of RFCTLARRA, 2013

51. In case of procurement of land through private purchase on willing buyer willing seller basis, MePTCL/MePDCL shall ensure that compensation/rate for land is not less than the rate provided in the new land acquisition act, 2013. In order to comply with this provision MePTCL/MePDCL may organize an awareness camp where provisions of new act in respect of basis/modalities of compensation calculation shall be explained to land owners with specific State provision if any.

In case of voluntary donation of land the following shall be ensured:

- The land user(s) will not be subjected to undue pressure for parting of land;
- All out efforts shall be made to avoid any physical relocation/displacement due to loss of land;
- The MePTCL/MePDCL shall facilitate in extending ‘gratitude’ to the land donor(s) in lieu of the ‘contribution’ if so agreed. The same shall be documented and monitored for compliance.
- All land donations (as well as purchases) will be subject to a review/ approval from a committee comprising representatives of different sections including those from the PGCIL and GoMe.

52. In case of land acquired through involuntary acquisition, provisions of RFCTLARRA, 2013 shall be adopted. RFCTLARRA, 2013 has replaced the old Land Acquisition Act, 1894 and has come into force from 1st January 2014. The new act i.e. RFCTLARRA, 2013 authorizes State Govt. (i.e. GoMe) or its authorized Government agency to complete the whole process of acquisition of private land including Social Impact Assessment (SIA), Action Plan for R&R (i.e. Rehabilitation and Resettlement) & its implementation and the MePTCL’s/MePDCL’s responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation.

Safeguards against land acquisition:

53. Conducting Social Impact Assessments (SIA) has been made mandatory under this new act and results of these assessments are shared with all the stakeholders and public hearing held which makes the process transparent and informed. Subsequently, an entitlement package that includes both compensation (for land/structure and assets to land and structure) and R&R as necessary is prepared. Further to this individual awards are passed and all documents are disclosed in the public domain through local administration and internet.

54. The flow chart of the land acquisition process with schedule prescribed for various activities is illustrated in **Figure 5.1** below. The entitlements with regard to compensation and assistances towards land acquisition or loss of any assets or livelihood for all categories of people being affected due to land acquisition is briefly outlined in **Table 5.4 & 5.5** below.

TABLE 5.4 : MINIMUM COMPENSATION FOR LAND ACQUISITION

Comprehensive Compensation Package (First Schedule)

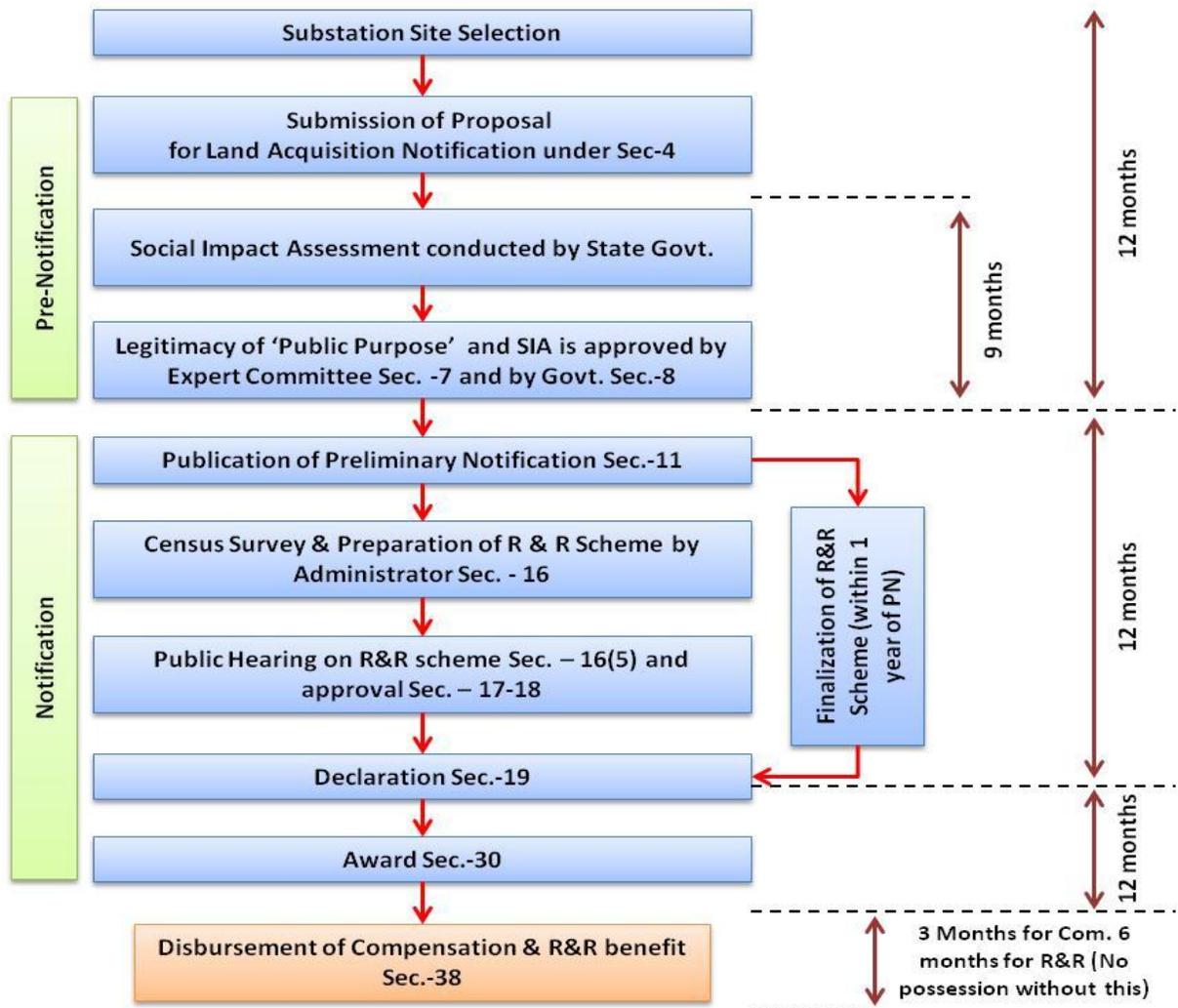
Eligibility for Entitlement	Provisions
<p>The affected families</p> <ul style="list-style-type: none"> ▪ Land Owners: <p>2. Family or company whose land/other immovable properties have been acquired;</p> <p>2.Those who are assigned land by the Governments under various schemes;</p> <p>3.Right holders under the Forest Rights Act, 2006</p>	<p>Determination of Compensation :</p> <p>1. Market value of the land</p> <ul style="list-style-type: none"> • as specified in the Indian Stamp Act, 1899 <li style="text-align: center;">or • the average of the sale price for similar type of land situated in the village or vicinity, <li style="text-align: center;">or • consented amount of compensation as agreed in case of acquisition of lands for private companies or for public private partnership project. <p>whichever is higher</p> <p>Market value x Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).</p> <p>2. Value of the assets attached to land:</p> <p style="padding-left: 20px;">Building/Trees/Wells/Crop etc. as valued by relevant govt. authority;</p> <p>Total compensation = 1+2</p> <p>3. Solatium: 100% of total compensation</p>
<p>(*) Precise scale shall be determined by the State Govt.</p> <p>The indicative values of multiplier factor based on distance from urban areas as provided in the act.</p>	
Radial Distance from Urban area (Km)	Multiplier Factor
0-10	1.00
10-20	1.20
20-30	1.40
30-40	1.80
40-50	2.00

TABLE 5.5: MINIMUM R&R ENTITLEMENT FRAMEWORK

Comprehensive R&R Package (Second Schedule)		
Sl. No.	Elements of R& R Entitlements	Provision
1.	Subsistence grant/allowance for displaced families	Rs. 3000 per month per family for 12 months
2.	The affected families shall be entitled to:	<p>a. Where jobs are created through the project, mandatory employment for one member per affected family;</p> <p style="text-align: center;">or</p> <p>b. Rupees 5 lakhs per family;</p>

Comprehensive R&R Package (Second Schedule)		
Sl. No.	Elements of R& R Entitlements	Provision
		<p style="text-align: center;">or</p> <p>c. Rupees 2000 per month per family as annuity for 20 years, with appropriate index for inflation; The option of availing (a) or (b) or (c) shall be that of the affected family</p>
3.	<p>Housing units for displacement:</p> <p>i) If a house is lost in rural areas:</p> <p>ii) If a house is lost in urban areas</p>	<p>i. A constructed house shall be provided as per the Indira Awas Yojana specifications.</p> <p>ii. A constructed house shall be provided, which will be not less than 50 sq. mts. in plinth area.</p> <p>In either case the equivalent cost of the house may also be provided in lieu of the house as per the preference of the project affected family. The stamp duty and other fees payable for registration of the house allotted to the affected families shall be borne by the Requiring Body.</p>
4.	Transportation cost for displaced families	Rs 50,000/- per affected family
5.	Resettlement Allowance (for displaced families)	Onetime Rs 50,000/- per affected family
6.	Cattle shed/ petty shop cost	Onetime financial assistance as appropriate for construction as decided by St. Govt. subject to minimum of Rs.25,000/-
7.	Artisan/small traders/others (in case of displacement)	Onetime financial assistance as appropriate as decided by St. Govt. subject to minimum of Rs.25,000/-
<p>Special Provisions for SCs/STs</p> <p>In addition to the R&R package, <i>SC/ST families will be entitled to the following additional benefits:</i></p> <p>8. One time financial assistance of Rs. 50,000 per family;</p> <p>9. Families settled outside the district shall be entitled to an additional 25% R&R benefits;</p> <p>10. Payment of one third of the compensation amount at very outset;</p> <p>11. Preference in relocation and resettlement in area in same compact block;</p> <p>12. Free land for community and social gatherings;</p> <p>13. In case of displacement, a <i>Development Plan is to be prepared</i></p> <p>14. <i>Continuation of reservation and other Schedule V and Schedule VI area benefits from displaced area to resettlement area.</i></p>		

FIGURE 5.1: ACTIVITY CHART RFCTLARRA, 2013



b) **Right of Way:** Land for tower and right of way is not acquired and agricultural activities are allowed to continue. However, the law stipulates that the licensee shall have to pay full compensation to all interested for any damages sustained during the execution of work. Accordingly, MePTCL\MePDCL has formulated appropriate management plan in the form of Compensation Plan for Temporary Damage (CPTD) in ESPP to minimize the damages and provide compensation plan for temporary damages in consultation with revenue department and affected person based on assessment (**Annexure 5 & Annexure 5a**).

c) **Tribal People:** Majority of the population of Meghalaya are tribal as per census 2011. Total ST Population of the state as per the Census 2011 is 25,55,861 which is approximately 86% of the population. The Khasis, Jaintias and Garos are the main tribes. The project is being implemented in

the tribal areas (Sixth Schedule provision of the Indian Constitution) of Meghalaya and bulk of the beneficiaries is expected to be tribal. Thus, the need for a separate Tribal Peoples' Development Framework/ Plan (TPDP) as per O.P.4.10 is not required under this project. Irrespective of this, Sixth Schedule provision stipulates that all projects do need to secure prior consent of the Autonomous District Council / Village Council who in turn will consult and secure consent from the village councils. Further Tribal Development Framework as well as Tribal Development Plan is enshrined in RFCTLARRA, 2013 which makes consultations in tribal areas mandatory and provides for enhanced entitlements for the tribal people.

d) Gender: Women will be involved through formal and informal consultations so that their participation is ensured during preparation and implementation of the project. To enable this, efforts will be made to deploy as many women community volunteers as possible and conduct gender sensitization capacity building programs for all the project staff.

Health and Safety Requirements

55. MePTCL/MePDCL maintains safety as a top priority, apart from various labour laws dealing with workers' health and safety, such as the Workmen's Compensation Act. MePTCL/MePDCL ensures the implementation of health and safety as per the norms the said act which is an integral part of the contractors' activities. EHS guidelines of MePTCL/MePDCL (**Annexure 6** for detailed checklist) are developed on the basis of World Bank EHS guidelines to be adopted by MePTCL/MePDCL.

Exposure to Electro Magnetic Fields (EMF)

56. There have been some concerns about the possibility of an increased risk of cancer from exposure to electromagnetic radiation from overhead transmission lines. However, a review by the World Health Organization (WHO) held as part of the International EMF Project (1996), concluded that: "From the current scientific literature there is no convincing evidence that exposure to radiation field shortens the life span of humans or induces or promotes cancer".

57. Currently, no EMF exposure guidelines have been framed in the country. However, international guidelines in this regard are detailed below:

- State Transmission Lines Standards and Guidelines in the USA;
- International Commission on Non-Ionizing Radiation Protection (ICNIRP);

- US National Council on Radiation; and
- American Conference on Government and Industrial Hygiene (ACGIH).

58. The ICNIRP guideline for the general public (up to 24 hours a day) is a maximum exposure level of 1,000 mG or 100 μ T. MEPTCL\MEPDCL shall follow the best international practices while designing its system to maintain acceptable prescribed EMF level.

General Safety Standards

59. MePTCL/MePDCL will follow all applicable standards concerned with safety for transmission, distribution and erection of Substation. These include IS: 5613 – recommendation on safety procedures and practices in electrical work as per CEA (Measures relating to Safety and Electric Supply) Regulation, 2010 notified in the Gazette on 20th Sept. 2010 (**Annexure 7**).

6. Issues, Impacts and Management Measures - Environment

60. Environmental issues of T&D projects are manageable given the inherently small ‘foot print’ of towers and flexibility in siting facilities within a relatively large host area and are mostly localized to ROW. However, transmission line project may have some adverse effects on natural resources. These impacts can be minimized by careful route selection and siting of substations. In order to get latest information and further optimization of route, modern survey techniques/tools like GIS, GPS aerial photography are also applied. Introduction of GIS and GPS/Google earth/IBAT in route selection result in access to updated / latest information, through satellite images and further optimization of route having minimal environmental impact. Moreover, availability of various details, constraints like topographical and geotechnical details, forest and environmental details help in planning the effective mitigation measures including engineering variations depending upon the site situation / location. In the instant project also these techniques are to be used for minimizing/mitigating such issues.

6.1 Environmental Issues

A) Transmission/Distribution lines

61. The key environmental issues associated with installation of transmission/distribution lines are:

1) **Clearing of Trees within Right of Way**

62. Right of Way (RoW) width for the transmission/distribution line depends on the line voltage. The maximum permissible width of RoW on forest land and minimum clearance between Trees and conductors as specified in IS: 5613 and by MoEF guidelines are given in Table 6.1.

63. At present, a width clearance of 3 m is allowed below each conductor for the movement of tension stringing equipment (**Annexure 8**). Trees on such strips are felled/lopped to facilitate stringing and maintenance of RoW. After completion of stringing, natural regeneration or dwarf tree/medicinal tree plantation is allowed to a certain height. Trimming or pruning is done with the permission from the local forest officer to maintain required electric clearance as necessary during operation and maintenance. In hilly areas where adequate clearance is already available, tree will not be cut/felled in 3 meter strip beneath for RoW except working clearance as stringing is done manually only. As compared to transmission line, distribution line requires only small right of way

and therefore felling of trees is much less than that requires for laying of transmission lines. Generally stringing of distribution line is carried out manually and therefore trimming/pruning of tree branches are only required instead of large nos. tree cutting Felling, lopping of tree can open up forest canopy allowing more sunlight into under storey where it can lead to edge effect and allow for proliferation of socio-phytic weeds. This can have added repercussions within a semi evergreen or evergreen biotope.

TABLE 6.1: ROW CLEARANCE BETWEEN CONDUCTORS AND TREES

Transmission Voltage (In kV)	Max. ROW (In Meters)	Minm. Clearance (in meters) between conductor & Trees *
11	7	2.6
33	15	2.8
66	18	3.4
110	22	3.7
132	27	4.0
220	35	4.6
400 D/C & S/C	46	5.5

* As per IS: 5613 and MoEF guidelines finalized in consultation with CEA

2) **Clearing of Ground Vegetation for Movement of Machinery:** Machinery and equipment is used for installation of transmission and distribution lines, towers/poles and construction of substations and may require clearing of ground vegetation for its movement. This activity causes temporary disturbance to the forest, orchards, plantation and agriculture etc. MePTCL\MePDCL wherever possible utilises the existing path / access roads for the movement of man and machinery. The existing roads which cannot support heavy machinery load are upgraded and thus the village infrastructure is improved. In areas where lines traverse agricultural land, compensation is paid to owners for any crop damage incurred as a result of construction activities. Agricultural activities are allowed to continue following the construction period. If bunds or other on-farm works are disturbed during construction or maintenance, they are restored to the owner's satisfaction following cessation of construction or maintenance activities. In the event that private trees are felled during construction or maintenance operations, compensation is paid to the owner as determined by the forest / horticulture departments.

3) **Aesthetic appeal of an area:** Erection of transmission/distribution towers and lines some time affects the aesthetics of the area. However, measures like painting of towers/poles in grey or green to merge with the background and planting trees along roads running parallel to

transmission/distribution lines in consultation with Forest Department, if feasible would be undertaken by MePTCL/MePTCL to buffer visual effect.

B) Substations

64. The key environmental issues associated with construction of substation are:

- 1) **Clearing of Ground Vegetation:** The land requirement for substations varies from 0.3 acres to 10 acres depending upon no. of bays. The ground vegetation needs to be cleared to enable construction activity.
- 2) **Used Transformer Oil:** As a part of routine maintenance, transformer oil is changed every 10-15 years. The used transformer oil is categorised as hazardous wastes as per Hazardous waste (Management, Handling and Trans-boundary) Rules, 2008 and its unscientific disposal in environment may lead to soil and water contamination.
- 3) **Used Battery:** Used lead acid battery is a pollutant and therefore its improper handling & disposal may lead to contamination of soil and water.
- 4) **E-waste:** The Electrical and Electronic Equipment (EEE) have hazardous / toxics substances in their components which may cause harm/pose risk to health and environment during handling after its expiry & full usage.
- 5) **SF6 gas** is a highly potential Green House Gas (GHG) being used in Circuit Breaker. Mishandling and leakage etc can lead to its escape into the atmosphere causing global warming.

6.2 Principles

65. The basic principles that guide Environment Management (EM) are:

- Avoidance environmentally sensitive areas while planning project activities;
- Minimisation of impacts when project activities occur in environmentally sensitive areas; and
- Mitigation of any unavoidable negative impacts arising out of its projects.
- Greater transparency through involvement of community and other stakeholders

6.3 Definitions

“**Adverse environmental effect**” means any irreversible harmful affect on natural environment;

“**Environment**” means land, water, air, living organisms and interacting natural systems

“**Environmental assessment**” means the process of assessing the environmental effects of a project in order to evaluate their significance, and may include identifying measures to prevent, minimize, mitigate or compensate for adverse environmental and social effects. Environmental and social assessment is the responsibility of the project sponsor;

“**Mitigation measures**” means methods to reduce, eliminate or compensate for adverse environmental and social effects;

6.4 Legal and Regulatory Framework

66. The applicable acts, regulations, and relevant policies in the context of the project are presented in **Table 6.2**. The Project Authority will ensure that project activities implemented are consistent with provisions of such legal framework

TABLE 6.2 : LEGAL AND REGULATORY PROVISIONS – ENVIRONMENT

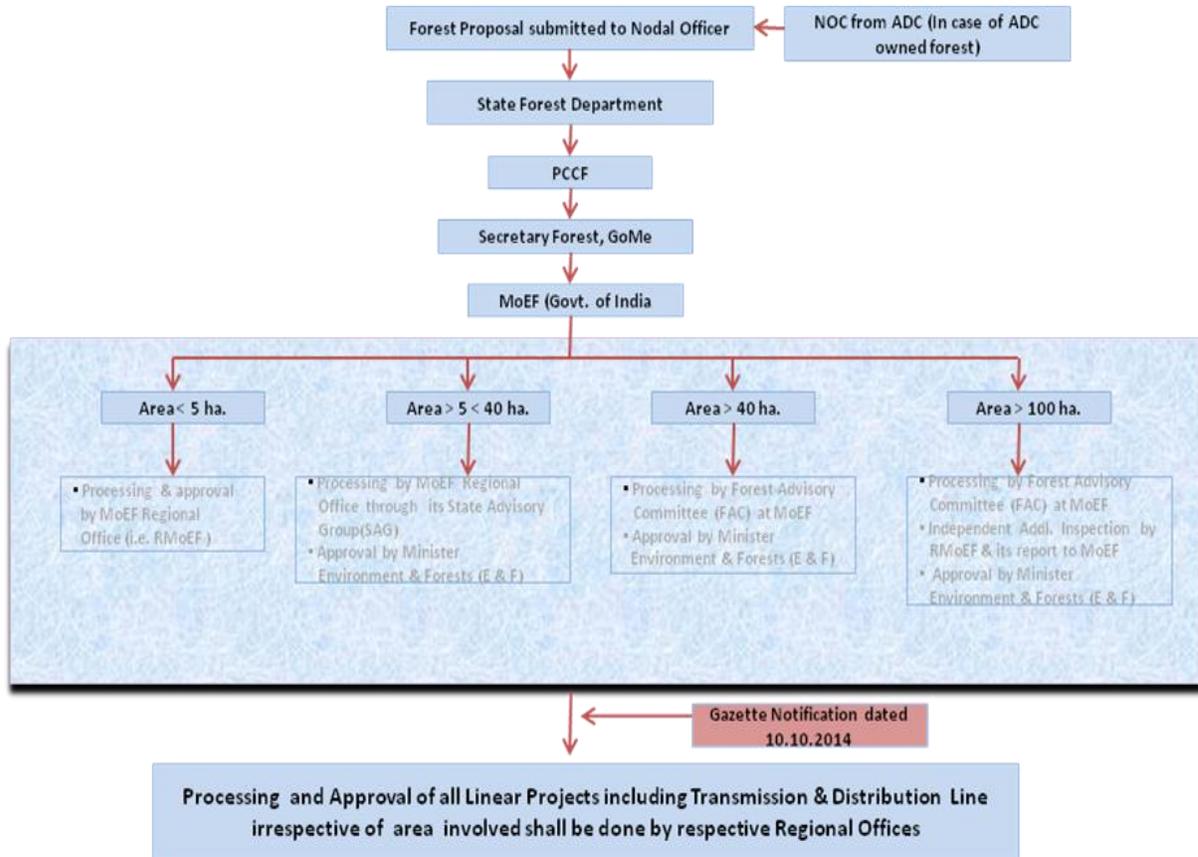
Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
I. Constitutional Provisions (India)		
A	Article 48 A	The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.
B	Article 51 A (g)	It shall be the duty of every 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)	Under the provisions of Section 68(1) :-Prior approval of the Govt. of Meghalaya (GoMe) is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State which authorizes MePDCL to plan and coordinate activities to commission a new Transmission/distribution project. Under Section 164 :- GoMe, may by order in writing, authorize MePTCL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. MePTCL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoMe may think fit to impose and to the provisions of the Indian Telegraph Act, 1885, any of the power which the Telegraph authority possesses.
2.	Forest (Conservation)	This Act provides for the conservation of forests and regulates the

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
	Act, 1980	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 is shown in Figure 6.1 below. Flow charts for forest clearance process and procedure of online submission of application are provided in Annexure 9 & 9a respectively.
3.	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	<p>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.</p> <p>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 this act has also been linked with forest clearance process under Forest (Conservation) Act, 1980 w.e.f. August 2009 by MoEF which MePTCL/MePDCL needs to comply with.</p>
4.	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 MePTCL/MePDCL. Project categories specified under the schedule of the EIA notification is provided in Annexure 10 . 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 MePTCL/MePDCL.
i)	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.
ii)	Batteries (Management and	As per notification, Being a bulk consumer MePTCL/MePDCL to ensure that the used batteries are disposed to dealers, manufacturer,

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
	Handling) Rules, 2001	registered recycler, re-conditioners or at the designated collection centers only. A half-yearly return is to be filed as per Form-8 (Annexure 11) to the Meghalaya State Pollution Control Board
iii)	Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008	As per notification, used oil is categorized as hazardous waste and require proper handling, storage and disposed only to authorized disposal facility (registered recyclers/ reprocessors) Being a bulk user, MePTCL/MePDCL shall comply with provision of said rules. MePTCL/MePDCL, as bulk user of transformer oil which is categorized as Hazardous Waste, shall comply with the provisions of the said rules (refer Annexure 12 for MoEF notification dated 24 th September 2008) 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 MePTCL/MePDCL shall submit the desired return in prescribed form to concerned State Pollution Control Board at the time of disposal of used oil.
iv)	E-waste (Management and Handling) Rules, 2011	As per notification, bulk consumers like MePTCL/MePDCL is to dispose e-waste generated by them in environmentally sound manner by channelizing to authorized collection centers/ registered dismantler/ recyclers/return to producers. MePTCL/MePDCL, being a bulk consumer of electrical and electronics equipments shall maintain record as per Form-2 (Annexure 13) for scrutiny by State Pollution Control Board.
5.	Biological Diversity Act, 2002	This act is not directly applicable to transmission 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. MePTCL/MePDCL abides by the provision of the act wherever applicable, and avoids Biosphere Reserves during route alignment.
6.	Meghalaya Tree (Preservation) Act, 1976	The Meghalaya Tree Preservation Act 1976 deals with felling of trees outside forest areas. Felling of trees for construction of transmission lines would be governed under this act. However the act does not apply to the entire state of Meghalaya but is limited to 10 Km radius of the municipal areas of Shillong and Shillong Cantonment area.
7.	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

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
		constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.
8.	Rights of Way(RoW) and Compensation	In case of agricultural or private land the provisions of section- 67 and or section-68 (5 & 6) of the Electricity Act, 2003 and section-10 of the Indian Telegraph Act, 1885 are followed for assessment and payment of compensation towards such damages
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 MePTCL/MEPDCL will take necessary permission under this act.
III	World Bank OP (Operational Policy)	
1	OP- 4.01: Environmental Assessment	To ensure the environmental and social soundness and sustainability of investment projects. Support integration of environmental and social aspects of projects in the decision-making process.
2	OP- 4.04: Natural Habitats	To promote sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions.
3	OP-4.11: Physical Cultural Resources (PCR)	To preserve PCR and in avoiding their destruction or damage. PCR includes resources of archeological, paleontological, historical, architectural, and religious (including graveyards and burial sites), aesthetic, or other cultural significance.
4	OP-4.36: Forests	To realize the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests

FIGURE 6.1: APPROVAL PROCESS OF FOREST CLEARANCE



Note: MoEF has made online submission of application mandatory w.e.f. 15th August 2014 (refer Annexure-9a).

6.5 Assessment of Environment Impact

67. This section identifies the potential environment impacts due to intervention of project in terms of the nature, magnitude, extent and location, timing and duration of the anticipated impacts. These impacts are both positive or negative relating to the project design stage, construction stage or the project operation and decommissioning stage;

Positive Impacts

- Enhanced and reliability in Power supply resulting in less dependence on fossil fuels including firewood, charcoal etc.

ii. Negative Impacts

- Clearance of tree within RoW;
- Impacts on forest, wildlife habitats and migratory birds;
- Impacts on drainage, soil erosion & water resources;
- Impacts on traffic and road infrastructure;
- Aesthetic appeal of area;
- Impacts from solid/ liquid wastes, oil spillage;
- Effect of electric and magnetic fields;
- Air quality, noise and vibration;
- Leakage of green house gases (SF6);
- Chances of accident involving wild animal i.e. elephant;
- Health & hygiene;
- Impacts on Aviation and Communication

6.6 Management Framework

68. Based on the outcome of impact assessment appropriate management measures has been suggested in ESPP for implementation to mitigate the possible impacts due to proposed project interventions. While for positive impacts enhancement measures are suggested; for negative impacts suitable mitigation measures has been included. Detailed of potential environment issues and its management measures are outlined in ESPP. Apart from this, MePTCL/MePDCL has developed an Environment Management Plan (EMP) which includes detail of anticipated impacts along with mitigation measures, monitoring and implementation schedule for its transmission and distribution projects. The EMP provisions shall be made part of bidding/contract document for proper implementation by the Contractor. Summary of key potential environmental issues and its management measures is presented below in **Table 6.3**.

TABLE 6.3: POTENTIAL ENVIRONMENTAL ISSUES AND ITS MANAGEMENT MEASURES

Sl. No	Potential Issues	Management Measures
1	Minimising adverse impact on natural forests	MePTCL/MePDCL endeavors to circumvent / lessen environmentally sensitive areas such as forest and other ecologically fragile / sensitive areas through optimization of route including use of modern tools like GIS/GPS and other

Sl. No	Potential Issues	Management Measures
		modern techniques.
2.	Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees
3.	<ul style="list-style-type: none"> ▪ Vegetation damage ▪ Habited Loss 	To minimise damage to vegetation and habitat fragmentation, MePTCL/MePDCL utilizes hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.
4.	<ul style="list-style-type: none"> ▪ Habitat fragmentation ▪ Edge effect on flora & fauna 	MePTCL/MePDCL maintains only a 3m wide strip for O&M and allows for regeneration of vegetation in the other one or two strips and beneath the transmission lines to avoid habitat fragmentation and edge effect. In hilly area this can possibly be totally avoided
5.	Chances of accident involving elephant in the specified corridor due to placing of poles	MePDCL shall try to avoid such area to the extent possible. However, in case avoidance is not possible, suitable design modification in the pole like provision of spike guards, barbed wire fencing or any other arrangement shall be incorporated in such location
6.	Erosion of soil and drainage along the cut and fill slopes in hilly areas	MePTCL/MePDCL would ensure that all cut and fill slopes in TL/DL are adequately protected using standard engineering practices including bio-engineering techniques wherever feasible. All drainage channels along or inside substations shall be trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water.
7.	Chemical contamination from chemical maintenance techniques	MePTCL/MePDCL does not use chemicals for forest clearance/RoW maintenance
8.	Poly- Chloro-Biphenyls (PCBs) in electrical equipment	MePTCL/MePDCL use mineral oil in electrical equipments. Specification of oil containing PCB less 2 mg/kg (non – detectable level) stated in the tender document
9.	Induced secondary development during construction	MePTCL/MePDCL operations are short-lived and do not induce secondary developments during construction

Sl. No	Potential Issues	Management Measures
10.	Avian hazards from transmission/ distribution lines and towers	Avian hazards mostly encountered in bird sanctuaries area and fly path of migratory bird predominantly related to nesting site. Although the incidence of avian hazards is rare due to the distance between the conductors. MePTCL/MePDCL shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
11.	Air craft hazards from transmission lines and towers	MePTCL/MePDCL as per the requirement of IS 5613 of July'94 provides aviation markers, night-lights for easy identification of towers in notified/selected areas.
12.	Health and safety of worker/employee/community	During construction the health and safety aspects of workers and nearby community shall be implemented through contractors with due diligence and compliance of required regulation/guideline through a safety plan. MePTCL/MePDCL uses best available technology for lines and do not cause any hazards to health and safety.
13.	Fire Hazards	<p>Fire hazards are mostly occurred in forest area. However, MePTCL/MePDCL uses state of art automatic tripping mechanism for its transmission/distribution and substation that disconnect the line in fraction of seconds to prevent fire hazards. The Forest Department also take precaution like maintaining fire line in the cleared forest area to avoid spread of fire</p> <p>Firefighting instruments including fire extinguishers are kept in appropriate place for immediate action in case of any fire hazard.</p>
14.	Pollution	Although pollution is not an issue with transmission/ distribution projects still MePTCL/MePDCL will make efforts to further minimise it. Sites are cleared of all the leftover materials and debris to avoid any chance of pollution.
15.	GHG (SF ₆ Gas)	Although leakage of SF ₆ is not a major issue, MePTCL/MePDCL will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

7. Integration of environment and social management measures into overall project cycle

69. In the previous section, ESPP outlines various management measures to address the potential environment and social impacts based on the outcome of identification and impact assessment process during different stages of project activities. In order to address identified environment and social issues due to proposed project interventions, the suggested management measures has been dovetailed in to the project cycle so that it can be taken care off at appropriate level and at appropriate time (refer ESPP for detail management procedures). Figure - 7.1 and 7.2 below illustrates link between different stages of project cycle and management measures to be undertaken to address the environment and social issues.

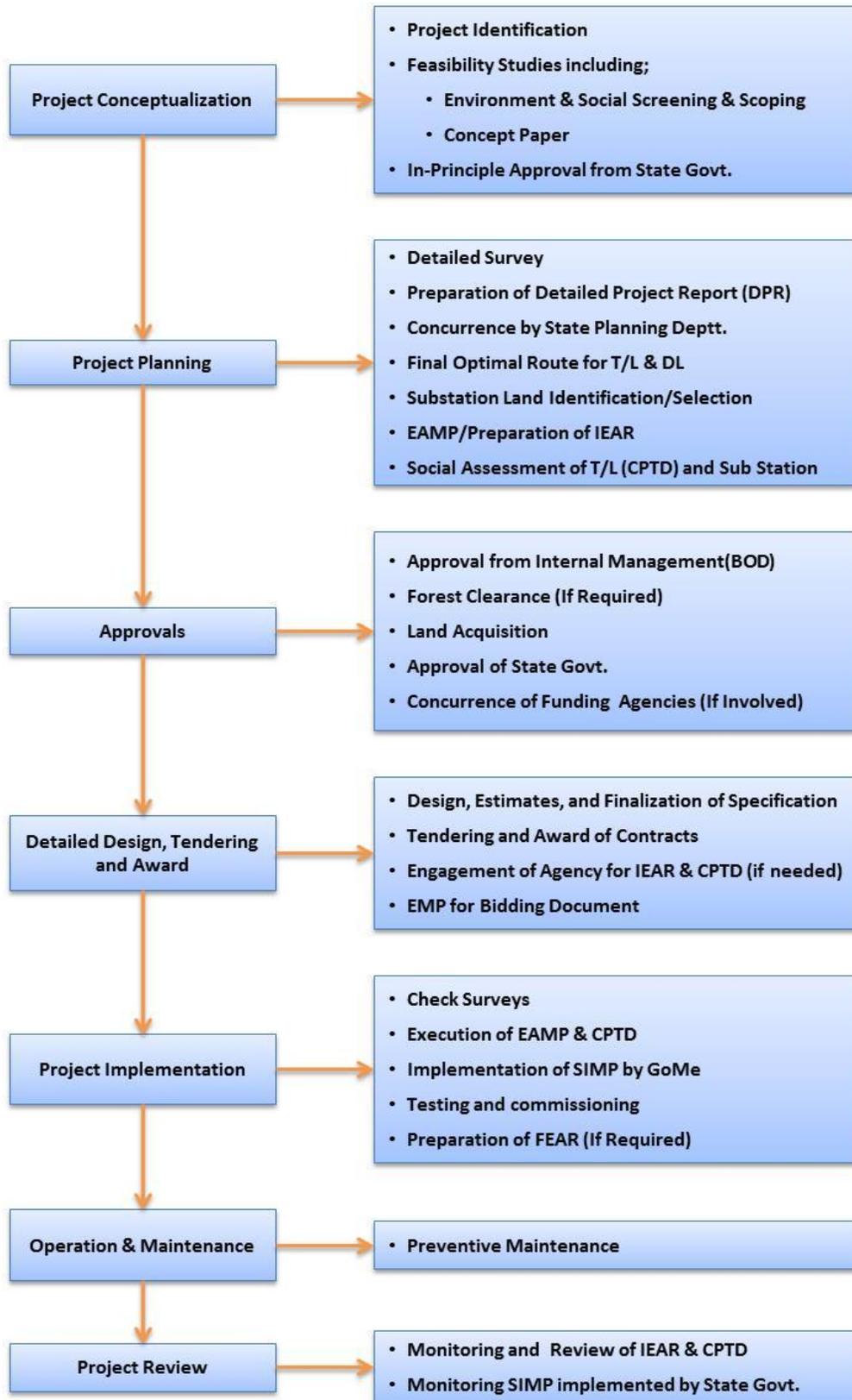
7.1 Project Cycle

70. In order to address environmental and social issues arising out of construction, operation and maintenance of transmission and distribution projects in the State of Meghalaya, it become pertinent to study the typical MePTCL/MePDCL's project cycle so as such issues are attended at appropriate time. The key milestones of such projects cycle are:

- Project Conceptualization
- Project Planning
- Approval
- Detailed Design and Tendering
- Project Implementation
- Operation & Maintenance
- Review

71. **Figure 7.1** outlines the detailed process of typical transmission/distribution project and same is described in subsequent sections

FIGURE 3 1: PROJECT CYCLE OF A TYPICAL TRANSMISSION/DISTRIBUTION PROJECT



7.1.1 Project Conceptualisation

72. The development of new load centre (electrification of settlement, development/ expansion of industrial/commercial area) leads to triggering of requirement for new transmission and distribution requirements. The need of addition/augmentation of Transmission & Distribution (T &D) network is however not only driven by these requirements but also developed on the basis of future strategic objectives of electrification in the state.

73. During desk study various options of line routes are plotted on a Forest Atlas map or SOI (Survey of India) map or Google Earth map using a “BEE Line” (the shortest distance between origin of proposed Transmission Line (TL)/Distribution Line (DL) and the sub-stations sites) avoiding environmentally and socially sensitive area. At least 3 (three) alternative are marked subject to site verification.

74. With alignment marked on Topo sheet of the route alignment surveys/walkover surveys is carried out. Every effort is being made to avoid forest, sacred grove, and archaeological sites, historical and cultural places etc.. Ease of access during construction is also considered. In cases where the line passes through a village, it is important to obtain the consent of the Head man, the Sordars, the Syiem, the Dolloi, the Nokma who heads the village/village as the case may be and the land owner’s council for the RoW.

75. Based on the above studies a concept paper is prepared indicating all the components environmental, social, techno-economic and cost estimate. In case of transmission project this “Concept Paper” after the appraisal/ recommendation of MePTCL management, is forwarded to Planning Dept., GoMe for the in-principle approval of Ministry for Development of North East Region (MDoNER) (e.g. North East Council(NEC)/Non-lapsable Central Pool of Resources(NLCPR)/ State Plan(SPA), etc) for budget provision. For distribution project the ‘Concept Paper’ after the appraisal/ recommendation of MePDCL management, is forwarded to Planning Department, GoMe for in-principle approval under State plan other than RGGVY- Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)/ Accelerated Power Development and Reform Program (APDRP)/ Restructured-Accelerated power development and Reform Program(RAPDRP) scheme under GoI.

7.1.2 Project Planning

76. Once the in-principle approval is obtained the process of Detailed Project Report (DPR) is initiated. During detailed survey, all critical information/data such as rivers, hills, railway crossings, telephone line, villages, power transmission/distribution lines and other major offset on both the side of alignment with parameters for ground profile etc. are recorded. Additionally, environmental and social details are also noted in the prescribed pro-forma for evaluation of alternatives (**Annexure 14**).

77. During such survey further attempt is made to minimize involvement of forestland and areas of significant natural resources, human habitation and areas of cultural importance by realigning the route for optimization, if possible. If forestland is unavoidable after completion of survey on the finalized route, environmental assessment limited to forest area is undertaken by MePTCL/MePDCL with the help of authorized agencies (Forest Department/GoMe) to formulate forest proposal including its assessment and management plan. Local forest authorities certify that the final route so selected involves the barest minimum of forestland. The complete forest proposal is processed and recommended/forwarded by GoMe to MoEF for obtaining forest clearance with an undertaking from MePTCL/MePDCL to bear the cost of compensatory afforestation, NPV etc. as per guidelines. In case of village forest or ADC owned forest NoC of the Village Council or ADC is required respectively. In cases non-forest land under the ADC area it is important to obtain the consent of the Head man/Sordar who heads the village or village as the case may be and also the land owners'. Consultations are held with the village council for identification of the landowner and obtaining their consent for the RoW. In case of community owned land the NoC is obtained from the village council.

78. MePTCL/MePDCL shall also identify probable substation sites suiting technical requirement based on data collected as per the checklist (**Annexure 15**) and a comprehensive analysis for each alternative site is carried out. The analysis will consider various site specific parameters that include infrastructure facilities such as access roads, type of land, namely, Government., revenue, private land, agricultural land; social impacts such as number of families getting affected; including its cost aspect also. This helps in selecting particular land for substation with minimal impact after doing comparison assessment.

79. In case of Substation once the land is identified the Headman, the Sordars, the Syiem, the Dolloi as the case may be is approached for issuance of the NOC after the Landowners have agreed to part with their land. A Map/Land Plan ,Proforma register is prepared indicating the name of land

owners, cultivator/planters , total area of the land required, no. of fruit bearing trees, non-fruit bearing trees, crops etc. This is then signed by the EE/SE and along with the local headman. On receiving the duly surveyed Map/Land Plan cleared by the office of the Director, Land Records& Survey, Govt of Meghalaya incorporating also in the Map the names of the Landowners along with area-wise, and their signature/ Thump Impression, the same is sent to the District Collector concerned for initiating the acquisition proceedings as per the RFCTLARRA, 2013

80. In case the land is procured through negotiated purchase the Chief Engineer, (Transmission)/ Chief Engineer, (Distribution) seeks permission from the Board MePTCL/MePDCL to accord permission for negotiated purchase. The matter is placed before the CMD for approval. The approval is provided subject to the condition that the rate of negotiation shall not exceed the rates for land acquisition as fixed by the District Collector.

81. Subsequently, Sale Deeds are prepared by the MePTCL/MePDCL and executed with the respective landowners. Simultaneously, the entire compensation amount payable (cost of stamp duty and compensation for all the land owners) is transferred to the Sub-Registrar's office of the respective district. Once these formalities are completed the registration of the deed takes place between landowner and MePTCL/MePDCL. Thereafter the landowners are handed over the cheques by Accounts Department, MePTCL/MePDCL.

82. After identification and assessment of possible impacts, project specific Environment Assessment Management Plan (EAMP) is prepared including the Initial Environment Assessment Report (IEAR) to mitigate adverse impact arising due to project activity. In case of lines passing through protected areas additional studies would be conducted to ascertain the impacts on the bio-diversity. The terms of reference for Bio-Diversity studies in provided in **Annexure 16**. Similarly Social Assessment of transmission line is also undertaken to develop a project specific Management Plan in the form of Compensation Plan for Temporary Damages (CPTD). The CPTD is a document prepared after social assessment of likely impacts on land by installing towers or poles during construction of transmission/distribution lines. The CPTD also contains the compensation procedure for tree/crop/land damages as per the prevailing regulation/guidelines (refer **Annexure 17** for content of CPTD).

7.1.3 Project Approvals

83. The DPR so finalised and recommended by MePTCL/MePDCL management is forwarded to State Govt. and funding agency (if applicable) for concurrence and fund/budget allocation (**Annexure 18**).

7.1.4 Detailed Design and Tendering

84. MePTCL/MePDCL after detailed design, finalization of specifications for line and substation starts the tendering process and contracts are awarded to competent contractors through bidding process. Similarly engagement of agency (if required) for IEAR and CPTD implementation is also undertaken. During bidding process, project specific EMP is included in the contract document for implementation by the contractors/subcontractors.

7.1.5 Project Implementation

85. Before the start of implementation, MePTCL/MePDCL informs the general public about the project and invites their suggestion, if any. When construction starts MePTCL/MePDCL's field staff and contractors conduct check survey to authenticate tower spotting done in the profile based on detailed survey.

86. Once the check survey is completed, MePTCL approach District Administration regarding identification of the owner of the land. Negotiations are held with the owners of the land for compensation towards locating the tower/pole. The payment of compensation has been made as per the rates assessed / fixed by the Deputy Commissioner / District Collector. The consultation with the land owner is primarily limited to their agreeing to part with their land and receiving compensation directly from MePTCL for their lands. In case there are any grievances regarding the tower location, consultation are held with the owner to resolve them and also convince them to part with their land. The District Administration also gets involved in the process. However, in case they fail to come to a consensus then the tower locations may be shifted meeting technical requirement.

87. Similarly, for felling of trees, permission is obtained from the DFO. A joint verification is held with the forest department for identification and enumeration of the trees. The permission of felling of trees are also provided with conditions e.g. the trees to be felled in presence of forest officials ii) for large scale felling there may be clauses of planting of trees iii) all felling activities are

to be undertaken during day time only. This is however, limited to areas with 10 km of Shillong where the Meghalaya Tree Preservation Act is applicable.

88. If there is any changes necessary, site modification is done/noted in the profile/ datasheets, wherever required for final documentation and resubmission for reference/record. Civil Construction work is then initiated for transmission /distribution line followed by tower/pole erection & stringing. Simultaneously works of substation are also initiated. During the construction stage due care is taken to minimise / mitigate environmental impacts. MePTCL/MePDCL also gives utmost importance to health & safety of workers, employees and nearby communities. During construction the health and safety of workers and nearby communities shall be taken care by contractors by compliance of required regulation/guideline through a “Safety Plan” (refer **Annexure 6** for checklist for health & safety and **Annexure 19** for Safety Plan). Before test charges both transmission/distribution lines and substations, pre-commissioning check and testing are rigorously done by MePTCL/MePDCL to ensure safety of commissioning of the project/subproject. Implementation of IEAR and CPTD are also to be taken up in parallel to above work.

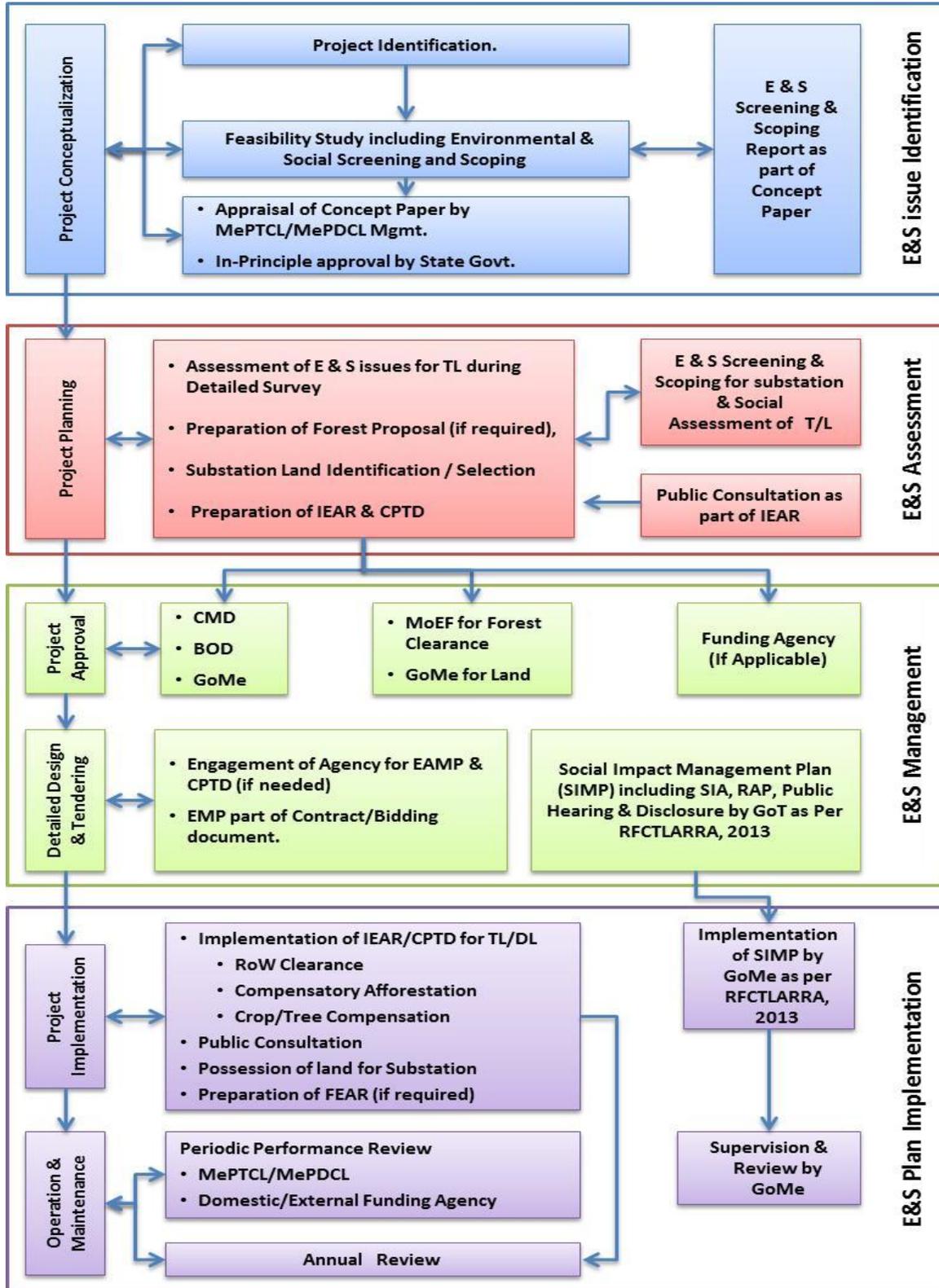
7.1.6 Operation and Maintenance

89. MePTCL/MePDCL continuously monitors the transmission/distribution lines and substations for smooth operation. These lines and substations are patrolled regularly to identify faults and its rectification. The site offices carry out monitoring of line in accordance with the O&M checklists provided for inspection of transmission/distribution lines and substations (**Annexure 20**).

7.1.7 Project Review

90. Apart from reviewing the lines and substations on daily basis, MePTCL/MePDCL’s field staffs review any unfinished/ pending issues related to environment & social components like the implementation of IEAR/ CPTD/ SIMP while the same are reviewed by corporate office on monthly basis

FIGURE 7.2: ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCEDURES



7.2 Project Conceptualisation

91. Conceptualisation of a projects/subprojects necessarily entails identification of potential E & S issues that may require evaluation in relation to its nature, magnitude and measures to address them. Screening and scoping process enable this evaluation. Infact, the environmental screening and scoping report forms an integral part of project feasibility study i.e. ‘Concept Paper’, which is put up to State Government for in-principle approval of the project after appraisal/ recommendation of MePTCL/MePDCL management. The E & S issues identification process for any MePTCL/MePDCL project will include the following:

- E & S screening and scoping for transmission/distribution lines
- Appraisal/approval of Concept paper by Internal Management & State Government.

92. The objectives, process and output of each of these steps are discussed below;

7.2.1 Environment & Social Screening and Scoping for Transmission/Distribution Lines

A. Objective

- Objective is to identify environmental and social sensitive areas, issues, and possible management measures for all the alternatives routes for comparative study and analysis, suggest any other alternative if necessary and to outline scope of environmental assessment and management planning after screening.

B. Process

- The MePTCL/MePDCL would mark the BEE line and at least 3 alternatives on a topographic sheet, satellite imagery or any higher level map of 1:50,000 scale. The map should show the environmental and social sensitivities (e.g. settlements, forests, vegetated areas, terrain, water bodies and water courses, administrative boundaries etc.).
- MePTCL/MePDCL will identify the environmental and social sensitivities along the BEE line based on secondary information (topographic sheet, forest atlas, satellite imagery and census record). Field Units would carry out spot verification or walk-over survey to confirm the environmental and social sensitivities identified during the desktop review. They would also identify alternatives to circumvent the environmental and social issues. Environmental

and social details are also noted (refer **Annexure 14** for alternative analysis format to gather relevant environment and social information for transmission lines and substations).

- During walkover survey/ spot verification, consultations are held with the village council to obtain their consent and also the landowners for routing the line along the village. Views of public and any other related information (like public views and necessary inputs about surroundings/ villages/crops etc.) are noted for screening/scoping. After comparison and analysis of all E & S parameters so gathered for all alternatives and considering other significant economic benefit associated with the project/subproject, the most optimum route having minimum environment & social impact is selected for further investigation.
- Site office will consults with state forest departments if the line is passing through forest areas. Revenue authorities will be consulted for their views on revenue/other lands.

C. Output

- Environmental & social screening and scoping report as part of the Concept Paper detailing environmental and social issues, environmentally sensitive areas etc.

7.2.2 Approval

93. The Concept Paper is apprised by the internal management and forwarded to the State Government for approval.

7.3 Project Planning

94. At this stage detail study and survey of the route alignment is carried out and route alignment is finalised for transmission/distribution line. Also tentative locations of substation are identified and E&S screening is conducted. After screening and scoping exercise, specific management plan is prepared for the project. Following activities are conducted in this stage;

- Environment and Social Screening & Scoping for substation
- Environmental Assessment and Management Planning (IEAR)
- Social Assessment for TL (CPTD)

7.2.1 Environment and Social Screening for substation

A. Objectives

- Objective of this process is to identify environmental and social sensitivities associated with the project and to outline scope for land acquisition

B. Process

- MePTCL/MePDCL will identify tentative locations of the substation on village/revenue map and collect information from secondary source as per checklist (**Annexure15**).
- Field office would carry out spot verification to confirm the environmental and social sensitivities identified during the desktop review. Consultation would also be initiated with the village council and the headman of the village for the availability of land in the village. Efforts are also made to identify the owner of the land from the village council and ascertain his willingness to part the land. Based on the findings, detail analysis of each alternative including no of PAP's, CPR religious and social utilities etc the analysis would be carried out.
- Field office will consult revenue authorities for their views on selected sites and shortlist the optimum site.

C. Output

- E&S screening and scoping document would detail the E & S issues, views of revenue dept. & feasibility of land acquisition.

7.3.2 Environmental Assessment and Management Planning

A. Objectives

- The objective of the stage is to prepare IEAR along with the EAMP

B. Process

- While finalizing the route alignment during detailed survey, the involvement of forest area is ascertained. If protected areas (Wildlife Sanctuaries, National Parks, Biosphere Reserves, etc.) or any notified/recognized migratory path/fly path is encountered in spite of utmost

care/optimization, a separate biodiversity assessment study through an independent expert/agency shall be carried out as part of the Environment Assessment (EA) process. The Terms of Reference of the biodiversity assessment study is provided in **Annexure 16**. In case of forest involvement, forest proposal is prepared for transmission/distribution line with the help of Forest Department which includes details of species and girth wise classification of trees to be felled, cost benefit analysis, identified degraded forest land, details of Compensatory Afforestation (CA) enumerated on a map and preparation of CA scheme. Various digitalized map of diverted and CA area, NOC/certificate from DC under FRA, 2006 etc. are submitted along with the forest proposal. In case of village/community, ADC, individual forest MePDCL/MePTCL shall obtain NOC from the Village Council, ADC or individual respectively before the formal process of forest clearance can be initiated.

- MePTCL/MePDCL would prepare IEAR detailing significant E&S issues identified during screening and scoping and would formulate a project specific Environment Management Plan (EMP) (Refer **Annexure 21** for contents of IEAR).
- Public Consultations are carried out for the final route alignment/site to ascertain views/suggestion of public, affected person and other stakeholders.

C. Output

- The IEAR details out potential E&S issues and associated with the specific transmission /distribution line. The management measures to overcome these are specified in the EAMP
- Biodiversity Assessment Report (if applicable).

7.3.3 Social Assessment for Temporary Damages for TL (CPTD)

A. Objectives

- To prepare Compensation Plan for Temporary Damages (CPTD)

B. Process

- On identification of the route for laying transmission line, MePTCL will access all likely damage to the land due to foundation, erection, and stringing works.

- MePTCL will prepare management plan to minimize damage and compensation plan for temporary damages in consultation with revenue dept. and affected persons. The compensation plan will be periodically updated during check survey and finalization of tower location.

C. Output

- CPTD detailing assessment of temporary damages and associated management measures including compensation plan.

7.4 Project Approval

95. Environment and social management steps are initiated during approvals stage of project cycle. The Detail Project Report including the EAMP, after recommendation of internal management, is forwarded to State Govt. and funding agency (if applicable) for concurrence and budget allocation/funding. Procedure of forest clearance (If needed) is initiated by submitting forest proposal to concerned authority. If land acquisition is involved, request/indent for the same is to be placed to State Government as per RFCTLARRA, 2013.

96. During this stage, following activities are undertaken:

- Forest Clearance
- State Government Approval
- Social Impact Management Plan (SIMP) for substation
- Funding Agency Concurrence/Acceptance (if applicable)

7.4.1 Forest Clearance

A. Objectives

- To obtain forest clearance from MoEF

B. Process

- MePTCL/MePDCL submits a forest proposal request through online on MoEF forest clearance web portal (<http://forestclearance.nic.in>) . The forest proposal is processed only after the NoC is obtained from the village council/ADC for lines passing through

village/ADC owned forest as the case may be. On receiving the request Nodal Officer (NO) after scrutiny forward the same to concerned Divisional Forest Officer (DFO) for assessment of the land proposed to be diverted for the transmission/distribution line and for formulation of proposal.

- After formulation, DFO recommend the proposal to CF (Conservator of Forests) and again send to CCF to NO and PCCF (Principal Chief Conservator of Forests) who will forward it to State Secretary of Forests and finally to MoEF.
- Forest clearance is issued in two stages Stage-I & Stage-II. Stage-I approval is conditional on MePTCL/MePDCL on depositing the cost of compensatory afforestation and Net Present Value to forest Dept. and fulfilling any other stipulated conditions. Work in forest area can be undertaken after realizing the fund by MoEF deposited towards CA & NPV by MePTCL/MePDCL. State Govt. informs MoEF about compliance of conditions and MoEF grant final approval.

C. Output

- NoC from the Village Council and ADC.
- Forest clearance from MoEF

7.4.2 State Government Approval

A. Objectives

- To obtain approvals from GoMe for DPR for budget allocation/fund

B. Process

- MePTCL/MePDCL submits DPR along with technical details including cost and the environment and social component of the project to State Govt. through Power Department and State Planning Department.

C. Output

- Approval of State Govt. for the project

7.4.3 Social Impact Management Plan (SIMP) for substation

A. Objectives

- To prepare SIMP by State Government

B. Process

- On confirmation of the scheme, the MePTCL/MePDCL would submit a proposal for land acquisition detailing the extent of land and the affected area to be notified and acquired for the project by the State government. In accordance with the RFCTLARRA, 2013 the responsibility of preparation of the SIMP rests with GoMe. The preparation of the SIMP including the SIA, RAP, and the Public Disclosure would be carried out by the Rehabilitation and Resettlement Commissioner of the State Government. Procedures expected to be adopted by GoMe is described below.

1. Establishment of Institutions

97. As per RFCTLARRA, 2013 the following bodies are to be established permanently in the state (to cater to all projects proposed in future):

- The State Social Impact Assessment Unit
- The office of the Commissioner Rehabilitation & Resettlement
- The State Level Monitoring Committee
- For a particular project, the following bodies will be established:
- The Expert Group to appraise the SIA
- The office of the Administrator Rehabilitation & Resettlement
- Project Level Committees

2. Social Impact Assessments

- State SIA Unit, after the receipt of a request from GoMe, will prepare a detailed project specific Terms of Reference (ToR) for each proposed case of land acquisition,
- Based on the nature and extent of the work involved, costs involved are decided and require to depositing the same with the Unit.
- SIA Unit deploys an external professional agency (or individuals) for the conduction of SIA.

- The first step in the SIA will involve building up a detailed understanding of the proposed project and reviewing its stated public purpose. The project should be screened to ensure that it meets the cause of “public purpose”.
- The SIA shall conduct a detailed land assessment, list out accurately the number of PAPs, socio-economic as well as cultural profile of the PAPs as well as that of their environ, and assess the nature and extent of impacts likely to occur as a result of the project intervention.
- Impacts are to be identified at different phases of the project cycle- planning, construction and O&M. Same time efforts are to be made on assessing: (i) direct/ indirect impacts; and (ii) differential impacts – on women, children, elderly and disabled. The latter can be done through gender impact assessments and/ or vulnerability and resilience mapping.
- Following the above assessment, a SIMP is prepared encompassing a comprehensive compensation as well as R&R entitlements in respect of each PAP.
- Formal public hearing/s will be held in the affected areas with the specific purpose of presenting the main findings of the SIA, seeking feedback on its contents, and making sure that any omissions or additional information and views are incorporated into the final documents. These hearings will be held in all the GPs and/ or Village Council whose lands are proposed to be acquired.
- Explicit consent will be required in the case of lands in respect of tribal areas from ADC and the Village Councils.
- Every Social Impact Assessment (SIA) conducted will be formally appraised by an Expert Group, which will then make a written recommendation to the Government on whether or not the proposed land acquisition should proceed. Final decision to accept or not, and go ahead or not, rests with GoMe.

3. Disclosure

98. The final SIA Report and SIMP will be published in the local language and made available:
- Village Councils and ADC, Municipal Corporation and the offices of the District Collector, Sub-Divisional Magistrate and the Tehsil;

- Published in the affected areas; and
- Uploaded on the websites of the government.

4. Compensation and Rehabilitation and Resettlement (R&R)

- Based on the SIMP, the Collector shall discuss the Package in a meeting with the Rehabilitation and Resettlement committee at project level, and submit the Package to Commissioner Rehabilitation and Resettlement along with his/ her remarks.
- The Commissioner Rehabilitation and Resettlement shall, after due vetting, accords approval to the scheme and make it available in public domain.
- After approval of R & R plan by Commissioner R & R, the Collector shall issue two awards one for land compensation based on procedures described in act & State's rules and second for R & R as per approved SIMP.
- In case of procurement of land through a negotiated purchase mechanism the amount of compensation and assistance would be governed by the provisions under RFCTLARRA, 2013. The agreed compensation amount should not be less than the amount estimated as per the RFCTLARRA, 2013. Construction activities can only commence only after the complete amount has been paid and the transfer of ownership has been completed.

C. Output

- Social Impact Management Plan (SIMP) including SIA, RAP, and Public Disclosure by GoMe.

7.4.4 Funding Agency Concurrence/Acceptance (if applicable)

A. Objectives

- Objective is to obtain concurrence of funding agencies related to E & S components of the projects

B. Process

- MePDCL/MePTCL submits DPR and various reports on environment and social like IEAR, CPTD to funding agencies for appraisal and concurrence

C. Output

- Acceptance/concurrence of funding agencies

7.5 Detailed Design & Tendering

99. During this stage, following environment & social management activities are undertaken;

- MePTCL/MePDCL shall either implement IEAR/CPTD in-house or engage outside agencies that are capable of executing such task
- Project specific EMP to be made part of contract/bidding document for implementation by contractors/subcontractors

7.6 Project Implementation

100. During this phase, various environment and social management plan prepared for the project are implemented and monitored. This includes

- Execution of EMP & EAMP
- Execution of CPTD

7.6.1 Execution of EMP & EAMP

A. Objectives

- The objective is to undertake environmental management works

B. Process

- EAMP (IEAR) is implemented taking into account appropriate working clearance & ROW (by cutting/ felling/pruning trees etc. and other measures identified in clearance). Forest dept. undertakes CA Scheme.
- Other mitigation measures enlisted in EMP are executed by MePTCL/MePDCL and Contractor.
- MePTCL/MePDCL shall initiate the process (for WB funded projects) and prepare a Final Environmental Assessment Report (FEAR) (refer **Annexure 22** for contents of FEAR).

C. Output

- Tangible proof of execution of EMP/EAMP and preparation of FEAR containing compliance of mitigation measures as listed in IEAR, EMP implementation and details of forest clearance etc.

7.6.2 Execution of CPTD

A. Objectives

- The objective is to carryout social management works as prescribed in CPTD

B. Process

- MePTCL will pay the compensation in consultation with revenue authority and affected persons and execute any other measures as agreed and documented in the CPTD for transmission lines.

C. Output

- Tangible proof of execution of social management measures and RoW free of encumbrance

7.6.3 Execution of SIMP

A. Objectives

- SIMP to be executed by GoMe as per RFCTLARRA, 2013

B. Process

101. The execution of the SIMP is the responsibility of the GoMe. However, the following process is to be facilitated by MePTCL/MePDCL:

- MePTCL/MePDCL deposits cost for land and R & R measures as per award issued under RFCTLARRA, 2013 to concerned authority/State Government.
- Transfer of compensation and monetary R & R benefits to affected persons account by GoMe.
- Possession of land by MePTCL/MePDCL.

C. Output

- Possession of land

7.7 Operation and Maintenance (O&M)

102. The environment & social works undertaken in earlier phase of project cycle are monitored in this period. Besides this MePTCL/MePDCL being a member of State R&R committee shall monitor implementation Social Impact Assessment Management Plan for acquisition of land (if involved) by GoMe as per the provisions of RFCTLARRA, 2013 (Salient features are outlined in **Annexure 3**). However, MePTCL/MePDCL may also take part in implementation and monitoring, if called for as they are responsible for implementation of project.

7.7.1 Environmental Monitoring

A. Objectives

- To monitor work undertaken as part of EAMP

B. Process

- Regular patrolling of RoW and CA
- Monitoring of substation on daily basis
- Others mitigation measures outlined in EMP are monitored and supervised as per the plan
- Periodic monitoring report would be prepared not only on the observation of the EAMP Implementation but also will include the corrective actions which have been proposed and the action plan for the implementation of such actions.

C. Output

- Periodic monitoring reports containing updates of execution of EAMP execution.

7.7.2 Social Monitoring

A. Objectives

- To monitor work undertaken as part of CPTD & SIMP

B. Process

- CPTD implementation during maintenance works monitored.

- If land acquisition is involved, MePTCL/MePDCL (as member of State R & R committee) monitored SIMP implemented by GoMe as per the provisions of RFCTLARRA,2013

C. Output

- Periodic monitoring reports containing updates of execution of CPTD and SIMP execution.

7.8 Review

- Circle office of MePTCL/MePDCL shall monitor and review of E&S activities of the Transmission and Distribution project on monthly basis along with field office.
- The implementation/performance of environmental and social management measures along with other project works shall be reviewed by MePTCL/MePDCL management initially every quarter for a period of at least 1 (one) year as this ESPP will be inducted in its corporate functioning first time in implementation of MePTCL/MePDCL's Transmission/ Distribution Project.
- MePTCL/MePDCL Management shall undertake annual review of ESPP implementation to obtain feedback on problems/limitations/stakeholders expectations for deliberations and incorporating changes/improvement in the document for its smooth implementation.

103. A summary of the processes MePTCL/MePDCL will follow for environmental and social management are summarized in **Table 7.1** below.

TABLE 7.1: ENVIRONMENTAL AND SOCIAL ASSESSMENT & MANAGEMENT PROCESS OF A TYPICAL T & D PROJECT

Milestones	Objectives	Process	Responsibility	Product/Decision
I. Project Conceptualisation				
1. Environmental and Social Screening & Scoping for Transmission /Distribution Lines	<ul style="list-style-type: none"> ▪ To identify environmentally and socially sensitive areas, issues and possible management measures ▪ To suggest alternate transmission line routes, if necessary ▪ To outline the scope of Environmental Assessment (EA) and Social Assessment (SA) studies 	<ul style="list-style-type: none"> ▪ Screen and scope Transmission Lines from an environmental and social perspective <ul style="list-style-type: none"> ➢ Desk Review ➢ Spot Verification ➢ Informal Public Consultation ➢ Consultation with Forest Dept.& Revenue Authorities 	<ul style="list-style-type: none"> ▪ ESMU for TL/DL at Corporate Office ▪ Engg. Dept. 	<ul style="list-style-type: none"> ▪ Environmental & Social screening and scoping documents as part of Concept Paper.
2. Environmental & Social approval	<ul style="list-style-type: none"> ▪ To obtain environmental & social approvals from the MePTCL/MePDCL management and In-principle approval by State Govt. 	<ul style="list-style-type: none"> ▪ Submit 'Concept Paper' (with E&S screening & scoping details) to MePTCL/MePDCL Management 	<ul style="list-style-type: none"> ▪ Engg. Dept ▪ Circle office 	<ul style="list-style-type: none"> ▪ MePTCL/MePDC L Management Appraisal.
		<ul style="list-style-type: none"> ▪ Submit 'Concept Paper' (with E &S screening and scoping details) for In-principle approval by State Govt 	<ul style="list-style-type: none"> ▪ Engg. Dept ▪ Circle office 	<ul style="list-style-type: none"> ▪ In-Principle approval by State Govt.
II. Project Planning				
1. Environmental and Social Screening and Scoping for substations	<ul style="list-style-type: none"> ▪ To identify substation lands avoiding/ minimising environmentally and socially sensitive areas, ▪ Selection of proper site which has minimal impact ▪ To suggest alternate substation sites , if necessary ▪ To outline scope of land acquisition 	<ul style="list-style-type: none"> ▪ Screen and scope substation sites from an environmental and social perspective <ul style="list-style-type: none"> ➢ Desk Review ➢ Spot Verification ➢ Consultation with Revenue Authorities ➢ Informal Public view 	<ul style="list-style-type: none"> ▪ Engg. Dept. ▪ Circle office 	<ul style="list-style-type: none"> ▪ Environmental & social screening and scoping documents for substations
2. Environmental Assessment & Management Planning	<ul style="list-style-type: none"> ▪ To prepare IEAR for the project/sub-projects. 	<ul style="list-style-type: none"> a. Forest Areas <ul style="list-style-type: none"> ➢ Tree Enumeration ➢ Cost-benefit Analysis ➢ Compensatory Afforestation 	<ul style="list-style-type: none"> ▪ Circle office ▪ Auth. Agencies 	<ul style="list-style-type: none"> ▪ IEAR <ul style="list-style-type: none"> ➢ Environmental review ➢ Forest Proposal

Milestones	Objectives	Process	Responsibility	Product/Decision
		b. Other Areas <ul style="list-style-type: none"> ➤ Undertake environmental review and formulate appropriate management measures c. Public Consultation <ul style="list-style-type: none"> ➤ To inform/record public views for refinement / review if needed 		<ul style="list-style-type: none"> ➤ Environmental Management Measures ➤ Views of Public
3. Social Assessment for Temporary Damages for TL/DL	<ul style="list-style-type: none"> ▪ To prepare Compensation Plan for Temporary Damages(CPTD) 	<ul style="list-style-type: none"> ▪ Undertake assessment of land area likely to be affected by putting up tower and line and extent of damages during foundation, erection & stringing works. ▪ Formulate appropriate management plan to minimize impact and prepare compensation plan 	<ul style="list-style-type: none"> ▪ Circle office ▪ Authorised Agencies 	<ul style="list-style-type: none"> ▪ CPTD ➤ Social review ➤ Management measures ➤ Compensation plan
III. Project Approvals				
1. State Govt.	<ul style="list-style-type: none"> ▪ To obtain project approval from GoMe 	<ul style="list-style-type: none"> ▪ Submit DPR (with EAMP and Social Screening and Scoping details) to Planning Dept./GoMe for their review 	<ul style="list-style-type: none"> ▪ Circle office ▪ Engg. Dept. 	<ul style="list-style-type: none"> ▪ Project approved by State Govt.
2. Financial Agency's Acceptance	<ul style="list-style-type: none"> ▪ To obtain acceptance from FA for environmental & social components of Concept Paper or IEAR & CPTD 	<ul style="list-style-type: none"> ▪ Submit DPR along with IEAR and CPTD to Financial Agency for acceptance 	<ul style="list-style-type: none"> ▪ Circle office 	<ul style="list-style-type: none"> ▪ Acceptance/concurrence by FA
3. Forest Clearance	<ul style="list-style-type: none"> ▪ To obtain Forest Clearance 	<ul style="list-style-type: none"> ▪ Submit forest proposal to concerned authority. ▪ Forest Proposal to MoEF for conditional approval after recommendation by GoMe ▪ Forward Compliance report by GoMe to MoEF for Final Forest Clearance 	<ul style="list-style-type: none"> ▪ Circle office 	<ul style="list-style-type: none"> ▪ Final Forest Clearance by MoEF

Milestones	Objectives	Process	Responsibility	Product/Decision
IV. Detailed Design & Award				
1. Environment Assessment and Social Management Measures	▪ To appoint a suitable agency to implement IEAR/CPTD , if required	▪ Select and appoint suitable agency for IEAR/CPTD implementation, if required	▪ Circle office ▪ Circle office	▪ Agency appointed for IEAR/CPTD
	▪ To include EMP part of bidding/contract document for implementation by contractor	▪ EMP included in bidding /contract document	▪ Circle office	▪ EMP part of contract document
V. Project Implementation				
1. Execution of Environmental Management Works	▪ To undertake environmental management work as prescribed in environmental assessment management plan	▪ Execute environmental management works ➢ Appropriate clearance for transmission line ROW, etc. ➢ Compensatory Afforestation ➢ EMP by contractor	▪ Circle office ▪ Authorised Agency ▪ Contractors	▪ Environmental management measures executed
	▪ Preparation of Final Environment Assessment Report(FEAR), If required (for WB funded project)	▪ Compliance to mitigation measures listed in ➢ IEAR ➢ EMP ➢ Forest clearance	- Circle office - Authorised Agency - Contractors	▪ FEAR for FA
2. Execution of CPTD for TL & SIMP for Substation	▪ To undertake social management work as prescribed in CPTD	▪ Transmission lines ➢ Pay compensation in consultation with Revenue Authority and affected persons as agreed & documented in CPTD and execute other measures ▪ Sub-stations ➢ Deposit cost for land and R & R measures as per award ➢ Transfer of compensation money to affected persons a/c ➢ Possession of land	▪ Circle office ▪ External Agency ▪ MePTCL/ MePDCL	▪ Social management measures executed ▪ Possession of land
VI. Operation & Maintenance				

Milestones	Objectives	Process	Responsibility	Product/Decision
1. Environmental & Social Monitoring	<ul style="list-style-type: none"> ▪ To monitor work being undertaken as part of EAMP, CPTD & SIMP 	<ul style="list-style-type: none"> ▪ Monitor EAMP measures <ul style="list-style-type: none"> ➢ Maintenance of ROWs ➢ Progress on compensatory afforestation ➢ Compliance to EMP as per schedule 	<ul style="list-style-type: none"> ▪ Circle office 	<ul style="list-style-type: none"> ▪ Periodic monitoring reports
		<ul style="list-style-type: none"> ▪ Monitor CPTD measures <ul style="list-style-type: none"> ➢ Appropriate compensation and other measures during maintenance of towers and lines ▪ Monitor SIMP measures undertaken by State Government as per RFCTLARRA, 2013 (If land acquisition involved) 	<ul style="list-style-type: none"> ▪ Circle office ▪ Circle office 	
VII. Project Review				
1. Annual Environmental & Social Review	<ul style="list-style-type: none"> ▪ To review annually the EAMP and the CPTD of its projects 	<ul style="list-style-type: none"> ▪ Review and report on environmental and social performance of project during construction operation and maintenance 	<ul style="list-style-type: none"> ▪ Circle office ▪ Corporate office 	<ul style="list-style-type: none"> ▪ Annual environmental and social review report

7.9 Risk Management Framework

104. Environmental and Social Risk Assessment is a vital part of MePTCL/MePDCL's environmental and social management strategies. The risk assessment process identifies existing risks, and forecast future potential risks in its power transmission/distribution projects. It is a scientific process that includes Cost Benefit Analysis. The environment and social management procedures developed by MePTCL/MePDCL evaluate these risks, both qualitatively and quantitatively, and prioritize them. Based on prioritization, environment and social management options are selected.

105. MePTCL/MePDCL's risk assessment process involves several, successive, interactive stages, which have been included in the environmental and social assessment and management procedures and are listed below;

- Risk Identification
- Risk Assessment
- Risk Characterisation
- Risk Management
- Risk Mitigation
- Risk Preparedness

106. MePTCL/MePDCL, based on its environmental and social risk assessment process, decides on management options to eliminate or minimizes environmental and social impacts. The risk management process includes risk preparedness, risk mitigation and the sharing of liabilities (via Internal Arrangements and Insurance). Responsibilities in the event of occurrence of a risk have been illustrated in Table 4 2.

Internal Arrangement

107. To absorb the risk in the event of its occurrence MePTCL/MePDCL will strengthen internal capacities. This would include creating funds or supplementing present funds to prepare for contingencies such as major ecological disasters adverse or health impact resulting in environmental human disease.

Via Insurance

108. To share risk, MePTCL/MePDCL will maintain insurance schemes and supplement them to give it fuller coverage as regards environmental and social risks. The only legislation relevant to environmental insurance is the Public Liability Insurance Act, 1991. This Act makes it mandatory for any owner dealing with and handling hazardous substance to take out an insurance policy. In case of an industrial accident, payment to the victims will be made from the relief funds and insurance cover.

TABLE 7.2: MEPTCL/MEPDCL' RISK RESPONSIBILITY FRAMEWORK

Risk	Key Role-players			
	GoMe	MePTCL/MePDCL	Contractor	Insurers
Non Compliance				
➤ Regulatory ⁷	✓	✓	✓	-
➤ Contractual ⁸	-	-	✓	-
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health ⁹ etc.	-	✓	-	-
Force Majeure				
➤ Insurable	-	-	-	✓
➤ Non-Insurable	✓	✓	-	-
Inclusion/ Exclusion of concerned Communities/ NGOs	✓	✓	-	-
Public interest mitigation	✓	✓	-	-

⁷ Regulatory like working in forest/protected areas without statutory clearances.

⁸ Contractual like noncompliance of condition of clearance like fuel supply to labourer to avoid tree felling, no-work during night times, etc.

⁹ Impact of health like any case of prolonged exposure to Electro-Magnetic Field (EMF).

8. Implementation Arrangements

109. Ministry of Power (MoP), GoI has appointed POWERGRID as the Design cum Implementation Supervision Consultant (i.e. Project Management Consultant- PMC) and now redesignated as Implementing Agency for the Project in six North Eastern States. However, the ownership of the assets shall be with respective State Govt's /State Utilities, which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of assets.

110. The arrangement for monitoring and reviewing of project from the perspective of environment and social management will form part of overall arrangements for project management and implementation environment. Following implementation arrangement has been proposed at different levels for smooth implementation of this project;

8.1 Administrative Arrangement for Project Implementation

- **Central Project Implementation Unit (CPIU)** - A body responsible for coordinating the preparation and implementation of the project and shall be housed within the IA's offices at Guwahati. The "Project-In-Charge" of IA & Head of each of the SPCU shall be a member of CPIU.
- **State Project Coordination Unit (SPCU)** – A body formed by the Utility and responsible for coordinating with IA in preparing and implementing the project at the State level. It consist of experts across different areas from the Utility and shall be headed by an officer of the rank not below Chief Engineer, from MePTCL/MePDCL.
- **Project Implementation Unit (PIU)** – A body formed by the IA, including members of MSPCL on deputation, and responsible for implementing the Project across the State, with its personnel being distributed over work site & working in close association with the SPCU/ CPIU. PIU report to State level "Project Manager" nominated by the Project-in-Charge of IA. The IA will have a Core team stationed at the CPIU on permanent basis and other PMC officers (with required skills) will visit as and when required by this core team.

8.2 Review of Project Implementation Progress:

111. To enable timely implementation of the project/subprojects, following committee has been setup to review the progress;

- **Joint Co-ordination Committee (JCC):** IA and SPCU nominate their representatives in a body called JCC to review the project. IA shall specify quarterly milestones or targets, which shall be reviewed by JCC through a formal monthly review meeting. This meeting forum shall be called as Joint Co-ordination Committee Meeting (JCCM). The IA shall convene & keep a record of every meeting. MoP, GoI and The Bank may join as and when needed. Minutes of the meeting will be shared with all concerned and if required, with GoI and The Bank.
- **High Power Committee (HPC):** The Utility in consultation with its State Government shall arrange to constitute a High Power Committee (HPC) consisting of high level officials from the Utility, State/ District Administration, Law enforcement agencies, Forest Department. etc. so that various permission/ approvals/ consents/ clearances etc. are processed expeditiously so as to reach the benefits of the Project to the end consumers. HPC shall meet on bimonthly basis or earlier, as per requirement. This forum shall be called as High Power Committee Meeting (HPCM) and the SPCU shall keep a record of every meeting. Minutes of the meeting will be shared with all concerned and if required, with GoI and The Bank.
- **Contractor’s Review Meeting (CRM):** Periodic Review Meeting will be held by officials of PIU with Contractors at field offices, State Head Quarters (PIU location) and if required with core team of PMC at Guwahati. These shall be called “Contractor’s Review Meeting” (CRM). PIU shall keep a record of all CRMs, which shall be shared with all concerned and if required, with GoI and The Bank.

112. A review will be held among MoP, GoI, The Bank, State Government., Utility and IA, at four (4) months interval or earlier if needed, primarily to maintain oversight at the top level and also to debottleneck issues that require intervention at GoI/ State Government level. Minutes of the meeting shall be prepared by PMC and shared with all concerned.

8.3 Implementation Arrangement for Environment & Social Management by MePTCL/MePDCL

113. ESPP implementation requires a robust and efficient institutional framework. This section captures these institutional arrangements for ESPP implementation by its employees who collectively have experience of laying and maintaining substations, transmission and distribution lines. Moreover, services of leading environment/social institutes/individual experts specializing in the

relevant discipline may be utilized in the initial stage, if needed. Independent specialist may also be engaged to deal with complex and technical issues like wildlife management. POWERGRID who has also been chosen as Implementing Agency has vast experience of implementation of thousands of kilometres transmission lines in the country and abroad. POWERGRID is also leader in development and subsequent implementation of ESPP in the country. The service of POWERGRID's trained and experience personnel shall be utilised for training and establishment of institutional framework of MePTCL/MePDCL. Moreover, successful implementation of provision of ESPP requires involvement and support of higher officials of MePTCL/MePDCL who shall regularly monitor/review E&S aspects of transmission and distribution project.

8.3.1 Organisational Requirements

114. To ensure quality and strengthen organizational systems to enable effective implementation of the ESPP, MePTCL/MePDCL sets out procedures and provides an enabling work culture that encourages total involvement of all its personnel. A strategic environment has been adopted within the organizational structure that is marked by:

- A synchronized system of functioning adopted by Corporate Planning which monitors all activities in the organization and ESMU for TL/DL at Corporate Office
- An emphasis on intradepartmental approach to all projects, delineation of departmental responsibilities and the delegation and decentralization of authority resulting in a fast response and quick adjustment to change
- A commitment to provide at all times the best possible time bound quality service in all areas of its operations.

115. MePTCL /MePDCL's commitment to the ESPP is evolved along these principles. To ensure effective implementation of its ESPP, MePDCL/MePTCL will focus on:

- Strengthening the implementation of the ESPP by deployment of appropriately trained personnel at key levels;
- Reinforcing in-house capabilities by working with specialized external agencies;
- Placing dedicated manpower with specialization in the respective field to deal with and manage the environment and social issues;

- Reviewing progress of the ESPP implementation internally or through external agencies

116. Corporate office will have overall responsibility for construction, operation, and maintenance of transmission/distribution systems apart from providing necessary support services.

8.3.2 Organisational Structure and Responsibilities

117. An appropriate organizational structure shall have to be developed at the corporate, circle and site level to help effective implementation of the ESPP document. The organizational flowchart of MePTCL/MePDCL for the ESPP is given in Figure 8 1 and Table 8 1

FIGURE 8.1: IMPLEMENTATION ARRANGEMENT FOR ENVIRONMENT AND SOCIAL MANAGEMENT BY MEPTCL/MEPDCL

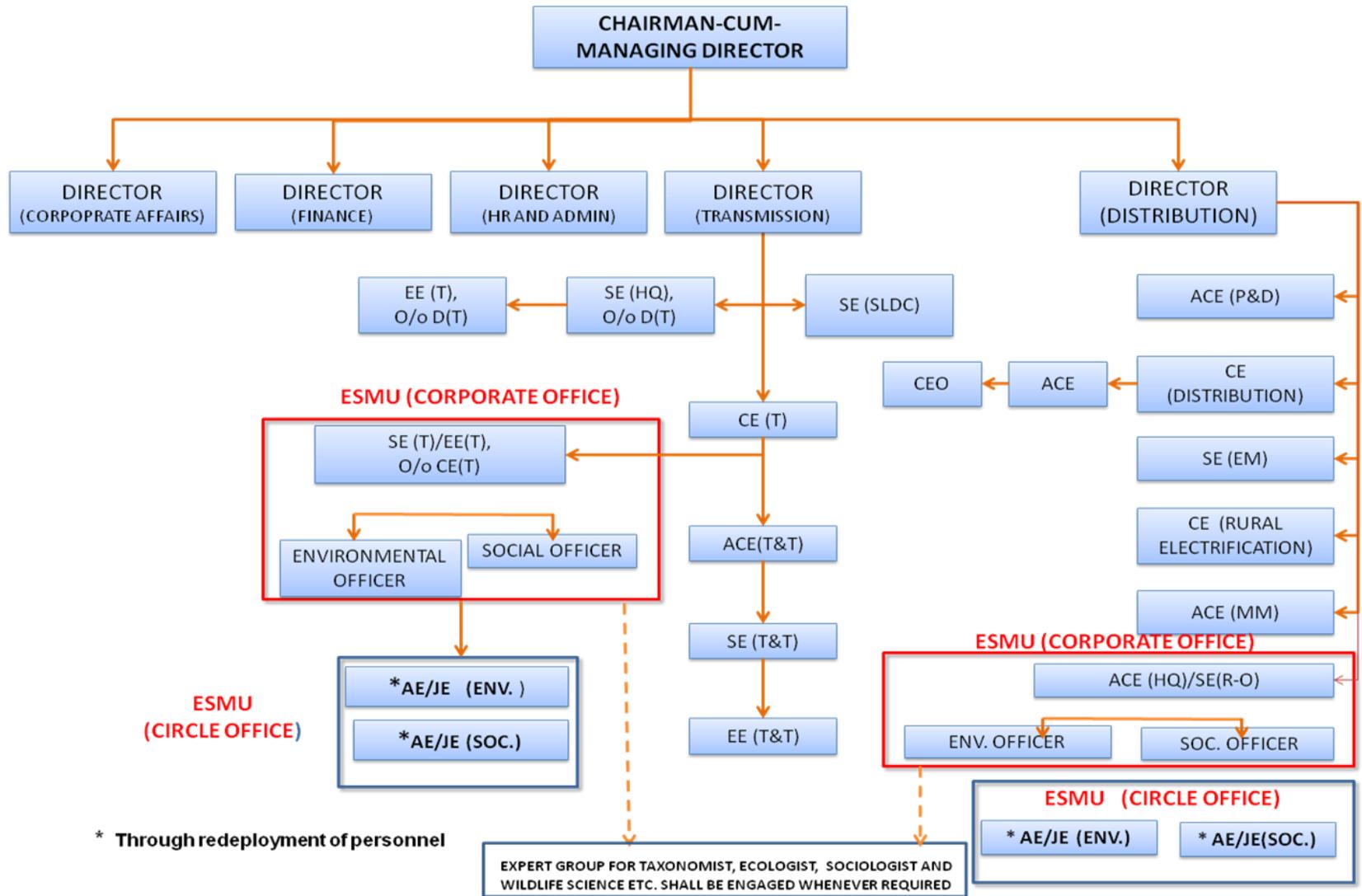


TABLE 8.1: RESPONSIBILITY ALLOCATION FRAMEWORK FOR THE E & S ASSESSMENT & MANAGEMENT PROCESS

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation /Execution	Review	Approval	Preparation
I. Project Conceptualisation						
Environmental & Social Screening and Scoping for Transmission/Distribution Lines	Screen and scope Transmission/Distribution Lines from an environmental & social perspective	E & S screening and scoping documents as part of Concept Paper	Circle (Site) office	Engg. Dept. ESMU	MePTCL/ MePDCL Management Appraisal	Pre-appraisal by Planning Deptt., GoMe
Environmental & Social approval	Submit Concept paper (with E&S details) for Management Approval	MePTCL/MePDCL Mgmt. Appraisal	ESMU Corp.Plg.	ESMU Engg. Dept. Corp. Plg.	MePTCL/ MePDCL Management Appraisal	In-principle approval by GoMe
II. Project Planning						
Environmental & Social Screening and Scoping for substations	Screen and scope substations sites from an environmental & social perspective Consultation with Revenue Authorities	E & S Screening and Scoping reports for substation sites Scope for land acquisition	Circle office ESMU	ESMU Engg. Dept. Corp. Plg.	MePTCL/ MePDCL Management Approval	Ext. agency like revenue, forest dept etc. for Social Screening & Scoping
Environmental Assessment and Management Planning	To prepare EAMP <ul style="list-style-type: none"> ▪ Trans./Distribution line ▪ Substations ▪ Public Consultation (line) 	Environmental/ Assessment Management Plan	ESMU Circle office	ESMU	MePTCL/ MePDCL Management Approval	State Forest Dept
Social Assessment for Temporary Damages for TL	To prepare CPTD <ul style="list-style-type: none"> ▪ Assessment of temporary damages ▪ Compensation plan ▪ Public consultation 	Compensation Plan for Temporary Damages (CPTD)	ESMU Circle office	ESMU	MePTCL/ MePDCL Management Approval	Revenue Dept

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation /Execution	Review	Approval	Preparation
III. Project Approvals						
Forest Clearance	<ul style="list-style-type: none"> ▪ Submit forest proposal to State Govt ▪ Forest Proposal to MoEF for 1st stage approval ▪ Compliance to MoEF for Final Forest Clearance 	Final Forest Clearance by MOEF	ESMU Circle office	ESMU Finance Deptt.	MePTCL/ MePDCL Management Approval	RMoEF/MoEF
State Govt.	Submit DPR (with E & S details) to State Govt.	Project approval by State Govt.	Circle Office Corp. Plg.	ESMU Corp. Plg.	MePTCL/ MePDCL Management Approval	Budget/fund allocation
FA Acceptance	Submit IEAR and CPTD to Funding Agencies for appraisal	IEAR and CPTD concurrence by FA	ESMU Corp. Plg.	ESMU Corp. Plg. Dept.	Internal Management Approval	Detailed appraisal and concurrence
IV. Detailed Design & Award						
IEAR/CPTD Implementation	Engage authorised agencies for E & S management plan work	Authorised agencies engaged to execute management works	ESMU Circle office Engg. Dept.	Corp. Plg. ESMU /Circle office Engg. Dept.	Management Approval	Monitoring /Supervision
EMP part of bidding documents	Project specific EMP to be included in bidding document	EMP part of contract document	Circle office	ESMU	Management Approval	Monitoring /Supervision
V. Project Implementation						
Execution of Environmental Management Works	Execute environmental management works (IEAR)	Environmental management measures executed	Circle office Authorised agency	ESMU Circle office	Management Approval	Environment management works executed
Execution of CPTD & SIMP	<ul style="list-style-type: none"> ▪ Execute CPTD for TL 	CPTD (TL by MePTCL)	Circle office	ESMU Circle office	Management Approval	Social management

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation /Execution	Review	Approval	Preparation
	<ul style="list-style-type: none"> SIMP for Substations (SIA/GoMe) 	SIA/GoMe (for substations)	SIA/GoMe	Corp. Plg. SIA	SIA/GoMe	works executed Possession of Land
VI. Operation & Maintenance						
Environmental & Social Monitoring	<ul style="list-style-type: none"> Monitor EAMP & CPTD (TL) measures Monitor SIMP Measures by SIA/GoMe 	Periodic monitoring reports Periodic monitoring reports (SIA)	ESMC Circle Office Circle office SIA/GoMe	ESMU Circle office O&M circle office	Management Approval SIA/GoMe	Periodic monitoring report Periodic monitoring reports
VII. Project Review						
Periodic Environmental & Social Review	Review and report on E & S performance of project during construction, O &M	Annual environmental and social review report	Circle office ESM/ Circle office	Corp. Plg. Engg. Dept Fin. dept	Management Approval	FA appraisal GoMe

9. Training & Capacity Building

118. Training and development of employees is an integral part for implementation of ESPP. Training needs identification has been carried out at Corporate and Field level, based on which focused training modules have been developed for

- Strengthening in house corporate level capacity to implement the provision of ESPP.
- Creating Awareness, providing the tools for implementation of Environmental and Social Policy, and accompanying set of management procedures to all departments
- Developing competence within key employees to provide training in their respective departments.

119. Based on the training needs identification ESMU and Field office are key organizational support groups identified, which need to have the required competence to integrate the ESPP document within all departments. The skill requirement for these groups is depicted in **Table 9 1**. Based on skill requirement/improvement at all levels for proper implementation of ESPP, a training programme focusing personnel from Corporate Office, ESMU and Field office is developed (**Table 9.2**) which will be implemented by the Human Resource Department. These training programs are to be conducted with the help of local and national training institutions and experts in various aspects of environmental and social management.

TABLE 9.1: MEPTCL/MEPDCL'S SKILL REQUIREMENT

Milestones	Env. and Social Management Unit (ESMU) at Circle office	Engineering Department	Corporate Planning Department	Field office
Environmental & Social Screening and Scoping for Transmission Lines	<ul style="list-style-type: none"> ➤ ESPP & Project Cycle ➤ Dom./Ext. FA Requirement ➤ EA & SA process ➤ Env. & Soc. issues identification & management technique ➤ Negotiation skills ➤ Mitigation techniques 	<ul style="list-style-type: none"> ➤ E & S issues identification skills ➤ EA & SA process 		<ul style="list-style-type: none"> ➤ EA & SA process ➤ Env. & Soc. issues identification & management technique ➤ Negotiation skills ➤ Mitigation techniques
Environmental & Social approval			<ul style="list-style-type: none"> ➤ EA & SA process ➤ ESPP & project cycle ➤ FA requirement ➤ E&S mgmt. Techniques 	
Environmental & Social Screening and Scoping for sub-station sites	<ul style="list-style-type: none"> ➤ Env. & Soc. issues identification skills ➤ EA & SA process 	<ul style="list-style-type: none"> ➤ E & S issues identification skills ➤ EA & SA process 		<ul style="list-style-type: none"> ➤ E & S issues identification skills ➤ EA & SA process
Environmental Assessment and Management Planning	<ul style="list-style-type: none"> ➤ EA process ➤ EM techniques ➤ Risk assessment ➤ Forest proposal process ➤ Comp. afforestation process 	<ul style="list-style-type: none"> ➤ EA process ➤ EM techniques 		<ul style="list-style-type: none"> ➤ EA process ➤ EM techniques ➤ Risk assessment ➤ Forest proposal process ➤ Comp. afforestation process
Forest Clearance	<ul style="list-style-type: none"> ➤ Forest proposal process ➤ Compensatory afforestation process 	<ul style="list-style-type: none"> ➤ Forest clearance process 		<ul style="list-style-type: none"> ➤ Forest proposal process ➤ Compensatory afforestation process

Milestones	Env. and Social Management Unit (ESMU) at Circle office	Engineering Department	Corporate Planning Department	Field office
GoMe Approvals	<ul style="list-style-type: none"> ➤ FA requirements ➤ Awareness of Central/State laws, policies on environment and social aspects 		<ul style="list-style-type: none"> ➤ Central and Ext. FA requirements ➤ Awareness of Central/State laws, policies on env. and social aspects 	
FA acceptance	<ul style="list-style-type: none"> ➤ FA requirements ➤ Awareness of Central/State laws, policies on environment and social aspects 		<ul style="list-style-type: none"> ➤ Central & Ext. FA requirements ➤ Awareness of Central laws, policies on E&S aspects 	
Social Assessment for Temporary Damages	<ul style="list-style-type: none"> ➤ SA process, ➤ Public consult skills ➤ SM process 	<ul style="list-style-type: none"> ➤ SA process ➤ SM techniques 		<ul style="list-style-type: none"> ➤ SA process, ➤ Public consult skills ➤ SM process
Concurrence of FA for CPTD /SIMP			<ul style="list-style-type: none"> ➤ GoI/GoMe & Ext. FA requirements ➤ Awareness of GoI/GoMe laws, policies on env. and social aspects 	
Consultation for IEAR/CPTD works	<ul style="list-style-type: none"> ➤ Skill to assess Consultation capabilities to meet IEAR/ CPTD 			
Execution of EAMP works	<ul style="list-style-type: none"> ➤ EM techniques ➤ Compensatory Afforestation process 	<ul style="list-style-type: none"> ➤ EM process 		<ul style="list-style-type: none"> ➤ EM techniques ➤ Compensatory Afforestation process
Execution of CPTD	<ul style="list-style-type: none"> ➤ SM process ➤ SM techniques 	<ul style="list-style-type: none"> ➤ SM process 		<ul style="list-style-type: none"> ➤ SM process ➤ SM techniques
Monitoring	<ul style="list-style-type: none"> ➤ Monitoring Techniques 			<ul style="list-style-type: none"> ➤ Monitoring techniques
Annual E & S Review	<ul style="list-style-type: none"> ➤ Review process 			

TABLE 9.2: STAFF DEVELOPMENT PROGRAMME

Course	Training Schedule	Duration Of Programme	For Awareness/ Orientation and for Training of Staff	Department
<ul style="list-style-type: none"> • ESPP • Policy • Contents of ESPP • How MePTCL & MePDCL will implement the ESPP 	Workshop	1/2 day or 1 day	All Senior staff (Dir., ED, GM, AGM and Proposed ESPP Team at Circle office	All
<ul style="list-style-type: none"> • ESPP • Policy • Project cycle • E&S assessment and Management process 	Workshop	2 days	Proposed ESPP Team and relevant staff	ESMU Engg. Dept. Corp. Plg. Legal Dept. Fin. Dept.
<ul style="list-style-type: none"> • RFCTLARRA, 2013 • SIA • R & R Planning • Public consultation 	Workshop	2 days	Interface with State Govt. Agencies like SIA, R & R Commissioner and External Expert	
<ul style="list-style-type: none"> • ESPP • Project cycle • EA&SA process • Env. & Soc. issue identification • Public consultation • Risk Assessment & Management • EAMP &CPTD 	Training Programme	3 days	Proposed ESPP Team and relevant staff	ESMU Circle office

10. Grievance Redressal Mechanism (GRM)

120. GRM has been made an integral part of the organizational setup. The GRM would cover all the operations of MePTCL/MePDCL during planning, survey, implementation, operation, and maintenance stage of the project. MePDCL/MePTCL shall constitute a Grievance Redressal Committee (GRC) headed by Superintending Engineer (SE) to address the grievances that may arise during the planning, implementation and operation phases of the project. The GRC includes members from the utility and others comprising of Local Administration, Village Panchayat Members, Affected Families representative and reputed persons from the society.

121. In case of transmission/distribution line, GRM is built in the tree & crop compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. For substation and DTs (where land acquisition is involved) – GRM is an integral part under the RFCTLARRA, 2013. Public hearings shall be held in the affected areas to bring out the main findings of the SIA, to seek feedback on the findings and to seek additional information and views for incorporating the same in the final documents. Detailed procedure of the same has been given under RFCTLARRA, 2013. MePTCL/MePDCL will interact closely with the State authorities and district administration during implementation of SIMP.

11. Monitoring & Evaluation

122. Vigorous and continuous monitoring of all its activities including environment and social aspects and its mitigation measures would be the key success of MePTCL/MePDCL's project completion. Regular monitoring of activities will be carried out by different department at field and will be reviewed by the Nodal Officer (ESMU) on monthly basis. CMD will review ongoing activities on quarterly including environment and social issues and corrective measures if required are implemented at site.

123. For environmental and social components of a project, environmental and social monitoring plan is developed, based on baseline data and impacts predicted during the environmental and social assessment process. The concerned forest department staffs, as part of their duties monitor impacts on ecological resources through which the transmission line traverses. MePTCL/MePDCL in coordination with forest/revenue officials will monitor timely implementation of various activities such as compensatory afforestation, ROW maintenance, prevention of fire hazards, natural regeneration of vegetation etc. The environmental and social monitoring plan for each project will be integrated with construction, operation, and maintenance and shall be monitored by the ESMC on a monthly basis. The higher management shall apprise through on monthly/quarterly basis.

124. MePTCL/MePDCL does not acquire land for the construction of transmission lines. Land is only for construction of substation (ranging from 0.3 acres- 10 acres for DT and substation up to 132 kV depending upon no. of bays). However, Project Affected Persons (PAPs) are compensated / rehabilitated in accordance with provisions / rules framed under RFCTLAARA, 2013.

125. Since regular and effective monitoring of implementation of EAMP/CPTD for Transmission Line and SIMP for substations are crucial for desired result, MePTCL shall designate one Manager each for Environment and Social related aspects who will be made responsible for all the activities related to implementation/monitoring of the EAMP and CPTD. Further, for effective monitoring/implementation of mitigative measures, help of District Magistrate (DM) / Deputy Commissioner (DC) and other officials of local administration is solicited wherever required. Participation of PAPs in the monitoring of EAMP/CPTD/SIMP is also ensured through regular consultation and their active participation. Major monitoring indicator identified for effective monitoring is presented in Table 11.1.

TABLE 11.1: MONITORING FRAMEWORK

Sl. No	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
1	Pre-Construction	Tower Location and Line alignment w.r.t. Distances from; Set back from nearest dwellings or social institutions Water bodies Agricultural land Ecological protected area Reserved forests Flood Zone	Once - at time of detailed siting and alignment survey and design	MePTCL/MePDCL
		Exclusion of PCB in transformer	Once – As part of tender specification	MePTCL/MePDCL
		Exclusion of CFC in electrical or other equipment	Once – As part of tender specification	MePTCL/MePDCL
		EMF strength	Once – part of detailed alignment survey	MePTCL/MePDCL
		Noise level from Substation/DTs	Once – built in design criteria and specified in tender	MePTCL/MePDCL
		Noise during construction	Once – during construction machinery specification	MePTCL/MePDCL and assigned contractor
		Compensation for temporary or permanent loss of productive land, trees. Monitoring of; Crop compensation plan Tree compensation plan	Once a quarter – Based on consultation with PAP	MePTCL/MePDCL
2.	Construction	Government Clearances	Once for each subproject	MePTCL/MePDCL
		Oil spill containment and spill cleanup	Once – Built in product specification	MePTCL/MePDCL
		Sewage disposal system	Once – in tender specification	MePTCL/MePDCL
		Fire prevention and fire protection equipment monitoring	Once – in tender specification	MePTCL/MePDCL

Sl. No .	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
		Crop disturbance during construction	Periodically when required	MePTCL/MePDCL assigned contractor
		Availability of land for Substation (New)	Periodic monitoring as per RFCTLARRA, 2013	GoMe and MePTCL/MePDCL
		Air borne dust emissions during construction	Every two weeks	MePTCL/MePDCL assigned contractor
		Vegetation marking and clearance	Every two weeks – strictly limited to target vegetation	MePTCL/MePDCL assigned contractor
		Trimming and cutting of trees in ROW	Once per site – Identification of presence of target species with height following vegetation clearance plan	MePTCL/MePDCL assigned contractor
		Disposal of cleared vegetation	Once per site – as approved by statutory authorities	MePTCL/MePDCL assigned contractor
3	Operation and Maintenance	Effectiveness of Training programs and plan	Once a year	MePTCL/MePDCL
		Compliance with transmission tower setback conditions	Once in quarter	MePTCL/MePDCL
		Maintenance of ground clearance to comply with limits of EMF	Once	MePTCL/MePDCL
		Noise levels at boundary nearest to substations	Once a year	MePTCL/MePDCL

12. Budget

128 Adequate financial provision is required to meet the management measures to be undertaken to mitigate the impacts as underlined in ESPP. Based on past experience of implementation of similar projects, MePTCL/MePDCL estimates about 5-10 % overall project towards such measures for which necessary budget provisions shall be made during planning stage itself