Environmental & Social Policy & Procedures (ESPP)

Meghalaya Power Transmission Corporation Ltd.

Meghalaya Power Distribution Corporation Ltd.

February 2015

Executive Summary

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 $25^0$02' and $26^0$07' North and longitudes $89^0$49' and $92^0$50' 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 hills[1]) 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 Nongkhyllem 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	Nongkhyllem 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, Nongkhnum 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 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.

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**
The affected families ▪ Land Owners: 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	**Determination of Compensation :** **1. Market value** of the land • 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. **whichever is higher** Market value x **Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).** **2.** Value of the assets attached to land: Building/Trees/Wells/Crop etc. as valued by relevant govt. authority; **Total compensation = 1+2** **3. Solatium:** 100% of total compensation
(*) Precise scale shall be determined by the State Govt. The indicative values of multiplier factor based on distance from urban areas as provided in the act.	

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

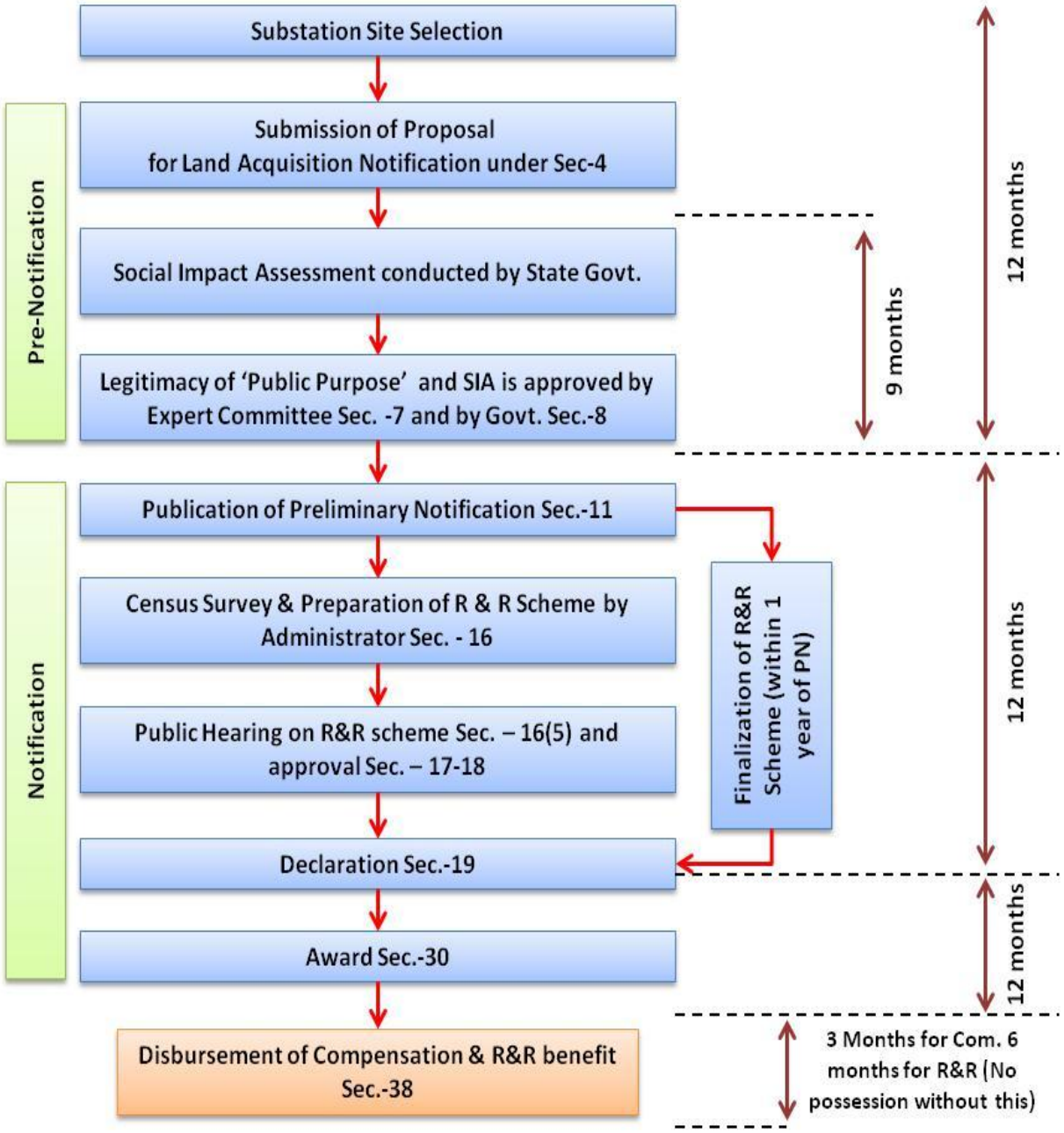
Comprehensive R&R Package (Second Schedule)		
Sl. No.	**Elements of R& R Entitlements**	**Provision**
1.	Subsistence grant/ allowance for displaced families	Rs. 3000 per month per family for 12 months

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/-

Special Provisions for SCs/STs: In addition to the R&R package, *SC/ST families will be entitled to the following additional benefits:*

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	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.
		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; 1. Purchase of land on willing buyer & Willing Seller basis on negotiated rate; 2. Voluntary Donation; and 3. Involuntary Acquisition. 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:

Sl.	Potential Issues	Management Measures
		• 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. Involuntary land acquisitions will be as per the new RFCTLARR Act of 2013.
	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 in1949.
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.	▪ 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.	▪ 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	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
		Firefighting instruments including fire extinguishers are kept in appropriate place for immediate action in case of any fire hazard.
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 SF6 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.

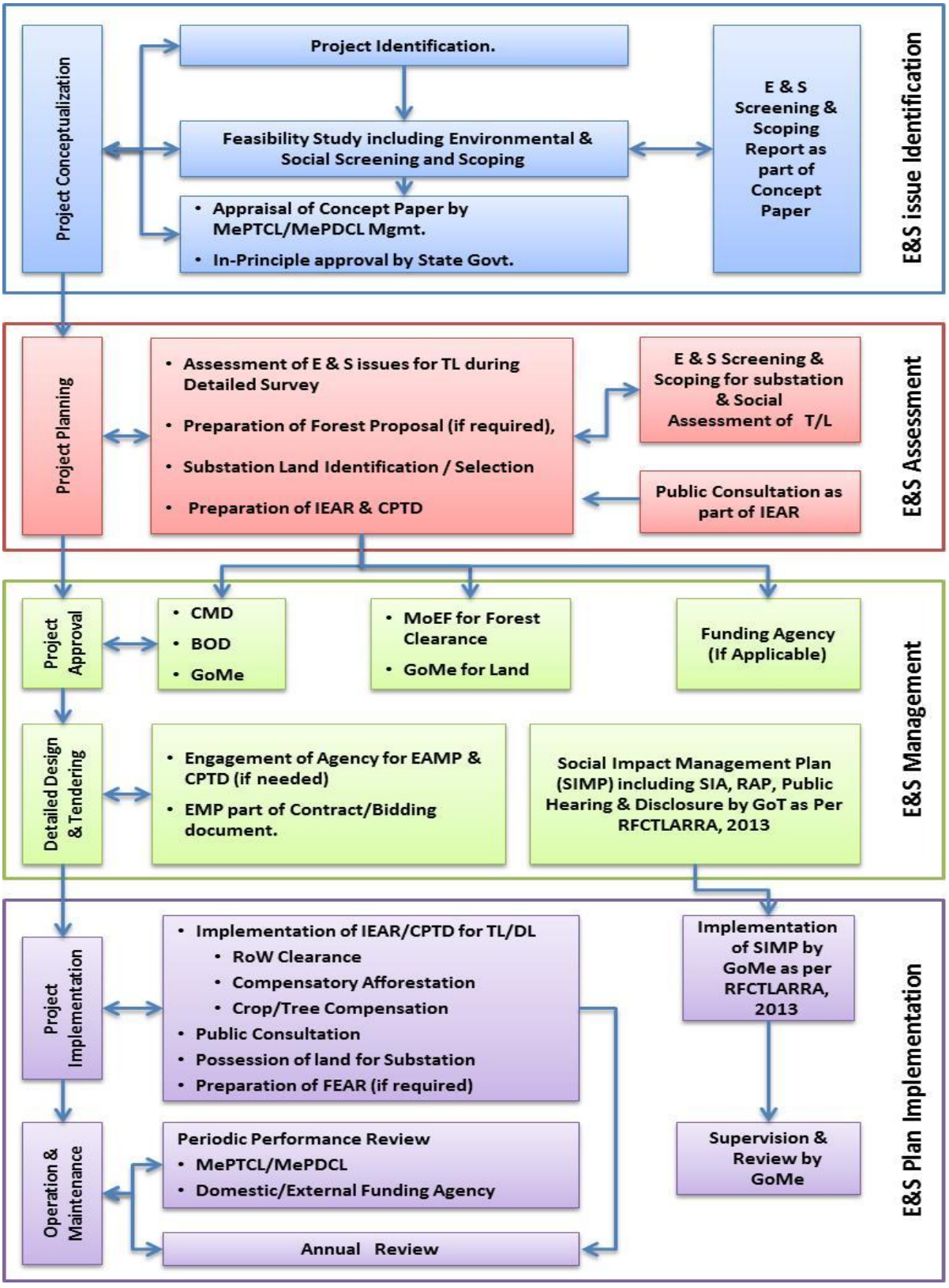
MEPDCL/MePTCL Environment and Social Management Procedures (ESPP)

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		Part of equipment and process design
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/undergrou nd 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

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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 cholofluorocarbons (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 electromagneti c 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