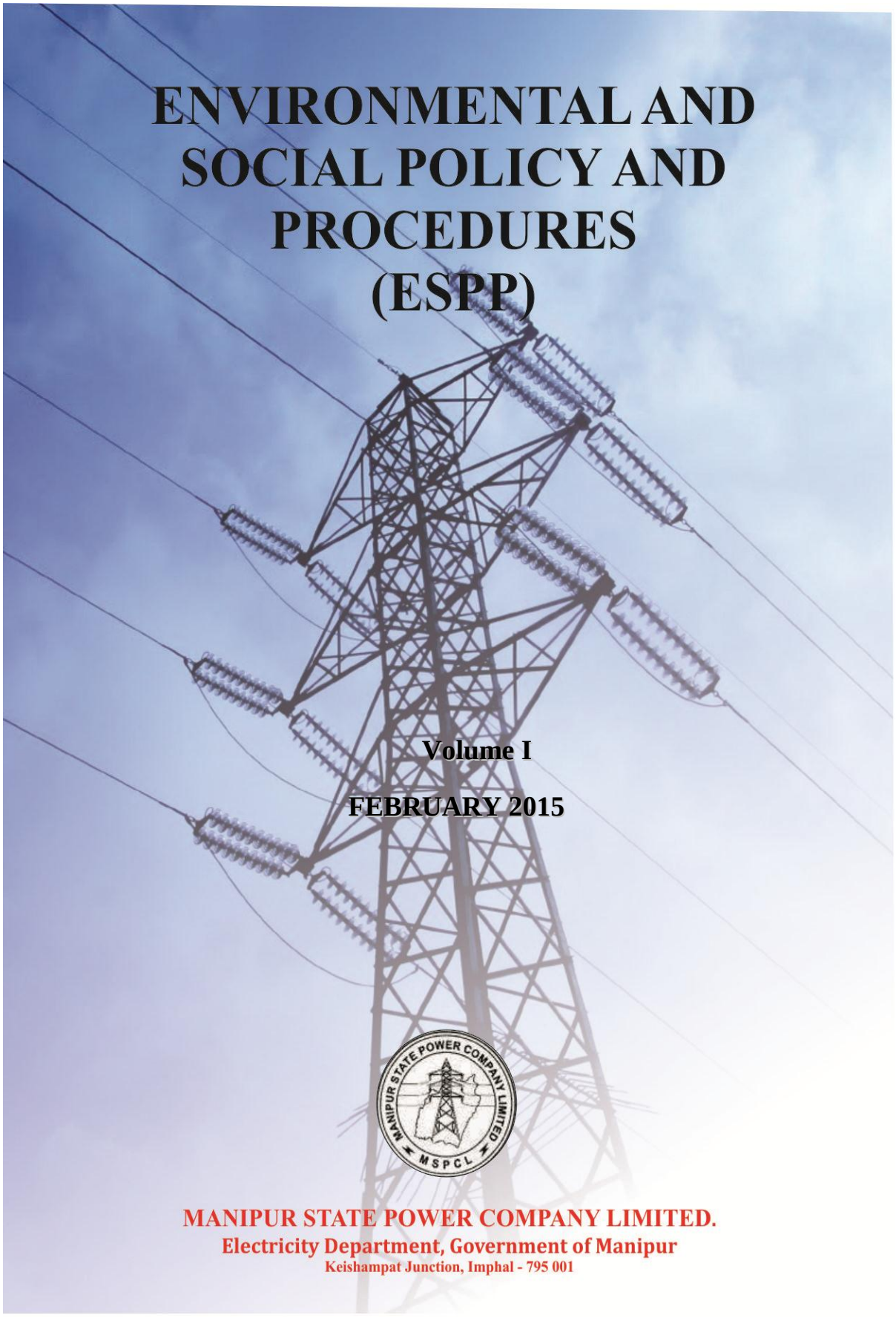
ENVIRONMENTAL AND SOCIAL POLICY AND PROCEDURES (ESPP)



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Abbreviations

ADB	Asian Development Bank
AHDC	Autonomous Hill District Councils
AMI	Automated Metering Infrastructure
APDRP	Accelerated Power Development and Reform Program
ARR	Annual Revenue Requirement
ASI	Archaeological Survey of India
CEA	Central Electric Authority
CEO	Chief Executive Officer
CF	Conservator of Forests
CGS	Central Generating Stations
Ckm	Circuit kms
CMD	Chairman cum Management Director
CPCB	Central Pollution Control Board
CPIU	Central Project Implementation Unit
CPTD	Compensation Plan for Temporary Damages
DC	Deputy Commissioner
DL	Distribution Line
DM	District Magistrate
DoP	Department of Power
DPR	Detailed Project Report
DTs	Distribution Transformers
EA	Environmental Assessment
EAMP	Environment Assessment Management Plan
EIA	Environmental Impact Assessment
EMF	Electro Magnetic Fields
EMP	Environment Management Plan
EPA	Environment Protection Act
ESMC	Environment and Social Management Cell
ESMF	Environment and Social Management Framework
ESPP	Environment and Social Policy and Procedures
FAC	Forest Advisory Committee
FEAR	Final Environment Assessment Report
GHG	Green House Gas
GoI	Government of India
GoMan	Government of Manipur
GRC	Grievance Redressal Committee
GRM	Grievance Redressal Mechanism
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEAR	Initial Environment Assessment Report
IEE	Initial Environment Examination
LAA	Land Acquisition Act
MDoNER	Ministry of Development of North East Region

MIS	Management Information System
MoEF & CC	Ministry of Environment Forests and Climate Change
MoP	Ministry of Power
MSPCL	Manipur State Power Company Limited
NCR	National Council on Radiation
NEC	North East Council
NER	North Eastern Region
NERPSIP	North Eastern Region Power System Improvement Project
NEP	National Environment Policy
NLCPR	Non-lapsable Central Pool of Resources
NOC	No objection certificate
NPV	Net Present Value
O&M	Operation and Maintenance
ODS	Ozone Depleting Substances
OP	Operational Policy
PAF	Project Affected Family
PAP	Project Affected Persons
PCCF	Principal Chief Conservator of Forests
PMC	Project Management Consultant
PPIU	PMC Project Implementation Unit
R&R	Rehabilitation and Resettlement
RAPDRP	Restructured Accelerated Power Development Reform Programme
RFCTLARRA	Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013
RGGVY	Rajiv Gandhi Grameen Vidyutikaran Yojana
RTI	Right of Information
SEBs	State Electricity Boards
SF6	Sulphur Hexafluoride
SIA	Social Impact Assessments
SIMP	Social Impact Assessment and Management Plan
SoI	Survey of India
SPCB	State Pollution Control Board
SPCU	State Project Implementation Unit
SPS	Safeguard Policy Statement
TAC	Tribal Advisory Council
T&D	Transmission & Distribution
TL	Transmission Line
ToR	Terms of Reference
TPDP	Tribal Peoples' Development Plan
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 Manipur. 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, Manipur 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. **Manipur.** In the above background, Manipur 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, Manipur State Power Company Limited (MSPCL) in Manipur is committed to manage them highly sustainably. Towards this, plans have been made by MSPCL to prepare an Environment and Social Policy and Procedures (ESPP) to serve as a guiding instrument. MSPCL assimilates environmental and social management procedures into its corporate functioning and also layout management procedures and protocol to address them. It outlines MSPCL'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 MSPCL. Thus, it enables MSPCL;

- 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.

MSPCL 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.

MSPCL's Environment & Social Policy

Environment & Social Policy Statement

"MSPCL aims to achieve sustainable development by identifying, addressing and managing environmental social and concerns by creating awareness among stakeholders, adopting a transparent approach and introducing the state of the art technologies by adhering to the basic principles of Avoidance, Minimization and Mitigation for ensuring cleaner, safer and healthier environment".

6. The key principles of MSPCL's Environmental and Social Policy are:

- Avoidance of environmentally and socially sensitive areas while planning project activities;
- Minimization of impacts when project activities occur in environmentally and socially sensitive areas;
- Mitigation of any unavoidable negative impacts arising out of its projects.

Methodology & Approach

7. 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. water, soil, etc.);
- Biological environment (forest, animals, birds, etc.); and
- 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).

8. 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 multilateral agencies;
- Review of project related documents; and
- Stakeholders' consultations.

Consultation/ Participation

9. 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.

Manipur at a Glance

10. The State lies between latitude of 23^0 50'N to 25^0 42'N and longitude of $92^0$58'E -$94^0$45'E. The State is bounded by Nagaland (204 km) in the north, Mizoram (95 km) in the south, Assam (204 km) in the west, and by the International borders of the country Burma/Myanmar 352 km) in the east as well as in the south. The State capital is Imphal, located in the centre of the State. The total area covered by the state is about 22,347 km². The State has rich natural resources which include unique

floating mass of vegetation on the Loktak Lake, forests and the wet forests /the pine forests occur between 900-2700 m above MSL. They together sustain a host of rare and endemic plant and animal life. 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. Blessed with an amazing variety of flora and fauna, 67% of the geographical area of Manipur is hill tract covered forests. One third of the population belongs to Schedule Tribes whose lives are intrinsically woven with that of the forests.

11. The State has presently 9 districts of which 5 districts are located in the hill areas and 4 districts are spread out in the valley. The valley areas of the State are covered under Part IX of the Constitution. However, the hill areas of the State are governed by a special State legislation i.e the Manipur Hill Areas District Councils Act, 1971. This Act has provisions similar to those contained in the Sixth Schedule and has established six Autonomous Hill District Councils in Manipur, covering 5 districts. The activities of the Councils are confined to agriculture, horticulture, primary and adult education and tribal welfare. No power to levy taxes is given to these bodies and they depend entirely on grants from the Government. The provisions of the Fifth Schedule are applicable to them. The list of Autonomous District Councils is presented below:

i) **Chandel** Autonomous District Council (Chandel District)
ii) **Churachandpur** Autonomous District Council(Churachandpur district),
iii) **Sadar Hills** Autonomous District Council, Kangpokpi
iv) **Manipur North** Autonomous District Council (Senapati District)
v) **Tamenglong** Autonomous District Council (Tamenglong) District,
vi) **Ukhrul** Autonomous District Council (Ukhrul District).

12. The provisional population of Manipur as per census 2011 was 27, 21,756 out of which 13,69,764 were males and 13,51,992 were females. Decadal growth of population in the State during 2001-2011 was 18.65 % and males growth were 17.88 % and females were 19.44 % respectively. The Scheduled Tribes (STs) and Scheduled Castes (SCs) population consists nearly 35.1% and 3.8% of the total population in the State.

13. Forest is an integral part of the culture and tradition of Manipur as its protection maintains the ecology of the State. The State has a geographical area of 22,327 sq. km. of which 17418 sq.km. (78 %) is the recorded forest area; Reserved Forests constitute 8.40%, Protected Forests 24% and Un-classed Forests constitute 67.60%. The deforestation for Jhumming (shifting cultivation) is an age-old practice in the hills of Manipur. But during the last 20 years there is a tremendous increase in the area of Jhum cultivation, mostly in the dense forest areas caused by rapid increase of population of the tribal living in forest.

14. Manipur has one National Parks (NP) and one Wildlife Sanctuaries (WLS) covering an area of 224.4 km², constituting 5.75% of the total geographical area of the State. Besides, there are also other NP & WLS which are proposed & awaiting settlement proceedings. Details of protected area including its size, location and important flora & fauna are presented in **Table 1** below:

Table 1: Protected Area Network in Manipur

Sl. No.	Name of the National Park/ Sanctuary	District	Area in sq. km	Important Flora and Fauna found
1.	Keibul Lamjao National Park	Bishnupur	40.00	Many fauna & flora: Aquatic/ mammal/ Amphibian of Invertebrate& Vertebrate
2.	Yangoupokpi Lokchao Wildlife Sanctuary	Chandel	184.80	-do-
3.	Bunning Wildlife Sanctuary	Tamenglong	115.80 (Proposed)	Alpine grassland and Forests ecosystem including canes & bamboos, Animals: Tiger, Leopard/Clouded Leopard, Sambar etc. and many other important flora
4.	Zeilad Wildlife Sanctuary	Tamenglong	21.00 (Proposed)	Abode of migratory birds, Many important fauna & flora Aquatic/ mammal/ Amphibian (Invertebrate& Vertebrate)
5.	Kailam Wildlife Sanctuary	Churachandpur	187.50 (Proposed)	Sub-tropical Wet Hill Forests (8B/C2), Home of five varieties of horn bills & i/c Tiger, Leopard/Clouded Leopard, Sambar etc. and many other important flora.
6.	Jiri-Makru Wildlife Sanctuary	Tamenglong	198.00 (Proposed)	Virgin forests of catchments area of Jiri & Makru rivers hosting varieties of flora and fauna.
7.	Shiroi Hill National Park	Ukhrul	41.00 (Proposed)	Home of unique and endemic ground lily

15. The State has predominantly one source i.e. Central Sector allocation (mixture of hydro & thermal) of 142.3MW and 10.5MW of power from MSPCL. The state is endowed with hydro-power potentiality for power generation without much damage to environment. Present (2014-15) peak demand of the state is 262 MW. Own generation is negligible. MSPCL gets about 129 MW from Central sector power allocation out of allocation of 153.5 MW including about 17/18 MW from Pallatana OTPC, Tripura. There remains shortfall of about 133MW. The state is also supposed to get allocated share of 21 MW and 40 MW from Pallatana GBPP (726.6MW), Tripura and Bongaigaon Thermal Power Station (750MW), Assam respectively after completion of the projects and its associated Transmission lines. Efforts are underway not only to bridge the gap but also to ensure that adequate power is made available to enable boosting of State economy. An abstract of subprojects for the tranche-1 under expansion/augmentation of power system network in the State of Manipur 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.	132 kV Transmission lines (New/ Stringing & Renovation)	7	554 Ckt.km.	1639.74
2	132/33kV substations (New/Augmentation)	6	160 MVA	
3.	33 kV Distribution lines (New/Strengthening)	12	222 Ckt.km.	1403.61
4.	33/11kV substations (New/Augmentation)	34	229.4 MVA	

Stakeholder analysis

16. 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/panchayat 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:

17. **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.

18. **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
- Local Participation and Inter agency coordination.

Impacts – Social

19. 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

- Employment creation;
- Improved and reliability of power supply;
- Increased economic activity;
- Improved road infrastructure;
- Gender Issues – more opportunities to women during construction phase as laborers and also for catering, etc. activities around the camp site;
- Less reliance of fossil fuels like firewood, charcoal etc.;
- Capacity Building.

ii. Negative Impacts

- Loss of land;
- Restriction of land use and land rights;
- Health and Safety risk including HIV/AIDS.

Impacts - Environment

20. 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

- Less dependence on fossil fuels including firewood, charcoal etc.

ii. Negative Impacts

- Impacts on Vegetation/forest
- Impacts on Wildlife Habitats and Migratory Birds
- Impacts on Drainage, Soil erosion Water Resources
- Impacts on Traffic and Road Infrastructure
- Impacts from Solid/ Liquid Wastes, Oil spillage
- Effect of Electric and Magnetic Fields
- Air Quality, Noise and Vibration
- SF6 Gas leakage to atmosphere
- Health & Safety
- Impacts on Aviation and Communication

The issues identified and impacts likely to occur are to be managed with the regional, national and international legal and regulatory framework.

Policy, Legal and Regulatory Framework

21. MSPCL 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.

22. 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.

23. **Fifth Schedule:** In addition to basic fundamental rights, special provisions have been extended to the Tribal Areas of State under the 5th Schedule [Articles 244(1)]. As per Para 4 (1) of the Fifth Schedule of the Constitution, there shall be Tribal Advisory Council (TAC) in each State having Scheduled Areas therein and, if the President should directs, also in any State having Scheduled Tribes but non-Scheduled Areas therein. As per provisions of Fifth Schedule, the members of TAC should be not more than 20 of whom, as nearly as may be, three-fourths shall be the representatives of the STs in the Legislative Assembly in the State. Role of TAC is to advise on such matters pertaining to the welfare and advancement of the Scheduled Tribes in the State as may be referred to them by the Governor. No regulation shall be made unless the Governor making the regulations has, in the case where there is a TAC for the State, consulted such Council.

24. **Environment :** Mandatory environmental requirements for MSPCL at state level include: sanction of GoMan 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.

25. 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. MSPCL 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 5 above.

26. **Social:** Mandatory Social requirements for MSPCL 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.

27. **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.

28. **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. GoMan) 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 MSPCL's responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation.

28.1 **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. 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

A. Comprehensive Compensation Package (First Schedule)	
Eligibility for Entitlement	**Provisions**
The affected families ▪ Land Owners: 1. Family or company whose land/other	**Determination of Compensation :** **1. Market value** of the land • as specified in the Indian Stamp Act, 1899 or

A. Comprehensive Compensation Package (First Schedule)	
Eligibility for Entitlement	**Provisions**
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	• 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

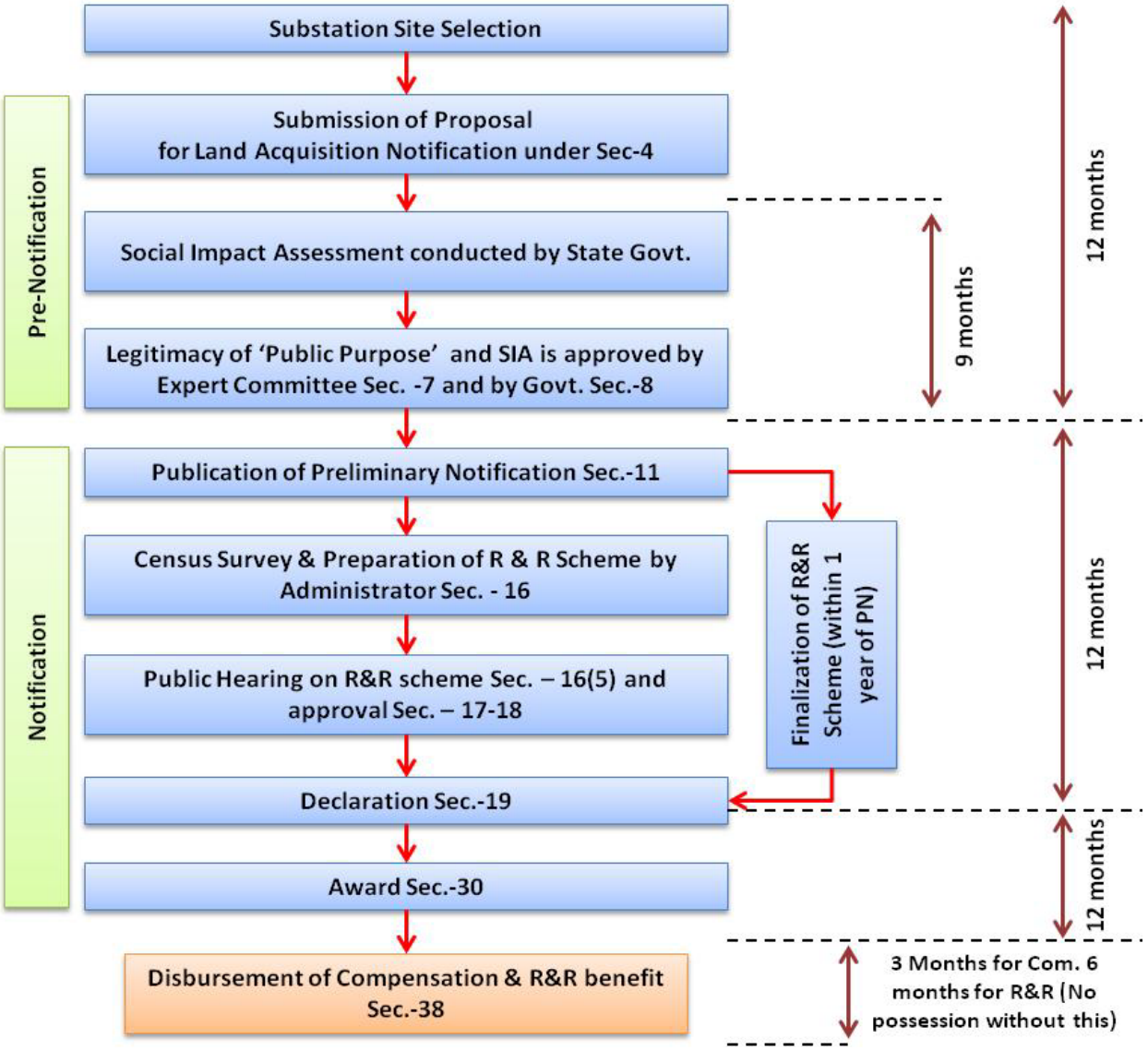
A Comprehensive R&R Package (Second Schedule)		
Sl. No.	**Elements of R& R Entitlements**	**Provision**
1.	Subsistence grant/ allowance for displaced families	Rs. 3000 per month per family for 12 months
2.	The affected families shall be entitled to:	(a) Where jobs are created through the project, mandatory 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

A Comprehensive R&R Package (Second Schedule)		
Sl. No.	**Elements of R& R Entitlements**	**Provision**
		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

29. 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 MSPCL's transmission/Distribution (33 kV and above) projects are;

i) Project Conceptualization
ii) Project Planning
iii) Approval
iv) Detailed Design and Tendering
v) Project Implementation
vi) Operation & Maintenance
vii) Review and Monitoring and Evaluation.

Environmental and Social Concerns

30. **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 SF_6 gas.

31. **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.

32. 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

No	Potential Issues	Management Measures
1	Loss of land	For Trenche-1, it is not a major issue as land for construction of proposed transmission and distribution substations are already available with MSPCL except for Thoubal where fresh land is needed (for details refer Table-5.3). MSPCL shall secure the required 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

No	Potential Issues	Management Measures
		relocation/displacement 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 MSPCL 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, MSPCL avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged. However, securing lands may be an issue for subsequent investments under future tranches as well as those supported with other sources of finance. Keeping in this in view, and in case, lands may have to be secured, the same it can be accomplished through following three methods; (i) Purchase of land on willing buyer & Willing Seller basis on negotiated rate; (ii) Voluntary Donation; and (iii) Involuntary Acquisition. In case of procurement of land through private purchase, MSPCL 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 MSPCL 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: • 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 MSPCL 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 IA and GoMan. Involuntary Land Acquisitions will be made deploying the GOI's new RFCTLARR Act, 2013.

No	Potential Issues	Management Measures
4	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, MSPCL 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.
5	Impact on Tribal	The population of Manipur as per census 2011 was 2721756. The Scheduled Tribes (STs) population consists nearly 35% of the total population in the State. The project is being implemented in the tribal areas (Fifth Schedule provision of the Indian Constitution) of Manipur and bulk of the beneficiaries are 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, Fifth Schedule provision stipulates that all projects do need to secure prior consent of Hill /Village Councils. Hence, consultations will be carried out in these areas to obtain consent as necessary before initiating project activity in the area. 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	MSPCL 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 MSPCL 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, MSPCL will follow the laid down procedure in the Section-4 of Indian Treasure Trove Act, 1878 as amended in1949.

Table 6: Environment Management Measures

No	Potential Issues	Management Measures
A	Minimizing adverse impact on natural forests	MSPCL 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.
	Clearing/Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees.
	▪ Vegetation damage ▪ Habited Loss	To minimise damage to vegetation and habitat fragmentation, MSPCL utilizes hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.
	▪ Habitat fragmentation ▪ Edge effect on flora & fauna	MSPCL 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.
	Chances of accident involving elephant in the specified corridor due to placing of poles	There is no elephant corridor as such in Manipur. The Anko Range in Manipur has about 50 elephants, which is contiguous with those of the Somra tract of Myanmar. However, if some movements are repeatedly noticed (in stray cases), MSPCL shall try suitable design modification in the pole of 33kV line like provision of spike guards, barbed wire fencing or any other arrangement and shall incorporate the same in such location, if required.
B	Chemical contamination from chemical maintenance techniques	MSPCL does not use chemicals for forest clearance/ RoW maintenance.
	Poly-Chloro-Biphenyls (PCBs) in electrical equipment.	MSPCL use mineral oil in electrical equipment's. Specification of oil containing PCB less 2 mg/kg (non –detectable level) stated in the tender document.
C	Change in land use and population relocation due to towers/poles	MSPCL does not acquire land for its transmission towers. It pays compensation for any crop loss and damage caused during its activities. MSPCL allows regeneration and cultivation beneath the towers for Transmission Line (TL) around poles/ structures and lines.
	Induced secondary development during construction	MSPCL operations are short-lived and do not induce secondary developments during construction.
	Erosion of soil and drainage along the cut and fill slopes in hilly areas	MSPCL 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.

No	Potential Issues	Management Measures
D	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. MSPCL shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
	Air craft hazards from transmission lines and towers	MSPCL as per the requirement of IS 5613 of July'94 provides aviation markers, night-lights for easy identification of towers in notified/selected areas.
	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. MSPCL uses best available technology for lines and do not cause any hazards to health and safety.
	Fire Hazards	Fire hazards are mostly occurred in forest area. However, MSPCL uses state of art automatic tripping mechanism for its transmission/distribution and substations 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.
	Pollution	Although pollution is not an issue with transmission/ distribution projects still MSPCL will make efforts to further minimize it. Sites are cleared of all the leftover materials and debris to avoid any chance of pollution.
	GHG (SF_6 Gas)	Although leakage of SF6 is not a major issue, MSPCL will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

33. 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.

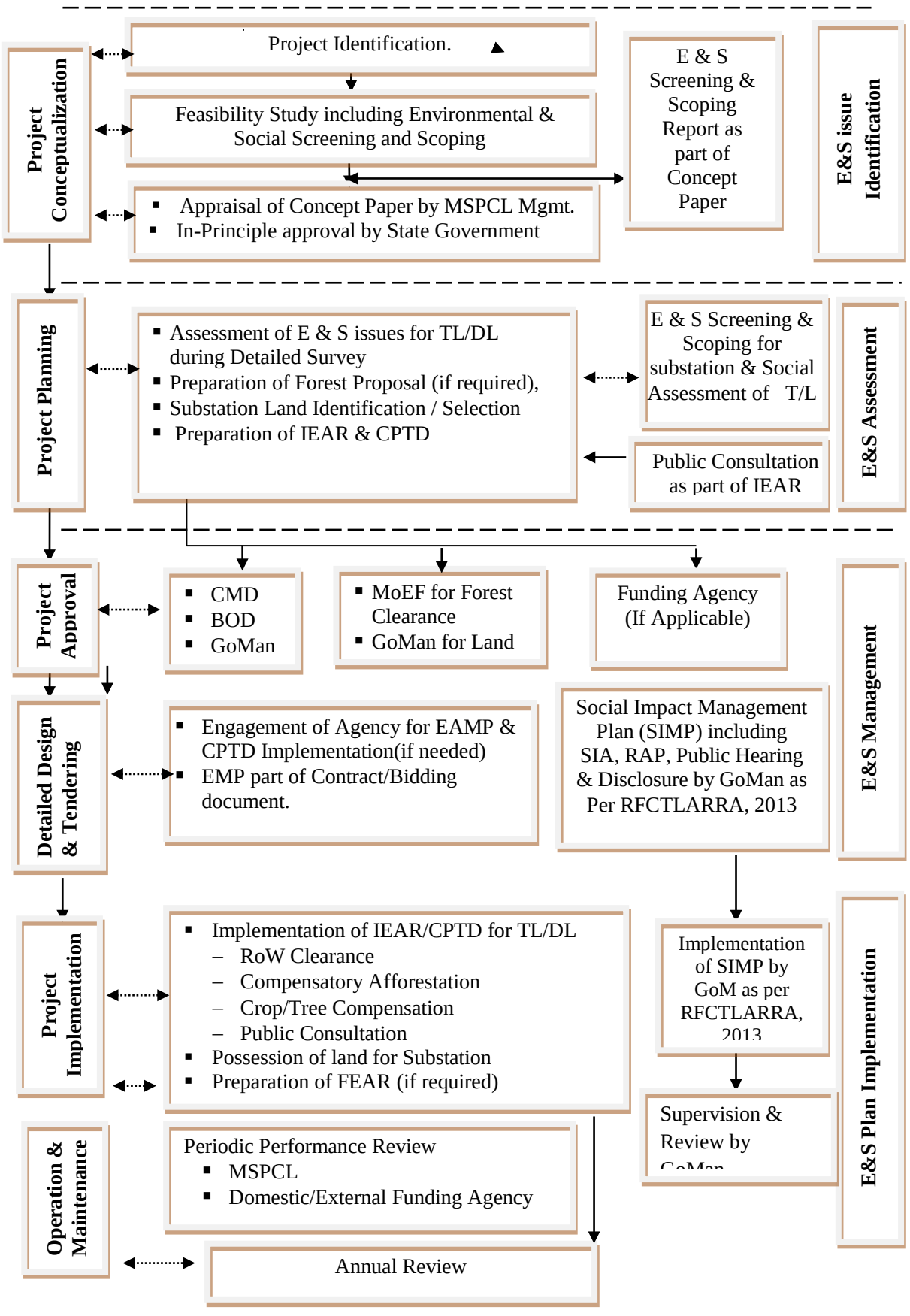
MSPCL's Environment and Social Management Procedures (ESPP)

34. MSPCL 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-19** of the main report**.**

35. Likewise for substation land, MSPCL 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



Environmental and Social Risk assessment

36. Environmental and Social Risk Assessment is a vital part of MSPCL'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 MSPCL evaluate these risks, both qualitatively and quantitatively, and prioritize them. Based on prioritization, environment and social management options are selected. MSPCL'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: MSPCL's Risk Responsibility Framework

Risk	Government of Manipur (GoMan)	MSPCL	Contractor	Insurers
Non-compliance Regulatory	✓	✓	✓	-
Non-compliance Contractual	-	-	✓	-
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health etc.	-	✓	-	-
Force Majeure: Insurable	-	-	-	✓
Force Majeure: Non-Insurable	✓	✓	-	-
Inclusion/ Exclusion of concerned Communities/ NGOs	✓	✓	-	-
Public Interest Litigation	✓	✓	-	-

Implementation Arrangements

37. MSPCL 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, MSPCL 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 coordinated system of functioning to be adopted by Corporate Planning who is the spokesperson of CMD/Chief Executive Officer (CEO) of MSPCL .
- ✓ An emphasis on intra-departmental approach, demarcation of departmental responsibilities and the delegation of authority which will upshot quick response and amendment to change.
- ✓ A commitment to provide at all times the best possible time bound quality service in all areas of its operations.

38. MSPCL's commitment to the ESPP shall have to be developed with these principles. To ensure effective implementation of its ESPP, MSPCL will focus on:

- ✓ Strengthening the implementation of the ESPP by deploying specialist or redeployment of appropriately trained personnel at key levels;

- ✓ Placing dedicated manpower with specialization in the respective field to deal and manage the environment and social issues;
- ✓ Reinforcing in-house capabilities by working with specialized external agencies;
- ✓ Frequent/ regular review by higher management;
- ✓ Annual review of the ESPP implementation and problem faced to start with internally or through external agencies as necessary.
- ✓ A robust objective oriented M&E system tracking performance of key indicators.

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

39. 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 MSPCL.
- **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)

40. GRM has been made an integral part during planning, survey, implementation, operation and maintenance stage of the project. MSPCL shall constitute a Grievance Redressal Committee (GRC) headed by GM (Projects), P & MM 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.

41. 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, 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. MSPCL will interact closely with the State authorities and district administration during implementation of SIMP.

Annex – 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	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 and sensitive locations	Tower/pole location and overhead/ underground line alignment selection (distance to nearest dwellings or social institutions)	Consultation with local authorities/ autonomous councils and land owners – once	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 placement		
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

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
12	Interference with drainage patterns/ irrigation channels	Flooding hazards/ loss of agricultural production	Appropriate sitting of towers to avoid channel interference	Tower/pole location and overhead/ underground line alignment selection (distance to nearest flood zone)	Consultation with local authorities and design engineers – once	IA	Part of detailed alignment survey and design
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 cleanup equipment.	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	IA (Contractor through contract	Construction period

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
					ground disturbance- once at the start of each construction phase	provisions)	
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	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

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
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
		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	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 land forming) not undertaken during the monsoon season	Seasonal start and finish of major earthworks(P^H, BOD/ COD, Suspended solids, others)	Timing of major disturbance activities –prior to start of construction activities	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
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) Statutory approvals	Amount of ground disturbance – every 2 weeks Statutory approvals for tree clearances – once for each site	IA (Contractor through contract provisions)	Construction period
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 workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste disposal facilities – once each new facility	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
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 working condition	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	Incorporating good design and construction management	IA (Contractor through contract	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)	receiving waters; area re-vegetated in m^2; amount of bunds constructed [length in meter, area in m^2, or volume in m^3])	practices – once for each site	provisions)	
			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	IA (Contractor through contract provisions)	Construction period
			As much as possible existing access ways will be used	Design basis and layout	Incorporating good design		
			Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m^2)	Consultation with affected parties – twice –		
		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
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	Loss of land values	Existing borrow sites will be used to source aggregates, therefore, no	Contract clauses	Incorporating good construction	IA (Contractor	Construction period

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	(quarry areas)		need to develop new sources of aggregates		management practices – once for each site	through contract provisions)	
38	Health and safety	Injury and sickness of workers and members of the public	Safety equipment's (PPEs) for construction workers	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
			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				
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
			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	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	Compliance with setback distances ("as-built" diagrams)	Setback distances to nearest houses – once in quarter	MSPCL	During operations

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	alignment & design		supervision at sites.				
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	MSPCL	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	MSPCL	During operations
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	MSPCL	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	MSPCL	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	MSPCL	Design and operation

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
			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		
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	MSPCL	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	MSPCL	Operation
			Preparation and training in the use of O&M manuals and standard operating practices				

Clause No.	Project activity/ stage	Potential impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
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	MSPCL	Operation
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	MSPCL	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	MSPCL	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	MSPCL	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	MSPCL	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 Manipur. 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, Manipur and Nagaland. Ministry of Power (MoP), GoI has appointed POWERGRID, the CTU, as Implementing Agency for the Project in six North Eastern States. 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:

(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.

1.1 State Specific Details – Manipur

5. The State of Manipur is spread over an area of about 22,327 sq. km with a population of more than 2.7 million. The State faces significant bottlenecks in electricity access and availability level. The present per capita energy consumption is of the order of 240 units (kWh) against the regional per capita consumption of about 258 units and national per capita consumption of about 779 units. During last 7 years, the total energy consumption and the total numbers of Consumers have moved up by almost 105.8% and 28.56% respectively, a phenomenal growth of both i.e. energy Consumption from 197 MU to 406MU (105.8%) and Nos. of consumers from 1.81 lakhs to over 2.32 lakhs (28.56%).It is expected that the demand will increase on an average of more than15%per year in regards to energy consumption and 4.08 % per year in nos. of consumers. The State has predominantly one source i.e. Central Sector allocation (mixture of hydro & thermal) of 142.3MW and 10.5MW of power from MSPCL. The state is endowed with hydro-power potentiality for power generation without much damage to environment. Present (2014-15) peak demand of the state is 262 MW. Own generation is negligible. MSPCL gets about 129 MW from Central sector power allocation out of allocation of 153.5 MW including about 17/18 MW from Pallatana OTPC, Tripura. There remains shortfall of about 133MW. As most of the generation projects in the north eastern region are hydro in nature, the state faces shortage of power during low-hydro generation condition

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. The Power Map of Manipur indicating the existing and proposed T&D network is placed in **Figure - 1.1**. 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.

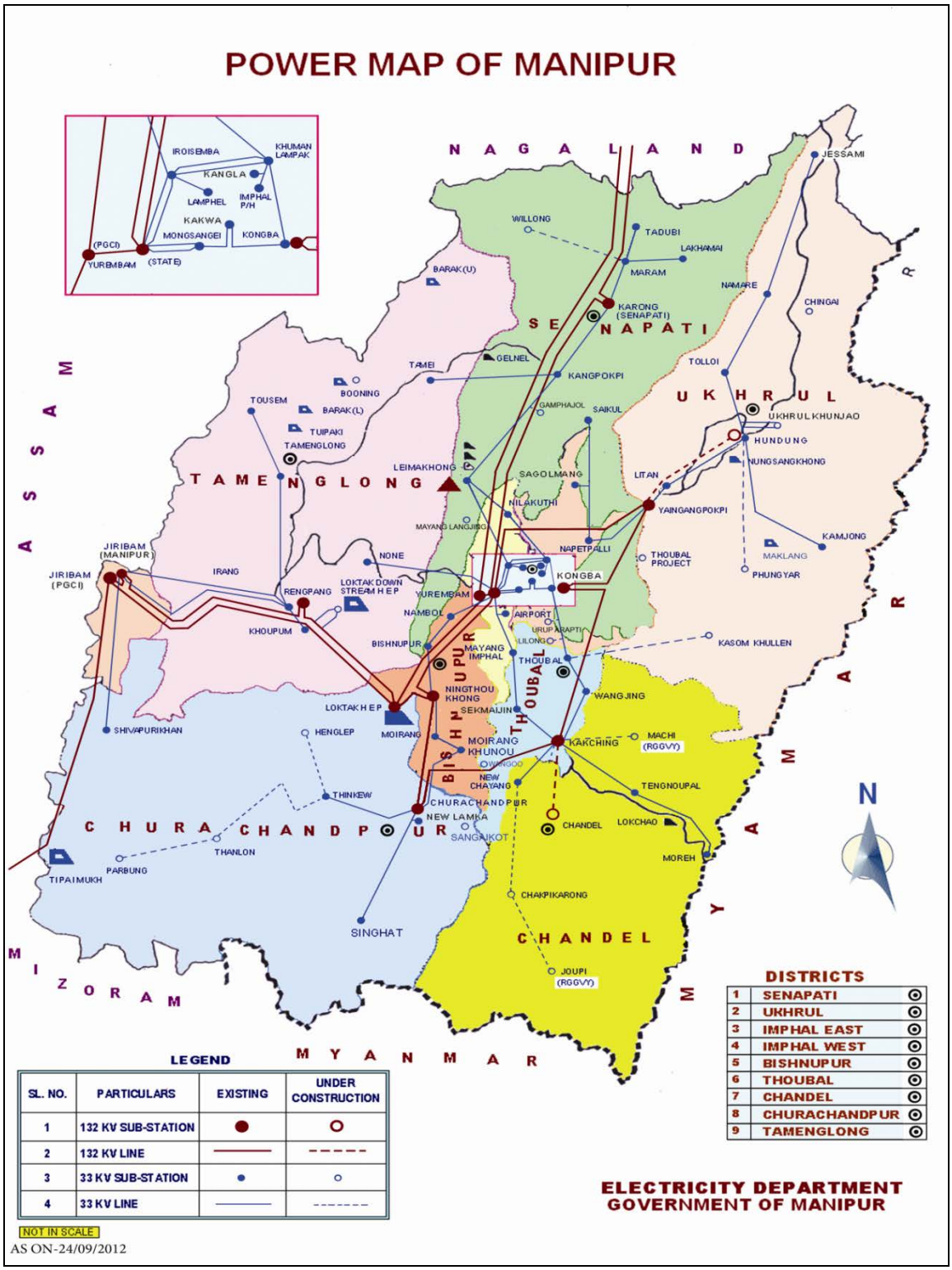
Table – 1.1 : Summary of subprojects in Tranche- I under NERPSIP

Sl. No.	Name of the subproject	Quantity (Nos.)	Capacity Addition (Ckt. Km/MVA)	Estimated Cost (in Millions)
1.	132 kV Transmission lines (New/ Stringing & Renovation)	7	554 Ckt.km.	1639.74
2	132/33kV substations (New/Augmentation)	6	160 MVA	
3.	33 kV Distribution lines (New/Strengthening)	12	222 Ckt.km.	1403.61
4.	33/11kV substations[1] (New/Augmentation)	34	229.4 MVA	

7. The prime objective of the project/subproject is to improve the power sector in the State of Manipur 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.

[1]*The substation of 33/11 kV is installed for stepping down the voltage from 33 kV to 11 kV level to facilitate its further transmission to distribution network for its logical use by consumers after further stepping down to 433 V level. The electrical installations in the said substation comprises of transformers, breakers, capacitors etc. and other protection/controlling devices to ensure required power flow".*

Figure – 1.1 Power Map of Manipur



2. Environment and Social Context – Manipur

8. Environment and Social Policy and Procedures (ESPP). As the MSPCL 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 develop the Environment and Social Policy and Procedures (ESPP) for MSPCL.

9. The MSPCL'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 MSPCL officials and field verifications. The ESPP of MSPCL assimilates environmental and social management procedures into its corporate functioning and also layout management procedures and protocol to address them. It outlines MSPCL'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 MSPCL:

- 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

"MSPCL aims to achieve sustainable development by identifying, addressing and managing environmental social and concerns by creating awareness among stakeholders, adopting a transparent approach and introducing the state of the art technologies by adhering to the basic principles of Avoidance, Minimization and Mitigation for ensuring cleaner, safer and healthier environment".

10. MSPCL 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 Manipur 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. Manipur - An overview

15 Manipur State lies between at latitude of 23^0 50'N to 25^0 42'N and longitude of $92^0$58'E - $94^0$45'E. The state is bounded by Nagaland (204Km) in the north, Mizoram (95Km) in the south, Assam (204.1Km) in the west, and by the International borders of the country Burma/Myanmar 352Km) in the east as well as in the south. The state capital is Imphal, located in the centre of the state. The total area covered by the state is about 22,347 km². The capital lies in an oval-shaped valley of approximately 700 square miles (2238km^2) surrounded by blue mountains and is at an elevation ~~of~~ varies from 790 metres to 2020 m above the sea level. The slope of the valley is from north to south. The mountain ranges prevent the cold winds from the north from reaching the valley and bar cyclonic storms originating from the Bay of Bengal. Like other north-eastern states, it is largely isolated from the rest of India. Besides air services, National Highway NH-102 links Manipur with the rest of the country through the railway stations at Dimapur in Nagaland at a distance of 215 km from Imphal. National Highway 37 also connects Manipur with another railway station at Silchar in Assam, which is 269 km away from Imphal. The road network of Manipur, with a length of 8648Km (with surfaced & un-surfaced as 4573 and 4075 Km approx. respectively) connects all the important towns and distant villages.

16 The State has rich natural resources which include unique floating mass of vegetation on the Loktak Lake, forests and the wet forests /the pine forests occur between 900-2700 m above MSL. They together sustain a host of rare and endemic plant and animal life. 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. Blessed with an amazing variety of flora and fauna, 67% of the geographical area of Manipur is hill tract covered forests. One third of the population belongs to Schedule Tribes whose lives are intrinsically woven with that of the forests. 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, poor infrastructure.

3.1 History

17 The present Manipur before being a part of India, an Eastern most tiny constituent State of the Indian union to the western boarder of the Burma/Myanmar, was one of the many hundreds of kingdoms of the south and southeast Asia and an Independent Sovereign Country up to the advent of British Rulein 1891 AD , in all probable meanings of the concept of 'Sovereignty'.The tiny country

became a Hindu State after Pamheiba (Name by the Indigenous People) Garivaniwaz (by the Hindu Immigrants) became king of Kangleipak in 1709 A.D.

18 Manipur came under British rule as a princely state (earlier name: kangleipak). During World War II, Manipur was the scene of many fierce battles between the Japanese and the British Indian forces. After the war, the Manipur Constitution Act of 1947 established a democratic form of government, with the Maharaja as the Executive Head. When India achieved independence in 1947, Manipur acceded to the new Union. Manipur was a union territory from 1962 and later became a full-fledged state on 21st January 1972.

3.2 Governance and Administration

19 The 73rd and 74th Constitutional Amendments Acts marked a new era in the federal democratic set up of the country so far as it conferred constitutional status to the panchayats and municipalities and recognized them as the third tier of Government. The Constitutional amendment provide for devolution of powers and responsibilities with respect to preparation of plans and programmes for economic development and social justice and implementation of 29 subjects and 18 subjects listed in XI and XII Schedule of the Constitution of India. Post 73rd Constitutional Amendment the Government enacted the Manipur Panchayati Raj (MPR) Act and established a two-tier Panchayati Raj Institutions (PRIs) system at the village and district levels. The State has 9 districts of which 5 districts are located in the hill areas and 4 districts are spread out in the valley. Consequent upon the 74th Constitutional Amendment the Government enacted the Manipur Municipality Act 1994. There are three categories of Urban Local Bodies (ULBs) in the State *e.g.*Municipal Councils (MCs), Nagar Panchayats (NPs) and Small Town. However, the state is unique and distinguished by the existence of separate legislative, governance and judiciary systems for tribal areas. Meeteilon (Manipuri) and English languages are official language of the State. The present administrative setup of state is presented in **Table 3.1.**

Table 3.1: Administrative Setup in Manipur

Sl. no.	Districts	Area (km^2)	Population	Headquarters
1.	Bishnupur	530	240,363	Bishnupur
2.	Churachandpur	4570	271,274	Lamka
3.	Chandel	3313	144,028	Chandel
4.	Imphal East	709	452,661	Porompat
5.	Imphal West	519	514,683	Lamphelpat
6.	Senapati	3271	354,972	Senapati
7.	Tamenglong	4391	140,143	Tamenglong

8.	Thoubal	514	420,517	Thoubal
9.	Ukhrul	4544	183,115	Ukhrul

Source: Census 2011

20 The valley areas of the State are covered under Part IX of the Constitution. However, the hill areas of the State are governed by a special State legislation i.e the Manipur Hill Areas District Councils Act, 1971. This Act has provisions similar to those contained in the Sixth Schedule and has established six Autonomous Hill District Councils in Manipur, covering 5 districts. The activities of the Councils are confined to agriculture, horticulture, primary and adult education and tribal welfare. No power to levy taxes is given to these bodies and they depend entirely on grants from the Government. The provisions of the Fifth Schedule are applicable to them. The list of Autonomous District Councils is as follows:

i) **Chandel** Autonomous District Council (Chandel District),
ii) **Churachandpur** Autonomous District Council(Churachandpur district),
iii) **Sadar** Hills Autonomous District Council, Kangpokpi
iv) **Manipur North** Autonomous District Council (Senapati District)
v) **Tamenglong** Autonomous District Council (Tamenglong) District,
vi) **Ukhrul** Autonomous District Council (Ukhrul District).

The administrations of the Tribal areas are carried out by the Deputy Commissioners concerned, who on the other hand act as District Magistrates with support of the District level officer and Block Development officers. At the District level, there are Autonomous Districts Councils (ADCs). There are two (2) ADCs in the Senapati District and one ADC in each of the remaining hill districts constituted under the Manipur (Hill Areas) Districts Councils Act, 1971.

At the State level there is Hill Area Committee constituted under the Manipur Legislative Assembly (Hill Areas Committee) order, 1972. The Hill areas Committee comprises of all MLAs elected from the hill areas of the State as its members. The members then elect Chairman and Vice Chairman and other functionaries through nomination/consensus. This is the highest body in the State at the legislative level to oversee the planning, implementation and monitoring of all development activities in the hill areas of the State.

In almost all the cases tribal lands belong to tribal Chiefs/individual/Community. There are restrictions on transfer of land to non-tribal. Moreover, the land revenue acts like LAA/RFCTLARRA, 2013 are not applicable in such hill areas yet and all transfer of land for developmental/infrastructure projects is carried out with the consent of chief/headman of village council under supervision of concerned DC at local level and Hill area Committee at State level.

3.3 Demographic Profile

21 The provisional population of Manipur as per census 2011 was 27, 21,756 out of which 13,69,764 were males and 13,51,992 were females. The population of Manipur has increased by 4,27,860 during the decade. Decadal growth of population in the State during 2001-2011 was 18.65 % and males growth were 17.88 % and females were 19.44 % respectively. The details of population as per Census 2011 are presented in **Table 3.2.**

Table 3.2: Demographic Profile

S. N.	District	Population 2011			Percentage decadal growth rate of population		Sex- Ratio (Number of Females per 1000 Males)		Population density per sq. km.		Literacy in %
		Persons	Males	Females	1991-01	2001-11	2001	2011	2001	2011	2011
1.	Senapati	354,972	183,081	171,891	36.09	25.16	951	939	87	109	75.00
2.	Tamenglong	140,143	71,762	68,381	29.23	25.69	922	953	25	32	70.40
3.	Churachandpur	271,274	137,748	133,526	29.36	19.03	944	969	50	59	84.29
4.	Bishnupur	240,363	120,185	120,178	15.27	15.36	993	1000	420	485	76.35
5.	Thoubal	420,517	209,674	210,843	23.87	15.48	998	1006	708	818	76.66
6.	Imphal West	514,683	253,628	261,055	16.70	15.82	1004	1029	856	992	86.70
7.	Imphal East	452,661	225,130	227,531	19.49	14.63	991	1011	557	638	82.81
8.	Ukhrul	183,115	94,013	89,102	28.83	30.07	916	948	31	40	81.87
9.	Chandel	144,028	74,543	69,485	66.62	21.72	981	932	36	43	70.85
	Total	**2,721,756**	**1,369,764**	**1,351,992**	**24.86**	**18.65**	**974**	**987**	**103**	**122**	**79.85**

Source: Census of India, 2011

22 Manipur is inhabited by three major ethnic group - the Meiteis including Meitei Muslim in the valley and the Nagas and the Kuki-Chin-Mizo tribes in the hills. Peoples are predominantly Mongoloid, and speak Tibeto-Burmese languages. The Meiteis constitute the majority population in the state and are a fairly homogenous people. They are divided into seven clans (*salai*s): Manganz, Luwang, Khuman, Angom, Moirang, Chenglai (Sarang-Leishangthem) and Khaba-Nganba. The Muslims, known locally as Meitei Pangans are an economically significant though small-sized community. There are no followers of Buddhism in the valley. Christianity, which was introduced by the British, was embraced only by the hill tribes. The Meiteis and other non-tribal groups constitute about 66 per cent of the total population of the state. These groups speak Manipuri.

23 33 tribal groups are recognised by the Government of India as Scheduled Tribes (STs), seven Scheduled Castes (SCs), and the Meiteis, the Pangans, and 'others' as separate population categories. The recognized Naga groups are the Anal, Chiru, Chothe, Kabui,Kacha Naga, Koireng, Kairao, Lamkang, Mao, Maram, Maring, Monsang, Mayon, Sema andTangkhul who together form 18.7 per

cent of the state's population. The Thangal, Liangmeiand Tharao, also recognized as Naga tribes, are yet to be listed as STs. In 2003, the Poumei were recognized as a separate tribe. The recognized tribes include Thadou, Zou, Vaiphei, Simte, Paite, Aimol, Gangte, and Ralte. Some groups like the Simte, Suhte and Ralte identify themselves as Zomi. Among the other prominent tribes are the Kom and the Hmar.

3.4 Land, Agriculture and Forests

24 The size of the cultivated area is about 7.41% only of the total geographical area of the State. Of this total cultivated area, 52% is confined to the valley. Therefore, half of the total valley area which accommodates 67% of the total population is occupied for agriculture purposes. The pressure on land in the valley is thus quite conspicuous.

25 Agriculture and allied activities are the backbone of the state's economy. Agriculture being the main occupation of the people of Manipur, it has an important place in the economy of the state. Agriculture sector contributes a major share to the total state domestic product and provides employment to about 52.19 percent of the total workers in Manipur. In fact, the state domestic product fluctuates depending on the performance of agriculture sector. Despite the crucial importance of this primary sector in the state's economy, the irregular and erratic behavior of monsoon accompanied by inadequate irrigation facilities have resulted in severe fluctuations in agriculture production. Agriculture becomes a living proposition rather than a commercial proposition. Thus, from the view point of employment and income, agriculture plays a very crucial role in the state's economy. Land use pattern of the state is illustrated in **Table 3.3.**

Table 3.3: Land Use Pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	2,233	
Reporting area for land utilization	2142	100.00
Forests	1742	81.33
Not available for cultivation	27	1.26
Permanent pastures and other grazing lands	1	0.05
Land under misc. Tree crops and groves	6	0.28
Culturable wasteland	1	0.05
Fallow lands other than current fallows	0	0.00
Current fallows	0	0.00
Net area sown	365	17.04

Source: Land Use Statistics, Ministry of Agriculture, GoI, 2011

26 Forest is an integral part of the culture and tradition of Manipur as its protection maintains the ecology of the State. The State has a geographical area of 22,327 sq. km. of which 17418 sq.km. (78 %) is the recorded forest area; Reserved Forests constitute 8.40%, Protected Forests 24% and Un-classed Forests constitute 67.60%. Details of district wise forest cover in State are presented in **Table 3.4**.

Table 3.4: District-wise Forest Cover

Sl. No.	District	Geographical Area(in km²)	2011 Assessment (In km²)				Percent of GA	Scrub
			Very Dense Forest	Mod. Dense Forest	Open Forest	Total		
1.	Bishnupur	496	0	1	20	21	4.23	0
2.	Chandel	3,313	0	744	2,085	2,829	85.39	0
3.	Churachandpur	4,570	37	1,683	2,555	4,275	93.54	0
4.	Imphal East	669	0	53	167	220	32.88	0
5.	Imphal West	559	0	24	31	55	9.84	0
6.	Senapati	3,271	233	870	1,080	2,183	66.74	0
7.	Tamenglong	4,391	279	1,784	1,839	3,902	88.86	0
8.	Thoubal	514	0	4	52	56	10.89	0
9.	Ukhrul	4,544	181	988	2,380	3,549	78.10	1
Grand Total		**22,327**	**730**	**6,151**	**10,209**	**17,090**	**76.54**	**1**

Source: State Forest Report, 2013

27 The deforestation for Jhumming (shifting cultivation) is an age-old practice in the hills of Manipur. But during the last 20 years there is a tremendous increase in the area of Jhum cultivation, mostly in the dense forest areas caused by rapid increase of population of the tribal living in forest. There are more than 104 species of animals (fauna) used as age-old medicine and more than 5000 Sacred Groves have been reported. Many of these animals of ethnozoological importance are in threat due to over exploitation. Moreover, many of the sacred Groves are going to disappear.

3.5 Protected Areas & Wetlands

28 Manipur has one National Parks (NP) and one Wildlife Sanctuaries (WLS) covering an area of 224.4 km², constituting 5.75% of the total geographical area of the State. Besides, there are also other NP & WLS which are proposed & awaiting settlement proceedings (for details refer **Table 3.5)**. Map of protected area network is placed below.

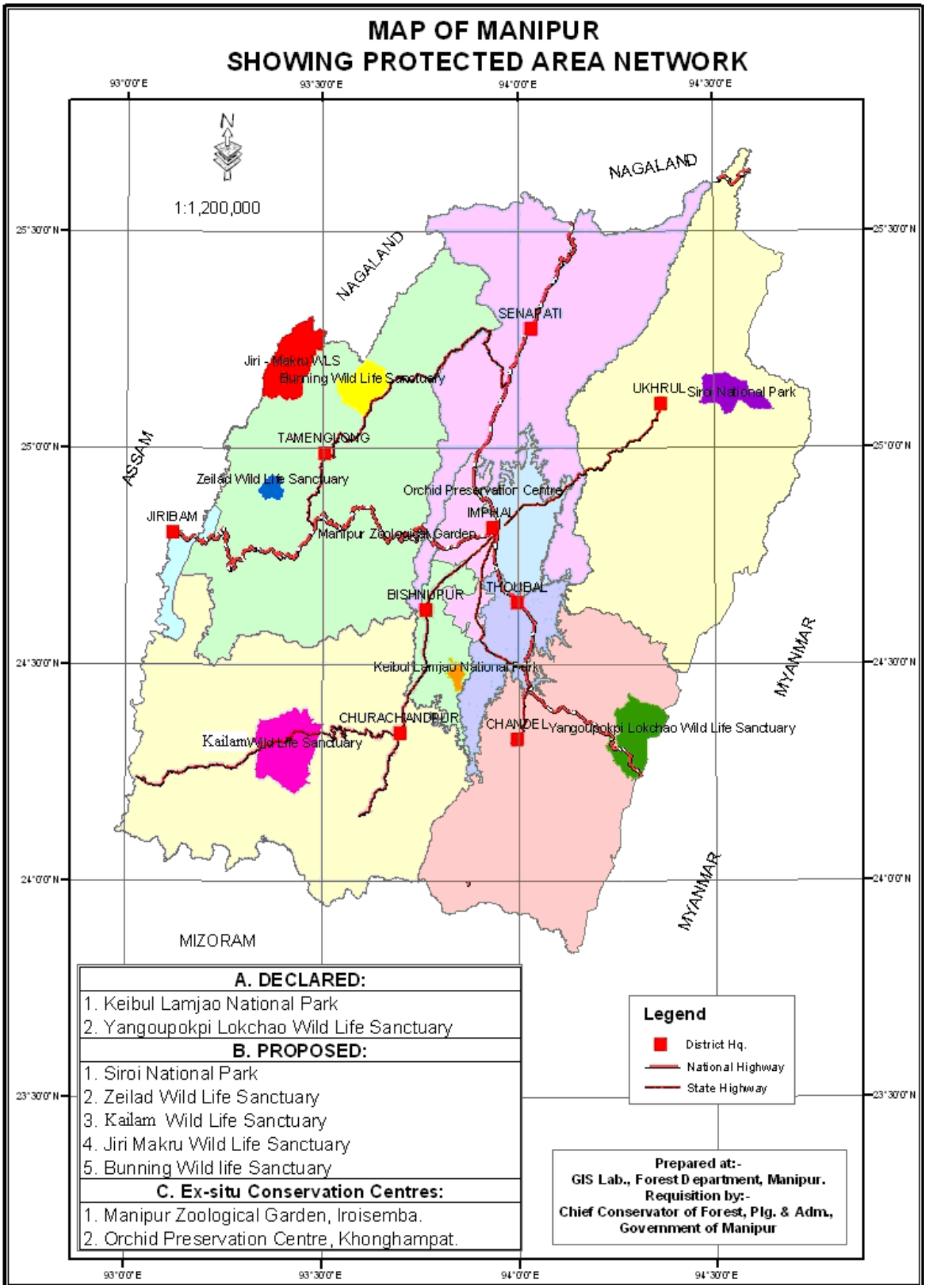

MAP OF MANIPUR
SHOWING PROTECTED AREA NETWORK
93°0'0"E
93°30'0"E
94°0'0"E
94°30'0"E
25°30'0"N
25°0'0"N
24°30'0"N
24°0'0"N
23°30'0"N
N
1:1,200,000
NAGALAND
NAGALAND
ASSAM
MIZORAM
MYANMAR
MYANMAR
SENAPATI
Jiri - Makru WLS
Bunning Wild Life Sanctuary
UKHRUL
Siroi National Park
TAMENGLONG
Zeilad Wild Life Sanctuary
Orchid Preservation Centre
JIRIBAM
IMPHAL
Manipur Zoological Garden
BISHNUPUR
THOUBAL
Keibul Lamjao National Park
CHURACHANDPUR
CHANDEL
Yangoupokpi Lokchao Wild Life Sanctuary
Kailam Wild Life Sanctuary
A. DECLARED:
1. Keibul Lamjao National Park
2. Yangoupokpi Lokchao Wild Life Sanctuary
B. PROPOSED:
1. Siroi National Park
2. Zeilad Wild Life Sanctuary
3. Kailam Wild Life Sanctuary
4. Jiri Makru Wild Life Sanctuary
5. Bunning Wild life Sanctuary
C. Ex-situ Conservation Centres:
1. Manipur Zoological Garden, Iroisemba.
2. Orchid Preservation Centre, Khonghampat.
Legend
District Hq.
National Highway
State Highway
Prepared at:-
GIS Lab., Forest Department, Manipur.
Requisition by:-
Chief Conservator of Forest, Plg. & Adm.,
Government of Manipur

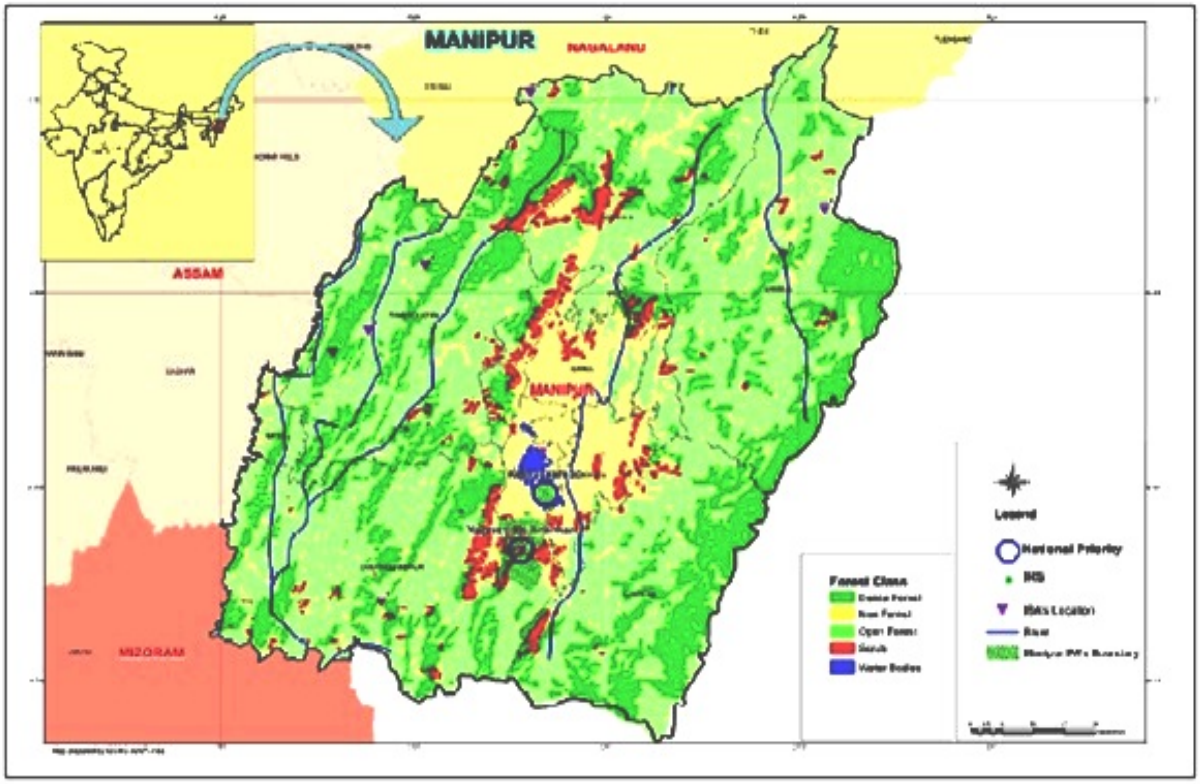
Table 3.5: Lists of Protected Area

Sl. No.	Name of Sanctuary/ National Park	District	Area in sq. km	Important Flora and Fauna found
1.	Keibul Lamjao National Park	Bishnupur	40.00	Many fauna & flora: Aquatic/ mammal/ Amphibian of Invertebrate& Vertebrate
2.	Yangoupokpi Lokchao Wildlife Sanctuary	Chandel	184.40	-do-
3.	Bunning Wildlife Sanctuary	Tamenglong	115.80 (Proposed)	Alpine grassland and Forests ecosystem including canes & bamboos, Animals: Tiger, Leopard/Clouded Leopard, Sambar etc. and many other important flora
4.	Zeilad Wildlife Sanctuary	Tamenglong	21.00 (Proposed)	Abode of migratory birds, Many important fauna & flora Aquatic/ mammal/ Amphibian (Invertebrate& Vertebrate)
5.	Kailam Wildlife Sanctuary	Churachandpur	187.50 (Proposed)	Sub-tropical Wet Hill Forests (8B/C2), Home of five varieties of Horn bills & Tiger, Leopard/ Clouded Leopard, Sambar etc. and many other important flora.
6.	Jiri-Makru Wildlife Sanctuary	Tamenglong	198.00 (Proposed)	Virgin forests of catchments area of Jiri & Makru rivers hosting varieties of flora and fauna.
7.	Shiroi Hill National Park	Ukhrul	41.00 (Proposed)	Home of unique and endemic ground lily

29 The National Wetland Atlas 2010, developed by Space Application Centre, Indian Space Research Organization sponsored by the Ministry of Environment & Forests, Govt. of India, has identified 167 wetlands (≥ 2.25 Ha) and 541 wetlands (<2.25 Ha) which is covering of 63,616 ha i.e. 2.85% of total geographic area under different types of wetlands like lake / pond (61.5%), river/steam (26.2%), waterlogged (5.5%) and aquaculture pond. Out of that, 19 (nineteen) important wetlands from 7 (seven) districts of Manipur, including 2 hill wetlands viz. Zaimeng at Senapati and Zailad at Tamenglong, has been identified by the Directorate of Environment, Government of Manipur, the State Nodal Agency for conservation of Wetlands in Manipur. Analysis of wetland status in terms of open water and aquatic vegetation showed that around 71 % of wetland area is under open water category during post monsoon and 62% during pre-monsoon respectively. Aquatic vegetation (floating/emergent) occupies around 26 % of wetland area during post monsoon and 37 % during pre-monsoon respectively. Loktak Lake largest wetland covering 61% of the wetland regime (468 sq km) within Manipur River Basin, supporting livelihood of about 1 lakh people living in and around the wetlands. Traditionally it is widely used for fisheries and agriculture. It is a source of 105 MW Hydropower. It supports rich floral and faunal biodiversity including Brow Antlered Deer

(Sangai) of Keibul Lamjao National Park. Manipur falls under the Endemic Bird Area of Eastern Himalayas (EBA 130), which constitute 21 restricted range species in India. Only five IBAs fulfill this A2 (Restricted Range species) criterion (refer **Map- 3.1**). Loktak Wetland has been identified as Ramsar site under National Wetland Conservation Program.

Map 3.1: Important Bird Areas in Manipur



3.8 Economy

30 The economy of Manipur is characterized by high rate of unemployment and poverty, low capital formation, in-adequate infrastructure facilities, geographical isolation and communication bottlenecks, practically no industrialization to speak of. GSDP[2] of the State grew at the rate of 14.29 per cent (` 10619 crore) at current price during 2011-12 against a growth of 12.56 per cent (` 9291 crore) during 2010-11. The Compounded Annual Growth Rate (CAGR) of GSDP of the State during 2002-12 was 12.29 per cent. Revenue and capital are the two streams of receipts that constitute the resources of the State Government. Revenue receipts consist of tax revenues, Non-tax revenues, State's share of union taxes and duties and Grants-in-aid from the Government of India (GoI). Capital receipts comprise miscellaneous capital receipts such as proceeds from disinvestments, recoveries of loans and advances, debt receipts from internal sources (market loans, borrowings from financial institutions/ commercial

[2] *Information as per Department of Economics and Statistics, Government of Manipur.*

banks) and loans and advances from GoI as well as accruals from Public Account. Though the State's own taxes remained buoyant as compared to the GSDP during 2011-12, it will have little impact to the revenue position in the State as the contribution of the State's own taxes to the revenue receipts of the State is marginal (about 12 per cent). Nearly 88 per cent of the State Revenue receipt is from the Grants-in aid and Central tax transfers. As such, unless the proportion of State's own revenue sources improves, any reduced devolution of Central funds in future will have an adverse impact on the State's economy.

The comprehensive detail about Manipur State is placed at **Annexure-1.**

3.9 Power Scenario

31 The State-owned generation is only a fraction of a megawatt, a Micro Hydel Plant having capacity of 600 KW and it is in operation. A heavy fuel based Power Plant 36 MW (6 x 6 MW) is kept ready for operation in case of extreme emergency/crisis as its cost of generation is exorbitantly high. Besides, there are 5 diesel power houses (about 2.5 MW in total) kept standby for operation at VIP/strategic areas for any outage of power or failure of grid supply at any time.

Therefore, Power supply of Manipur totally depends entirely on the share of Central Sector Power Plants as outlined below:

Sl. No.	**Name of the Power Source (Central Sector)**	**Allocated Share of Manipur (for 2012-13)**	
		in %	**In MW/ Out of installed capacity in MW**
1.	Loktak HEP at Manipur (NHPC)	30.12	31.62/105 MW
2.	Kopili/Khandong HEP (NEEPCo, Assam & Ko-I Meghalaya) Ko-II Khandong	7.39 6.59 6.56	14.78/200 MW 1.74/25 MW 3.28/50 MW
3.	Ranganadi HEP	8.37	33.90/405 MW
4.	Doyang HEP	7.87	5.9/75 MW
5.	GBPP (NEEPCo.), Kathalguri, Assam	8.11	23.6/291 MW
6.	GBPP (NEEPCo.) Ramachandranagar, Tripura.	8.31	6.98/84 MW
7.	GBPP of MSPCL, Baramura, Tripura	25	10.5/42 MW
8.	Pallatana, OTPC		21/363.3 MW
Total allocated share			**153.30MW**

32 The total allocated share shown above is based on the total installed capacities of the projects. The availability of Power varies from time to time depending on actual generation from these projects, which remains less in most of the time. Thus, shortfall continues to be there in the state. The situation further deteriorates when there is outage of any generating unit/units in any station of the

Central sector plants. The state is also supposed to get additional allocated share of 21 MW and 40 MW from Pallatana GBPP (726.6MW), Tripura and Bongaigaon Thermal PowerStation (750MW), Assam respectively after completion of the projects and its associated Transmission lines. MSPCL is able to fulfil the requirement of existing domestic, commercial and industrial units as MSPCL presently is having Transmission/Sub-transmission and Distribution network system illustrated below:

- As on 31.03.2014, MSPCL has assets of 406.584 Ckms of 132 KV Transmission line, – 1195.008 Ckms of 33KV sub-transmission lines and 9 nos. of 132/33kV sub-stations & 54 nos. of 33/11kV S/S which are in operation with transformation capacity of 317.5MVA & 387.05 MVA respectively in the State. Refer Figure 1.1 for Power map of the State.

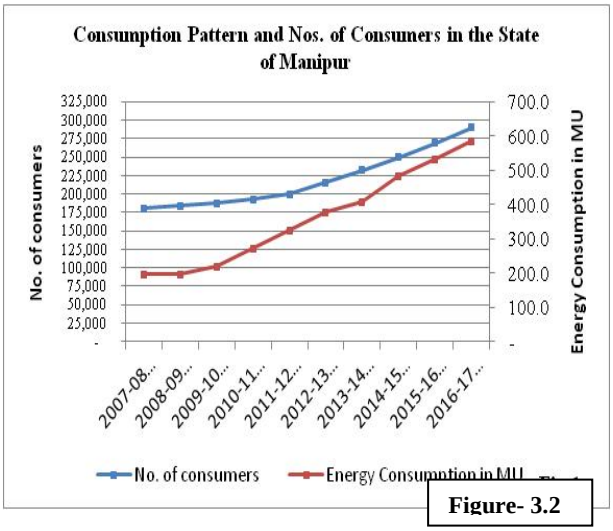


Figure- 3.2

- As on end March 2013, MSPDCL created 5935.58 Ckm of 11kV lines and 7832.28 Ckm of LT Lines (440V) with 11/0.44 DTs for transformation of about 438MVA.

- Data captured (**Figure - 3.2**) during last 7 years shows that the demand of Electricity in the state is in upward trend with the passage of time. This reveals that the total energy consumption and the total numbers of Consumers have moved up by almost 105.8% and 28.56% respectively, a phenomenal growth of both i.e. energy Consumption from 197 MU to 406MU (105.8%) and Nos. of consumers from 1.81 lakhs to over 2.32 lakhs (28.56%).It is expected that the demand will increase on an average of more than15%per year in regards to energy consumption and 4.08 % per year in nos. of consumers.(*Data Source: Annual Administrative Report (2012-13)/ DoP/GoMan and MSPCL, a GoMan Enterprises)*

- Due to difficult hill tract & terrain in the State, Transmission/sub-transmission network and distribution network system are very weak and thus, T&D loss is very high (about 28.85%). and (about-56.97% including AT&C (i.e. Aggregate Technical& Commercial) respectively

33 In order to provide quality power supply and service at affordable cost together with sustainable development practices, MSPCL has undertaken many proactive and bold initiatives like augmentation/addl. Projects work under State Plan Scheme and other schemes with funding assistance of NEC/SPA/NLCPR/APRDP under Ministry of DoNER/GoI, System improvement scheme, providing 100% metering of feeders/ distribution transformers/ consumers,

detection/disconnection of unauthorised consumers, setting up Spl. Court/ spl. Police station for effective control of energy theft, energy accounting & auditing at all voltage levels covering 100% household electrification, Automated Metering Infrastructure (AMI) for Residential and Industrial Consumers, implementation of system strengthening under Restructured Accelerated Power Development Reform Programme(RAPDRP) and Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY).

3.10 Road Ahead

34 The State has predominantly one source i.e. Central Sector allocation (mixture of hydro & thermal) of 142.3MW and 10.5MW of power from MSPCL. The state is endowed with hydro-power potentiality for power generation without much damage to environment. Present (2014-15) peak demand of the state is 262 MW. Own generation is negligible. MSPCL gets about 129 MW from Central sector power allocation out of allocation of 153.5 MW including about 17/18 MW from Pallatana OTPC, Tripura. There remains shortfall of about 133MW. The state is also supposed to get allocated share of 21 MW and 40 MW from Pallatana GBPP (726.6MW), Tripura and Bongaigaon Thermal Power Station (750MW), Assam respectively after completion of the projects and its associated Transmission lines. Efforts are underway not only to bridge the gap but also to ensure that adequate power is made available to enable boosting of State economy.

35 To achieve such ambitious target/ goal, Manipur has planned for major expansion and augmentation of its transmission and sub-transmission/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 Manipur with the financial support amounting to Rs. 404.17 Crores (US$ 67.35 million) from GoI and World Bank is placed at **Annexure 2**.

4.0 Stakeholder Analysis

36 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	Department of Power	Proper coordination for timely implementation of project with intended benefits.
		State Power Corporations	Timely implementation of projects & Operation and Maintenance of the power systems development under this project. Improvement in availability of power supply, reduction in T&D losses.
		Tribal Welfare Department	Proper implementation of welfare measures and policy initiatives as envisaged in the applicable legislation, structured and continuous consultation on project activities.
		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 &	During implementation –coordination for timely shifting of utilities as necessary and secured power

No.	Levels	Key Stakeholders	Expectations and Issues
		gas, etc.	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 etc be involved and consulted to address issues related to compensation, employment opportunity due to project activity and coordination as necessary.
		SC	Mutually agreed measures to address any adverse issues due to project activity.
		ST	Tribal Groups heads, Council heads, be consulted and involved in addressing all possible impact arisen due to project activity in the area.
		Women groups	Women groups – be included in all consultation and be made part of decision making process related to project in their domain.
F	Panchayat level	Panchayat members	Access to the communities in general and the affected families in particular. Secondly during implementation of the project activities for substations and especially the transmission/distribution lines the permission and consultations with the panchayat is necessary as their role in accessing and convincing local communities is important.

5. Issues, Impacts and Management Measures - Social

37 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

38 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

- Employment creation
- Improved and reliability of power supply
- Increased economic activity
- Improved road infrastructure
- Gender Issues – more opportunities to women during construction phase as laborers and also for catering, etc. activities around the camp site.
- Less reliance of fossil fuels like firewood, charcoal etc.
- Capacity Building.

ii. Negative Impacts

- Loss of land
- Restriction of land use and land rights
- Health and Safety risk including HIV/AIDS

5.2 Management Framework - Social

39 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 MSPCL 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

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

- Avoidance socially sensitive areas while planning project activities;
- Minimization 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 community and other stakeholders.

5.4 Definitions

41 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 LARRA'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

No.	Potential Issues	Management Measures
1	Loss of land	For Trenche-1, this is not a major issue as land for construction of proposed transmission and distribution substations are already available with MSPCL except for Thoubal where fresh land is needed (refer Table -5.3). MSPCL shall secure/acquire the required 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.
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 MSPCL 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, MSPCL avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged. Moreover, as brought out above fresh acquisition of land is required only in case of one substation i.e Thoubal substation. Hence no major issue is anticipated.
		However, securing lands may be an issue for subsequent investments under future tranches as well as those supported with other sources of finance. Keeping in this in view, and in case, lands may have to be secured, the same it can be accomplished through following three methods; i. Purchase of land on willing buyer & Willing Seller basis on negotiated rate; ii. Voluntary Donation; and iii. Involuntary Acquisition. In case of procurement of land through private purchase, MSPCL 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 MSPCL 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: • The land user(s) will not be subjected to undue pressure for parting of land;

No.	Potential Issues	Management Measures
		• All out efforts shall be made to avoid any physical relocation/displacement due to loss of land; • The MSPCL 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 IA and GoMan. Involuntary land acquisitions will be as per the new RFCTLARR Act of 2013.
4	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, MSPCL 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.
5	Impact on Tribal	The population of Manipur as per census 2011 was 2721756. The Scheduled Tribes (STs) population consists nearly 35% of the total population in the State. The project is being implemented in the tribal areas (Fifth Schedule provision of the Indian Constitution) of Manipur and bulk of the beneficiaries are 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, Fifth Schedule provision stipulates that all projects do need to secure prior consent of Hill /Village Councils. Hence, consultations will be carried out in these areas to obtain consent as necessary before initiating project activity in the area. 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	MSPCL operations are short-lived and do not induce secondary developments during construction.

No.	Potential Issues	Management Measures
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 MSPCL 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, MSPCL 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

42 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

43 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

No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
1. Constitutional Provisions		
1	5th Schedule of the Constitution & The Manipur (Hill Areas) District Council Act, 1971 (MAHDC)	It provides Special Power to AHDC of MAHDC Area for support/ development of Tribal population. Any developmental activity sited in **MAHDC** area needs their consent. At the State level there is Hill Area Committee comprises of all MLA elected from the hill areas of the State as its members. At the District level, there are Autonomous Districts Councils (ADCs).
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 Manipur then MSPCL, GoMan 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.**

No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
3.	Electricity Act, 2003 (EA, 2003)	Prior approval of the Govt. of Manipur (GoManan) under section (u/s) 68(1) of EA, 2003 is a mandatory requirement to undertake any new transmission project in the State (In Manipur, transmission of power in 33kV Grid is considered to be sub-transmission System) which authorizes MSPCL to plan and coordinate activities to commission a new Transmission/sub-Transmission project. Under **Section 164:-** GoManan, may by order in writing, authorize MSPCL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. MSPCL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoMan 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 Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	The act recognizes and vests the forest rights and occupation in forest land to forest dwelling. Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded, and provides for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land. The definitions of forest dwelling Schedule Tribes, forestland, forest rights, forest villages, etc. have been included in Section 2 of the Act. The Union Ministry of Tribal Affairs is the nodal agency for implementation of the Act while field implementation is the responsibility of the government agencies. The applicability of this act has also been linked with forest clearance process under Forest (Conservation) Act, 1980 w.e.f. August 2009 by MoEF which MSPCL need to comply with.
6.	The Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.

No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
7.	Indian Treasure Trove Act, 1878 as amended in 1949	The act provides for procedures to be followed in case of finding of any treasure, archaeological artifacts' etc. during excavation. Possibilities of such discoveries are quite remote due to limited and shallow excavations. However, in case of such findings, MSPCL will follow the laid down procedure in the Section-4 of act.
III. World Bank OP (Operational Policy)		
8.	OP 4.12 – Involuntary Resettlement	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
9.	OP 4.10 – Indigenous Peoples	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.

5.6 Mitigation Measures

44 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: Under Tranche-1, fresh land is only needed in case Thoubal substation as the required land for other substations is already available with MSPCL. MSPCL shall secure/acquire the

required 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 Substations			
1	132/33 kV Gamphajol	New	Except Thoubal, land for all substations are already available with MSPCL.
2	132/33 kV Thoubal	New	
3	132/33 kV Ningthoukhong	Augmentation	
4	132/33 kV Kongba	Augmentation	
5	132/33 kV Rengpang	Augmentation	
6	132/33 kV Jiribam	Augmentation	
B. Distribution Substations			
1	33/11 kV Distribution Substation (34 Nos.)	New/ Augmentation	Land are already available with MSPCL

Thus, 'lands' is not a major issue for Tranche-1. However, securing lands may be an issue for subsequent investments under future tranches as well as those supported with other sources of finance. Keeping in this in view, and in case, lands may have to be secured, the same it can be accomplished through following three methods;

i) Purchase of land on willing buyer & Willing Seller basis on negotiated rate;

ii) Voluntary Donation; and

iii) Involuntary Acquisition.

47 In case of procurement of land through private purchase, MSPCL 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 MSPCL 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.

48 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 MSPCL 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 IA and GoMan.

49 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. GoMan) 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 MSPCL's responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation.

5.8 Safeguards against land acquisition:

50 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.

51 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

B. Comprehensive Compensation Package (First Schedule)	
Eligibility for Entitlement	**Provisions**
The affected families ▪ Land Owners: 2. Family or company whose land/other immovable properties have been acquired; 2.Those who are assigned land by the Governments under various schemes;	**Determination of Compensation :** **3. 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**

B. Comprehensive Compensation Package (First Schedule)	
Eligibility for Entitlement	**Provisions**
3.Right holders under the Forest Rights Act, 2006	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.	

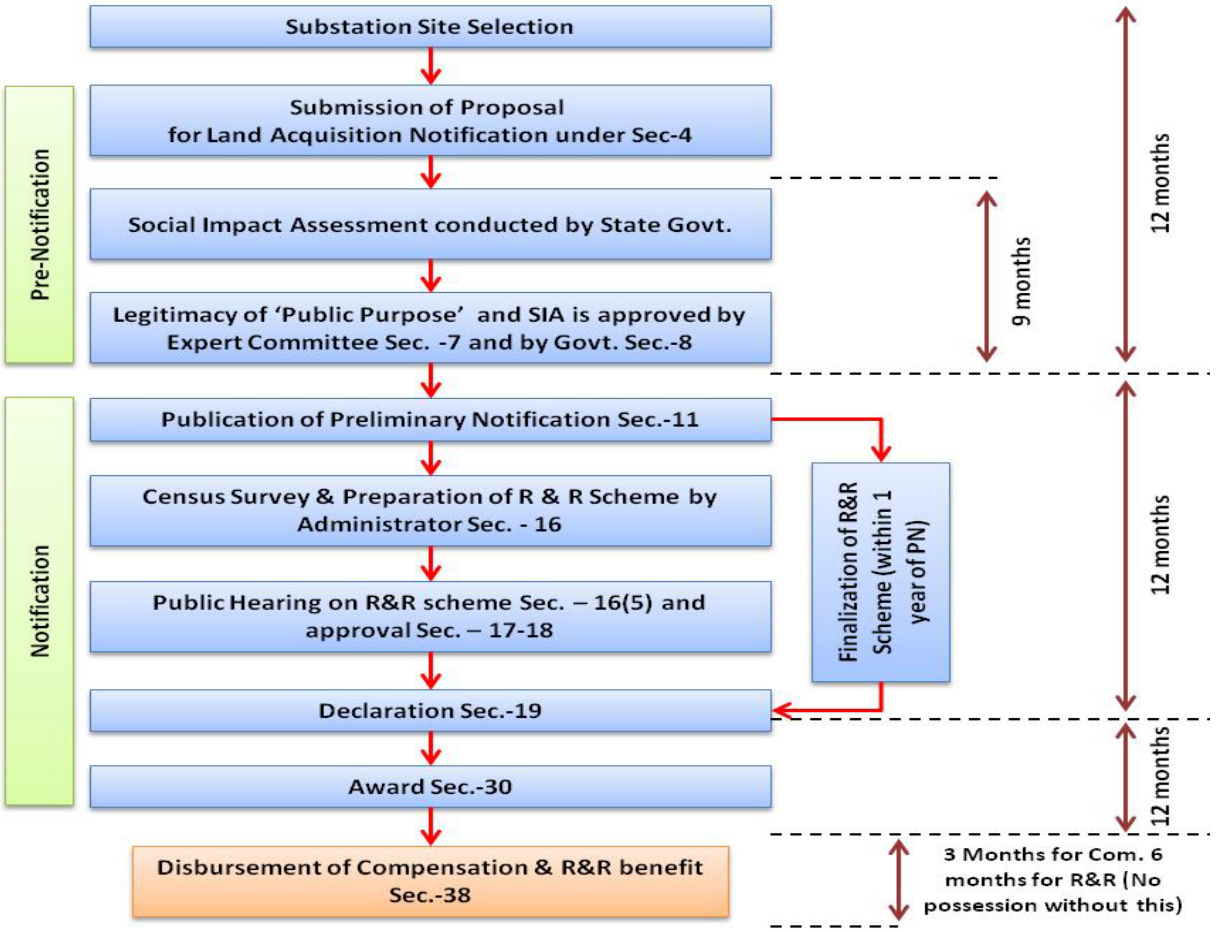
Radial Distance from Urban area (Km)	Multiplier Factor
0-10	1.00
10-20	1.20
20-30	1.40
30-40	1.80
40-50	2.00

Table - 5.5: Minimum R&R Entitlement Framework

A 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:	(d) Where jobs are created through the project, mandatory employment for one member per affected family **or** (e) Rupees 5 lakhs per family; or (f) 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: ii) If a house is lost in rural areas: ii) If a house is lost in urban areas	iii) A constructed house shall be provided as per the Indira Awas Yojana specifications. iv) 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

A Comprehensive R&R Package (Second Schedule)		
Sl. No.	**Elements of R& R Entitlements**	**Provision**
		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:* **8.** One time financial assistance of Rs. 50,000 per family; **9.** Families settled outside the district shall be entitled to an additional 25% R&R benefits; **10.** Payment of one third of the compensation amount at very outset; **11.** Preference in relocation and resettlement in area in same compact block; **12.** Free land for community and social gatherings; ***13.*** In case of displacement, a Development Plan is to *be prepared* **14.** *Continuation of reservation and other Schedule V and Schedule VI area benefits from displaced area to resettlement area.*		

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, MSPCL 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).**

c) Tribal People: The population of Manipur as per census 2011 was 27, 21,756. The Scheduled Tribes (STs) population consists nearly 35 % of the total population in the State. The project is being implemented in the tribal areas (Fifth Schedule provision of the Indian Constitution) of Manipur and bulk of the beneficiaries are 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, Fifth Schedule provision stipulates that all projects do need to secure prior consent by TAC 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.

5.9 Health and Safety Requirements

52 MSPCL maintains safety as a top priority, apart from various labour laws dealing with workers' health and safety, such as the Workmen's Compensation Act. MSPCL 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 MSPCL (**Annexure-6** for detailed checklist) are developed on the basis of World Bank EHS guidelines to be adopted by MSPCL.

5.10 Exposure to Electro Magnetic Fields (EMF)

53 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:

54 “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”.

55 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).

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

5.11 General Safety Standards

57 MSPCL 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

58 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

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

1) Clearing of Trees within Right of Way

60 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**.

61 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 understorey 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)	Min^{m}. Clearance (in meters) betwe 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. MSPCL 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 affects the aesthetics of the area**.**

B) <u>Substations</u>

62 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 categorized 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 and full usage.

5) SF_6 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

63 The basic principles that guide EMF are:

- Avoidance environmentally sensitive areas while planning project activities;
- Minimization 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 effect 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

64 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

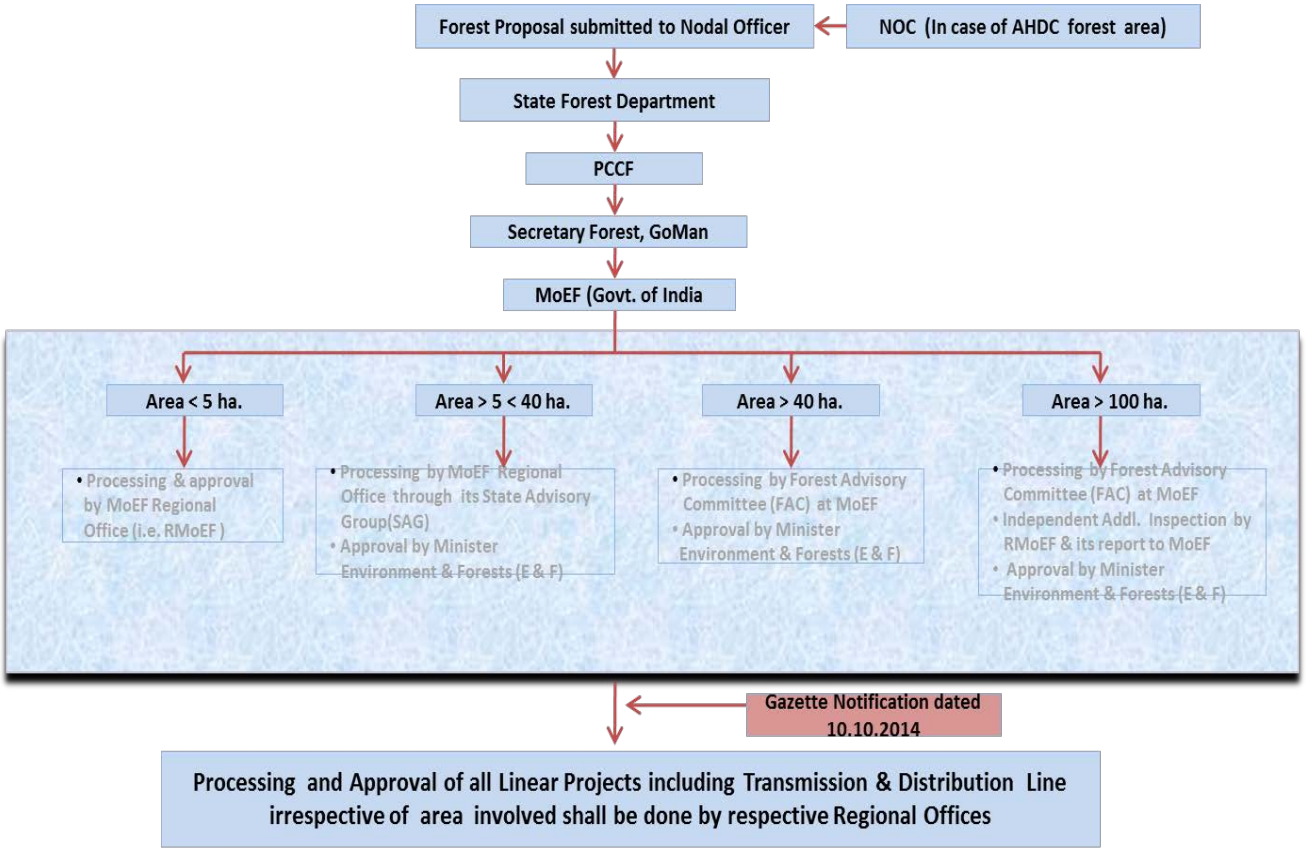
Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
I. Constitutional Provisions (India)		
a	Article 48 A	The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.
b	Article 51 A (g)	It shall be the duty of every 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)	Prior approval of the Govt. of Manipur (GoMan) under section (u/s) 68(1) of EA, 2003 is a mandatory requirement to undertake any new transmission project in the State (In Manipur, transmission of power in 33kV Grid is considered to be sub-transmission System) which authorizes MSPCL to plan and coordinate activities to commission a new Transmission/sub-Transmission project. Under **Section 164:-** GoMan, may by order in writing, authorize MSPCL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. MSPCL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoM 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) Act, 1980	This Act provides for the conservation of forests and regulates the diversion of forest land to non-forestry purpose. When any transmission/distribution line traverses forest land, prior clearance is mandatorily required from Ministry of Environment and Forests (MoEF), GoI under the Forest (Conservation) Act, 1980. The approval process of forest clearance in brief, as per set procedure in the guideline under the act and rules 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	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

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
	(Recognition of Forest Rights) Act, 2006	a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land. The definitions of forest dwelling Schedule Tribes, forestland, forest rights, forest villages, etc. have been included in Section 2 of the Act. The Union Ministry of Tribal Affairs is the nodal agency for implementation of the Act while field implementation is the responsibility of the government agencies. The applicability of this act has also been linked with forest clearance process under Forest (Conservation) Act, 1980 w.e.f. August 2009 by MoEF which MSPCL need to comply with.
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 MSPCL. 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 MSPCL.
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 Handling) Rules, 2001	As per notification, Being a bulk consumer MSPCL to ensure that the used batteries are disposed to dealers, manufacturer, registered recycler, re-conditioners or at the designated collection centers only. A half-yearly return is to be filed as per Form-8 (**Annexure-11***)* to the Manipur 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/ reprosessors) Being a bulk user, MSPCL shall comply with provision of said rules. MSPCL, 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 24th 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 MSPCL 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	As per notification, bulk consumers like MSPCL is to dispose e-waste generated by them in environmentally sound manner by

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
	Handling) Rules, 2011	channelizing to authorized collection centers/ registered dismantler/ recyclers/return to producers. MSPCL, being a bulk consumer of electrical and electronics equipment's 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. MSPCL abides by the provision of the act wherever applicable, and avoids Biosphere Reserves during route alignment.
6	The Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.
7	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
8.	The Manipur Loktak Lake (Protection) Act, 2006	The MoEF has enacted Manipur Loktak Lake (Protection) Act, 2006 to protect Loktak Lake as it comes in Category "A" list of wetlands Schedule I at Serial Number 11 of Central Wetlands Regulatory Authority. As per this Law, the area shall extend to whole 236.21 sq km comprising large pockets of open water. and marshy land formed at the southern part of the Imphal Valley up to the confluence of Manipur River and Khuga in the districts of West Imphal and Bishnupur. No development projects can be established in this defined area.
9.	The Manipur (Hill Areas) District Council Act, 1971	Vide this Act Autonomous Hill District Councils (AHDC) of Manipur are empowered to maintain and manage the property: movable and immovable, and institutions under their jurisdiction (e.g. in the field of agriculture, animal husbandry, community development, social and tribal welfare, village planning, management of any forest except RF, regulation of the Jhum /shifting cultivation or any other matter.) Any activity sited in **MAHDC** area needs consent from village councils.
10.	The Ancient Monuments and	The Act provides for procedures to be followed in case of the protected area or the protected monument as the case may be, and

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
	Archaeological Sites and Remains (Amendment and Validation) Act, 2010	extending to a distance of one hundred meters in all Directions.
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

65 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;

i. Positive Impacts

- Less dependence on fossil fuels including firewood, charcoal etc.

ii. Negative Impacts

- Impacts on Vegetation/forest
- Impacts on Wildlife Habitats and Migratory Birds
- Impacts on Drainage, Soil erosion Water Resources

- Impacts on Traffic and Road Infrastructure
- Impacts from Solid/ Liquid Wastes, Oil spillage
- Effect of Electric and Magnetic Fields
- Air Quality, Noise and Vibration
- SF_6 Gas leakage to atmosphere
- Health & Safety
- Impacts on Aviation and Communication

6.6 Management Framework

66 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, MSPCL has developed an Environment Management Plan (EMP) which includes details 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 Environment issues and its Management Measures

Sl. N	Potential Issues	Management Measures
1	Minimizing adverse impact on forests	MSPCL 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.	Clearing/Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees
3.	▪ Vegetation damage ▪ Habited Loss	To minimize damage to vegetation and habitat fragmentation, MSPCL utilizes hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.

Sl. N	Potential Issues	Management Measures
4.	▪ Habitat fragmentation ▪ Edge effect on flora & fauna	MSPCL 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.	Erosion of soil and drainage along the cut and fill slopes in hilly areas	MSPCL 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.
6.	Chemical contamination from chemical maintenance techniques	MSPCL does not use chemicals for forest clearance/RoW maintenance
7.	Poly- Chloro-Biphenyls (PCBs) in electrical equipment	MSPCL use mineral oil in electrical equipment's. Specification of oil containing PCB less 2 mg/kg (non – detectable level) stated in the tender document
8.	Induced secondary development during construction	MSPCL operations are short-lived and do not induce secondary developments during construction
9.	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. MSPCL shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
10.	Chances of accident involving elephant in the specified corridor due to placing of poles	There is no elephant corridor as such in Manipur. The Anko Range in Manipur has about 50 elephants, which is contiguous with those of the Somra tract of Myanmar. However, if some movements are repeatedly noticed (in stray cases), MSPCL shall try suitable design modification in the pole of 33kV line like provision of spike guards, barbed wire fencing or any other arrangement and shall incorporate the same in such location, if required.
11.	Air craft hazards from transmission lines and towers	MSPCL 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. MSPCL uses best available technology for lines and do

Sl. N	Potential Issues	Management Measures
		not cause any hazards to health and safety.
13.	Fire Hazards	Fire hazards are mostly occurred in forest area. However, MSPCL 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 MSPCL will make efforts to further minimize 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, MSPCL will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

7.0 Integration of environment and social management measures into overall project cycle

67 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.

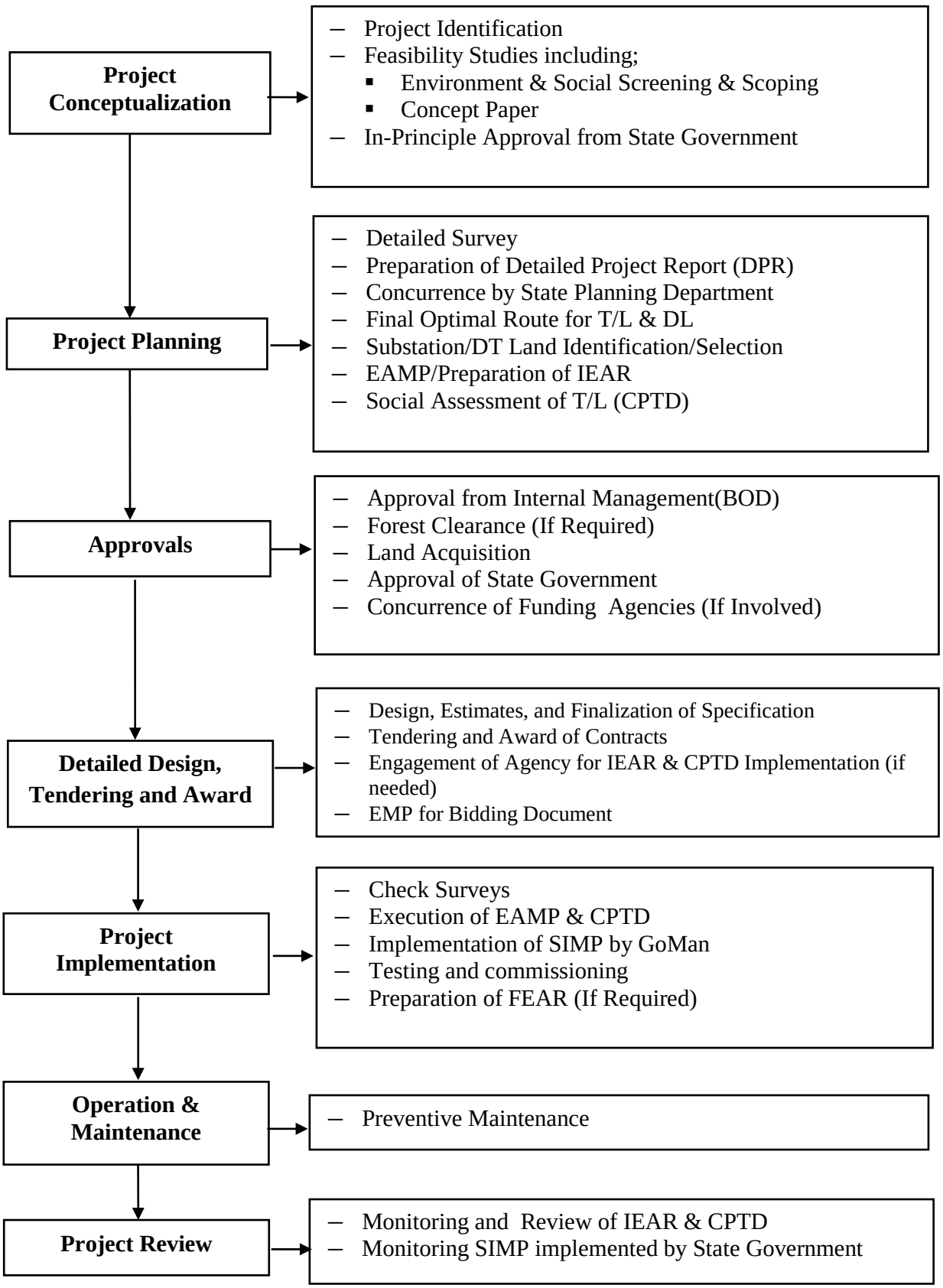
7.1 Project Cycle

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

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

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

Figure 7.1: Project Cycle of a Typical Transmission/Distribution Project



7.1.1 Project Conceptualisation

70 The need of addition/augmentation of Transmission & Sub-Transmission network is primarily determined on the basis of demand and future plans in the State. Subsequent to identification based on the above requirements, initial feasibility studies are carried out that includes technicality, environmental, social, economic, and financial assessments. The planning for execution schedule is formulated on prioritizing the project for implementation. During the feasibility study, MSPCL develops various options for the location/siting of transmission/sub-transmission lines and construction of substations considering avoidance of environmentally and socially sensitive area. 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/Sub- Transmission Line (TL) and the sub-stations sites) avoiding environmentally and socially sensitive area. At least 3 (three) alternative are marked subject to site verification. With this reference, Reconnaissance survey is taken-up either in-house (walk-over survey with hand-held GPS i.e. Geo-positioning System) or through external agency to find out tentative co-ordinates (spot) and route alignment avoiding any kind of negative impact or minimising the same, out of at least 3 (three) alternatives to have fair assessment of the proposed project and its components. During this process, MSPCL field staffs also consult the people/villagers to explore surroundings and other possibilities. On the basis of assessment and findings, a "Concept Paper" is prepared indicating all components i.e. environmental, social, techno-economic, and financial assessments/cost estimate. In case of transmission project this "Concept Paper" after the appraisal/ recommendation of MSPCL management, is forwarded to Planning Deptt., GoMan for the in-principle approval of Public Investment Board and subsequent Budget allotment or posing to different funding Agency.

7.1.2 Project Planning

71 Planning stage is started with preparation of Detailed Project Report (DPR). During detailed survey all critical information/data such as rivers, hills, railway crossings, telephone line, villages, power transmission/ sub-transmission 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).** People are also consulted time and again during the survey.

72 During detail survey further attempt is made to minimise 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 finalised route, environmental assessment limited to forest area is undertaken by MSPCL with the help of authorised agencies (Forest Department/GoMan) and 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. In case of line passing through forest area controlled by AHDC, prior consent in the form of NOC is obtained from village council. The complete forest proposal is processed and recommended/forwarded by GoMan to MoEF for obtaining forest clearance with an undertaking from MSPCL to bear the cost of compensatory afforestation, NPV etc. as per guidelines.

73 MSPCL shall also identify probable substation sites suiting technical requirement based on data collected as per the checklist (**Annexure-1,5**) 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, railheads, 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. Thereafter, MSPCL proposes for Land Acquisition other than Govt. land to the GoMan, which in turn process the request as per the RFCTLARRA, 2013 for acquisition. In case of land under AHDC area, chief/headman of village council is approached for obtaining their consent.

74 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. 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.

7.1.3 Project Approvals

75 The DPR so finalized and recommended by MSPCL management is forwarded to State Government and funding agency (if applicable) for concurrence and fund/budget allocation (**Annexure-16).**

7.1.4 Detailed Design and Tendering

76 MSPCL 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.

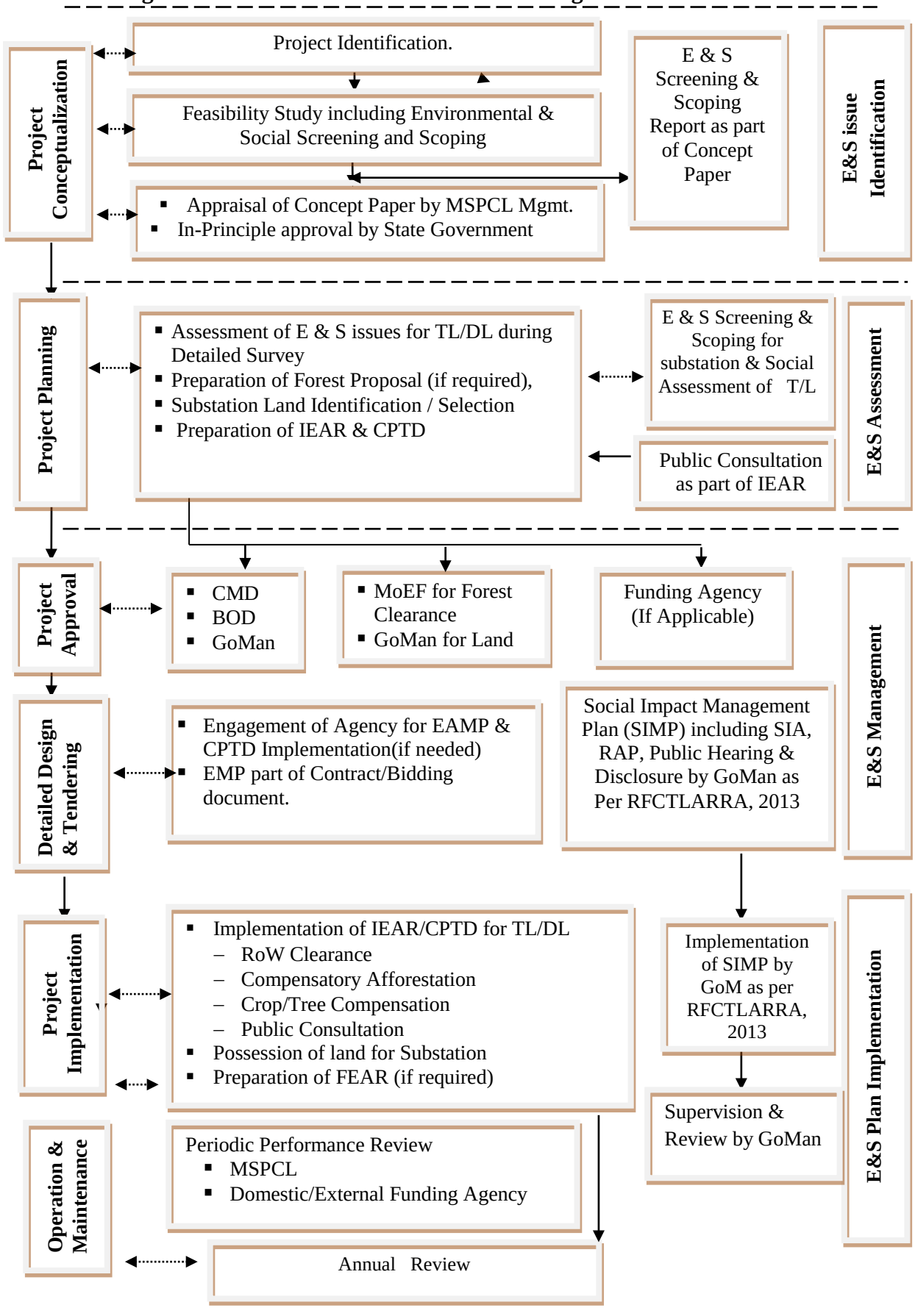
7.1.5 Project Implementation

77 Before the start of implementation, MSPCL informs the general public about the project and invites their suggestion, if any. When construction starts MSPCL's field staff and contractors conduct check survey to authenticate tower spotting done in the profile based on detailed survey. 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 / sub-transmission 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. MSPCL also give 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-17** for Safety Plan**)**. Before test charges both transmission/ sub-transmission lines and substations, pre-commissioning check and testing are rigorously done by MSPCL 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

78 MSPCL continuously monitors the transmission/ sub transmission 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/sub-transmission lines and substations (**Annexure-18).**

Figure- 7.2: Environmental and Social Management Procedures



7.2 Project Conceptualization

79 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 MSPCL management. The E & S issues identification process for any MSPCL project will include the following:

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

80 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. **Objectives**

1) To identify environmentally & social sensitive areas & issues
2) To suggest alternative transmission line routes, if necessary
3) To outline scope of environmental and social assessment

B. Process

1) MSPCL through its "Bee" line survey (i.e. a desk review) on Survey of India (SOI) map (topo-sheets) preferably on 1:50,000 Scale, the Forest Atlas and or Google Earth map examine various route options at least 3 (Three) alternatives referring 'Bee' line as a guiding one between two or multiple origins of proposed transmission/ sub-transmission line avoiding/minimizing environmentally and socially sensitive areas based on base line data/information.

2) Taking reference to this desk review, a reconnaissance survey in-house or through other agency/ or walk-over survey is undertaken with hand-held GPS for on-site verifications to confirm findings of desk review survey or otherwise. During Recce or W/O survey it may also be possible to identify other better option of route following the criteria of avoidance & minimization, if so the same, after having collected/updated information/data may be considered as another alternative. In addition, environmental and social details are also noted (refer **Annexure-14** for Pro-forma to gather relevant environment and social information for transmission lines and substations).

3) During the process public views and necessary inputs about surroundings/ villages/crops etc. are also necessary and 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.

4) 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.

B. Output

1) Environment & Social screening and scoping as part of Concept Paper which provides details of environmentally sensitive areas, E & S issues etc. apart from technicality, economics and financial assessment of the project.

7.2.2 Approval

81 The Concept Paper after appraisal and recommendation of internal management forwarded to State Government for In-principle approval of the proposed project

7.3 Project Planning

82 During planning stage, detailed survey of entire line is undertaken and route alignment of transmission/distribution line is finalized. Similarly, tentative locations for substations are identified and environment & social screening is conducted. After screening & scoping process of proposed project are completed, specific management plan are prepared by assessing potential impacts of identified E & S issues associated with transmission/sub-transmission lines and substations. Following activities are conducted in this stage.

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

7.3.1 Environment and Social Screening for substation

A. Objectives

1) to identify environmentally & social sensitive areas, E & S issues

2) to outline scope for land acquisition

B. Process

1) MSPCL identify tentative locations for substation for E & S screening and scoping based on specific parameters information collected from secondary sources including technical requirements as per the checklist (**Annexure-15**).

2) A broad analysis for each alternative site is also carried out after spot verification by site office to checks that environmentally and socially sensitive areas are not encountered.

3) Site office will consult revenue authorities for their views on selected sites and shortlist the optimum site.

4) In case of land under AHDC area, chief/headman of village council is consulted for obtaining their consent.

C. Output

1) Environment & Social screening and scoping document with details of as part of environmentally and socially sensitive areas, E & S issues etc and views of revenue deptt. & extent/feasibility of land acquisition.

7.3.2 Environmental Assessment and Management Planning

A. Objectives

1) To prepare EAMP(IEAR)

B. Process

1) 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. A Terms of Reference that can be tailored to particular situation/concern is placed in **Annexure-19**. 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 forest area

controlled by AHDC, MSPCL shall obtain NOC from village/district council before the formal process of forest clearance is initiated.

2) Prepare IEAR detailing assessment and review of potential environment and social issues; identified during screening, scoping and formulates an Environment Management Plan (EMP) highlighting management measures to mitigate the same (**Annexure–20 for contents of IEAR**).

3) Public Consultations are held en-route of line to ascertain public views/suggestion, if any on proposed project.

C. Output

1) IEAR detailing assessment and review of potential environment and social issues and associated management measures.

2) Biodiversity Assessment Report (if applicable).

7.3.3 Social Assessment for Temporary Damages for TL (CPTD)

A. Objectives

1) To prepare CPTD

B. Process

1) MSPCL shall undertake assessment of land area likely to be affected by putting up tower and line and extent of damages during foundation, erection & stringing works.

2) Formulate appropriate management plan to minimize the damages and prepare compensation plan for temporary damages in consultation with revenue Department .and affected person based on above assessment. The CPTD prepared at this stage will be periodically updated based on check survey and finalisation of tower location and its owner during project implementation.

C. Output

1) CPTD detailing assessment of temporary damages and associated management measures including compensation plan (refer **Annexure-21** for contents of CPTD).

7.4 Project Approval

83 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 the State Government 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. During this stage, following activities are undertaken:

7.4.1 Forest Clearance

A. Objectives

1) To obtain forest clearance from MoEF

B. Process

1) MSPCL submits a forest proposal request through online on MoEF forest clearance web portal (http://forestsclearance.nic.in)[3]. 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/sub-transmission line and for formulation of proposal.

2) 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.

3) Forest clearance is issued in two stages Stage-I and Stage-II. Stage-I approval is conditional on MSPCL on depositing the cost of compensatory afforestation and Net Present Value to forest Department and fulfilling any other stipulated conditions. Work in forest area can be undertaken after realizing the fund by MoEF deposited towards CA and NPV by MSPCL. State Government informs MoEF about compliance of conditions and MoEF grant final approval.

C. Output

1) Forest Clearance from MoEF allowing MSPCL activities in given forest area

7.4.2 State Government Approval

A. Objectives

1) To obtain approvals from Government of Manipur for DPR for budget allocation/fund

B. Process

[3] For details refer **Annexure – 4a**

1) MSPCL submit DPR including the environment and social component of the project to State Government through its State Planning Department

C. Output

1) Approval of State Government for the project

7.4.3 Social Impact Management Plan (SIMP) for substation

A. Objective

1) To prepare SIMP by State Government

B. Process

84 On confirmation of the scheme the MSPCL 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 Govt. of Manipur. 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 Govt. of Manipur is described below.

i) Establishment of Institutions

85 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

86 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

ii) ***Social Impact Assessments***[4]

- State SIA Unit, after the receipt of a request from Government of Manipur, will prepare a

[4] The responsibility to carry out SIA and preparation of R & R Plan , its disclosure, approval etc. is in the domain of State Government and not under Utility(MSPCL)

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 deposit 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 asses 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 Government of Manipur.

iii) Disclosure

87 The final SIA Report and SIMP will be published in the local language and made available:

- The Panchayat, Municipality or 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.

iv) ***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

C. Output

1) Social Impact Management Plan (SIMP) including SIA, RAP and Public Disclosure by Government of Manipur.

7.4.4 Funding Agency Concurrence/Acceptance (if applicable)

A. Objectives

1) To obtain concurrence of funding agencies related to E & S components of the projects

B. Process

1) MSPCL submits DPR and various reports on environment and social like IEAR, CPTD to funding agencies for appraisal and concurrence

C. Output

1) Acceptance/concurrence of funding agencies

7.5 Detailed Design & Tendering

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

1) Design measures that can avoid environmental and social impacts like taller/specialized towers and changes of substation configuration for example protect sensitive receptors nearby would be made a part of the bidding documents,

2) MSPCL shall either implement IEAR/CPTD in-house or engage outside agencies that are capable of executing such task

3) EMP to be made part of contract/bidding document for implementation by contractors/subcontractors

7.5.1 Project Implementation

88 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

7.5.2 Execution of EMP & EAMP

A. Objectives

1) To carryout environment management works as prescribed in IEAR

B. Process

1) EAMP (IEAR) is executed taking into account appropriate working clearance and RoW (by cutting/ felling/pruning trees etc. and other measures identified in clearance. Forest department undertakes CA Scheme.

2) Other mitigation measures enlisted in EMP are executed by MSPCL and Contractor.

3) MSPCL 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

1) Tangible proof of EMP/EAMP execution.

2) FEAR containing compliance of mitigation measures as listed in IEAR, EMP implementation and details of forest clearance etc.

7.5.3 Execution of CPTD

A. Objectives

1) To carryout social management works as prescribed in CPTD

B. Process

1) MSPCL shall pay the compensation to affected persons in consultation with revenue authority and execute any other measures as agreed and documentation in the CPTD for transmission/sub-transmission lines

C. Output

1) Tangible proof of execution of social management measures.

2) RoW

7.5.4 Execution of SIMP

A. Objectives

1) SIMP to be executed by Government of Manipur as per RFCTLARRA, 2013.

B. Process

89 The execution of the SIMP is the responsibility of the Government of Manipur. However, the following process is to be facilitated by MSPCL:

1) MSPCL deposits cost for land and R & R measures as per award issued under RFCTLARRA, 2013 to concerned authority/State Government.

2) Transfer of compensation and monetary R & R benefits to affected persons account by Government of Manipur.

3) Possession of land by MSPCL.

C. Output

1) Possession of land

7.6 Operation and Maintenance (O&M)

90 The environment & social works undertaken in earlier phase of project cycle are monitored in this period. Besides this MSPCL being a member of State R & R committee shall monitor implementation Social Impact Assessment Management Plan for acquisition of land (if involved) by Government of Manipur as per the provisions of RFCTLARRA, 2013 (Salient features are outlined

in **Annexure-3**). However, MSPCL may also take part on implementation and monitoring, if called for as they are responsible for implementation of project.

7.6.1 Environmental Monitoring

A. Objectives

1) To monitor work undertaken as part of EAMP

B. Process

1) Regular patrolling of RoW and CA

2) Substation to be monitored on daily basis

3) Others mitigation measures outlined in EMP are monitored as per schedules

C. Output

1) Periodic monitoring reports containing updates of execution of EAMP execution.

7.6.2 Social Monitoring:

A. Objectives

1) To monitor work undertaken as part of CPTD & SIMP

B. Process

1) CPTD implementation during maintenance works monitored.

2) If land acquisition is involved, MSPCL (as member of State R & R committee) monitored SIMP implemented by Government of Manipur as per the provisions of RFCTLARRA,2013

C. Output

1) Periodic monitoring reports containing updates of execution of CPTD and SIMP execution.

7.7 Review

i) Circle office of MSPCL at Corporate office shall monitor and review of E&S activities of the Transmission and Sub-transmission project on monthly basis along with site office.

ii) The implementation/performance of environmental and social management measures along with other project works shall be reviewed by MSPCL 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 MSPCL's Transmission/Sub-transmission project.

iii) MSPCL 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.

91 A summary of the processes MSPCL 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 / Sub-Transmission Lines	▪ To identify environmentally and socially sensitive areas, issues and possible management measures ▪ To suggest alternate transmission/sub-transmission line routes, if necessary ▪ To outline the scope of Environmental Assessment (EA) and Social Assessment (SA) studies	▪ Screen and scope transmission/sub-transmission lines from an environmental and social perspective ➢ Desk Review ➢ Spot Verification ➢ Informal Public Consultation ➢ Consultation with Forest Dept.& Revenue Authorities	▪ Circle office ▪ Engg. Dept. ▪ Site office	▪ Environmental & Social screening and scoping documents as part of Concept Paper.
2. Environmental & Social approval	▪ To obtain environmental & social approvals from the MSPCL management and In-principle approval by State Govt.	▪ Submit 'Concept Paper' (with E&S screening & scoping details) to MSPCL Management ▪ Submit 'Concept Paper' (with E &S screening and scoping details) for In-principle approval by State Govt	▪ Engg. Dept ▪ Site office ▪ Circle office ▪ Engg. Dept ▪ Circle office	▪ MSPCL Management Appraisal. ▪ In-Principle approval by State Govt.
II. Project Planning				
▪ Environmental and Social Screening and Scoping for substations	▪ 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	▪ Screen and scope substation sites from an environmental and social perspective ➢ Desk Review ➢ Spot Verification ➢ Consultation with Revenue Authorities ➢ Informal Public view	▪ Engg. Dept. ▪ Circle office ▪ Site office	▪ Environmental & social screening and scoping documents for substations
▪ Environmental Assessment & Management Planning	▪ To prepare IEAR for the project/sub-projects.	a. Forest Areas ➢ Tree Enumeration ➢ Cost-benefit Analysis ➢ Compensatory Afforestation	▪ Circle office ▪ Site Office ▪ Auth. Agencies	▪ IEAR ➢ Environmental review ➢ Forest Proposal ➢ Environmental

Milestones	Objectives	Process	Responsibility	Product/Decision
		b. Other Areas ➢ Undertake environmental review and formulate appropriate management measures c. Public Consultation ➢ To inform/record public views for refinement / review if needed		Management Measures ➢ Views of Public
▪ Social Assessment for Temporary Damages for TL	▪ To prepare Compensation Plan for Temporary Damages(CPTD)	▪ 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 ▪	▪ Circle office ▪ Site office ▪ Authorised Agencies	▪ CPTD ➢ Social review ➢ Management measures ➢ Compensation plan
III. Project Approvals				
1. State Govt.	▪ To obtain project approval from GoMan	▪ Submit DPR (with EAMP and Social Screening and Scoping details) to Planning Dept./GoMan for their review	▪ Circle office ▪ Engg. Dept.	▪ Project approved by State Govt.
2. Financial Agency's Acceptance	▪ To obtain acceptance from FA for environmental & social components of Concept Paper or IEAR & CPTD	▪ Submit DPR along with IEAR and CPTD to Financial Agency for acceptance	▪ Circle office	▪ Acceptance/concurrence by FA
3. Forest Clearance	▪ To obtain Forest Clearance	▪ Submit forest proposal to concerned authority. ▪ Forest Proposal to MoEF for conditional approval after recommendation by GoMan ▪ Forward Compliance report by GoMan to MoEF for Final Forest Clearance	▪ Site office ▪ Circle office	▪ 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 ▪ Site 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 ▪ Site 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 ▪ Site office ▪ 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 - Site office - 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 account ➢ Possession of land	▪ Circle office ▪ External Agency ▪ Site ▪ MSPCL	▪ Social management measures executed ▪ Possession of land

Milestones	Objectives	Process	Responsibility	Product/Decision
VI. Operation & Maintenance				
1. Environmental & Social Monitoring	▪ To monitor work being undertaken as part of EAMP, CPTD & SIMP	▪ Monitor EAMP measures ➢ Maintenance of ROWs ➢ Progress on compensatory afforestation ➢ Compliance to EMP as per schedule ▪ Monitor CPTD measures ➢ 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)	▪ Circle office ▪ Site office ▪ Circle office ▪ Site office ▪ Circle office ▪ Site	▪ Periodic monitoring reports
VII. Project Review				
1. Annual Environmental & Social Review	▪ To review annually the EAMP and the CPTD of its projects	▪ Review and report on environmental and social performance of project during construction operation and maintenance	▪ Circle office ▪ Corporate office	▪ Annual environmental and social review report

7.8 Risk Management Framework

92 Environmental and Social Risk Assessment is a vital part of MSPCL's environmental and social management strategies. The risk assessment process identifies existing risks, and forecast future potential risks in its power transmission/ sub-transmission projects. It is a scientific process that includes cost benefit analysis. The environment and social management procedures developed by MSPCL evaluate these risks, both qualitatively and quantitatively, and prioritise them. Based on prioritisation, environment and social management options are selected.

93 MSPCL'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 Characterization
- Risk Management
- Risk Mitigation
- Risk Preparedness

94 MSPCL, based on its environmental and social risk assessment process, decides on management options to purge 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 7.2**.

- **Internal Arrangement**

95 To absorb the risk in the event of its occurrence MSPCL 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.

- **Insurance**

96 To share risk, MSPCL 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: MSPCL's Risk Responsibility Framework

Risk	GoMan	MSPCL	Contractor	Insurers
Non compliance Regulatory[5]	✓	✓	✓	-
Non compliance Contractual[6]	-	-	✓	-
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health[7] etc.	-	✓	-	-
Force Majeure Insurable	-	-	-	✓
Force Majeure Non-Insurable	✓	✓	-	-
Inclusion/ Exclusion of concerned Communities/ NGOs	✓	✓	-	-
Public Interest Litigation	✓	✓	-	-

[5] Regulatory like working in forest/protected areas without statutory clearances.

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

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

8.0 Implementation Arrangements

97 Ministry of Power (MoP), GoI has appointed POWERGRID as Design cum Implementation Supervision Consultant (i.e Project Management Consultant-PMC) now changed to Implementing Agency (IA). 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.

98. 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 MSPCL.
- **Project Implementation Unit (PPIU)** – 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:

99 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. PMC 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 PMC 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.

100 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 in MSPCL

101 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 sub-transmission 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 Project cum Design Consultant has vast experience of implementation of thousands of kilometers 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 MSPCL. Moreover,

successful implementation of provision of ESPP requires involvement and support of higher officials of MSPCL who shall regularly monitor/review E & S aspects of transmission and sub-transmission project.

8.3.1 Organizational Requirements

102 MSPCL realizes that to ensure quality and strengthen organizational systems to enable effective implementation of the ESPP, MSPCL shall have to set out procedures and work culture which will promote total involvement of all its personnel. To attain assigned goal following shall be ensured:

a) A coordinated system of functioning to be adopted by Corporate Planning who is the spokesperson of CMD/Chief Executive Officer (CEO) of MSPCL .

b) An emphasis on intra-departmental approach, demarcation of departmental responsibilities and the delegation of authority which will upshot quick response and amendment to change.

c) A commitment to provide at all times the best possible time bound quality service in all areas of its operations.

103 MSPCL's commitment to the ESPP shall have to be developed with these principles. To ensure effective implementation of its ESPP, MSPCL will focus on;

- Strengthening the implementation of the ESPP by deploying specialist or redeployment of appropriately trained personnel at key levels;
- Placing dedicated manpower with specialization in the respective field to deal and manage the environment and social issues;
- Reinforcing in-house capabilities by working with specialized external agencies;
- Frequent/regular review by higher management
- Annual review of the ESPP implementation and problem faced to start with internally or through external agencies as necessary.

104 Corporate office will have overall responsibility for construction, operation, and maintenance of transmission/distribution systems apart from providing necessary support services (Refer- **Figure 7.1:** MSPCL Departmental profile for the basic structure of the Corporate office/Circle office and Site office).

8.3.2 Organizational Structure and Responsibilities

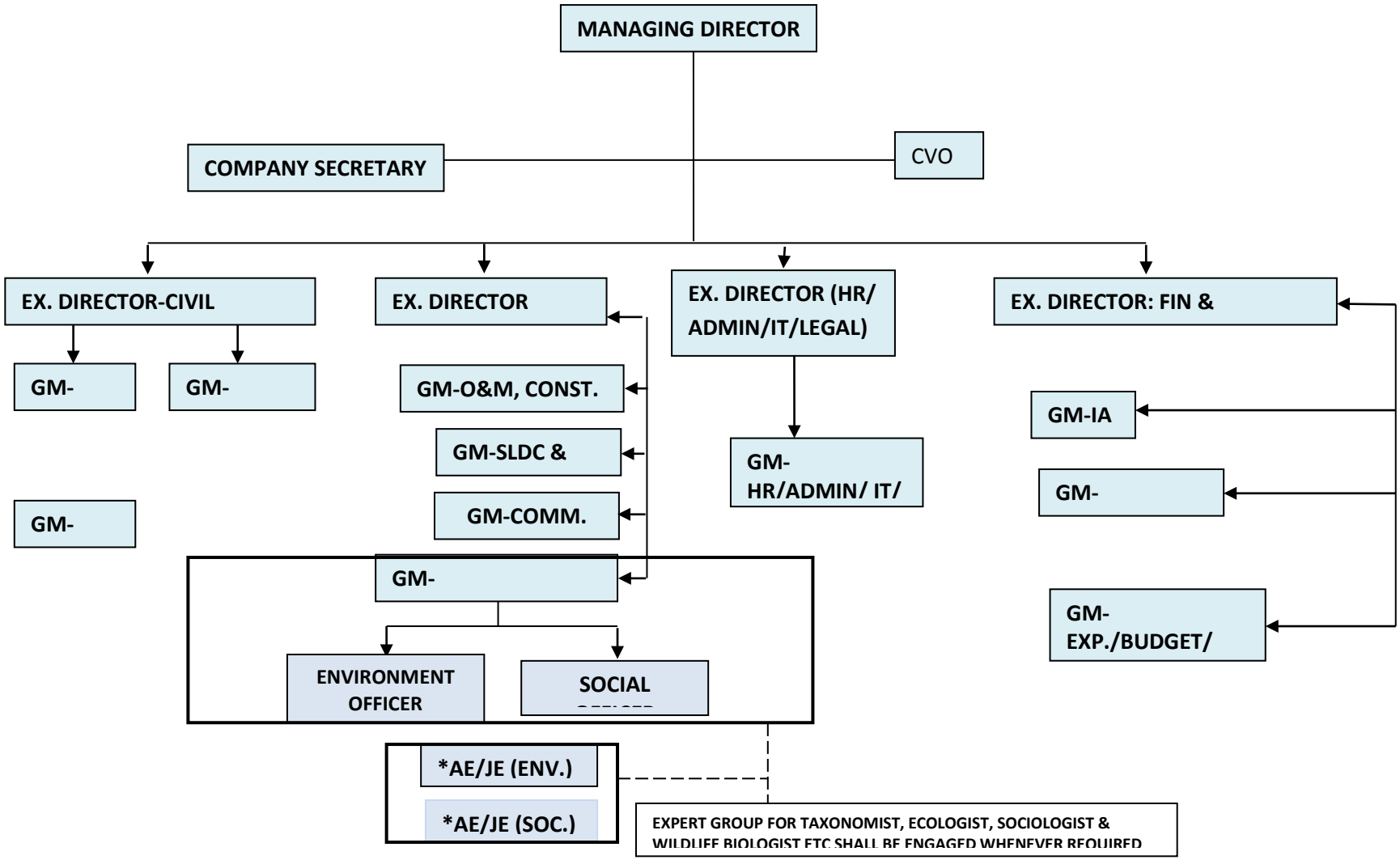
105 An Environment and Social Management Cell (ESMC) has been formed headed by GM (Projects), P&MM for proper implementation of environmental & social management measures as

outlined in ESPP. **Figure –8.1** shows organization support structure of MSPCL for ESPP implementation. The key responsibilities of ESMC will include:

- Coordinating environmental and social commitments and initiatives with various multilateral agencies, GoMan and MoEF.
- Coordination of all environmental activities related to a project from conceptualisation to operation and maintenance stage.
- Advising and coordinating /Site office to carry out environmental and social surveys and route alignment for new projects.
- Advising site offices to follow-up with the state forest offices and other state departments for expediting forest clearances and other E & S issues of various projects.
- Providing a focal point for interaction with the MoEF for expediting forest clearances
- Training of Circle and Site officials on E & S issues arising out of Transmission/ sub-transmission projects and their management plan.
- Training of other departments to familiarize them with the ESPP document.

106 A responsibility allocation matrix has been developed as per **Table 8.1**. This matrix captures the project activities, environmental and social management processes, key indicators to monitor progress, roles, and responsibilities of various stakeholders at different levels and involvement of external agencies.

Figure 8.1: MSPCL Organisation Chart with Prposed Arrangemet For Espp Implemetation



***Through redeployment of personnel**

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						
1. Environmental & Social Screening and Scoping for Transmission/ Sub-transmission Lines	▪ Screen and scope Transmission/ Sub-transmission lines from an environmental & social perspective	▪ E & S screening and scoping documents as part of Concept Paper	▪ Site office	▪ Engg. Dept. ▪ ESMC	▪ MSPCL Management Appraisal	▪ Pre-appraisal by Planning Deptt., GoMan
2. Environmental & Social approval	▪ Submit Concept paper (with E&S details) for Management Approval	▪ MSPCL Mgmnt. Appraisal	▪ ESMC ▪ Corp.Plg.	▪ ESMC ▪ Engg. Dept. ▪ Corp. Plg.	▪ MSPCL Management Appraisal	▪ In-principle approval by GoMan
II. Project Planning						
1. Environmental & Social Screening and Scoping for substations	▪ Screen and scope sub-stations sites from an environmental & social perspective ▪ Consultation with Revenue Authorities	▪ E & S Screening and Scoping reports for substation sites ▪ Scope for land acquisition	▪ Site office ▪ ESMC	▪ ESMC ▪ Engg. Dept. ▪ Corp. Plg.	▪ MSPCL Management Approval	▪ Ext. agency like revenue, forest dept etc. for Social Screening & Scoping
2. Environmental Assessment and Management Planning	▪ To prepare EAMP ➢ Transmission/S-T. line ➢ Substations ➢ Public Consultation (line)	▪ Environmental/ Assessment Management Plan	▪ ESMC ▪ Site office	▪ ESMC	▪ MSPCL Management Approval	▪ State Forest Dept
3. Social Assessment for Temporary Damages for TL	▪ To prepare CPTD ➢ Assessment of temporary damages ➢ Compensation plan ➢ Public consultation	▪ Compensation Plan for Temporary Damages (CPTD)	▪ ESMC ▪ Site office	▪ ESMC	▪ MSPCL Management Approval	▪ Revenue Dept

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation /Execution	Review	Approval	Preparation
III. Project Approvals						
1. Forest Clearance	▪ 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	▪ ESMC ▪ Site office	▪ ESMC ▪ Finance Deptt.	▪ MSPCL Management Approval	▪ RMoEF/MoEF
2. State Govt.	▪ Submit DPR (with E & S details) to State Govt.	▪ Project approval by State Govt.	▪ Circle Office ▪ Corp. Plg.	▪ ESMC ▪ Corp. Plg.	▪ MSPCL Management Approval	▪ Budget/fund allocation
3. FA Acceptance	▪ Submit IEAR and CPTD to Funding Agencies for appraisal	▪ IEAR and CPTD concurrence by FA	▪ ESMC ▪ Corp. Plg.	▪ ESMC ▪ Corp. Plg. Dept.	▪ Internal Management Approval	▪ Detailed appraisal and concurrence
IV. Detailed Design & Award						
1 IEAR/CPTD Implementation	▪ Engage authorised agencies for E & S management plan work	▪ Authorised agencies engaged to execute management works	▪ Site ▪ ESMC/ Circle office ▪ Engg. Dept.	▪ Corp. Plg. ▪ ESMC/ ▪ Circle office ▪ Engg. Dept.	▪ Management Approval	▪ Monitoring /Supervision
3. EMP part of bidding documents	▪ Project specific EMP to be included in bidding document	▪ EMP part of contract document	▪ Circle office	▪ ESMC	▪ Management Approval	▪ Monitoring /Supervision
V. Project Implementation						
1. Execution of Environmental Management Works	▪ Execute environmental management works(IEAR)	▪ Environmental management measures executed	▪ Site office ▪ Authorised agency	▪ ESMC/ Circle office	▪ Management Approval	▪ Environment management works executed
2. Execution of CPTD & SIMP	▪ Execute CPTD for TL ▪ SIMP for Substations (SIA/GoMan)	▪ CPTD (TL) by MSPCL) ▪ SIA/GoMan (for substations)	▪ Site office ▪ SIA/ GoMan	▪ ESMC/Circle office ▪ Corp.Plg. ▪ SIA	▪ Management Approval ▪ SIA/GoMan	Social management works executed ▪ Possession of Land

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation /Execution	Review	Approval	Preparation
VI. Operation & Maintenance						
1. Environmental & Social Monitoring	▪ Monitor EAMP &CPTD (TL) measures ▪ Monitor SIMP Measures by SIA/GoMan	▪ Periodic monitoring reports ▪ Periodic monitoring reports (SIA)	▪ ESMC ▪ Site Office ▪ Site office SIA/ GoMan	▪ ESMC ▪ Circle office ▪ O&M circle office	▪ Management Approval ▪ SIA/GoMan	▪ Periodic monitoring report ▪ Periodic monitoring reports
VII. Project Review						
1. Periodic Environmental & Social Review	▪ Review and report on E & S performance of project during construction, O &M	▪ Annual environmental and social review report	▪ Site office ▪ ESM/Circle office	▪ Corp. Plg. ▪ Engg. Dept ▪ Fin. dept	▪ Management Approval	▪ FA appraisal ▪ GoMan

9.0 Training & Capacity Building

107 Training is an integral part for employees for proper implementation of management measures. The training program need be integrated to accommodate capacity building of employees for implementation of the ESPP. Identification/assessment of training need of employees is to be carried out at Corporate, Circle and Site level based on which focused training modules will be developed for:

- Strengthening in- house capacity to implement the provisions of ESPP;
- Creating awareness and providing tools for implementation of ESPP and related management procedures to all departments.
- Developing competence within key employees by providing training in their respective field.

108 Based on training needs identification, ESMC/Circle office/Site office are key organizational support groups which need to have required competence to integrate the provisions of ESPP documents 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 program focusing personnel from Corporate, ESMC/Circle, Division/Sub-division/Site office and interfacing State Govt. agencies is prepared to implement for staff development program and is presented in **Table -9.2**. These training programs may be conducted with the help of local experts and or national training institution and experts in various aspect of environmental and social management.

Table 9.1: MSPCL's Skill Requirement

Milestones	Environment and Social Management Cell (ESMC) at Circle office	Engineering Department	Corporate Planning Department	Field office
1. Environmental & Social Screening and Scoping for Transmission Lines	▪ ESPP & Project Cycle ▪ Dom./Ext. FA Requirement ▪ EA & SA process ▪ Env. & Soc. issues identification & management technique ▪ Negotiation skills ▪ Mitigation techniques	▪ E & S issues identification skills ▪ EA & SA process		▪ EA & SA process ▪ Env. & Soc. issues identification & management technique ▪ Negotiation skills ▪ Mitigation techniques
2. Environmental & Social approval			▪ EA & SA process ▪ ESPP & project cycle ▪ FA requirement ▪ E&S mgmt. Techniques	
3. Environmental & Social Screening and Scoping for sub-station sites	▪ Env. & Soc. issues identification skills ▪ EA & SA process	▪ E & S issues identification skills ▪ EA & SA process		▪ E & S issues identification skills ▪ EA & SA process
4. Environmental Assessment and Management Planning	▪ EA process ▪ EM techniques ▪ Risk assessment ▪ Forest proposal process ▪ Comp. afforestation process	▪ EA process ▪ EM techniques		▪ EA process ▪ EM techniques ▪ Risk assessment ▪ Forest proposal process ▪ Comp. afforestation process
5. Forest Clearance	▪ Forest proposal process ▪ Compensatory afforestation process	▪ Forest clearance process		▪ Forest proposal process ▪ Compensatory afforestation process
6. GoMan Approvals	▪ FA requirements ▪ Awareness of Central/State laws, policies on environment and social aspects		▪ Central and Ext. FA requirements ▪ Awareness of Central/State laws,	

Milestones	Environment and Social Management Cell (ESMC) at Circle office	Engineering Department	Corporate Planning Department	Field office
			policies on environment and social aspects	
7. FA acceptance	▪ FA requirements ▪ Awareness of Central/State laws, policies on environment and social aspects		▪ Central & Ext. FA requirements ▪ Awareness of Central laws, policies on E&S aspects	
8. Social Assessment for Temporary Damages	▪ SA process, ▪ Public consult skills ▪ SM process	▪ SA process ▪ SM techniques		▪ SA process, ▪ Public consult skills ▪ SM process
9. Concurrence of FA for CPTD /SIMP			▪ GoI/GoMan & Ext. FA requirements ▪ Awareness of GoI/GoMan laws, policies on environment and social aspects	
10. Consultation for IEAR/CPTD works	▪ Skill to assess Consultation capabilities to meet IEAR/ CPTD			
11. Execution of EAMP works	▪ EM techniques ▪ Compensatory Afforestation process	▪ EM process		▪ EM techniques ▪ Compensatory Afforestation process
12. Execution of CPTD	▪ SM process ▪ SM techniques	▪ SM process		▪ SM process ▪ SM techniques
13. Monitoring	▪ Monitoring Techniques			Monitoring techniques
14. Annual E & S Review	▪ Review process			

Course	Training Schedule	Duration	For Awareness/ Orientation and for Training of Staff	Department
▪ ESPP ▪ Policy ▪ Contents of ESPP ▪ How MSPCL will implement the ESPP	Workshop	½ day or 1 day	All Senior staff (Dir., ED, GM, AGM and Proposed ESPP Team at Circle office	▪ All
▪ ESPP ▪ Policy ▪ Project cycle ▪ E&S assessment and Management process	Workshop	2 days	Proposed ESPP Team and relevant staff	▪ ESMC ▪ Engineering Department ▪ Corporate Planning ▪ Legal Department ▪ Finance Department
▪ RFCTLARRA, 2013 ▪ SIA ▪ R & R Planning ▪ Public consultation	Workshop	2 days	Interface with State Government. Agencies like SIA, R & R Commissioner and External Expert	
▪ ESPP ▪ Project cycle ▪ EA&SA process ▪ Env. & Soc. Issue identification ▪ Public consultation ▪ Risk Assessment & Management ▪ EMP & CPTD	Training Program	3 days	Proposed ESPP Team and relevant staffs	▪ ESMC/Circle office ▪ Site/Field Officials

10. Grievance Redressal Mechanism (GRM)

109 GRM is an integral part during planning, survey, implementation, operation and maintenance stage of the project. During planning stage itself public consultation process is initiated and the process is broadly outlined in **Annexure-23**. Besides, MSPCL also invites public opinion/suggestion before starting the construction work.

110 MSPCL shall constitute a Grievance Redressal Committee (GRC) headed by GM (Projects), P & MM 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. Project specific documents pertaining to environment safeguards such as IEAR and FEAR will be disclosed on the websites of MSPCL for information to public.

111 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 (in case of 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.

11. Monitoring & Evaluation

112 Continuous monitoring of all its activities including environment and social aspects and its mitigation measures spelled out in ESPP would be the key to the success of MSPCL project completion. ESMC shall regularly monitor E&S issues with project activities and report to the GM (Projects), P&MM. Regular monitoring of activities shall also be carried out by site office and shall be reviewed by Circle office on monthly basis. CMD/Director shall review ongoing project activities on quarterly basis, which will include environment, and social issues and suggest corrective measures if required for implementation at site.

113 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 environmental and social monitoring plan for each project will be integrated with project cycle for monitoring by the ESMC on monthly basis. The higher management shall be appraised through MIS on monthly/quarterly basis.

114 Major monitoring indicator identified along with frequency of measurement and responsibility at different stage of project for effective monitoring is presented below in **Table -11.1.**

Table 11.1: Monitoring of mitigation measures under ESPP

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	MSPCL
		Exclusion of PCB in transformer	Once – As part of tender specification	MSPCL
		Exclusion of CFC in electrical or other equipment	Once – As part of tender specification	MSPCL
		EMF strength	Once – part of detailed alignment survey	MSPCL

Sl. No.	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
		Noise level from Substation	Once – built in design criteria and specified in tender	MSPCL
		Noise during construction	Once – during construction machinery specification	MSPCL 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	MSPCL
2.	Construction	Government Clearances	Once for each subproject	MSPCL
		Oil spill containment and spill cleanup	Once – Built in product specification	MSPCL
		Sewage disposal system	Once – in tender specification	MSPCL
		Fire prevention and fire protection equipment monitoring	Once – in tender specification	MSPCL
		Crop disturbance during construction	Periodically when required	MSPCL assigned contractor
		Availability of land for Substation (New)	Periodic monitoring as per RFCTLARRA, 2013	GoMan and MSPCL
		Air borne dust emissions during construction	Every two weeks	MSPCL assigned contractor
		Vegetation marking and clearance	Every two weeks – strictly limited to target vegetation	MSPCL assigned contractor
		Trimming and cutting of trees in ROW	Once per site – Identification of presence of target species with height following vegetation clearance plan	MSPCL assigned contractor
		Disposal of cleared vegetation	Once per site – as approved by statutory authorities	MSPCL assigned contractor

Sl. No.	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
		Disposal of excavated soil	Every 2 weeks	MSPCL assigned contractor
3.	Operation and Maintenance	Effectiveness of Training programs and plan	Once a year	MSPCL
		Compliance with transmission tower setback conditions	Once in quarter	MSPCL
		Maintenance of ground clearance to comply with limits of EMF	Once	MSPCL
		Noise levels at boundary nearest to substations	Once a year	MSPCL

115 The evaluation of environmental and social management measures undertaken along with other project works shall be reviewed by MSPCL management initially every quarter for a period of at least 1 (one) year as this ESPP will be inducted in its corporate functioning in implementation of MSPCL's Transmission/Sub-transmission Project. MSPCL 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.

12. Budget

116 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, MSPCL estimates about 5-10 % overall project towards such measures for which necessary budget provisions shall be made during planning stage itself.