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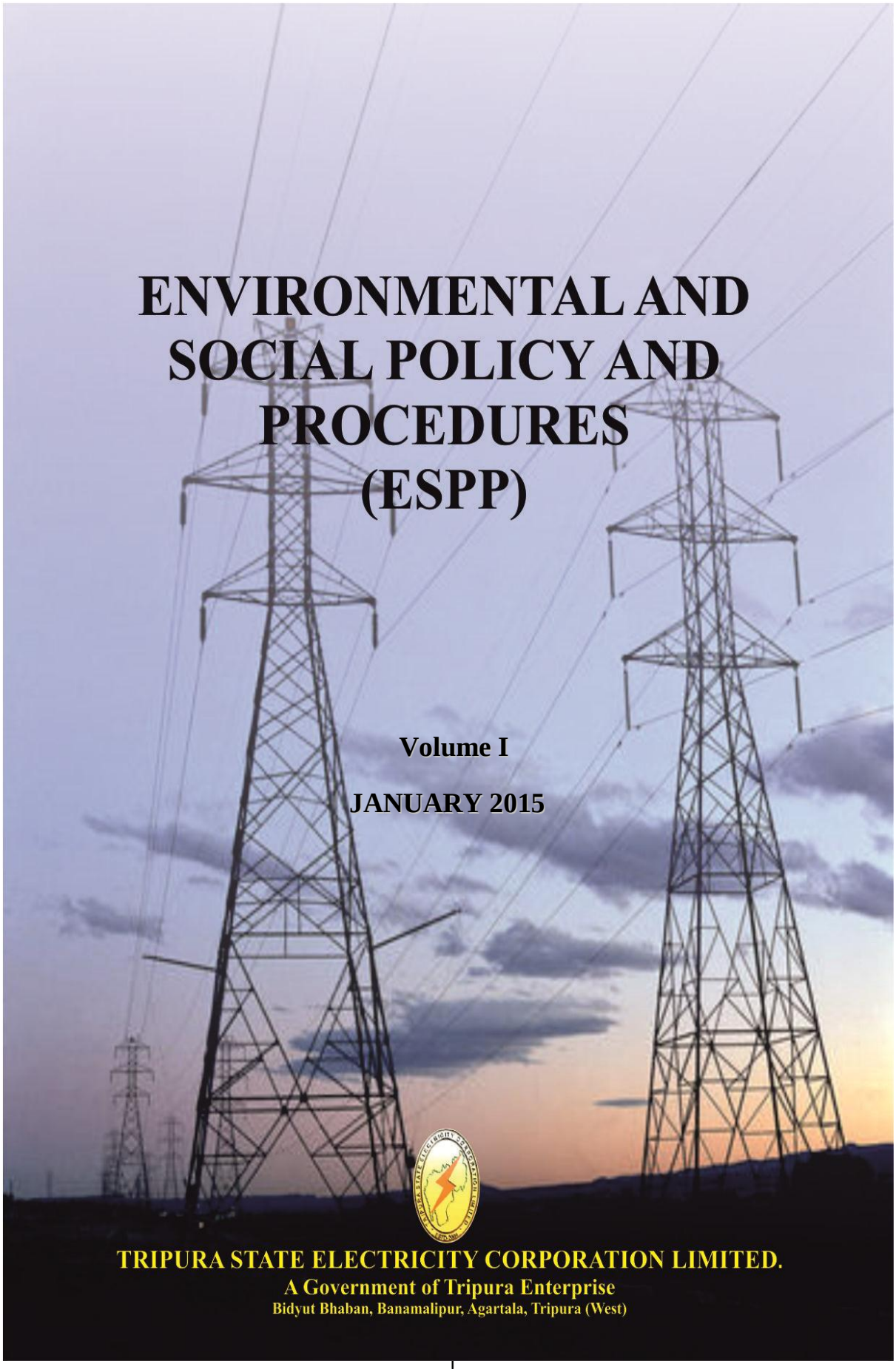

ENVIRONMENTAL AND SOCIAL POLICY AND PROCEDURES (ESPP)

Volume I

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TRIPURA STATE ELECTRICITY CORPORATION LIMITED.
A Government of Tripura Enterprise
Bidyut Bhaban, Banamalipur, Agartala, Tripura (West)

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Abbreviations

ADB	Asian Development Bank
ADC	Autonomous 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
GoT	Government of Tripura
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
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
SAG	State Advisory Group
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
T&D	Transmission & Distribution
TC	Transmission Circle
TERC	Tripura Electricity Regulatory Commission
TL	Transmission Line
ToR	Terms of Reference
TPDP	Tribal Peoples' Development Plan
TSECL	Tripura State Electricity Corporation Limited
TTAADC	Tripura Tribal Areas Autonomous District Council
WB	World Bank

EXECUTIVE SUMMARY

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

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

Project Context

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

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

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

5 **Tripura.** In the above background, Tripura 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, Tripura State Electricity Corporation Limited (TSECL) in Tripura is committed to manage them highly sustainably. Towards this, plans have been made by TESCL to prepare an Environment and Social Policy and Procedures (ESPP) to serve as a guiding instrument. TSECL assimilates environmental and social management procedures into its corporate functioning and also layout management procedures and protocol to address them. It outlines TSECL'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 TSECL. Thus, it enables TSECL;

- 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.

TSECL 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.

TSECL's Environment & Social Policy

Environment & Social Policy Statement of TSECL

"TSECL aspires to achieve the goal of sustainable development through identification, assessment and management of social and environmental issues at both project planning and implementation stages, through use of state of the art system, following of statute and principles of Avoidance, Minimization and Mitigation of inescapable issues with complete transparency and due social responsibilities".

6 The key principles of TSECL'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.

Tripura at a Glance

10 Tripura situated between latitudes 22°56' and 24°32' north, and longitudes 91°09' and 92°20' east is a land-locked Indian North Eastern State. It has an area of 10,491.69 sq. km and surrounded by Bangladesh on its north, south and west. The State has rich natural resources which includes gas and forests. The local flora and fauna bear a very close affinity and resemblance with the floral and faunal

components of the Indo-Malayan and Indo-Chinese sub-regions. The State is located in the bio-geographic zone of 9B-North-East hills and possesses an extremely rich bio-diversity. About 60% of the area is classified as forests. A third of the population belongs to Schedule Tribes whose lives are intrinsically woven with that of the forests.

11 Tripura presently has 8 districts, 23 subdivisions, 58 development blocks and 32 revenue circles having 4 nos. Panchayati Raj Institutions (PRI). The Sixth Schedule of the Constitution applies to a large part of the state, which is under the jurisdiction of the ***"Tripura Tribal Areas Autonomous District Council"*** (TTAADC). Out of the total geographical area of 10,491 sq. km, 7,133 sq. km (about 68%) is under the TTAADC. The Sixth Schedule areas are governed through ***"Autonomous District Councils"*** (ADC) that has wide-ranging legislative and executive powers. However, the State is unique and distinguished by the existence of separate legislative, governance and judiciary systems for tribal areas.

12 The population of Tripura as per census 2011 was 36, 71, 032, out of which 18, 71,867 were males and 17, 99,165 were females. The Scheduled Castes (SCs) and Scheduled Tribes (STs) population consists nearly 17.37% and 31.13% of the total population in the State. There are 19 sub tribes among the ST population of the State with their own cultural identity; Tripura is predominantly a rural state as about 83% of population lives in rural areas.

13 Forest is an integral part of the culture and tradition of Tripura as its protection maintains the ecology of the State. The State has a geographical area of 10,491 sq. km. of which 6,294 sq.km. (60.02%) is the recorded forest area; Reserved Forests constitute 66.33%, Protected Forests 0.03% and Un-classed Forests constitute 33.64%. The forest cover in the state, based on interpretation of satellite data of 2011, is 7,866 km² which is 76.98% of the State's geographical area. A significant number of families in Tripura continue to depend on forests particularly on Jhum (shifting or slash and burn) cultivation as their main source of cultivation. Almost 10 percent forests area is under Jhum cultivation in the State.

14 Tripura has two National Parks and four Wildlife Sanctuaries covering an area of 603.64 km², constituting 5.75% of the total geographical area of the State. There are about 408 Wetlands in Tripura covering an area of 98.58 sq.km. The Rudrasagar lake of State is also covered under International Convention (Ramsar Convention on wet land) by MoEF & CC. Details of protected area including its size, location and important flora & fauna are presented in **Table 1** below:

Table 1: Protected Area Network in Tripura

No.	Name of the Sanctuary/ National Park	Area in km²	Location/ District	Important Flora and Fauna found
1.	Sepahijala Wildlife Sanctuary	18.54	Sepahijala	Birds and Primates, Migratory Birds in the winter, Spectacled Monkey.
2.	Gomati Wildlife Sanctuary	389.54	Dhalai, Gomati	Elephant, Samber, Barking Deer, Wild Goats, Serrow etc.
3.	Trishna Wildlife Sanctuary	194.71	South Tripura	Bison, Leopard, Barking Deer, Wild Dog, Capped Langur, King Cobra, Spectacled Monkey, Slow Lorries

No.	Name of the Sanctuary/ National Park	Area in km²	Location/ District	Important Flora and Fauna found
4.	Rowa Wildlife Sanctuary	0.86	North Tripura	Many species of Birds and Primates
5.	Bison (Rajbari) National Park	31.63	South Tripura	Bisons and many species of Birds
6.	Clouded Leopard National Park	5.08	West Tripura	Clouded Leopard, Spectacled Langur and many Birds

15 Presently the Tripura has a generation capacity of 110 MW from 3 generating stations viz. Gomuti Hydroelectric Project, Baramura and Rokhia Gas based Thermal Power Stations. In addition to this, it has diesel based generating units of about 1.0 MW which is now used only during exigency**.** As on March, 2014 there are about 6.1 lakh total consumers out of which about 89% are domestic, about 10.18% Commercial and only 0.82% Industrial. TSECL operates 1120 Ckm of 132 kV and 66 kV with 26 nos. 132/66 kV substations having transformation capacity of over 721 MVA. It has Over 31,481 Ckm of 33 kV & 11 kV HT and LT lines (400V) with 9,863 of Distribution Transformers (DTs) of 33/11 kV and 11/0.4 kV with transformation capacity of more than 799 MVA. The present peak demand of the State is 266 MW. Own generation from three generating stations for the state is 93 MW (+ 20MW for Mizoram & Manipur). TSECL gets about 80 MW from Palatana as its share and about 60 MW is imported during peak load period from North Eastern Grid. There remains a shortfall of about 40-45 MW. Efforts are underway not only to bridge the gap but also 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 Tripura 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)	11	503 Ckt.km.	6971.50
2	132/33kV substations (New/Augmentation)	16	1306 MVA	
3.	33 kV Distribution lines (New Strengthening/Re-conductoring)	72	1096 Ckt.km.	5615.80
4.	33/11kV substations (New)	34	360 MVA	

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

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
- 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 & hygiene
- 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 TSECL 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 **Sixth Schedule:** In addition to basic fundamental rights, special provisions have been extended to the Tribal Areas in the North Eastern region under the 6th Schedule [Articles 244(2) and 275(1)] in addition to basic fundamental rights.. The Sixth Schedule safeguards the protection of tribal areas and provides for administration of tribal areas as autonomous entities, self-governance through constitutional institutions at the district or regional level. These institutions are entrusted with the twin task of protecting tribal cultures and customs and undertaking development tasks. Accordingly, Tripura Panchayats (Second Amendment) Act, 1998 of Principal Act, 1993 includes Autonomous District Council (ADC) in governance and administration.

24 **Environment :** Mandatory environmental requirements for TSECL at state level include: sanction of GoT 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. TSECL has decided to undertake assessment of environmental impacts even for cases where not statutorily mandated in order to confirm compliance with its own policy highlighted in paragraph 6 above.

26 **Social:** Mandatory Social requirements for TSECL 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. GoT) 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 TSECL's responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation.

29 **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.

30 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

<table>
<tr><th colspan="2">A. Comprehensive Compensation Package (First Schedule)</th></tr>
<tr><th>Eligibility for Entitlement</th><th>Provisions</th></tr>
<tr><td>The affected families
▪ Land Owners:
1. Family or company whose land/other immovable properties have been acquired;

2.Those who are assigned land by the Governments under various schemes;

3.Right holders under the Forest Rights Act, 2006</td><td>Determination of Compensation :
1. Market value of the land
• as specified in the Indian Stamp Act, 1899
or
• the average of the sale price for similar type of land situated in the village or vicinity,
or
• consented amount of compensation as agreed in case of acquisition of lands for private companies or for public private partnership project.
whichever is higher
Market value x Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).
2. Value of the assets attached to land:
Building/Trees/Wells/Crop etc. as valued by relevant govt. authority;
Total compensation = 1+2
3. Solatium: 100% of total compensation</td></tr>
<tr><td colspan="2">(*) 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.</td></tr>
</table>

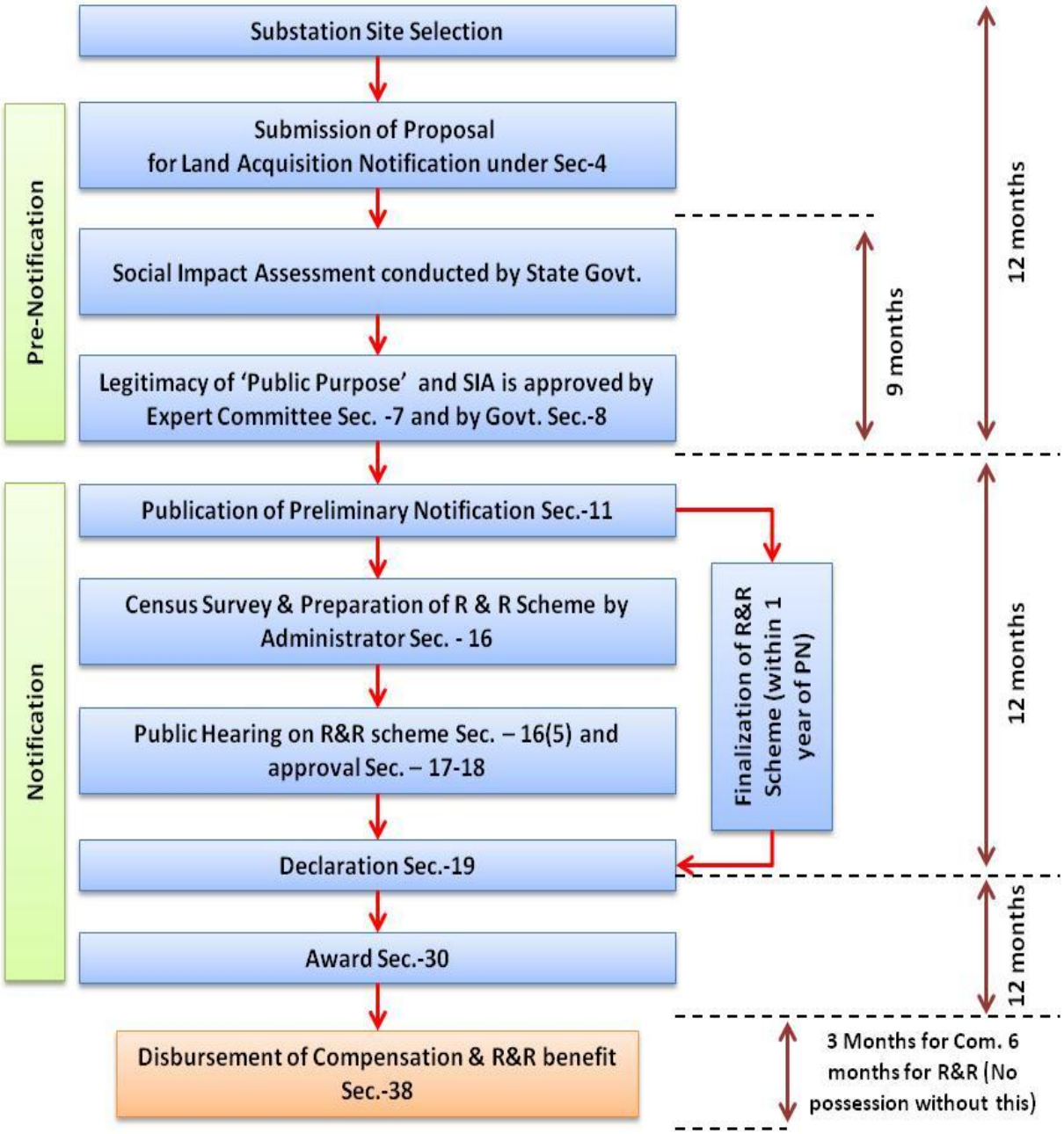
A. Comprehensive Compensation Package (First Schedule)	
Eligibility for Entitlement	**Provisions**
Radial Distance from Urban area (Km)	**Multiplier Factor**
0-10	1.00
10-20	1.20
20-30	1.40
30-40	1.80
40-50	2.00

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 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;		

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

31. 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 TSECL'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

32. 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.

33. 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.

34. 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 Tranche-1, this is not an issue as TSCEL has lands required for construction of substations and no lands are to be acquired.
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 TSECL pays compensation for all damages including cost of land below tower to its owner

No	Potential Issues	Management Measures
		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, TSECL avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged. Moreover, as brought out above all such lands are available in the instant case and no fresh acquisition of land is planned for project covered under Tranche-1, hence no such 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, TSECL 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 TSECL 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 TSECL 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 GoT. Involuntary Land Acquisitions will be made deploying the GOI's new RFCTLARR Act, 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

No	Potential Issues	Management Measures
		compensation to all the affected persons/ community for any damages sustained during the execution of work. Accordingly, TSECL 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 Tripura as per census 2011 was 36, 71,032. The Scheduled Tribes (STs) population consists nearly 31.13 %of the total population in the State. There are 19- sub tribes among the ST population of the State with their own cultural identity. The project is being implemented in the tribal areas (Sixth Schedule provision of the Indian Constitution) of Tripura 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, Sixth Schedule provision stipulates that all projects do need to secure prior consent by TTAADS 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.
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	TSECL 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 TSECL 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, TSECL 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	Minimising adverse impact on natural forests	TSECL 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.
	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, TSECL 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	TSECL 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 Tripura. But it is reported elephant sometimes stray over/cross/migrate from Bangladesh in the area Gumati river. However, in case poles are sited in that area TSECL 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 any location, if required.
B	Chemical contamination from chemical maintenance techniques	TSECL does not use chemicals for forest clearance/ RoW maintenance.
	Poly-Chloro-Biphenyls (PCBs) in electrical equipment.	TSECL use mineral oil in electrical equipments. 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	TSECL does not acquire land for its transmission towers. It pays compensation for any crop loss and damage caused during its activities. TSECL allows regeneration and cultivation beneath the towers for Transmission Line (TL) around poles/ structures and lines.
	Induced secondary development during construction	TSECL 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	TSECL would ensure that all cut and fill slopes in TL/ Distribution Line (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. TSECL 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	TSECL 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. TSECL 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, TSECL 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 TSECL will make efforts to further minimise 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, TSECL will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

35 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.

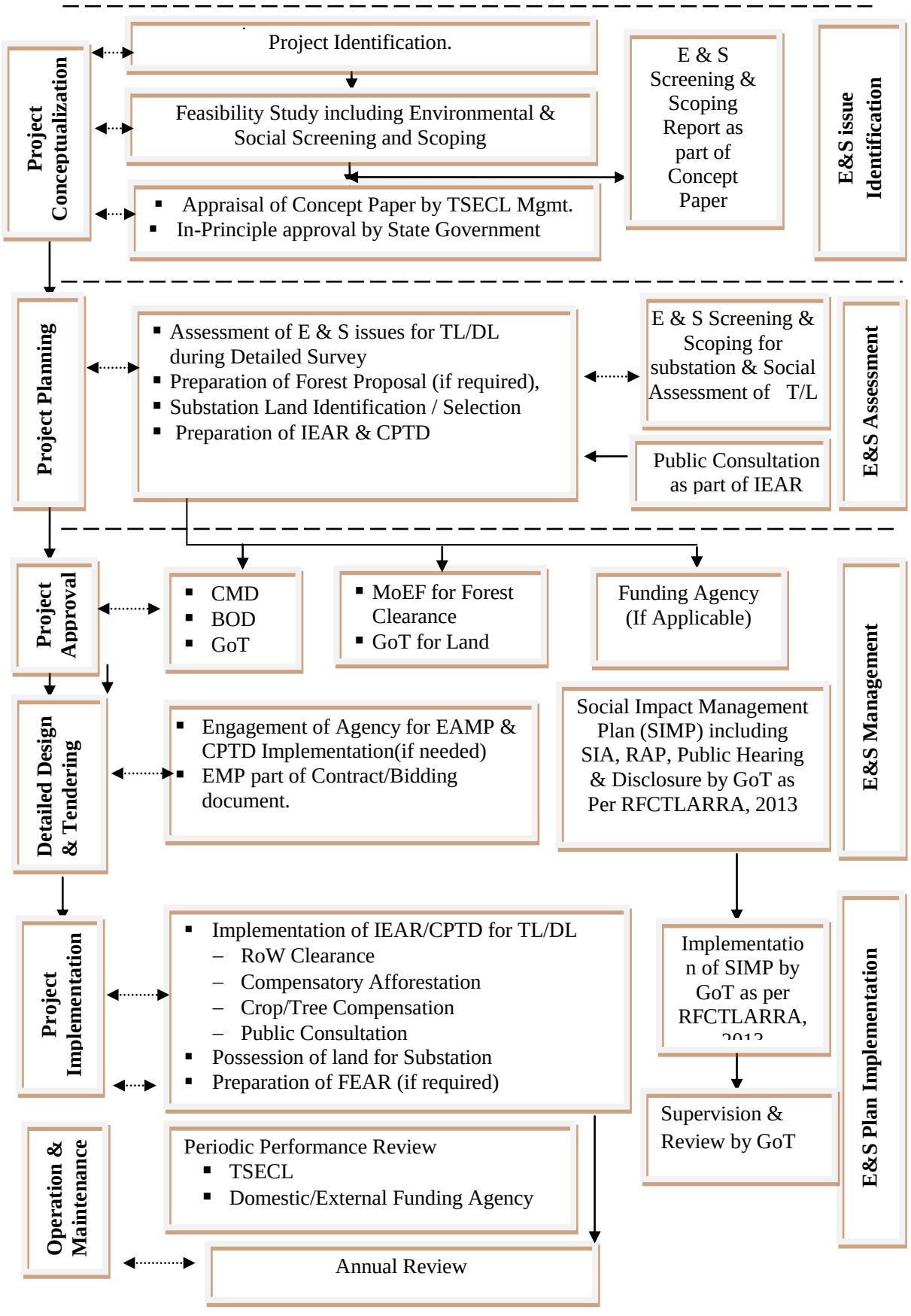
TSECL's Environment and Social Management Procedures (ESPP)

36 TSECL 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**.**

37 Likewise for substation land, TSECL 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

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

Risk	Government of Tripura (GoT)	TSECL	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

39 To ensure quality and enabling organizational support structure for effective implementation of the ESPP, TSECL 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 TSECL .
- ✓ 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.

40 TSECL's commitment to the ESPP shall have to be developed with these principles. To ensure effective implementation of its ESPP, TSECL 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.

41 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 TSECL.
- **PMC Project Implementation Unit (PPIU)** – A body formed by the IA, including members of TSECL 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. PPIU 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)

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

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

Annex – Sample Environmental Management Plan

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
Pre-construction						
Location of overhead line towers/ 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	Executing Agency (EA)	Part of overhead lines tower/laying of underground cable sitting survey and detailed alignment survey and design
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in substation transformers or other project facilities or equipment.	Transformer design	Exclusion of PCBs in transformers stated in tender specification - once	EA	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	EA	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
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	EA	Part of design parameters
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	EA	Part of detailed siting survey and design

Project activity/ stage	Potential impact	Proposed mitigation measure	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
Location of overhead line towers/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 location and overhead/underground line alignment selection (distance to water bodies)	Consultation with local authorities– once	EA	Part of tower sitting survey and detailed underground /overhead line alignment survey and design
	Social inequities	Careful route selection to avoid existing settlements and sensitive locations	Tower location and overhead/underground line alignment selection (distance to nearest dwellings or social	Consultation with local authorities/ autonomous councils and land owners – once	EA	Part of detailed tower sitting and overhead/undergrou nd 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	EA	Part of detailed tower sitting and overhead/undergrou nd alignment survey and design
		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 location and overhead/underground line alignment selection (distance to sensitive area)	Consultation with local authorities/ autonomous councils -once	EA	Part of detailed tower sitting and overhead/undergrou nd alignment survey and design

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
Involuntary resettlement or land acquisition	Social inequities	Compensation paid for temporary/ permanent loss of productive land as per law of land and its process	R&R measures implementation*	Consultation with affected parties – once in a quarter	EA	Prior to construction phase
Encroachment into protected area/ precious ecological area	Loss of precious ecological values/ damage to precious species	Avoid encroachment such areas by careful site and alignment selection (National Parks, Wildlife Sanctuary, Biosphere Reserves/Biodiversity Hotspots)	Tower location and overhead/underground line alignment selection (distance to nearest designated ecological protected/ sensitive areas)	Consultation with local forest authorities - once	EA	Part of detailed siting and alignment survey /design
		Minimize the need by using RoW wherever possible	Tower location and overhead/underground line alignment selection	Consultation with local authorities and design engineers - once	EA	Part of detailed sitting and alignment survey /design
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 location and overhead/underground line alignment selection. Minimum/maximum ground clearance	Consultation with local forest authorities – once. Monitoring – quarterly basis	EA	Part of detailed sitting and alignment survey /design and Operation
		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	Tower location and overhead/underground line alignment selection	Consultation with local forest authorities - once	EA	Part of detailed sitting and alignment survey /design and Operation

* **As per new act R & R is under the scope of State**

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
Line through forestland	Deforestation and loss of biodiversity, edge effect	Avoid encroachment by careful site and alignment selection	Tower location and overhead/underground line alignment selection (distance to nearest protected or reserved forest)	Consultation with local authorities – once	EA	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		
Encroachment into farmland	Loss of agricultural productivity	Use existing tower or footings wherever possible	Tower location and overhead/underground line alignment selection	Consultation with local authorities and design engineers – once	EA	Part of detailed alignment survey and design
		Avoid sitting new towers on farmland wherever feasible	Tower location and overhead/underground line alignment selection	Consultation with local authorities and design engineers – once		Part of detailed sitting and alignment survey /design

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		Farmers compensated for any permanent loss of productive land	Process of Crop/tree compensation in consultation with forest dept.(for timber yielding tree) and Horticulture deptt.(for fruit bearing tree)	Consultation with affected parties – once in a quarter		Prior to construction phase
		Farmers/landowners compensated for significant trees that need to be trimmed/ removed along RoW.	Process of tree compensation in consultation with Horticulture deptt.	Consultation with affected parties – once in a quarter		Prior to construction phase
			Statutory approvals for tree trimming /removal	Compliance with regulations – once for each subproject		Part of detailed sitting and alignment survey /design
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	EA	Part of detailed equipment design
Interference with drainage patterns/Irrigation channels	Flooding hazards/ loss of agricultural production	Appropriate sitting of towers to avoid channel interference	Tower location and overhead/underground line alignment selection (distance to nearest flood zone)	Consultation with local authorities and design engineers – once	EA	Part of detailed alignment survey and design
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	EA	Part of detailed equipment design /drawings

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		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	EA	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	EA	Part of detailed substation layout and design /drawings
Explosions /Fire	Hazards to life	Design of substations to include modern fire fighting equipments Provision of fire fighting equipment to be located close to transformers.	Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications – once	EA	Part of detailed substation layout and design /drawings
Construction						
Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance- once at the start of each construction phase	EA (Contractor through contract provisions)	Construction period
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	EA (Contractor through contract provisions)	Construction period

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
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	EA (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	EA (Contractor through contract provisions)	Construction period
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	EA (Contractor through contract provisions)	Construction period
	Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Access width (meters)	Access restricted to single carriage –way width within RoW – every 2 weeks	EA (Contractor through contract provisions)	Construction period
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	EA (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	EA (Contractor through contract provisions)	Construction period

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
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	EA (Contractor through contract provisions)	Construction period
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	EA (Contractor through contract provisions)	Construction period
		No use of herbicides and pesticides				
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 maximum tree height at maturity, in meters)	Presence of target species in RoW following vegetation clearance – once per site	EA (Contractor through contract provisions)	Construction period
	Loss of vegetation and deforestation	Trees that can survive pruning to comply should be pruned instead of cleared.	Species-specific tree retention as approved by statutory authorities	Presence of target species in RoW following vegetation clearance – once per site	EA (Contractor through contract provisions)	Construction period
		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	EA (Contractor through contract provisions)	Construction period
Wood/ vegetation harvesting	Loss of vegetation and	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally	Illegal wood /vegetation harvesting (area in m^2, number of incidents	Complaints by local people or other evidence of illegal	EA (Contractor through	Construction period

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	deforestation	employed staff continuing current legal activities)	reported)	harvesting – every 2 weeks	contract provisions)	
Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings 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	EA (Contractor through contract provisions)	Construction period
Substation construction	Loss of soil	Fill for the substation foundations obtained by creating or improving local water supply ponds or drains, with agreement of local communities	Borrow area sitting (area of site in m^2 and estimated volume in m^2)	Acceptable soil borrow areas that provide a benefit - every 2 weeks	EA (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	EA (Contractor through contract provisions)	Construction period
Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground cover left undisturbed	Ground disturbance during vegetation clearance (area, m^2)	Amount of ground disturbance – every 2 weeks	EA (Contractor through contract provisions)	Construction period
			Statutory approvals	Statutory approvals for tree clearances – once for each site		
Tower erection disposal of surplus earthwork/fill	Waste disposal	Excess fill from 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	EA (Contractor through contract provisions)	Construction period

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
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	EA (Contractor through contract provisions)	Construction period
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	EA (Contractor through contract provisions)	Construction period
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	EA (Contractor through contract provisions)	Construction period
Influx of migratory workers	Conflict with local population to share local resources	Using local workers for appropriate tasks	Avoidance/reduction of conflict through enhancement/ augmentation of resource requirements	Observation & supervision–on weekly basis	EA (Contractor through contract provisions)	Construction period
Encroachment into farmland	Loss of agricultural productivity	Use existing access roads wherever possible	Usage of existing utilities	Complaints received by local people /authorities - every 4 weeks	EA (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)			

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		Repair /reinstate damaged bunds etc after construction completed	Status of facilities (earthwork in m^3)			
	Social inequities	Compensation for temporary loss in agricultural production	Implementation of Crop compensation (amount paid, dates, etc.)	Consultation with affected parties – once in a quarter	EA (Contractor through contract provisions)	Prior to construction
Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimised, use of existing roads.	Design basis and construction procedures (suspended solids in receiving waters; area re-vegetated in m^2; amount of bunds constructed [length in meter, area in m^2, or volume in m^3])	Incorporating good design and construction management practices – once for each site	EA (Contractor through contract provisions)	Construction period
		Limit site clearing to work areas				
		Regeneration of vegetation to stabilise works areas on completion (where applicable)				
		Avoidance of excavation in wet season				
		Water courses protected from siltation through use of bunds and sediment ponds				
Nuisance to nearby properties	Losses to neighbouring land uses/ values	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction management practices – once for each site	EA (Contractor through contract provisions)	Construction period
		As much as possible existing access ways will be used	Design basis and layout	Incorporating good design engineering practices– once for each site		

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m^2)	Consultation with affected parties – twice – immediately after completion of construction and after the first harvest		
	Social inequities	Compensation will be paid for loss of production, if any.	Implementation of Tree/Crop compensation (amount paid)	Consultation with affected parties – once in a quarter	EA	Prior to construction
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	EA (Contractor through contract provisions)	Construction period
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	EA	Construction period
Inadequate siting of borrow areas (quarry areas)	Loss of land values	Existing borrow sites will be used to source aggregates, therefore, no need to develop new sources of aggregates	Contract clauses	Incorporating good construction management practices – once for each site	EA (Contractor through contract provisions)	Construction period
Health and safety	Injury and sickness of workers and members of the	Safety equipment's (PPEs) for construction workers Contract provisions specifying minimum requirements for construction camps	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	EA (Contractor through contract	Construction period

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	public	Contractor to prepare and implement a health and safety plan.			provisions)	
		Contractor to arrange for health and safety training sessions				
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	EA	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						
Location of line towers and overhead/underground line alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Compliance with setback distances ("as-built" diagrams)	Setback distances to nearest houses – once in quarter	EA	During operations
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	EA	Part of detailed siting and alignment survey /design and Operation

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
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	EA	During operations
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	EA	During operations
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	EA	Design and operation
		Safety awareness raising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff /workers covered – once each year		
		Preparation of fire emergency action plan and training given to staff on implementing emergency action plan				
		Provide adequate sanitation and water supply facilities	Provision of facilities	Complaints received from staff /workers every 2 weeks		
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	EA	Design and Operation
		Security fences around substations	Maintenance of fences	Report on maintenance – every		

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
		Barriers to prevent climbing on/ dismantling of transmission towers	Maintenance of barriers	2 weeks		
		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	EA	
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	EA	Operation
		Preparation and training in the use of O&M manuals and standard operating practices.				
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	EA	Operation
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	EA	Operations
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	EA	Operations

Project activity/ stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
	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	EA	Operations
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	EA	Operations

1. Project Context

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

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

3 In order to create/ augment proper infrastructure of T&D in NER keeping in mind future requirement, the Government of India (GoI) has drawn a "Composite scheme for transmission and distribution (T&D) in NER" capable of delivering adequate power to most consumers with reliability, aiming to improve the inter-state and intra-state transmission and sub-transmission infrastructure and reduce system losses in all the NER states. This in background, GoI has approached the World Bank to provide US$ 1500 million of IBRD funding support to a portion of the scheme christened: **"NER Power System Improvement Project (NERPSIP)"**. The investments are proposed to be made in three different tranches, each being US$ 500 million. The key objectives include strengthening, augmentation of the intra-state and interstate transmission and distribution schemes (up to 33kV) and undertake capacity building initiatives across six NER States of Assam, Manipur, Mizoram, Meghalaya, Tripura and Nagaland. Ministry of Power (MoP), GoI has appointed POWERGRID, the CTU, as the Design cum Implementation Supervision Consultant (i.e. Project Management Consultant- PMC) 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 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 - Tripura

5 The State of Tripura is spread over an area of about 10,492 sq. km with a population of more than 3.7 million. The State of Tripura faces significant bottlenecks in electricity access and availability levels. The present per capita energy consumption is of the order of 335 units (kWh) against the regional per capita consumption of about 258 units and national per capita consumption of about 779 units. The State meets its power requirement through about 164.5 MW of self-generation and about 105 MW of power allocation from various central sector generation projects of NHPC and NEEPCO. The present demand is of the order of 264 MW. 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 Tripura 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.

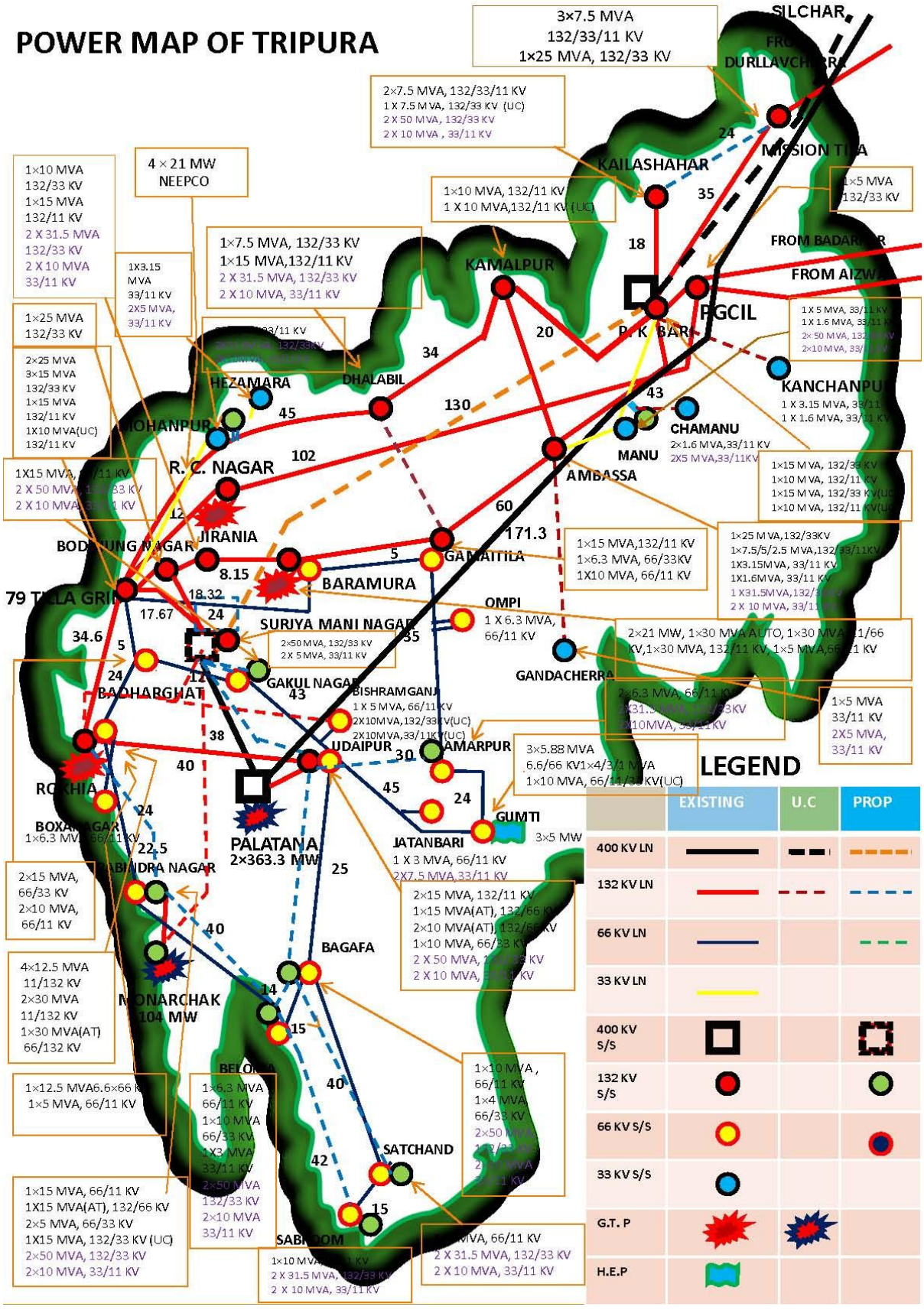
Table – 1.1: Summary of subprojects in Tranche- I under NERPSIP

Sl. No.	Name of the subproject	Quantity (Nos.)	Capacity Addition (Ckt. Km/MVA)	Estimated Cost (in Millions)*
1.	132 kV Transmission lines (New)	11	503 Ckt.km.	6971.50
2	132/33kV substations (New/Augmentation)	16	1306 MVA	
3.	33 kV Distribution lines (New Strengthening/Re-conductoring)	72	1096 Ckt.km.	5615.80
4.	33/11kV substations (New)	34	360 MVA	

The estimated cost includes consultancy fees, contingencies and IDC

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

Figure – 1.1


POWER MAP OF TRIPURA
SILCHAR
FROM DURLLAVCHERRA
3×7.5 MVA
132/33/11 KV
1×25 MVA, 132/33 KV
2×7.5 MVA, 132/33/11 KV
1 X 7.5 MVA, 132/33 KV (UC)
2 X 50 MVA, 132/33 KV
2 X 10 MVA , 33/11 KV
MISSION TILA
KAILASHAHAR
1×10 MVA, 132/11 KV
1 X 10 MVA,132/11 KV (UC)
1×5 MVA
132/33 KV
FROM BADARPUR
FROM AIZWAL
4 × 21 MW
NEEPCO
1×10 MVA
132/33 KV
1×15 MVA
132/11 KV
2 X 31.5 MVA
132/33 KV
2 X 10 MVA
33/11 KV
1X3.15
MVA
33/11 KV
2X5 MVA,
33/11 KV
1×7.5 MVA, 132/33 KV
1×15 MVA,132/11 KV
2 X 31.5 MVA, 132/33 KV
2 X 10 MVA, 33/11 KV
KAMALPUR
PGCIL
P. K. BARI
1×25 MVA
132/33 KV
2×25 MVA
3×15 MVA
132/33 KV
1×15 MVA
132/11 KV
1X10 MVA(UC)
132/11 KV
HEZAMARA
DHALABIL
KANCHANPUR
1 X 3.15 MVA, 33/11 KV
1 X 1.6 MVA, 33/11 KV
CHAMANU
2×1.6 MVA,33/11 KV
2X5 MVA,33/11KV
MANU
AMBASSA
R. C. NAGAR
1×15 MVA, 132/33 KV
1×10 MVA, 132/11 KV
1×15 MVA, 132/33 KV(UC)
1×10 MVA, 132/11 KV(UC)
JIRANIA
GAMAITILA
1×15 MVA,132/11 KV
1×6.3 MVA, 66/33KV
1X10 MVA, 66/11 KV
1×25 MVA,132/33KV
1×7.5/5/2.5 MVA,132/33/11KV
1X3.15MVA, 33/11 KV
1X1.6MVA, 33/11 KV
1X31.5MVA,132/33 KV
2 X 10 MVA, 33/11 KV
BARAMURA
OMPI
1 X 6.3 MVA,
66/11 KV
SURJYA MANI NAGAR
2×50 MVA, 132/33 KV
2 X 5 MVA, 33/11 KV
2×21 MW, 1×30 MVA AUTO, 1×30 MVA, 11/66 KV,1×30 MVA, 132/11 KV, 1×5 MVA,66/11 KV
GANDACHERRA
GAKUL NAGAR
BISHRAMGANJ
1 X 5 MVA, 66/11 KV
2X10MVA,132/33 KV(UC)
2X10MVA,33/11KV(UC)
BAGHARGHAT
UDAIPUR
AMARPUR
3×5.88 MVA
6.6/66 KV1×4/3.1 MVA
1×10 MVA, 66/11/33 KV(UC)
1×5 MVA
33/11 KV
2X5 MVA,
33/11 KV
ROKHIA
BOXANAGAR
1×6.3 MVA, 66/11 KV
PALATANA
2×363.3 MW
GUMTI
3×5 MW
JATANBARI
1 X 3 MVA, 66/11 KV
2X7.5 MVA,33/11 KV
2×15 MVA,
66/33 KV
2×10 MVA,
66/11 KV
2×15 MVA, 132/11 KV
1×15 MVA(AT), 132/66 KV
2×10 MVA(AT), 132/66 KV
1×10 MVA, 66/33 KV
2 X 50 MVA, 132/33 KV
2 X 10 MVA, 33/11 KV
4×12.5 MVA
11/132 KV
2×30 MVA
11/132 KV
1×30 MVA(AT)
66/132 KV
MONARCHAK
104 MW
BAGAFA
1×12.5 MVA6.6×66 KV
1×5 MVA, 66/11 KV
1×6.3 MVA
66/11 KV
1×10 MVA
66/33 KV
1X3 MVA
33/11 KV
2×50 MVA
132/33 KV
2×10 MVA
33/11 KV
1×10 MVA ,
66/11 KV
1×4 MVA
66/33 KV
2×50 MVA
SATCHAND
1×15 MVA, 66/11 KV
1X15 MVA(AT), 132/66 KV
2×5 MVA, 66/33 KV
1X15 MVA, 132/33 KV (UC)
2×50 MVA, 132/33 KV
2×10 MVA, 33/11 KV
SABROOM
1×10 MVA
2 X 31.5 MVA, 132/33 KV
2 X 10 MVA, 33/11 KV
2 X 31.5 MVA, 132/33 KV
2 X 10 MVA, 33/11 KV
LEGEND
EXISTING
U.C
PROP
400 KV LN
132 KV LN
66 KV LN
33 KV LN
400 KV S/S
132 KV S/S
66 KV S/S
33 KV S/S
G.T. P
H.E.P

2. Environment and Social Context – Tripura

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

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

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

Environment & Social Policy Statement of TSECL

"TSECL aspires to achieve the goal of sustainable development through identification, assessment and management of social and environmental issues at both project planning and implementation stages, through use of state of the art system, following of statute and principles of avoidance, minimization and mitigation of inescapable issues with complete transparency and due social responsibilities".

10 TSECL 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. Details of the consultations held are presented in Annex-

2.3 Structure of the Report

14 Chapter 1, viz., this chapter provided the context from a regional, state and project level social and environmental scenarios as well as approach and methodology adopted for conducting assessments and preparing ESPP. Chapter 2 presents an overview of Tripura state in respect of its social, economic, cultural, environment, infrastructure and administrative fronts. Stakeholder Analysis is presented in Chapter-3. While Chapters 1-3 lays foundation to both social and environmental front, subsequently, Chapters 4 and 5 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 (7 - 10) deal with: implementation arrangements, capacity building, grievance redressal mechanism and monitoring and evaluation.

3. Tripura - An overview

15 Tripura situated between latitudes 22°56' and 24°32' north, and longitudes 91°09' and 92°20' east is a land-locked Indian North Eastern State. It has an area of 10,491.69 sq. km and surrounded by Bangladesh on its north, south and west. The length of its international border with Bangladesh is 856 km (84 per cent of its total border), while it shares 53 km border with Assam and 109 km border with Mizoram. Tripura is connected with the rest of the country by road through National Highway - 44 and through rail by a 413 km long route connecting Agartala with Lumding, which runs through the hills in Cachar district, Assam.

16 The State has rich natural resources which includes gas and forests. The local flora and fauna bear a very close affinity and resemblance with the floral and faunal components of the Indo-Malayan and Indo-Chinese sub-regions. The State is located in the bio-geographic zone of 9B-North-East hills and possesses an extremely rich bio-diversity. About 60% of the area is classified as forests. A 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 facilities, communication bottlenecks and low capital formation.

3.1 History

17 Tripura was a princely State which merged with the Indian Union after independence on the 15th October, 1949 and became a Union Territory on 1st July, 1963. Tripura attained full-fledged Statehood on the 21st January, 1972.

18 The partition of India in 1947 and war in 1971 (between East Pakistan & India) resulted in large scale movement of evicted people and a heavy influx of refugees respectively in the State from the erstwhile East Pakistan, now Bangladesh. This had a decisive impact on the demography and had an enduring effect on the process of social and economic development of the State. The huge influx of Bengali population resulted in making the native tribal people a minority (roughly 30% of the population) in the State. Bengali and Kokborok languages are official language of the State.

3.2 Governance and Administration

19 Tripura presently has 8 districts, 23 subdivisions, 58 development blocks and 32 revenue circles having 4 nos. Panchayati Raj Institutions (PRI). However, the state is unique and distinguished by the existence of separate legislative, governance and judiciary systems for tribal areas. The present administrative setup of state is presented in **Table 3.1.**

Table 3.1: Administrative Setup in Tripura

Old Districts	New Districts	Headquarters	Sub-divisions
Dhalai	Dhalai	Ambassa	Kamalpur
			Ambassa
			Longtarai Valley
			Gandachera
West Tripura	Sipahijala	Bishramganj	Bishalgarh
			Jampuijala
			Sonamura
	Khowai	Khowai	Khowai
			Teliamura
	West Tripura	Agartala	Mohanpur
			Jirania
			Sadar
South Tripura	Gomati	Udaipur	Udaipur
			Amarpur
			Karbook
	South Tripura	Belonia	Santirbazar
			Belonia
			Sabroom
North Tripura	Unakoti	Kailashahar	Kumarghat
			Kailashahar
	North Tripura	Dharmanagar	Dharmanagar
			Kanchanpur
			Panisagar

Note: The new districts have been carved out of the earlier 4 districts in Tripura w.e.f 21st January 2012.

20 The Sixth Schedule of the Constitution applies to a large part of the state, which is under the jurisdiction of the ***"Tripura Tribal Areas Autonomous District Council"*** (TTAADC). Out of the total geographical area of 10,491 sq. km, 7,133 sq. km (about 68%) is under the TTAADC. The Sixth Schedule areas are governed through ***"Autonomous District Councils"*** (ADC) that has wide-ranging legislative and executive powers. The purpose of establishing the Autonomous District Council (ADC) is to provide for internal autonomy to the tribal people inhabiting these areas, and protect their social, cultural and economic interests, through granting them administrative and legal

authority as per constitution of India. Since the administrative setup of State being quite unique a comparison of before and after ADC is made in **Table 3.2** for better understanding.

Table 3.2: Administrative Setup of Tripura before and after ADC

Year	1972	2012
Districts	3	8
Sub-Divisions	10	23
Blocks	17	58
Revenue Circles	17	32
Tripura Tribal Areas Autonomous Council		
District Council (TTAADC)	Nil	1
Zonal Offices of TTAADC	Nil	4
Sub-Zonal Offices of TTAADC	Nil	32
Gram Panchayats	476	511
TTADC Village Committees	Nil	527
Nagar Panchayats	9	9
Municipal Council	1	10
Municipal Corporation (Agartala)	0	1
Police Stations	24	64
Revenue Villages	871	874
Tehsil Offices	177	187

3.3 Demographic Profile

21 The provisional population of Tripura as per census 2011 was 36, 71,032, out of which 18,71,867 were males and 17,99,165 were females. The population of Tripura has increased by 4,71,829 during the decade. Decadal growth of population in the State during 2001-2011 was 14.75 % and males growth were 13.98 % and females were 15.55 %, respectively. The details of population as per Census 2011 are presented in **Table 3.3.**

Table 3.3: Demographic Profile

No.	New Districts	Headquarter	Old District	Population (Nos.)	Growth Rate (%)	Sex Ratio (per 1000)	Average Literacy (%)	Density (Person/ Sq. Km)
1.	Dhalai	Ambassa	Dhalai	3,77,988	12.57	945	86.82	157
2.	Unakoti	Kailashahar	North Tripura	277,335	17.44	967	87.5	341
3.	North Tripura	Dharmanagar		4,15,946	17.44	968	88.77	288
4.	Gomati	Udaipur	South Tripura	4,36,868	14.15	956	85.09	283
5.	South	Belonia		4,33,737	14.15	956	85.09	283

No.	New District	Headquarter	Old District	Population (Nos.)	Growth Rate (%)	Sex Ratio (per 1000)	Average Literacy (%)	Density (Person/ Sq. Km)
	Tripura							
6.	Sipahijala	Bishramganj	West Tripura	4,84,233	14.15	952	84.14	463
7.	Khowai	Khowai		3,27,391	14.15	961	88.37	326
8.	West Tripura	Agartala		9,17,534	12.57	972	91.69	973

Source: Census of India, 2011

22 The population of Tripura is characterized by socio-cultural diversity. Bengalis represent around 69% of the population of the state. The Scheduled Castes (SCs) and Scheduled Tribes (STs) population consists nearly 17.37 % and 31.13 %of the total population in the State. There are 19-sub tribes among the ST population of the State with their own cultural identity, namely i) **Tripuri** ii) **Reang** iii) **Jamatia** iv) **Chakma** v) **Lusai** vi) **Mog** vii) **Garo** viii) **Kuki** ix) **Chaimal** x) **Uchai** xi) **Halam** xii) **Khasia** xiii) **Bhutia** xiv) **Munda** xv) **Orang** xvi) **Lepcha** xvii) **Santal** xviii) **Bhil** and xix) **Noatia**. The largest group is ***Tripuris*** that speaks ***Kokborok.***

23 Tripura has come a long way in the expansion of literacy and schooling and ranked 1st at all India level. Tripura's literacy rate stands at approximately 94.65 % against All India figure of 74 %.

3.4 Land, Agriculture and Forests

24 Tripura is predominantly a rural state as about 83 % of population lives in rural areas. Over 60% of the area is classified as forest area leaving less area about 27% for cultivation. The State has many rain-fed, non-perennial rivers and streams flowing to the neighbouring Bangladesh. The important forest products include Sal, Teak, Gamai, Gurjan and Champa. Bamboo is available in the state abundantly, and is traditionally being used for various purposes by the tribal people. The Gumati, Howrah, Dhalai, Muhuri, Feni and Juri are the major rivers which swell in monsoon but they become shallow during the rest of the year.

25 Agriculture and allied activities are the backbone of the state's economy. About 52 % of total main workers are engaged in agriculture including 28 % cultivators and the remaining 24 % agricultural labourers. Small and marginal farmers constitute 96 % of the total farmers in the state. Food security as well as providing gainful employment to the rural labour force remained a priority in the recent years. The State's favorable agro-climatic conditions, fertile soils, sub-tropical climate with pockets of temperate zones, large Tilla lands and abundance of rainfall really offers immense scope for development of horticulture sector comprising of fruits, vegetables, spices, plantation crops, floriculture, medicinal and aromatic plants etc. Land use pattern of the state is illustrated in **Table 3.4.**

Table 3.4: Land Use Pattern

Land Use	Area in `000 ha	Percentage
Total geographical area	1,049	-
Reporting area for land utilization	1,049	100.00
Forests	629	59.96
Not available for cultivation	141	13.44
Permanent pastures and other grazing lands	2	0.019
Land under misc. tree corps and groves	14	1.334
Cultivable wasteland	4	0.38
Fallow lands other than current fallows	2	0.19
Current fallows	2	0.19
Net area sown	256	24.31

Source: Land Use Statistics, Ministry of Agriculture, Government of India, 2011-12

26 Forest is an integral part of the culture and tradition of Tripura as its protection maintains the ecology of the State. The State has a geographical area of 10,491 sq. km. of which 6,294 sq.km. (60.02 %) is the recorded forest area; Reserved Forests constitute 66.33%, Protected Forests 0.03% and Un-classed Forests constitute 33.64%. The forest cover in the state, based on interpretation of satellite data of 2011, is 7,866 km² which is 76.98% of the State's geographical area. In terms of forest canopy density classes, the State has 109 km² of area under very dense forests, 4,641 km² of area under moderately dense forests and 3,116 km² of area under open forests. District-wise forest cover in different canopy density classes along with the changes compared to 2013 Assessment and scrub is given in **Table 3.5**.

Table 3.5: District-wise Forest Cover

No.	New Districts	Old District	Geographical Area (GA)	2013 Assessment				% of GA	Scrub
				Very Dense Forest	Mod. Dense Forest	Open Forest	Total		
1.	Dhalai	Dhalai	2402	3	1255	640	1898	79.02	37
2.	Unakoti	North Tripura	2039	10	933	516	1459	71.55	11
3.	North Tripura								
4.	Gomati	South Tripura	3057	73	1388	1013	2474	80.93	15
5.	South Tripura								
6.	Sepahijala	West Tripura	2993	23	1065	947	2035	67.99	3
7.	Khowai								
8.	West Tripura								
Total			**10491**	**109**	**4641**	**3116**	**7866**	**76.98**	**66**

Source: India State of Forest Report, 2013

27 A significant number of families in Tripura continue to depend on forests particularly on Jhum (shifting or slash and burn) cultivation as their main source of cultivation. Almost 10 percent forests area is under Jhum cultivation in the state. Jhum cultivation has an intimate relationship with forest use, not only in terms of habitation and cultivation of tracts, but also because the forestry sector provides important supplementary income and inputs in daily lives of tribal people residing in forested areas. Off late Jhum cultivation has become comparatively unproductive owing to frequent exposure of soil as evident from the reduction of Jhum cycle to the present day 2-3 years from earlier 5-6 years. The Government of Tripura has taken several innovative approaches like raising rubber plantations, towards the development of tribal livelihood systems.

3.5 Protected Areas & Wetlands

28 Tripura has two National Parks and four Wildlife Sanctuaries (**Table 3.6**) covering an area of 603.64 km², constituting 5.75% of the total geographical area of the State.

Table 3.6: List of Protected Area

No.	Name of the Sanctuary/ National Park	Area in km²	Location/ District	Important Flora and Fauna found
1.	Sepahijala Wildlife Sanctuary	18.54	Sepahijala	Birds and Primates, Migratory Birds in the winter, Spectacled Monkey.
2.	Gomati Wildlife Sanctuary	389.54	Dhalai, Gomati	Elephant, Samber, Barking Deer, Wild Goats, Serrow etc.
3.	Trishna Wildlife Sanctuary	194.71	South Tripura	Bison, Leopard, Barking Deer, Wild Dog, Capped Langur, King Cobra, Spectacled Monkey, Slow Lorries, etc.
4.	Rowa Wildlife Sanctuary	0.86	North Tripura	Many species of Birds and Primates
5.	Bison (Rajbari) National Park	31.63	South Tripura	Bisons and many species of Birds
6.	Clouded Leopard National Park	5.08	West Tripura	Clouded Leopard, Spectacled Langur and many Birds

Source: forest.tripura.gov.in

29 The State is blessed with numerous rivers and streams thereby it supports a rich diversity of inland wetland habitats. There are about 408 Wetlands in Tripura covering an area of 98.58 sq.km. Of the total Wetlands, following 7 Wetlands are important from the point of view of biodiversity conservation and as centers of socio-economic values (through water supply, fisheries, fuel wood, medicinal plants, livestock grazing, agriculture, energy resource, wildlife resource, transport, recreation and tourism, etc.) and since they have Mixed (M) landuse, potential sources for eco-tourism in the state. The Rudrasagar lake of State is also covered under International Convention (Ramsar Convention on wet land) by MoEF. The details of 7 major Wetlands of State is presented in **Table 3.7**.

Table 3.7: Wetlands in Tripura by Rank

No.	Name of the Wetland	Use
1.	Gumati Reservoir (Dumbur Lake)	M
2.	Rudrasagar (Nirmahal)	M (Ramsar Site)
3.	Sepahijala Reservoir	M
4.	Trishna Wetlands	M
5.	Sttar Mia's Haor	M
6.	Batapara Lake(Agartala)	M
7.	College Tilla Lake	M

Source: forest.tripura.gov.in

3.8 Economy

30 Economy of Tripura is basically agrarian. Half the population depends on agriculture for livelihood. The contribution of agriculture and allied activities to the Gross State Domestic Product (GSDP) however is low, about 22 %. The land available for cultivation is relatively restricted. Terrain and forest cover are such that only 27 % of geographical area is cultivable. The contribution of primary sector in real term has declined from 25% to 22% during the eleventh five year plan period (2007-2012). However, share of the secondary sector has increased from 23-28% due to higher investment in construction field. Service sector has continued to remain steady, at about 51%. Per capita income is increasing steadily over the years and the same stood at Rs. 51,000 in 2011-12. However, the distribution is highly skewed which gets reflected in the poverty levels. The latest data on poverty ratios indicate that 45% of the people in rural areas and 23% for urban areas are poor as against all India poverty ratios of 42% for 26% for urban areas, respectively. The total poverty ratio combining the rural and urban works out to at 40.6% for Tripura against 37.2% for all India. The comprehensive detail about Tripura State is placed at **Annexure-1.**

3.9 Power Scenario

31 TSECL presently has a generation capacity of 110 MW from 3 generating stations viz. Gomuti Hydroelectric Project, Baramura and Rokhia Gas based Thermal Power Stations. In addition to this, it has diesel based generating units of about 1.0 MW which is now used only during exigency.

32 As on March, 2014 there are about 6.1 lakh total consumers out of which about 89% are domestic, about 10.18% Commercial and only 0.82% Industrial. This wide coverage is possible as TSECL, presently is having fairly large Transmission and Distribution network system illustrated below:

- 1120 Ckm of 132 kV and 66 kV Transmission lines (includes around 163 Ckm of ongoing projects) with 26 nos. 132/66 kV substations having transformation capacity of over 721 MVA (including 60 MVA of ongoing projects). Transmission network of the state is interconnected with other states through the transmission network of POWERGRID (**Figure 1.1**);

- Over 31,481 Ckm of 33 kV & 11 kV HT and LT lines (400V) with 9,863 of DTs of 33/ 11kV and 11/0.4kV with transformation capacity of more than 799 MVA;

- Data captured (**Figure 3.1**) during last 8 years shows that the demand of Electricity in the state is revealing an 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 75% and 85% respectively and a phenomenal growth of both i.e. energy consumption from 400MU to 700MU (75%) and Nos. of consumers from 3.25 lakhs to over 6.0 lakhs (85%). It is expected that the demand will increase on an average of 9.4 % per year and that of no. of consumers by 10% per year. It is also observed that the rate of increase in numbers of consumers and consumption of electricity are more in domestic and commercial sectors while the growth is comparatively less in other sectors such as industries, irrigation & water, tea garden etc.

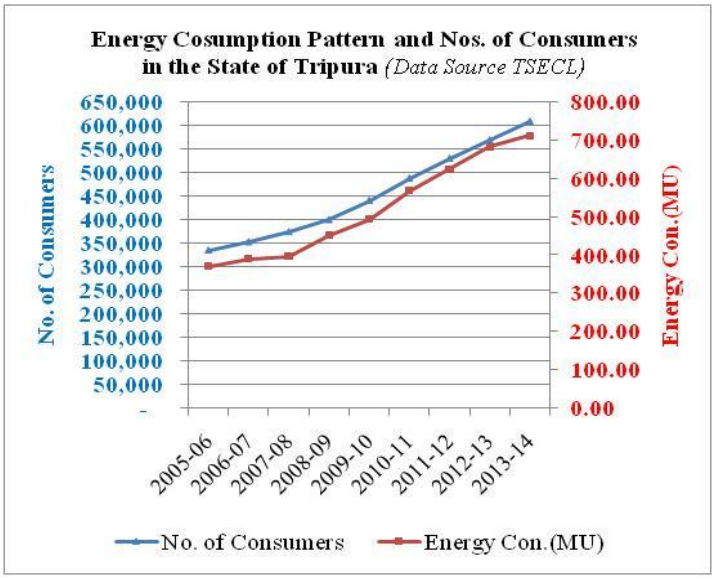


Figure 3.1

33 In order to provide quality power supply and service at affordable cost together with sustainable development practices TSECL has undertaken many proactive and bold initiatives like 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 As the state strives to march ahead, the need for basic economic infrastructure assumes high significance. Geographical isolation can be countered only through modern, reliable, quick and cheap methods of communication and transport facilities. This will have to be coupled with other facilities such as power, telecommunications, banking institutions etc. Thus the economic infrastructural developments emerge as a perquisite for development and growth. One of the key basic requirements relate to 'power'.

35 Tripura recognizes that electricity plays an important role in the economic and social development of an economy. Performance of all important sectors, ranging from agriculture to commerce and industry as well as social sectors like health are largely depend on the desired availability of quality power. In fact, the consumption of electricity is an index of development for measuring the standard of living. The State has two sources of generation mainly, hydro and thermal. The state is endowed with natural gas, which enhances potentiality for thermal power generation without much damage to environment. Out of the two major sources of power generation, thermal (gas based) accounts for 93 % while remaining 7 % is hydro. Present peak demand of the State is 266 MW. Own generation from three generating stations for the state is 93 MW (+ 20MW for Mizoram & Manipur). TSECL gets about 80 MW from Palatana as its share and about 60 MW is imported during peak load period from North Eastern Grid. There remains a shortfall of about 40-45 MW. Efforts are underway not only to bridge the gap but also ensure that adequate power is made available to enable boosting of State economy. To achieve such ambitious target/ goal, Tripura has planned for major expansion and augmentation of its transmission and distribution network with sustainability the ESPP has been designed to identify, address, and mitigate any adverse environmental and social issues during project implementation. Details of proposed expansion/augmentation of power system network in the State of Tripura with the financial support amounting to Rs1367.02 Crores (US$ 227.83 million) from Government of India 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	State Power Corporations	Timely implementation projects & Operation and Maintenance of the power systems development under this project. Improvement in availability of power supply, reduction in T&D losses.
		Tribal Welfare Department/Tripura Tribal Areas Autonomous District Council (TTAADC)	Coordination and approvals for utilization/acquisition of land within TTAADC areas and for carrying out other physical interventions in these areas as necessary.
		State Forest Department	Protection of forest and protected areas, timely processing of approvals for utilization of forest land with minimum

No.	Levels	Key Stakeholders	Expectations and Issues
			loss or implication to state forest
		Utilities like Water supply, PHE, Oil & gas, etc.	During implementation –coordination for timely shifting of utilities as necessary and secured power supply to enhance efficiency of their activities.
		State Legal Department	Coordination – conflict management as necessary
		State Finance Department	Coordination – timely fund flow and utilization submission to the GoI and WB.
		District Administration – Revenue Department	Land acquisition – securing land for the project implementation on a timely basis Conflict management, compensation assessment/payment under RoW.
		Local NGOs	Proper information dissemination at the local community level and act as watch dog to oversee implementation as per applicable legal provisions.
		Media	Coordination for information dissemination
d	District Level	Revenue department	Land Acquisition – importantly for private acquisition. Timely conflict management
e	Village Level	Village council heads, members, etc.	For acquisition of village land and/or for establishment of transmission/distribution lines within their administrative areas with total transparency and involvement of all concerned.
		Informal groups	Local community leaders, elders, community groups, women groups – coordination as necessary
		SC/ ST	Vulnerable groups – consulted to address any adverse issues identified under the project.
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 groups
- Gender/ 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 TSECL 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;
- Minimisation of impacts when project activities occur in socially sensitive areas;
- Mitigation of any unavoidable negative impacts arising out of its projects;
- Optimization of land requirement; and
- Greater transparency through involvement of 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

Sl.	Potential Issues	Management Measures
1	Loss of land	For Tranche-1, this is not an issue as TSCEL has lands required for construction of substations and no lands are to be acquired.
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 TSECL 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, TSECL avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged. Moreover, as brought out above all such lands are available in the instant case and no fresh acquisition of land is planned for project covered under Tranche-1, hence no such 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, TSECL 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 TSECL 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;

Sl.	Potential Issues	Management Measures
		• All out efforts shall be made to avoid any physical relocation/displacement due to loss of land; • The TSECL shall facilitate in extending 'gratitude' to the land donor(s) in lieu of the 'contribution' if so agreed. The same shall be documented and monitored for compliance. • All land donations (as well as purchases) will be subject to a review/ approval from a committee comprising representatives of different sections including those from the PGCIL and GoT. Involuntary land acquisitions will be as per the new RFCTLARR Act of 2013.
	Right of Way	Land for tower and right of way is not acquired as agricultural activities can continue. However, the project shall pay full compensation to all the affected persons/ community for any damages sustained during the execution of work. Accordingly, TSECL has formulated appropriate management plan in the form of Compensation Plan for Temporary Damage (CPTD) to minimize the damages and provide compensation plan for temporary damages in consultation with the state government and affected persons and/ or community.
4	Impact on Tribal	The population of Tripura as per census 2011 was 36, 71,032. The Scheduled Tribes (STs) population consists nearly 31.13 %of the total population in the State. There are 19- sub tribes among the ST population of the State with their own cultural identity. The project is being implemented in the tribal areas (Sixth Schedule provision of the Indian Constitution) of Tripura and bulks 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, Sixth Schedule provision stipulates that all projects do need to secure prior consent by TTAADS 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.
6	Gender/ women participation	Women involvement will be planned through formal and informal group consultations so that their participation is ensured during preparation and implementation of the project.

Sl.	Potential Issues	Management Measures
7	Induced secondary development during construction	TSECL 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 TSECL 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, TSECL 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

Sl. No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
1. Constitutional Provisions		
1	6th Schedule of the Constitution & TTAADC (Tripura Tribal Area Autonomous District Council)	Provisions provide Special Power to ADC of TTAADC Area for the support/ development of Tribal. Any activity sited in TTAADC area needs their consent. The Sixth Schedule provides for administration of tribal areas as autonomous entities. The administration of an autonomous district is vested in a District Council and of an autonomous region, in a Regional Council. These Councils are endowed with legislative, judicial, executive and financial powers. These institutions were expected to integrate these areas with the modern system of

Sl. No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
		administration while preserving the traditional autonomy and local self-governing institutes of the tribal people.
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 Tripura then TSECL, GoT too shall be bound by and would need to comply with relevant provisions of the Act. The salient features of the provisions of the new RFCTLARRA, 2013 are given in **Annexure- 3.**
3.	Electricity Act, 2003 (EA, 2003)	Under the provisions of **Section 68(1):-**Prior approval of the Govt. of Tripura (GoT) is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State which authorizes TSECL to plan and coordinate activities to commission a new Transmission/distribution project. Under **Section 164:-** GoT, may by order in writing, authorize TSECL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. TSECL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoT 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

Sl. No.	Acts, Regulations and Policies	Relevance/ Applicability to the project
		act has also been linked with forest clearance process under Forest (Conservation) Act, 1980 w.e.f. August 2009 by MoEF which TSECL 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.
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, TSECL 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: Land for substations is not an issue as land is already in the possession of TSECL and no fresh land is needed for any of the subprojects under Tranche 1. Hence issue related to acquisition of land including possible Rehabilitation and Resettlement (R&R) are 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 Rabindra Nagar	New	Required lands are already available with TSECL and no lands are to be acquired.
2	132/33 kV Gokul Nagar	New	
3	132/33 kV Manu	New	
4	132/33 kV Belonia	New	
5	132/33 kV Bagafa	New	
6	132/33 kV Sabroom	New	
7	132/33 kV Mohanpur (Hezamara)	New	
8	132/33 kV Satchand	New	
9	132/33 kV Amarpur	New	
10	132/33 kV Kailashahar	Augmentation	
11	132/33 kV Udaipur	Augmentation	
12	132/33 kV Ambasa	Augmentation	
13	132/33 kV Dhalabil (Khowai)	Augmentation	
14	132/33 kV Jirania	Augmentation	
15	132/33 kV Rokhia	Augmentation	
16	132/33 kV Dharmnagar	Augmentation	
B. Distribution Substations			
17	33/11 kV Distribution Substation (34 Nos.)	New/ Augmentation	Land is in possession with TSECL thus no new lands are to be acquired.

5.7 Thus, 'lands' is not an issue for Tranch-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, TSECL 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 TSECL 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 TSECL shall facilitate in extending 'gratitude' to the land donor(s) in lieu of the 'contribution' if so agreed. The same shall be documented and monitored for compliance.
- All land donations (as well as purchases) will be subject to a review/ approval from a committee comprising representatives of different sections including those from the PGCIL and GoT.

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. GoT) 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 TSECL'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

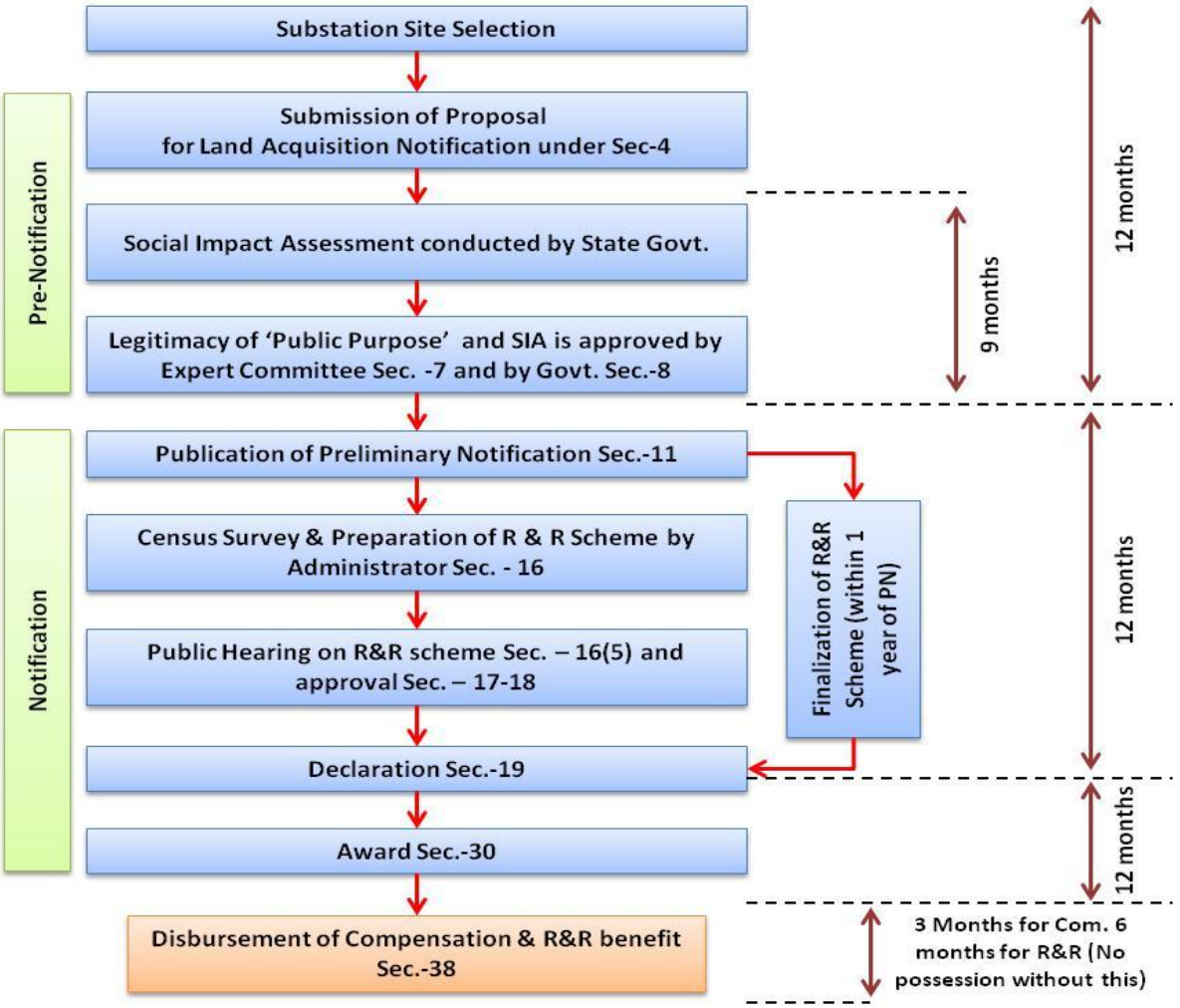
<table>
<tr><th colspan="2">B. Comprehensive Compensation Package (First Schedule)</th></tr>
<tr><th>Eligibility for Entitlement</th><th>Provisions</th></tr>
<tr><td>The affected families
▪ Land Owners:
2. Family or company whose land/other immovable properties have been acquired;
2.Those who are assigned land by the Governments under various schemes;
3.Right holders under the Forest Rights Act, 2006</td><td>Determination of Compensation :
2. Market value of the land
• as specified in the Indian Stamp Act, 1899
or
• the average of the sale price for similar type of land situated in the village or vicinity,
or
• consented amount of compensation as agreed in case of acquisition of lands for private companies or for public private partnership project.
whichever is higher
Market value x Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).
2. Value of the assets attached to land:
Building/Trees/Wells/Crop etc. as valued by relevant govt. authority;
Total compensation = 1+2
3. Solatium: 100% of total compensation</td></tr>
<tr><td colspan="2">(*) 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.</td></tr>
</table>

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:	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: ii) If a house is lost in rural areas: ii) If a house is lost in urban areas	i. A constructed house shall be provided as per the Indira Awas Yojana specifications. ii. A constructed house shall be provided, which will be not less than 50 sq. mts. in plinth area. **In either case the equivalent cost of the house may also be provided in lieu of the house as per the preference of the project affected family.** The stamp duty and other fees payable for registration of the house allotted to the affected families shall be borne by the Requiring Body.
4.	Transportation cost for displaced families	Rs 50,000/- per affected family
5.	Resettlement Allowance (for displaced families)	Onetime Rs 50,000/- per affected family
6.	Cattle shed/ petty shop cost	Onetime financial assistance as appropriate for construction as decided by St. Govt. subject to minimum of Rs.25,000/-
7.	Artisan/small traders/others (in case of displacement)	Onetime financial assistance as appropriate as decided by St. Govt. subject to minimum of Rs.25,000/-
Special Provisions for SCs/STs In addition to the R&R package, *SC/ST families will be entitled to the following additional benefits:* **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, TSECL has formulated appropriate management plan in the form of Compensation Plan for Temporary Damage (CPTD) in ESPP to minimize the damages and provide compensation plan for temporary damages in consultation with revenue department and affected person based on assessment. **(Annexure-5 & Annexure-5a & 5b).**

c) Tribal People: The population of Tripura as per census 2011 was 36, 71,032. The Scheduled Tribes (STs) population consists nearly 31.13 %of the total population in the State. There are 19- sub tribes among the ST population of the State with their own cultural identity. The project is being implemented in the tribal areas (Sixth Schedule provision of the Indian Constitution) of Tripura 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, Sixth Schedule provision stipulates that all projects do need to secure prior consent by TTAADS 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 TSECL maintains safety as a top priority, apart from various labour laws dealing with workers' health and safety, such as the Workmen's Compensation Act. TSECL 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 TSECL (**Annexure-6** for detailed checklist) are developed on the basis of World Bank EHS guidelines to be adopted by TSECL.

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. TSECL shall follow the best international practices while designing its system to maintain acceptable prescribed EMF level.

5.11 General Safety Standards

57 TSECL 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 under storey where it can lead to edge effect and allow for proliferation of socio-phytic weeds. This can have added repercussions within a semi evergreen or evergreen biotope.

Table 6.1: RoW Clearance between Conductors and Trees

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

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

2) Clearing of Ground Vegetation for Movement of Machinery Machinery and equipment is used for installation of transmission and distribution lines, towers/poles and construction of substations and may require clearing of ground vegetation for its movement. This activity causes temporary disturbance to the forest, orchards, plantation and agriculture etc. TSECL 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 categorised as hazardous wastes as per Hazardous waste (Management, Handling and Trans-boundary) Rules, 2008 and its unscientific disposal in environment may lead to soil and water contamination.

3) Used Battery: Used lead acid battery is a pollutant and therefore its improper handing & disposal may lead to contamination of soil and water.

4) E-waste: The Electrical and Electronic Equipment (EEE) have hazardous / toxics substances in their components which may cause harm/pose risk to health and environment during handling after its expiry & full usage.

5) 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;
- Minimisation of impacts when project activities occur in environmentally sensitive areas; and
- Mitigation of any unavoidable negative impacts arising out of its projects.
- Greater transparency through involvement of community and other stakeholders

6.3 Definitions

"Adverse environmental effect" means any irreversible harmful affect on natural environment;

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

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

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

6.4 Legal and Regulatory Framework

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

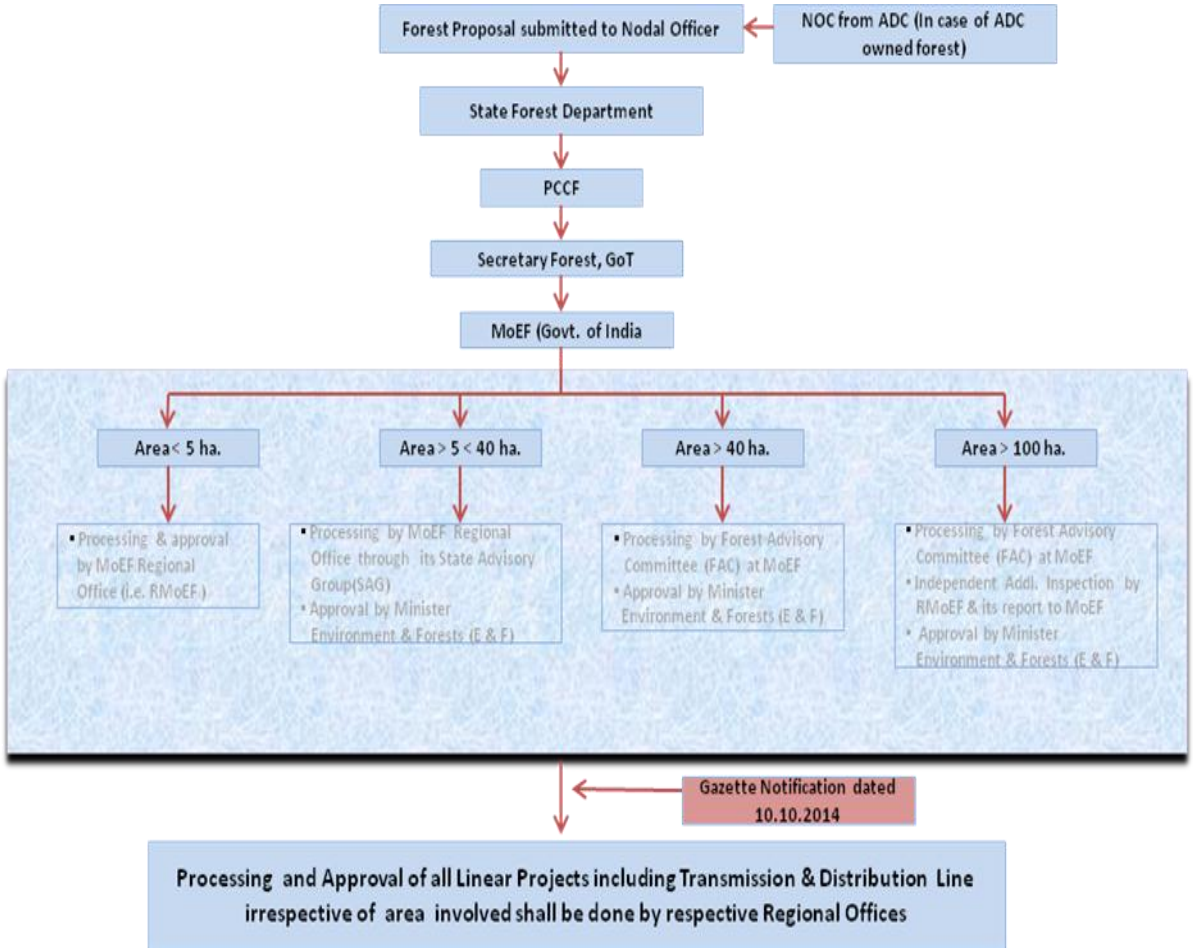
Table – 6.2 : Legal and Regulatory Provisions – Environment

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)	Under the provisions of **Section 68(1):-**Prior approval of the Govt. of Tripura (GoT) is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State which authorizes TSECL to plan and coordinate activities to commission a new Transmission/distribution project. Under **Section 164:-** GoT, may by order in writing, authorize TSECL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. TSECL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoT 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	The act recognizes and vests the forest rights and occupation in

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
	and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	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 TSECL 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 TSECL. 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 TSECL.
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 TSECL 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 Tripura 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, TSECL shall comply with provision of said rules. TSECL, 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 TSECL shall submit the desired return in prescribed form to concerned State Pollution Control Board at the time of disposal of used oil.

Sl. No.	Acts, notifications and policies	Relevance/ Applicability to the project
iv)	E-waste (Management and Handling) Rules, 2011	As per notification, bulk consumers like TSECL is to dispose e-waste generated by them in environmentally sound manner by channelizing to authorized collection centers/ registered dismantler/ recyclers/return to producers. TSECL, being a bulk consumer of electrical and electronics equipments shall maintain record as per Form-2 (**Annexure-13**) for scrutiny by State Pollution Control Board.
5	Biological Diversity Act, 2002	This act is not directly applicable to transmission projects because it deals with the conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith. TSECL 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
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 & hygiene
- 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, TSECL has developed an Environment Management Plan (EMP) which includes detail of anticipated impacts along with mitigation measures, monitoring and implementation schedule for its transmission and distribution projects. The EMP provisions shall be made part of bidding/contract document for proper implementation by the Contractor. Summary of key potential environmental issues and its management measures is presented below in **Table 6.3**.

Table 6.3: Potential Environmental Issues and its Management Measures

Sl. No	Potential Issues	Management Measures
1	Minimising adverse impact on natural forests	TSECL endeavors to circumvent / lessen environmentally sensitive areas such as forest and other ecologically fragile / sensitive areas through optimization of route including use of modern tools like GIS/GPS and other modern techniques.
2.	Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees

Sl. No	Potential Issues	Management Measures
3.	▪ Vegetation damage ▪ Habited Loss	To minimise damage to vegetation and habitat fragmentation, TSECL utilises hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.
4.	▪ Habitat fragmentation ▪ Edge effect on flora & fauna	TSECL 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	TSECL 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	TSECL does not use chemicals for forest clearance/RoW maintenance
7.	Poly- Chloro-Biphenyls (PCBs) in electrical equipment	TSECL use mineral oil in electrical equipments. Specification of oil containing PCB less 2 mg/kg (non – detectable level) stated in the tender document
8.	Induced secondary development during construction	TSECL 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. TSECL shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
10	Air craft hazards from transmission lines and towers	TSECL as per the requirement of IS 5613 of July'94 provides aviation markers, night-lights for easy identification of towers in notified/selected areas.
11.	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. TSECL uses best available technology for lines and do not cause any hazards to health and safety.

Sl. No	Potential Issues	Management Measures
12.	Fire Hazards	Fire hazards are mostly occurred in forest area. However, TSECL 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.
13.	Pollution	Although pollution is not an issue with transmission/ distribution projects still TSECL will make efforts to further minimise it. Sites are cleared of all the leftover materials and debris to avoid any chance of pollution.
14.	GHG (SF_6 Gas)	Although leakage of SF6 is not a major issue, TSECL 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.

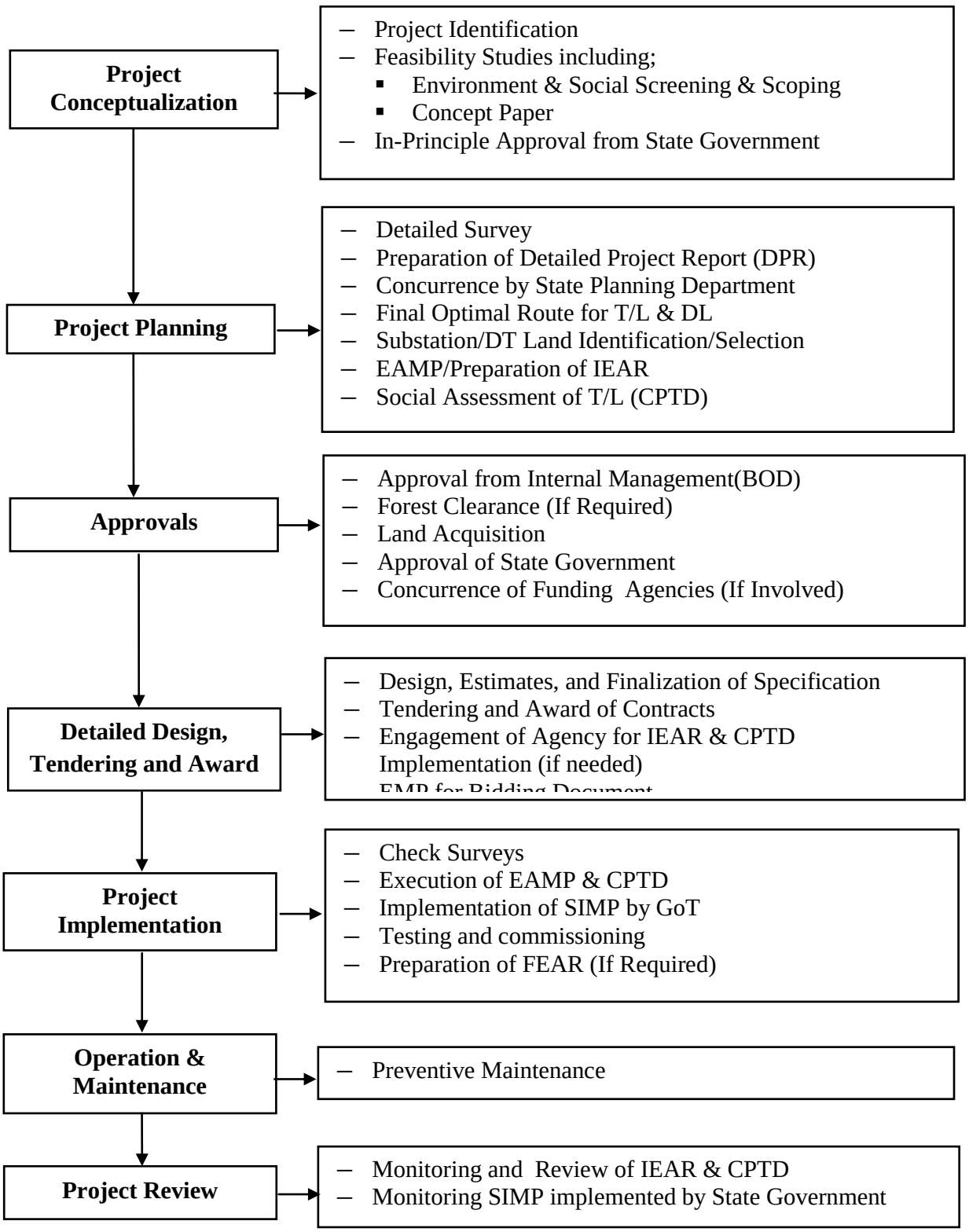
7.1 Project Cycle

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 Tripura, it become pertinent to review typical TSECL'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 & Distribution (T &D) 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, TSECL develops various options for the location/siting of transmission/distribution 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 Line (TL)/Distribution Line (DL) and the sub-stations sites). 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, TSECL 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 TSECL management, is forwarded to Planning Department, Government of Tripura for the in-principle approval of Ministry for Development of North East Region (MDoNER) (e.g. North East Council(NEC)/Non-lapsable Central Pool of Resources(NLCPR)/ State Plan(SPA), etc) for budget provision. For distribution project the 'Concept Paper' after the appraisal/ recommendation of TSECL management, is forwarded to Planning Department, Government of Tripura for in-principle approval under State plan other than RGGVY- Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)/ Accelerated Power Development and Reform Program (APDRP)/ Restructured-Accelerated power development and Reform Program(RAPDRP) scheme under Government of India.

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/distribution lines and other major offset on both the side of alignment with parameters for ground profile etc are recorded. Additionally, environmental and social details are also noted in the prescribed pro-forma for evaluation of alternatives (**Annexure-14).** 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 TSECL with the help of authorised agencies (Forest Department/Government of Tripura) 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. The complete forest proposal is processed and recommended/forwarded by Government of Tripura to MoEF for obtaining forest clearance with an undertaking from TSECL to bear the cost of compensatory afforestation, NPV etc. as per guidelines.

73 TSECL shall also identify probable substation sites suiting technical requirement based on data collected as per the checklist (**Annexure-15**) and a comprehensive analysis for each alternative site is carried out. The analysis will consider various site specific parameters that include infrastructure facilities such as access roads, 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, TSECL proposes for Land Acquisition other than Government land to the Government of Tripura, which in turn process the request as per the RFCTLARRA, 2013 for acquisition.

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 finalised and recommended by TSECL 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 TSECL 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.

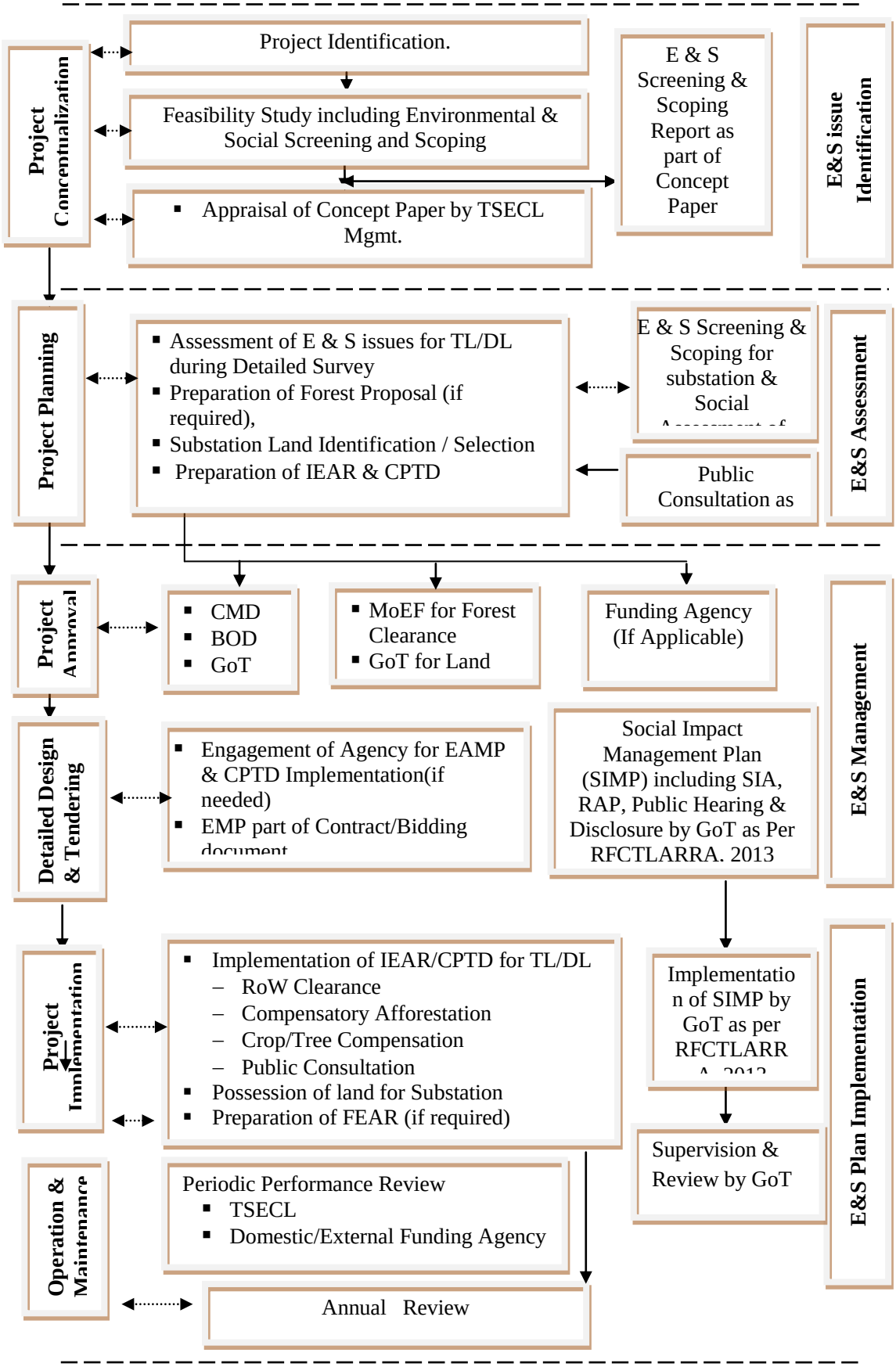
7.1.5 Project Implementation

77 Before the start of construction work (2 months), TSECL inform the general public and invite their suggestion, if any by publishing in 3 (three) local newspaper on implementation of project indicating the route of final alignment with name of the town /villages its passing through. When construction starts TSECL'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 / distribution line followed by tower/pole erection & stringing. Simultaneously works of substation are also initiated. During the construction stage due care is taken to minimise / mitigate environmental impacts. TSECL also give utmost importance 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/distribution lines and substations, pre-commissioning check and testing are rigorously done by TSECL to ensure safety of commissioning of the project/subproject. Implementation of IEAR and CPTD are also to be taken up in parallel.

7.1.6 Operation and Maintenance

78 TSECL continuously monitors the transmission/distribution lines and substations for smooth operation. These lines and substations are patrolled regularly to identify faults and its rectification. The site offices carry out monitoring of line in accordance with the checklists provided for inspection of transmission/distribution lines and substations (**Annexure-18).**

Figure- 7.2: Environmental and Social Management Procedures



7.2 Project Conceptulisation

79 Conceptualisation of a projects/subprojects necessarility 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 TSECL management. The E & S issues identification process for any TSECL 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) TSECL 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/distribution 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 finalised. 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/distribution line and substation. 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) TSECL 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.

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 & scope 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.

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 & 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) TSECL 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) TSECL submits a forest proposal request through online on MoEF forest clearance web portal (http://forestsclearance.nic.in)[1]. On receiving the request Nodal Officer (NO) after scrutiny forward the same to concerned Divisional Forest Officer (DFO) for assessment of the land proposed to be diverted for the transmission/distribution line and for formulation of proposal.

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 & Stage-II. Stage-I approval is conditional on TSECL 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 & NPV by TSECL. State Government informs MoEF about compliance of conditions and MoEF grant final approval.

C. Output

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

7.4.2 State Government Approval

A. Objectives

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

B. Process

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

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

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 TESCL 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 Government of Tripura. 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 Government of Tripura 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***[2]

- State SIA Unit, after the receipt of a request from Government of Tripura, will prepare a detailed project specific Terms of Reference (ToR) for each proposed case of land acquisition,

[2] 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(TSECL)

- 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 intothe 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 Tripura.

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 Tripura.

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) TSECL 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 to sub-station configuration to for example protect sensitive receptors nearby would be made a part of the bidding documents,

2) TSECL 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) are executed taking into account appropriate working clearance & ROW (by cutting/ felling/pruning trees etc and other measures identified in clearance. Forest dept. undertakes CA Scheme.

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

3) TSECL 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) TSECL shall pay the compensation in consultation with revenue authority and affected persons and execute any other measures as agreed and documentation in the CPTD for transmission/distribution 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 Tripura as per RFCTLARRA, 2013.

B. Process

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

1) TSECL 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 Tripura.

3) Possession of land by TSECL.

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 TSECL 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 Tripura as per the provisions of RFCTLARRA, 2013 (Salient features are outlined in **Annexure-3**). However, TSECL 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, TSECL (as member of State R & R committee) monitored SIMP implemented by Government of Tripura 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 TSECL at Corporate office shall monitor and review of E&S activities of the Transmission and Distribution 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 TSECL 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 TSECL's Transmission/ Distribution Project.

iii) TSECL 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 TSECL 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
Project Conceptualisation				
1. Environmental and Social Screening & Scoping for Transmission / Distribution Lines	▪ To identify environmentally and socially sensitive areas, issues and possible management measures ▪ To suggest alternate transmission line routes, if necessary ▪ To outline the scope of Environmental Assessment (EA) and Social Assessment (SA) studies	▪ Screen and scope 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 TSECL management and In-principle approval by State Government	▪ Submit 'Concept Paper' (with E&S screening & scoping details) to TSECL Management ▪ Submit 'Concept Paper' (with E &S screening and scoping details) for In-principle approval by State Government.	▪ Engg. Dept ▪ Site office ▪ Circle office ▪ Engg. Dept ▪ Circle office	▪ TSECL Management Appraisal. ▪ In-Principle approval by State Government
. Project Planning				
3. 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
4. Environmental Assessment & Management Planning	▪ To prepare IEAR for the project/sub-projects.	a. Forest Areas ▪ Tree Enumeration ▪ Cost-benefit Analysis ▪ Compensatory Afforestation b. Other Areas ▪ Undertake environmental review and formulate appropriate management measures ▪ Public Consultation	▪ Circle office ▪ Site Office ▪ Auth. Agencies	IEAR ▪ Environmental review ▪ Forest Proposal ▪ Environmental Management Measures ▪ Views of Public

Milestones	Objectives	Process	Responsibility	Product/Decision
		▪ To inform/record public views for refinement / review if needed		
5. 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
I. Project Approvals				
6. State Government	▪ To obtain project approval from GoT	▪ Submit DPR (with EAMP and Social Screening and Scoping details) to Planning Dept./GoT for their review	▪ Circle office ▪ Engg. Department	▪ Project approved by State Government
7. 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
8. Forest Clearance	▪ To obtain Forest Clearance	▪ Submit forest proposal to concerned authority. ▪ Forest Proposal to MoEF for conditional approval after recommendation by GoT ▪ Forward Compliance report by GoT to MoEF for Final Forest Clearance	▪ Site office ▪ Circle office	▪ Final Forest Clearance by MoEF
IV. Detailed Design & Award				
9. 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				
10. 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

Milestones	Objectives	Process	Responsibility	Product/Decision
	▪ 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
11. Execution of CPTD for TL & SIMP for Substation	▪ To undertake social management work as prescribed in CPTD	▪ Transmission lines – Pay compensation in consultation with Revenue Authority and affected persons as agreed & documented in CPTD and execute other measures ▪ Sub-stations – Deposit cost for land and R & R measures as per award – Transfer of compensation money to affected persons a/c – Possession of land	▪ Circle office ▪ External Agency ▪ Site ▪ TSECL	▪ Social management measures executed ▪ Possession of land
I. Operation & Maintenance				
12. 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
II. Project Review				

Milestones	Objectives	Process	Responsibility	Product/Decision
13. 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 TSECL'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 TSECL evaluate these risks, both qualitatively and quantitatively, and prioritise them. Based on prioritisation, environment and social management options are selected.

93 TSECL's risk assessment process involves several, successive, interactive stages, which have been included in the environmental and social assessment and management procedures and are, listed below:

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

94 TSECL, 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 TSECL 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, TSECL 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: TSECL's Risk Responsibility Framework

Risk	GoT	TSECL	Contractor	Insurers
Non compliance Regulatory[3]	✓	✓	✓	-
Non compliance Contractual[4]	-	-	✓	-
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health[5] etc.	-	✓	-	-
Force Majeure Insurable	-	-	-	✓
Force Majeure Non-Insurable	✓	✓	-	-
Inclusion/ Exclusion of concerned Communities/ NGOs	✓	✓	-	-
Public Interest Litigation	✓	✓	-	-

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

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

[5] 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 the Design cum Implementation Supervision Consultant (i.e. Project Management Consultant- PMC) to the six North East States for the Project. 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 PMC's offices at Guwahati. The "Project-In-Charge" of PMC & Head of each of the SPCU shall be a member of CPIU. CPIU shall be headed by Head of the North Eastern Region (NER) of PMC. The North-Eastern Regional Office of PMC is located at Shillong.

State Project Coordination Unit (SPCU) – A body formed by the Utility and responsible for coordinating with PMC 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 the Utility. SPCU is supported by a team of personnel from different departments from the Utility and are responsible for all coordination with PMC, within the Utility and with the State Government.

PMC Project Implementation Unit (PPIU) – A body formed by the PMC, including members of Utility 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. PPIU report to State level "Project Manager" nominated by the Project-in-Charge of PMC. The PMC 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. This team shall represent PMC and shall be responsible for all coordination with SPCU, PPIU, within PMC and MoP, GoI. CPIU shall also assist MoP, GoI in monitoring project progress and in its coordination with The Bank.

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): PMC 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 PPIU with Contractors at field offices, State Head Quarters (PPIU location) and if required with core team of PMC at Guwahati. These shall be called "Contractor's Review Meeting" (CRM). PPIU 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 PMC, at four (4) months interval or earlier if needed, primarily to maintain oversight at the top level and also to debottleneck issues that require intervention at GoI/ State Government level. Minutes of the meeting shall be prepared by PMC and shared with all concerned.

8.3 Implementation Arrangement for Environment & Social Management by TSECL

101 ESPP implementation requires a robust and efficient institutional framework based on organizational requirements, training needs and information management system. This section captures these institutional arrangements for ESPP implementation by its employees who collectively have experience of laying and maintaining substations, transmission and distribution lines.

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

8.3.1 Organisational Requirements

102 To ensure quality and strengthen organizational systems to enable effective implementation of the ESPP, TSECL 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 TSECL .

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 TSECL's commitment to the ESPP shall have to be developed with these principles. To ensure effective implementation of its ESPP, TSECL 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**

8.1: TSECL Departmental profile for the basic structure of the Corporate office/Circle office and Site office).

8.3.2 Organisational Structure and Responsibilities

105 An Environment and Social Management Cell (ESMC) has been formed headed by Addl. General Manger (AGM) for proper implementation of environmental & social management measures as outlined in ESPP. **Figure –8.1** shows organization support system of TSECL for ESPP implementation. The key responsibilities of ESMC will include:

- Coordinating environmental and social commitments and initiatives with various multilateral agencies, GoT 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/ Distribution 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: Implementation Arrangement for Environment and Social Management by TSECL

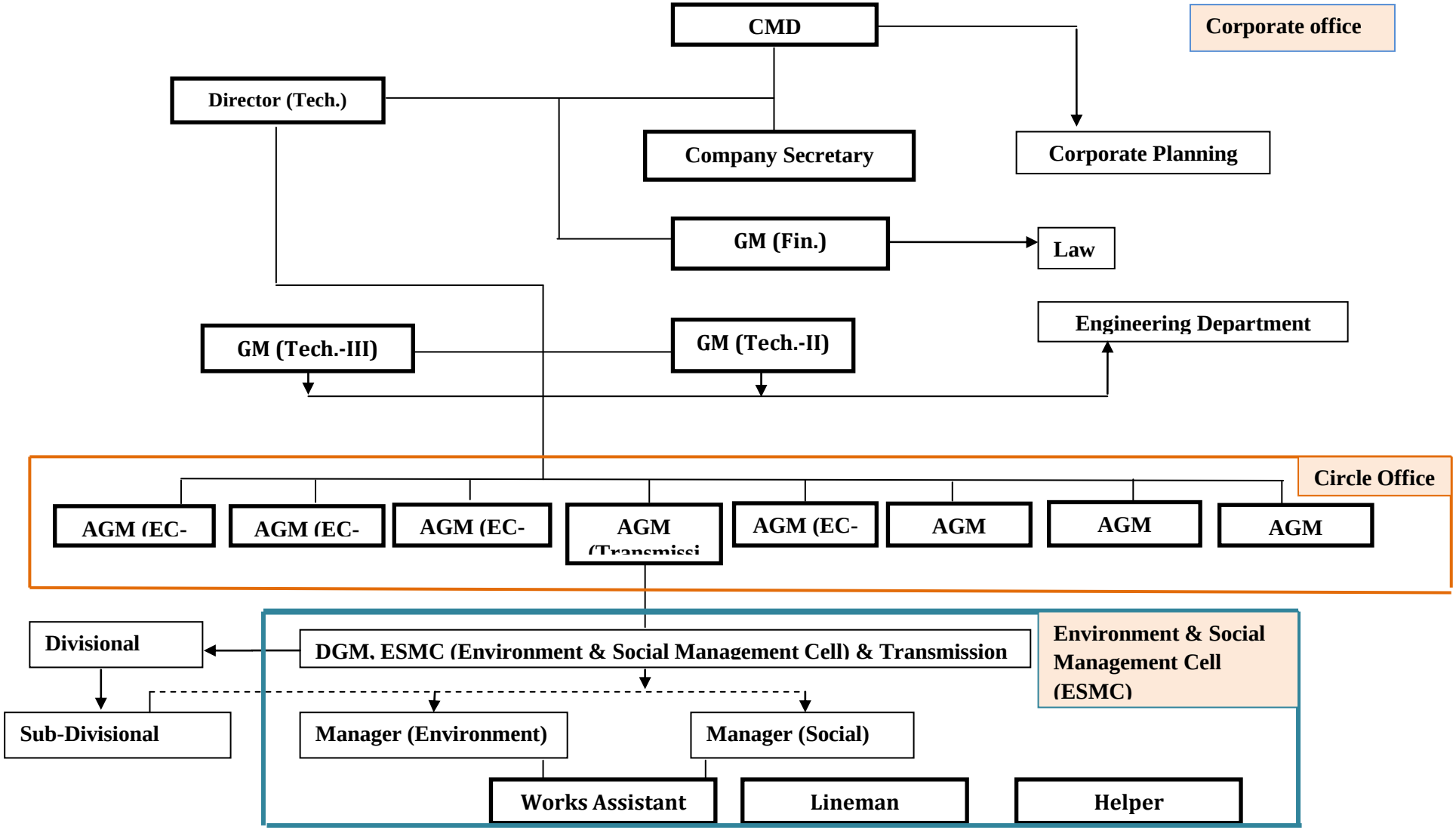


Table 8.1: Responsibility Allocation Framework for the E&S Assessment & Management Process

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation/ Execution	Review	Approval	Preparation
I. Project Conceptualisation						
1. Environmental & Social Screening and Scoping for Transmission/ Distribution Lines	▪ Screen and scope Transmission/Distribution Lines from an environmental & social perspective	▪ E & S screening and scoping documents as part of Concept Paper	▪ Site office	▪ Engg. Dept. ▪ ESMC	▪ TSECL Management Appraisal	▪ Pre-appraisal by Planning Department, GoT
2. Environmental & Social approval	▪ Submit Concept paper (with E&S details) for Management Approval	▪ TSECL Mgmnt. Appraisal	▪ ESMC ▪ Corporate Planning Department	▪ ESMC ▪ Engineering Department ▪ Corporate Planning Department	▪ TSECL Management Appraisal	▪ In-principle approval by GoT
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 ▪ Engineering Department ▪ Corporate Planning Department.	▪ TSECL Management Approval	▪ Ext. agency like revenue, forest dept etc. for Social Screening & Scoping
2. Environmental Assessment and Management Planning	▪ To prepare EAMP – Transmission/Distribution line – Substations – Public Consultation (line)	▪ Environmental/ Assessment Management Plan	▪ ESMC ▪ Site office	▪ ESMC	▪ TSECL Management Approval	▪ State Forest Dept
3. Social Assessment for Temporary Damages for TL	▪ To prepare CPTD – Assessment of temporary damages	▪ Compensation Plan for Temporary Damages (CPTD)	▪ ESMC ▪ Site office	▪ ESMC	▪ TSECL Management Approval	▪ Revenue Dept

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation/ Execution	Review	Approval	Preparation
	– Compensation plan – Public consultation					
III. Project Approvals						
1. Forest Clearance	▪ Submit forest proposal to State Government ▪ 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 Department	▪ TSECL Management Approval	▪ RMoEF / MoEF
2. State Government	▪ Submit DPR (with E & S details) to State Government	▪ Project approval by State Government	▪ Circle Office ▪ Corp. Plg.	▪ ESMC ▪ Corp. Plg.	▪ TSECL Management Approval	▪ Budget / fund allocation
3. FA Acceptance	▪ Submit IEAR and CPTD to Funding Agencies for appraisal	▪ IEAR and CPTD concurrence by FA	▪ ESMC ▪ Corporate Planning Department	▪ ESMC ▪ Corporate Planning Department	▪ 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 ▪ Engineering Department	▪ Corporate Planning Department ▪ ESMC/ Circle office ▪ Engineering Department.	▪ Management Approval	▪ Monitoring / Supervision
2. 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	▪ Execute environmental management works(IEAR)	▪ Environmental management measures	▪ Site office ▪ Authorised	▪ ESMC/ Circle office	▪ Management Approval	▪ Environment management

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation/ Execution	Review	Approval	Preparation
Management Works		executed	agency			works executed
2. Execution of CPTD & SIMP	▪ Execute CPTD for TL/DL ▪ SIMP for Substations (SIA/GoT)	▪ CPTD (TL/DL – by TSECL) ▪ SIA/GoT (for substations)	▪ Site office ▪ SIA/GoT	▪ ESMC/Circle office ▪ Corporate Planning Department ▪ SIA	▪ Management Approval ▪ SIA/GoT	▪ Social management works executed ▪ Possession of Land
VI. Operation & Maintenance						
1. Environmental & Social Monitoring	▪ Monitor EAMP &CPTD (TL/DL) measures ▪ Monitor SIMP Measures by SIA/GoT	▪ Periodic monitoring reports ▪ Periodic monitoring reports (SIA)	▪ ESMC ▪ Site Office ▪ Site office SIA/GoT	▪ ESMC ▪ Circle office ▪ O&M circle office	▪ Management Approval ▪ SIA/GoT	▪ 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. ▪ Engineering Department ▪ Finance Department	▪ Management Approval	▪ FA appraisal ▪ GoT

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, 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: TSECL'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 management 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 ▪ Compensatory afforestation process	▪ EA process ▪ EM techniques		▪ EA process ▪ EM techniques ▪ Risk assessment ▪ Forest proposal process ▪ Compensatory afforestation process
5. Forest Clearance	▪ Forest proposal process ▪ Compensatory afforestation process	▪ Forest clearance process		▪ Forest proposal process ▪ Compensatory afforestation process
6. GoT Approvals	▪ FA requirements ▪ Awareness of Central/State laws, policies on environment and social aspects		▪ Central and Ext. FA requirements ▪ Awareness of Central/State laws, policies on environment	-

Milestones	Environment and Social Management Cell (ESMC) at Circle office	Engineering Department	Corporate Planning Department	Field office
			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			▪ Government of India/Government of Tripura & Ext. FA requirements ▪ Awareness of Government of India/ Government of Tripura 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			-

Table 9.2: Skill Development Program

Course	Training Schedule	Duration	For Awareness/ Orientation and for Training of Staff	Department
▪ ESPP ▪ Policy ▪ Contents of ESPP ▪ How TSECL 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, TSECL also invites public opinion, two months before the construction starts through Gazette notification and newspaper publications in 3 (three) local dailies indicating the villages/areas etc. where Transmission/Distribution line passes through.

110 TSECL shall constitute a Grievance Redressal Committee (GRC) headed by Addl. General Manager (AGM) to address the grievances that may arise during the planning, implementation and operation phases of the project. The GRC includes members from the utility which includes the AGM 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 TSECL 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 TSECL project completion. ESMC shall regularly monitor E&S issues with project activities and report to the AGM (Transmission). 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	TSECL
		Exclusion of PCB in transformer	Once – As part of tender specification	TSECL
		Exclusion of CFC in electrical or other equipment	Once – As part of tender specification	TSECL

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

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

115 The evaluation of environmental and social management measures undertaken along with other project works shall be reviewed by TSECL 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 TSECL's Transmission/ Distribution Project. TSECL 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, TSECL estimates about 5-10 % overall project towards such measures for which necessary budget provisions shall be made during planning stage itself.