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## Lists of Abbreviation

ADB	:	Asian Development Bank
BoD	:	Board of Directors
CA	:	Compensatory Afforestation
CBD	:	Convention on Biological Diversity
CEA	:	Central Electricity Authority
CF	:	Conservator of Forests
CKM	:	Circuit Kilometers
CPCB	:	Central Pollution Control Board
CPTD	:	Compensation Plan for Temporary Damages
CSGS	:	Central Sector Generation Scheme
DFO	:	Divisional Forest Officer
DL	:	Distribution Line
DPN	:	Department of Power, Nagaland
DPR	:	Detail Project Report
EA	:	Environmental Assessment
EAMP	:	Environment Assessment Management Plan
E & F	:	Environment & Forests
E&S	:	Environmental and Social
EMF	:	Electro Magnetic Fields
EPA	:	Environment Protection Act
ESMP	:	Environmental and Social Management Plan
ESMU	:	Environmental and Social Management Unit
ESPP	:	Environmental and Social Policy Procedures
FEAR	:	Final Environmental Assessment Report
GDP	:	Gross Domestic Product
GHG	:	Green House Gas
GoN	:	Government of Nagaland
GRC	:	Grievance Redressal Committee
HT	:	High Tension
IEAR	:	Initial Environmental Assessment Report
kV	:	Kilo-volt

kWh	:	Kilo-watt hour
LT	:	Low Tension
MDONER	:	Ministry of Development of North Eastern Region
MoEF	:	Ministry of Environment & Forests
MU	:	Million Units
MVA	:	Million Volt Amperes
MW	:	Mega Watts
NBWL	:	National Board for Wildlife
NE	:	North East
NEC	:	North Eastern Council
NO	:	Nodal Officer
NOC	:	No Objection Certificate
NPV	:	Net Present Value
NSDP	:	Net State Domestic Product
OP	:	Operational Policy
O & M	:	Operation & Maintenance
PCB	:	Polychlorinated Biphenyl
PGCIL	:	Power Grid Corporation of India Limited
PCCF	:	Principal Chief Conservator of Forests
PMU	:	Project Management Unit
RFCTLARRA	:	The Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013
R & R	:	Rehabilitation & Resettlement
RoW	:	Right of Way
SIA	:	Social Impact Assessment
SF <sub>6</sub>	:	Sulfur Hexafluoride
SIMP	:	Social Impact Assessment and Management Plan
SMF	:	Social Management Framework
SPCB	:	State Pollution Control Board
T&D	:	Transmission and Distribution
TL	:	Transmission Line
WB	:	World Bank

## Executive Summary

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

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

### Project Context

3 In order to create/ augment proper infrastructure of T&D in NER. Government of India (GoI) has formulated a “Composite scheme for transmission and distribution (T&D) in NER” capable of



delivering adequate power to most consumers with reliability, aiming to improve the inter-state and intra-state transmission and sub-transmission infrastructure and reduce system losses in all the NER states. The Govt. of India (GoI) has approached the World Bank to provide US\$ 1500 million of IBRD funding support to portion of the scheme “**NER Power System Improvement Project (NERPSIP)**” in three investment tranches each being US\$ 500 million for strengthening, augmentation of the intra-state and interstate transmission and distribution schemes (33kV & 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 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 **Nagaland:** In the above background, Nagaland 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. Given the unique socio-economic, cultural and environmental resources, Department of Power (DPN), Nagaland, is committed to manage them highly sustainably. The main aim and objective of the Department is to supply quality power to all categories of consumers both in Urban and rural areas by constructing Transmission and distribution lines, substations etc. Other function includes maintenance of Transmission and Distribution lines to minimize power supply interruptions and finally the revenue collection. To meet these objectives in a sustainable manner, plans have been made by Department of Power (DPN) to prepare an Environment and Social Policy and Procedures (ESPP) to serve as a guiding instrument. DPN assimilates environmental and social management procedures into its corporate functioning and also layout management procedures and protocol to address them. It outlines DPN’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 DPN. Thus, it enables DPN :

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

6 DPN considers that the ESPP is a 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.

## **DPN'S ENVIRONMENT & SOCIAL POLICY STATEMENT**

*DPN is fully aware of the rich natural resource and religious, social practice and customary laws and procedures of Nagaland and aspires to fulfill its commitments towards sustainable development through early identification, assessment and avoidance of the environmental and social and cultural issues at both planning and implementation and operational phases. It is also committed to comply with all statutes, customary laws, religious and social practice by following a principle of **avoidance, minimization and mitigation** of residual issues with complete transparency and due social responsibility.*

7 The key principles of DPN'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**

8 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).

9 The basic approach broadly involved following:

- Review of environment & social baseline information from secondary sources;
- Review of existing national & state specific legislations and policy and guidelines of multilateral agencies;
- Review of project related documents; and
- Stakeholders' consultations.

### **Consultation/ Participation**

10 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.

### **Nagaland at a Glance**

11 ***Geography and Governance:*** The State of Nagaland lies between latitudes of 25<sup>0</sup>6' N and 27<sup>0</sup>4' N and the longitudes of 93<sup>0</sup>20' E and 95<sup>0</sup>15' E and has geographic area of 16,579 sq. km. It is bounded by Assam in the West, Myanmar (Burma) on the east, Arunachal Pradesh and part of Assam on the North & West and Manipur in the South. The altitude ranges from 194 m to 3,048 m above sea level. The state is connected by both rail and road. The broad gauge railway connection to Dimapur links the state to the railway network of India to the rest of the country.

12 Geographically, the State largely has vast undulating terrain and hilly landscape and some low lying areas giving rise to a very conducive climate with presence of perennial water and moisture for truly rich variety of flora and fauna and also agriculture. About 70% of the population depends on agriculture. Since the topography is interlocked with mountains in Nagaland, cultivable land is the most valued form of property for its economic, political and symbolic significance.

13 **Demography:** The population of Nagaland as per census 2011 was 19,78,502, with a density of 119 persons per square km. Total ST Population of the state as per the Census 2011 is about 89 %. As of 2012, the state of Nagaland officially recognized 17 Naga tribes. Prominent Naga tribes include Angami, Ao, Chakhesang, Chang, Khamniungan, Konyak, Liangmai, Lotha, Pochury, Rongmei, Zeme. The Naga tribes constitute 98.2% of the population. In addition, some other Naga tribes occupy territory in the contiguous adjoining states of Manipur, Assam, and Arunachal Pradesh, India; and across the border in Burma.

14 **Forests and Protected Areas:** Forest cover constitutes 78.68 % of the total area of this State. The State is endowed with wide range of flora and fauna due to the favorable climate and topography. The recorded forest cover of Nagaland is 13,044 sq. km. Above 90% of the forest of Nagaland is governed by private (individual or communities). These forests are mainly individual forest, village forest, group of village forests, restricted forest, sacred forests etc. Village committee or village council manages and protects these forests. GoN vide Notification No. FOR-58/82 dated 03-07-1986 has limited the application of the Forest Conservation Act to these forest lands. The act, however, does not apply to other forest areas so the compensatory afforestation is not required in private, community or individual forest.

15 Even though the state has 78.68 % of the area under forest cover, there are four protected areas in the State (for details refer **Table-1**). There are also nine Important Bird Area (IBA) sites and 421 wetlands in the state. The Doyang reservoir is one of the important wetlands in the state.

**Table - 1: Protected Area Network in Nagaland**

Sl. No.	National Park/ Wildlife Sanctuary	Area (sq. km.)	District	Important Habitats
1	Intanki National Park	202.02	Peren	White-winged Duck, Rufous-necked Hornbill, Grey Sibia, common pheasant and black star
2	Fakim Wildlife Sanctuary	6.4	Kiphire	Blyth's Tragopan, Hume's Pheasant, Rufous-necked Hornbill, Grey Sibia
3	Puliebadze Wildlife Sanctuary	9.23	Kohima	Blyth's Tragopan, Chevron-breasted Babbler, Dark-rumped Swift, Striped Laughingthrush,

Sl. No.	National Park/ Wildlife Sanctuary	Area (sq. km.)	District	Important Habitats
				Brown-capped Laughingthrush, Streak-throated Barwing, Grey Sibia, White-naped Yuhina
4	Rangapahar Wildlife Sanctuary	4.7	Mon	Sambar Deer, Spotted Deer and Barking Deer.

16 **Power Scenario:** Department of Power (DPN), Nagaland, is responsible for generation, transmission, and distribution of power and maintenance of generation stations, transmission and distribution network in the State. DPN is under the administrative control of Principal Secretary/Commissioner & Secretary/Secretary, Power Department, Civil Secretariat, Govt. of Nagaland and the Chief Engineer is the head of department and is responsible for the efficient administration and direction of the overall establishment. As on March'13, DPN operates approximately 670 Circuit KMs (Ckm) of 132 kV & 66 kV AC transmission lines and 6 Nos. of 132/66 kV, 9 nos of 66/33 kV substations with transformation capacity of about 328.5 MVA. In distribution, it operates over 19,923.63Ckm of 33 kV, 11KV & 440 V distribution lines and 74 nos. of 33/11 KV Transformers and various capacities of other LT transformers (DTs) with transformation capacity of more than 470 MVA. DPN has generation capacity of 26.34 MW primarily from hydro and mini-hydro projects i.e. Likimro Hydro, Duilum Roi stage I & II, Lang and Telangsao. However, it is observed that total availability of power in the state is 26 MW (average). Peak demand of the state is projected about 120 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 Nagaland 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 (Km/MVA)	Estimated Cost (in Millions)
1.	220/132 kV Transmission lines	7	376 km.	5811.20
2.	220/132/33kV substations (New/Augmentation)	10	245 MVA	
3.	33 kV Distribution lines	11	76.5 km.	1483.00
4.	33/11kV substations (New)	10	190 MVA	

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

## **Stakeholder analysis**

17 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. Accordingly, key stakeholders at different levels starting from village/panchayat level up to national level have been mapped to know 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:

### **A. Environment Issues**

- Impact on forest and biodiversity area e.g. national parks, sanctuary, biosphere reserves, etc.
- Soil erosion and slope un-stability;
- Leakage of SF<sub>6</sub>, a the potent greenhouse gas; and
- Impact due to waste (Used Oil or E-waste), oil spills, sanitation;
- Occupational health and safety during implementation , operation and maintenance phase;

### **B. Social and Institutional Issues**

- Securing land for substation;
- Health and Safety risk including HIV/AIDS
- Temporary damages to land, crops, trees or structures during construction;
- Community participation during project cycle i.e. planning, implementation and operation;  
and
- Locals, Women and Inter agency participation/coordination;

## **Impacts – Social**

18 Potential social impacts of the proposed projects are identified in terms of the nature, magnitude, extent and location, timing and duration of the anticipated impacts and discussed in this section. These social impacts are both positive or negative relating to the different stages of the

project cycle viz. project design stage, construction stage or the project operation and decommissioning stage.

**A. Positive Impacts**

- Improved and reliable power supply;
- Improved economic activity;
- Employment generation;
- Improved road infrastructure;
- Gender – Access to electricity would improve the quality of life and also reduce the time consumption of women for household activities which will entail availability of more time for other activities;
- Reduced consumption/ reliance of/ on fossil fuels like firewood, charcoal etc.; and
- Capacity Building.

**B. Negative Impacts**

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

**Impacts - Environment**

19 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.

**A. Positive Impacts**

- Availability of power reduces the demand of natural resources like kerosene, firewood, charcoal etc. resulting in conservation/protection of natural resources.

**B. Negative Impacts**

- Clearance of tree within RoW;
- Impacts on forest, wildlife habitats and migratory birds;
- Impacts on drainage, soil erosion & water resources;
- Impacts on traffic and road infrastructure;

- Impacts on Aviation and Communication
- Aesthetic appeal of area;
- Impacts from likely oil spillage;
- Effect of electromagnetic fields (EMF);
- Leakage SF6; and
- Health & Safety

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

### **Policy, Legal and Regulatory Framework**

20 DPN 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.

21 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.

22 Apart from this, the Constitution of India grants special status to the State under **Article - 371 A** which states “No Act of Parliament in respect of religious or social practices of the Nagas, Naga customary law procedure, administration of civil and criminal justice and ownership of land & its resources shall apply to the state of Nagaland unless approved by the state legislature. Thus laws enacted by the Parliament would only apply once it is approved by the State Legislature. In view of said constitutional provision of The Right to Fair Compensation and Transparency in Land



Acquisition Rehabilitation and Resettlement Act, 2013 (RFCTLARRA, 2013) is not presently applicable in the State of Nagaland for purposes of private land acquisition. However, as per past experience it has been noticed that the process of adoption of central act takes time due to involvement of elaborate consultation for arriving consensus. DPN taking note of that has taken a conscious decision that private land shall be secured through donations and/ or direct purchases on negotiated rate on willing buyer and willing seller basis till the new act is adopted by their State Assembly.

23 **Environment** : Mandatory environmental requirements for DPN at state level include: sanction of GoN 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, Nagaland Tree Felling Regulation, 2002 regarding felling of trees from non-forest areas including in respect of plantations on non-forest areas, Hazardous Wastes (Management, Handling and Trans-boundary 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 and E-waste (Management and Handling) Rules, 2011 regarding maintaining records & handling of electronic wastes

24 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 CAMPA fund 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. DPN 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. However, Government of Nagaland (GoN) vide notification no. FOR-58/82 dated 03-07-1986 has extended the application of this Act to forest lands under the control of Forest Department only. Natural forest outside the jurisdiction of the forest department are thus not under the preview of this act.

25 **Social:** Mandatory Social requirements for DPN 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 substations, fall under the realm of RFCTLARRA, 2013 (will be applicable in the State only after the resolution passed in Legislative Assembly – **refer para 22 above**). The provisions of Indian Treasure Trove Act, 1878 as amended in 1949 covers chance finds of any treasure, archaeological artifacts. The Right to Information Act, 2005 (RTI) ensures citizens to access information under the control of public authorities.

26 **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.

27 **Land Tenure:** In Nagaland, the land is owned either by the village community as a whole or by a clan within the village or by individuals. There are no records for conferring upon such ownership rights but the individuals rights are exclusively determined by tradition which is also referred to as customary laws. These Customary Laws are un-codified, and yet very effectively applied and interpreted by the traditional Village Councils in the event of any dispute. Thus, the land holding pattern in the state of Nagaland is unique, most of the land (more than 88%) is owned by the community. To establish individual land holdings in the state is an arduous task. Clan or community lands are allocated to willing individuals for cultivation.

28 **RFCTLARRA, 2013** has replaced the Land Acquisition Act, 1894 and has come into force from 1st January 2014. The new act i.e. RFCTLARRA, 2013 authorizes State Govt. (i.e. GoN) 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 DPN responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation. Conducting Social Impact Assessments (SIA) has been made mandatory under this new act and results of these assessments are shared with all the stakeholders and public hearing held which makes the process transparent and informed. Subsequently, an entitlement package that includes both compensation (for land/structure and assets to land and structure) and R&R as necessary is prepared. Further to this, individual awards are passed and all documents are disclosed in the public domain through local

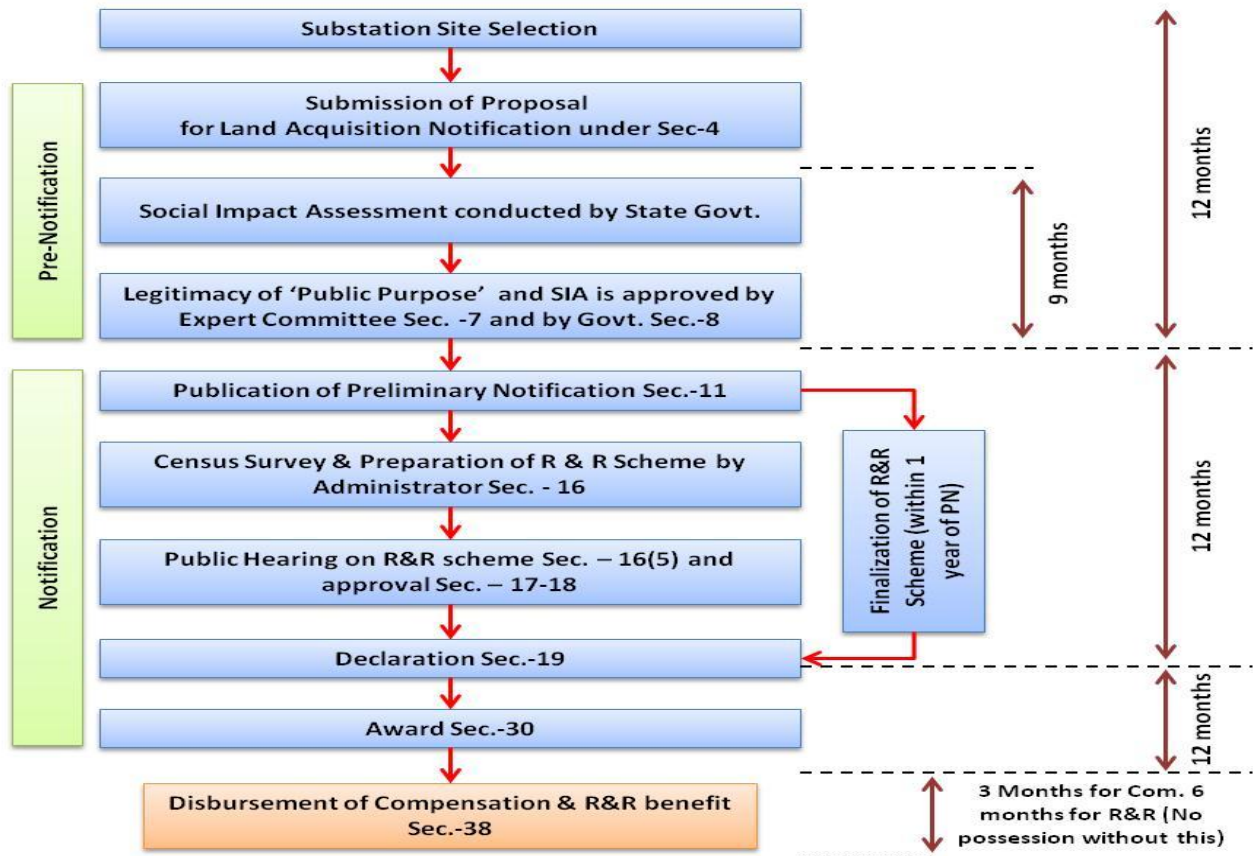
administration and internet. The flow chart of the land acquisition process with schedule prescribed for various activities is illustrated in **Figure 1** below. The entitlements with regard to compensation and assistances towards land acquisition or loss of any assets or livelihood for all categories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

**TABLE 3: COMPENSATION AND R&R ENTITLEMENT FRAMEWORK FOR LAND ACQUISITION**

A Comprehensive Compensation Package	
Eligibility for Entitlement	Provisions
<p>The affected families</p> <ul style="list-style-type: none"> <li>• <b>Land Owners: includes any person-</b></li> <li>i) whose name is recorded as (he owner of the land or building or part thereof, in the records of the authority concerned; or</li> <li>ii) any person who is granted forest rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or under any other law for the time being in force; or</li> <li>iii) who is entitled to be granted Patta rights on the land under any law of the State including assigned lands: or</li> <li>iv) any person who has been declared as such by an order of the court or Authority;</li> </ul>	<p><b>Determination of Compensation :</b></p> <p><b>1. Market value</b> of the land</p> <ul style="list-style-type: none"> <li>• as specified in the Indian Stamp Act, 1899 or</li> <li>• the average of the sale price for similar type of land situated in the village or vicinity, or</li> <li>• consented amount of compensation as agreed in case of acquisition of lands for private companies or for public private partnership project.</li> </ul> <p><b>whichever is higher</b></p> <p>Market value x <b>Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).</b></p> <p><b>2. Value of the assets attached to land:</b></p> <p>Building/Trees/Wells/Crop etc. as valued by relevant govt. authority;</p> <p><b>Land compensation = 1+2</b></p> <p><b>3. Solatium:</b> 100% of total compensation</p> <p><b>Total Compensation : 1+2+3</b></p>
<p>(*) 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.</p>	
Radial Distance from Urban area (Km)	Multiplier Factor
0-10	1.00
10-20	1.20
20-30	1.40
30-40	1.80
40-50	2.00
B. R&R Package	
<p>Elements of Rehabilitation and Resettlement Entitlements for all the affected families (both land owners and the families whose livelihood is primarily dependent on land acquired) in addition to compensation provided above</p>	

Sl. No.	Elements of R& R Entitlements	Provision
1.	Subsistence grant/allowance for displaced families	Rs. 3000 per month per family for 12 months
2.	The affected families shall be entitled to:	<p>a. Where jobs are created through the project, mandatory employment for one member per affected family;</p> <p style="text-align: center;"><b>or</b></p> <p>b. Rupees 5 lakhs per family;</p> <p style="text-align: center;"><b>or</b></p> <p>c. Rupees 2000 per month per family as annuity for 20 years, with appropriate index for inflation;</p> <p><b>The option of availing (a) or (b) or (c) shall be that of the affected family</b></p>
3.	<p>Housing units for displacement:</p> <p>i) If a house is lost in rural areas:</p> <p>ii) If a house is lost in urban areas</p>	<p>i. A constructed house shall be provided as per the Indira Awas Yojana specifications.</p> <p>ii. A constructed house shall be provided, which will be not less than 50 sq. mts. in plinth area.</p> <p><b>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.</b></p> <p>The stamp duty and other fees payable for registration of the house allotted to the affected families shall be borne by the Requiring Body.</p>
4.	Transportation cost for displaced families	Rs 50,000/- per affected family
5.	Resettlement Allowance (for displaced families)	Onetime Rs 50,000/- per affected family
6.	Cattle shed/ petty shop cost	Onetime financial assistance as appropriate for construction as decided by St. Govt. subject to minimum of Rs.25,000/-
7.	Artisan/small traders/others (in case of displacement)	Onetime financial assistance as appropriate as decided by State Govt. subject to minimum of Rs.25,000/-
<p><b>Special Provisions for SCs/STs</b></p> <p>In addition to the R&amp;R package, <i>SC/ST families will be entitled to the following additional benefits:</i></p> <ol style="list-style-type: none"> <li>One time financial assistance of Rs. 50,000 per family;</li> <li>Families settled outside the district shall be entitled to an additional 25% R&amp;R benefits;</li> <li>Payment of one third of the compensation amount at very outset;</li> <li>Preference in relocation and resettlement in area in same compact block;</li> <li>Free land for community and social gatherings;</li> <li>In case of displacement, a <i>Development Plan is to be prepared</i></li> <li><i>Continuation of reservation and other Schedule V and Schedule VI area benefits from displaced area to resettlement area.</i></li> </ol>		

**FIGURE 1: ACTIVITY CHART OF RFCTLARRA, 2013**



29 The safeguards to be adopted by the DPN where land is acquired either by the voluntary donation or negotiation between the willing buyer and willing seller is described along with other social mitigation measures in **Table - 4**.

**Project Cycle -Integrating Environment & Social Issues/Concerns and Mitigation Measures**

30 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 DPN’s transmission/distribution (33 kV and above) projects are;

- Project Conceptualization
- Project Planning
- Approval & clearances
- Detailed Design and Tendering
- Project Implementation

- Operation & Maintenance
- Review and Monitoring and Evaluation.

## Environmental and Social Concerns

### 31 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<sub>6</sub> gas.

### 32 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; and
- Loss of homestead, if any.

33 Management measures to address the issues and concerns in respect of social and environment are presented in **Table 4 and 5** respectively.

**TABLE 4: SOCIAL MANAGEMENT MEASURES**

S. N.	Potential Issues	Management Measures
1	Loss of land	<p>For Tranche-1, this is an issue as land for only 4 transmission substations (out of 10) and 2 distribution substations (out of 10) is available with the Utility (for details refer <b>Table-5.4</b> in the main report). For balance 6 transmission and 8 distribution substations, lands will have to be secured a fresh by DPN through adopting any of the following three methods;</p> <ul style="list-style-type: none"> <li>i. Purchase of land on willing buyer &amp; willing seller basis on negotiated rate;</li> <li>ii. Voluntary Donation; and</li> <li>iii. Involuntary Acquisition</li> </ul>

S. N.	Potential Issues	Management Measures
		<p>In case of procurement of land through private purchase, DPN 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 DPN 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.</p> <p>In the case of voluntary donation of land, the following shall be ensured:</p> <ul style="list-style-type: none"> <li>• The land user(s) will not be subjected to undue pressure for parting of land;</li> <li>• All out efforts shall be made to avoid any physical relocation/displacement due to loss of land;</li> <li>• DPN shall facilitate in extending ‘gratitude’ to the land donor(s) in lieu of the ‘contribution’ if so agreed. The same shall be documented in the shape of MoU between donor and utility and subsequently title of land transferred in the name of DPN.</li> <li>• 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 GoN.</li> </ul> <p>In case of land acquired through involuntary acquisition, provisions of RFCTLARRA, 2013 shall be followed. (for details refer <b>Part -A</b> of Social Management Framework placed as <b>Annexure – 3</b>). However, the same will be applicable only when the new act is adopted by State Legislative Assembly (<b>refer para 22</b>).</p>
2.	Change in land use and population relocation for substations	<p>Due to inherent flexibility in locating substation and very small size of land, DPN avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged.</p> <p>Although securing land for construction of substations proposed under tranche-1 is an issue, DPN shall make all out efforts to secure such land wherein possibility of physical relocation/displacement is not envisaged.</p>
3	Change in land use and population relocation due to towers/ poles	<p>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 DPN 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&amp;D projects.</p>
4	Right of Way	<p>Land for tower and right of way is not acquired as agricultural activities can continue. However, the project shall pay full compensation to all the affected persons/ community for any damages sustained during the execution of work. Accordingly, DPN 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 (for details refer <b>Part –B</b> of Social Management Framework placed as <b>Annexure – 3</b>).</p>
5	Impact on Tribal	<p>The State of Nagaland is pre-dominantly a tribal state with &gt; 89% population, inhabited by 16 major tribes under the umbrella term of the 'Naga', and along with a number of sub-tribes. Each tribe is distinct and</p>

S. N.	Potential Issues	Management Measures
		<p>unique in character from the others in terms of village administrations, customs, languages and attires. Traditionally, every Naga village had their own form of administrative system which differs from tribe to tribe and from village to village. However, they have a very effective self governance system of Village Council (VC) and a Village Development Board (VDB) - corresponding to a regulating and executive body. These institutions have evolved from indigenous practices of the Naga tribes and later regularized through legislation, facilitating their easy assimilation with existing village system. The council also has full powers to deal with the internal administration of the village, maintenance of law and order, enforce orders passed by competent authority, etc. Therefore, the intended benefits due to this project implementation (providing a basic amenity like power) would enhance the living standard and quality of life in general for the tribal population in the region. Any physical interventions (related to land acquisition and CPTD) in such areas can only be implemented with the prior consent of the VC/VDB.. Thus, it is further substantiated that the process of implementation as provided in the project cycle indicates this approval process as an integrated activity of the social mitigation plan as necessary. Further, RFCTLARRA 2013 also stipulates additional provisions related to tribals and scheduled areas. All these are detailed in a TPDF (<b>Anneuxre-3, Part-C</b>)<sup>1</sup>.</p>
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	DPN 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 DPN 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, DPN will follow the laid down procedure in the Section-4 of Indian Treasure Trove Act, 1878 as amended in 1949.

<sup>1</sup> All the provisions will become applicable only if tribal land is acquired involuntarily by invoking provisions of this act.



**TABLE 5: ENVIRONMENT MANAGEMENT MEASURES**

S.N.	Potential Issues	Management Measures
1.	Minimising adverse impact on forests	<p>DPN 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.</p> <p>However, in case of felling of trees in non- designated forest areas (which are not covered under the Forest Conservation Act vide Notification No. FOR-58/82 dated 03-07-1986). DPN/IA shall provide fund for compensatory afforestation for planting 3 trees for every tree to be felled subject to availability of land. However, in legally designated forest areas, provisions of the Forest (Conservation) Act, 1980 shall prevail.</p>
2.	Clearing/Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees.
3.	<ul style="list-style-type: none"> <li>• Vegetation damage</li> <li>• Habited Loss</li> </ul>	To minimise damage to vegetation and habitat fragmentation, DPN utilizes hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.
4.	<ul style="list-style-type: none"> <li>• Habitat fragmentation</li> <li>• Edge effect on flora &amp; fauna</li> </ul>	DPN maintains only a 3m wide strip for O&M and allows for regeneration of vegetation in the other one or two strips and beneath the transmission lines to avoid habitat fragmentation and edge effect. In hilly area this can possibly be totally avoided.
5.	Chances of accident involving elephant in the specified corridor due to placing of poles	DPN shall try to avoid such area to the extent possible. However, in case avoidance is not possible, suitable design modification in the pole like provision of spike guards, barbed wire fencing or any other arrangement shall be incorporated in such location, if required
6.	Chemical contamination from chemical maintenance techniques	DPN does not use chemicals for forest clearance/ RoW maintenance.
7.	Poly-Chloro-Biphenyls (PCBs) in electrical equipment.	DPN use mineral oil in electrical equipments. Specification of oil containing PCB less 2 mg/kg (non –detectable level) stated in the tender document.
8.	Change in land use and population relocation due to towers/poles	DPN does not acquire land for its transmission towers. It pays compensation for any crop loss and damage caused during its activities. DPN allows regeneration and cultivation beneath the towers for Transmission Line (TL), around poles/ structures and lines.
9.	Induced secondary development during construction	DPN operations are short-lived and do not induce secondary developments during construction.

S.N.	Potential Issues	Management Measures
10.	Erosion of soil and drainage along the cut and fill slopes in hilly areas	DPN 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.
11.	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. DPN shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
12.	Air craft hazards from transmission lines and towers	DPN as per the requirement of IS 5613 of July'94 provides aviation markers, night-lights for easy identification of towers in notified/selected areas.
13.	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. DPN uses best available technology for lines and do not cause any hazards to health and safety.
14.	Fire Hazards	<p>Fire hazards are mostly occurred in forest area. However, DPN 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 takes precaution like maintaining fire line in the cleared forest area to avoid spread of fire.</p> <p>Firefighting instruments including fire extinguishers are kept in appropriate place for immediate action in case of any fire hazard.</p>
15.	Pollution	Although pollution is not an issue with transmission/ distribution projects still DPN will make efforts to further minimise it. Sites are cleared of all the leftover materials and debris to avoid any chance of pollution.
16.	GHG (SF <sub>6</sub> Gas)	Although leakage of SF <sub>6</sub> is not a major issue, DPN will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

34 Other potential environmental and social issues/ concerns and their management measures are described in an EMP, a sample of which is in the Annex – A to the summary. It will be implemented during the execution of the project. Since many provisions of the EMP are to be

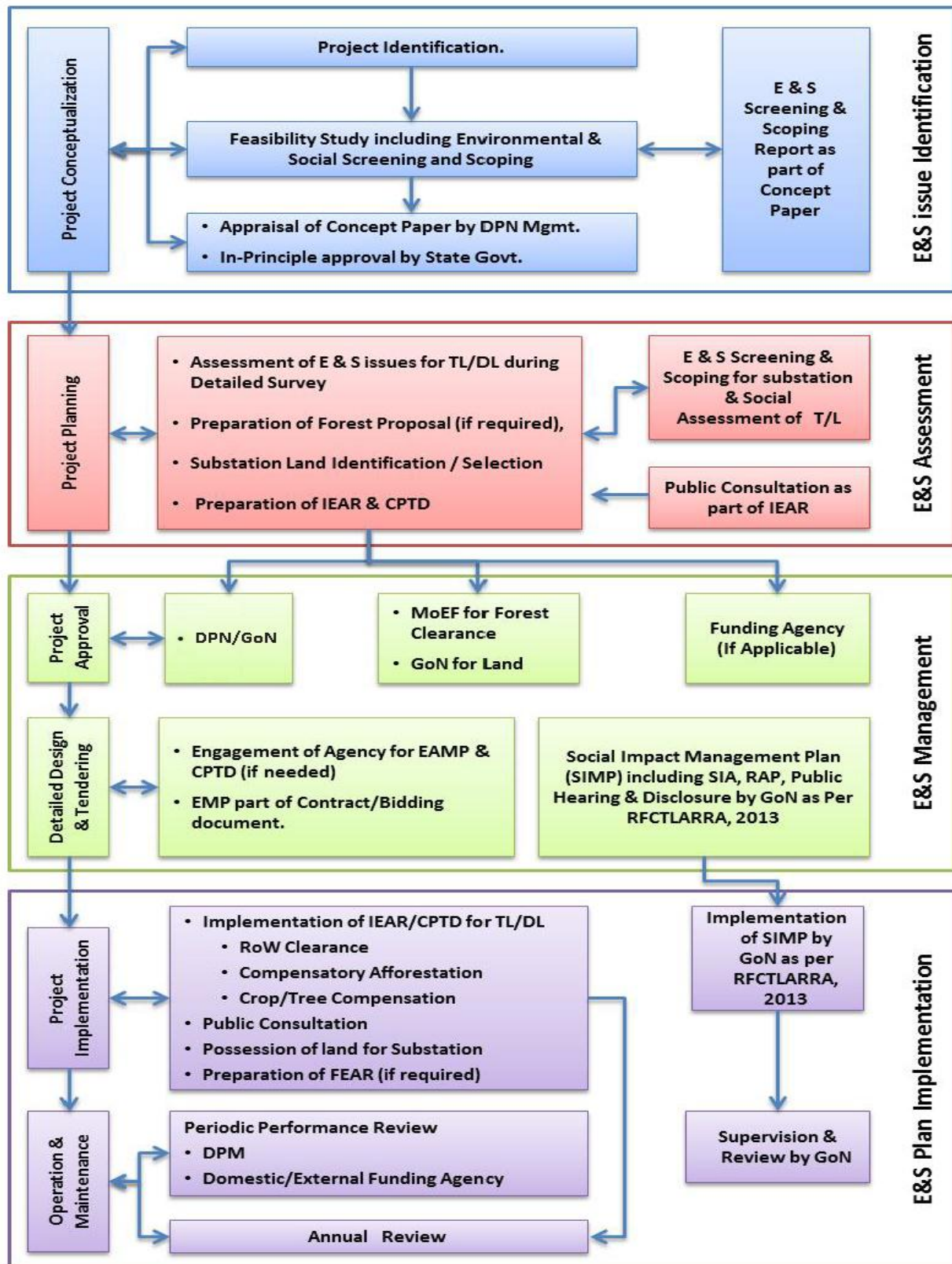
implemented by the Contractor, to ensure its proper implementation and monitoring, the EMP forms a part of the contract document.

### **DPN's Environment and Social Management Procedures (ESPP)**

35 DPN 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- 17** of the main report.

36 Likewise for substation land, DPN identifies number of potential substation sites based on data collected as per the checklist (**Annexure-16** 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

37 Environmental and Social Risk Assessment is a vital part of DPN 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 DPN evaluate these risks, both qualitatively and quantitatively, and prioritise them. Based on prioritisation, environment and social management options are selected. DPN'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 6**.

**TABLE 6: DPN'S RISK RESPONSIBILITY FRAMEWORK**

<b>Risk</b>	<b>GoN</b>	<b>DPN</b>	<b>Contractor</b>	<b>Insurers</b>
Non-compliance Regulatory <sup>2</sup>	✓	✓	✓	-
Non-compliance Contractual <sup>3</sup>	-	-	✓	-
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health <sup>4</sup> etc.	-	✓	-	-
Force Majeure: Insurable	-	-	-	✓
Force Majeure: Non-Insurable	✓	✓	-	-
Inclusion/ Exclusion of concerned Communities	✓	✓	-	-
Public Interest Litigation	✓	✓	-	-

## Implementation Arrangements

38 To ensure quality and enabling organizational support structure for effective implementation of the ESPP, DPN shall set out procedures and work culture which will promote total involvement of all its personnel. To attain assigned goal following shall be ensured:

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

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

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

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

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

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

40 Head 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 DPN.
- **Project Implementation Unit (PPIU)** – A body formed by the IA, including members of DPN on deputation, and responsible for implementing the Project across the State, with its personnel being distributed over work site & working in close association with the SPCU/

CPIU. PIU report to State level “Project Manager” nominated by the Project-in-Charge of IA. The IA will have a Core team stationed at the CPIU on permanent basis and other IA officers (with required skills) will visit as and when required by this core team.

### **Grievance Redressal Mechanism (GRM)**

42 GRM is an integral and important mechanism for addressing/resolving the concern and grievances in a transparent and swift manner. Many minor concerns of peoples are addressed during public consultation process initiated at the beginning of the project and broadly outlined in **Annexure-23**. For handling grievance, DPN shall establish Grievance Redress Committee (GRC) at two places, one at the project/scheme level and another at Head Quarter (HQ) level. The GRCs shall include members from DPN, Local Administration, Village Panchayat Members, Affected Persons representative and reputed persons from the society and representative from the autonomous districts council in case of tribal districts selected/decided on nomination basis under the chairmanship of project head. The composition of GRC shall be disclosed in villages/their councils office and concerned district headquarter for wider coverage.

43 The complainant will also be allowed to submit its complaint to local project official who will pass it to GRC immediately but not more than 5 days of receiving such complaint. The first meeting of GRC will be organized within 15 days of its constitution/disclosure to formulate procedure and frequency of meeting. However, GRC meeting shall be convened within 15 days of receiving a grievance for its solution. GRC endeavor will be to pronounce its decision/ may also refer it to GRC at HQ for solution within 30-45 days of receiving grievances. In case complainant/appellant is not satisfied with the decision of GRC they can approach DPN HQ Level Committee /District Collector or Court of law for solution.

45 The HQ level GRC shall function under the chairmanship of Chief Engineer who will nominate other members of GRC including one representative from corporate ESMU who is conversant with the environment & social issues. The meeting of HQ GRC shall be convened within 7-10 days of receiving the reference from project GRC or complainant directly and pronounce its decision within next 15 days.

46 These GRCs shall act as supplement and in no way substitute the legal systems, especially embedded within RFCTLARR Act 2013, The Electricity Act, 2003, and Right to Information Act.

**Annex A– Sample Environmental Management Plan**

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
<b>Pre-construction</b>							
1	Location of overhead line towers/ poles/ underground distribution lines and alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Tower location and overhead/ underground alignment selection with respect to nearest dwellings	Setback distances to nearest houses – once	Implementing Agency (IA)	Part of overhead lines tower /poles/ laying of underground cable sitting survey and detailed alignment survey and design
2	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in substation transformers or other project facilities or equipment.	Transformer design	Exclusion of PCBs in transformers stated in tender specification -	IA	Part of tender specifications for the equipment
			Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in existing processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of the Government	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once		IA
					Phase out schedule to be prepared in case still in use – once	Part of equipment and process design	
3	Transmission/ Distribution line design	Exposure to electromagnetic interference	Line design to comply with the limits of electromagnetic interference from overhead power lines	Electromagnetic field strength for proposed line design	Line design compliance with relevant standards – once	IA	Part of design parameters
4	Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations.	Expected noise emissions based on substation design	Compliance with regulations - once	IA	Part of detailed siting survey and design
		Social inequities	Careful selection of site to avoid encroachment of socially, culturally and archaeological	Selection of substation location (distance to	Consultation with local authorities/ autonomous		Part of detailed siting survey and design



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

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
6	Securing lands for substations.	Loss of land/ income change in social status etc.	In the case of Involuntary Acquisitions, Compensation and R&R measures are extended as per provision of RFCTLARRA, 2013 <sup>5</sup>	Compensation and monetary R&R amounts/ facilities extended before possession of land.	As per provisions laid out in the act	State Govt.	Prior to award/start of substation construction.
7	Line through protected area/ precious ecological area	Loss of precious ecological values/ damage to precious species	Avoid siting of lines through such areas by careful site and alignment selection (National Parks, Wildlife Sanctuary, Biosphere Reserves/ Biodiversity Hotspots)	Tower/pole location and overhead/ underground line alignment selection (distance to nearest designated ecological protected/ sensitive areas)	Consultation with local forest authorities - once	IA	Part of detailed siting and alignment survey /design
			Minimize the need by using RoW wherever possible	Tower/pole location and overhead/ underground line alignment selection	Consultation with local authorities and design engineers - once	IA	Part of detailed sitting and alignment survey /design
8	Line through identified Elephant corridor / Migratory bird	Damage to the Wildlife/ Birds and also to line	Study of earmarked elephant corridors to avoid such corridors, Adequate ground clearance, Fault clearing by Circuit Breaker, Barbed wire wrapping on towers, reduced spans etc., if applicable	Tower/pole location and overhead/ underground line alignment selection.  Minimum/maximum ground clearance	Consultation with local forest authorities – once.  Monitoring – quarterly basis	IA	Part of detailed sitting and alignment survey /design and Operation

<sup>5</sup> The new land acquisition act i.e RFCTLARRA,2013 is currently not applicable in the State as the State Legislative Assembly has not yet adopted the resolution regarding applicability of new act as per provision under article 371 A of the constitution of India. For acquisition of private land, DPN shall secure land either through donations and/ or direct purchases on negotiated rate on willing buyer and willing seller basis till the applicability of the new act.

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
			Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, bird guard, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc. <sup>6</sup> , if applicable	Tower/pole location and overhead/ underground line alignment selection	Consultation with local forest authorities - once	IA	Part of detailed sitting and alignment survey /design and Operation
9	Line through forestland	Deforestation and loss of biodiversity edge effect	Avoid locating lines in forest land by careful site and alignment selection	Tower/pole location and overhead/ underground line alignment selection (distance to nearest protected or reserved forest)	Consultation with local authorities – once	IA	Part of detailed sitting and alignment survey/design
			Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers – once		
			Measures to avoid invasion of alien species	Intrusion of invasive species	Consultation with local forest authorities - once		
			Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations – once for each subproject		
			Consultation with autonomous councils wherever required	Permission/ NOC from autonomous councils	Consultation with autonomous councils – once during tower placement		
10	Lines through farmland	Loss of agricultural production/ change in	Use existing tower or footings wherever possible	Tower/pole location and overhead/ underground line	Consultation with local authorities and design engineers – once	IA	Part of detailed alignment survey and design

<sup>6</sup> As per International/National best practices and in consultation with concerned forest/wildlife authority.

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
		cropping pattern	Avoid sitting new towers on farmland wherever feasible	Tower/pole location and overhead/ underground line alignment selection	Consultation with local authorities and design engineers – once		Part of detailed sitting and alignment survey /design
11	Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance	Noise levels	Noise levels to be specified in tender documents – once	IA	Part of detailed equipment design
12	Interference with drainage patterns/ irrigation channels	Flooding hazards/ loss of agricultural production	Appropriate sitting of towers to avoid channel interference	Tower/pole location and overhead/ underground line alignment selection (distance to nearest flood zone)	Consultation with local authorities and design engineers – once	IA	Part of detailed alignment survey and design
13	Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill clean up equipment.	Equipment specifications with respect to potential pollutants	Tender document to mention specifications – once	IA	Part of detailed equipment design /drawings
			Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Substation sewage design	Tender document to mention detailed specifications – once	IA	Part of detailed substation layout and design /drawings
14	Equipments submerged under flood	Contamination of receptors	Substations constructed above the high flood level(HFL) by raising the foundation pad	Substation design to account for HFL (elevation with respect to HFL elevation)	Base height as per flood design- once	IA	Part of detailed substation layout and design /drawings
15	Explosions /Fire	Hazards to life	Design of substations to include modern fire fighting equipment	Substation design compliance with	Tender document to mention	IA	Part of detailed substation layout

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
			Provision of fire fighting equipment to be located close to transformers	fire prevention and control codes	detailed specifications – once		and design /drawings
<b>Construction</b>							
16	Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance- once at the start of each construction phase	IA (Contractor through contract provisions)	Construction period
17	Physical construction	Disturbed farming activity	Construction activities on cropping land timed to avoid disturbance of field crops (within one month of harvest wherever possible).	Timing of start of construction	Crop disturbance – Post harvest as soon as possible but before next crop – once per site	IA (Contractor through contract provisions)	Construction period
18	Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints received by local authorities – every 2 weeks	IA (Contractor through contract provisions)	Construction period
		Noise, vibration, equipment wear and tear	Turning off plant not in use.	Construction equipment – estimated noise emissions and operating schedules	Complaints received by local authorities – every 2 weeks	IA (Contractor through contract provisions)	Construction period
19	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	Use of established roads wherever possible – every 2 weeks	IA (Contractor through contract	Construction period

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
		Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Access width (meters)	Access restricted to single carriage – way width within RoW – every 2 weeks	IA (Contractor through contract provisions)	Construction period
20	Construction activities	Safety of local villagers	Coordination with local communities for construction schedules, Barricading the construction area and spreading awareness among locals	Periodic and regular reporting /supervision of safety arrangement	No. of incidents- once every week	IA (Contractor through contract provisions)	Construction period
		Local traffic obstruction	Coordination with local authority/ requisite permission for smooth flow of traffic	Traffic flow (Interruption of traffic)	Frequency (time span)- on daily basis	IA (Contractor through contract provisions)	Construction period
21	Temporary blockage of utilities	Overflows, reduced discharge	Measure in place to avoid dumping of fill materials in sensitive drainage area	Temporary fill placement (m <sup>3</sup> )	Absence of fill in sensitive drainage areas – every 4 weeks	IA (Contractor through contract provisions)	Construction period
22	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 <sup>2</sup> )	Clearance strictly limited to target vegetation – every 2 weeks	IA (Contractor through contract provisions)	Construction period
			No use of herbicides and pesticides				
23	Trimming /cutting of trees within RoW	Fire hazards	Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.	Species-specific tree retention as approved by statutory authorities (average and max. tree height at	Presence of target species in RoW following vegetation clearance – once per site	IA (Contractor through contract provisions)	Construction period

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

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
			undertaken during the monsoon season	BOD/ COD, Suspended solids, others )	start of construction activities	contract provisions)	
27	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 <sup>2</sup> ) Statutory approvals	Amount of ground disturbance – every 2 weeks Statutory approvals for tree clearances – once for each site	IA (Contractor through contract provisions)	Construction period
28	Substation foundation/Tower erection disposal of surplus earthwork/fill	Waste disposal	Excess fill from substation/tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner.	Location and amount (m <sup>3</sup> ) of fill disposal	Appropriate fill disposal locations – every 2 weeks	IA (Contractor through contract provisions)	Construction period
29	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 <sup>3</sup> ) and action taken to control and clean up spill)	Fuel storage in appropriate locations and receptacles – every 2 weeks	IA (Contractor through contract provisions)	Construction period
30	Construction schedules	Noise nuisance to neighbouring properties	Construction activities only undertaken during the day and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(A)])	Daytime construction only – every 2 weeks	IA (Contractor through contract provisions)	Construction period
31	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	IA (Contractor through contract provisions)	Construction period



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

Clause No.	Project activity/ stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule
			Regeneration of vegetation to stabilise works areas on completion (where applicable) Avoidance of excavation in wet season Water courses protected from siltation through use of bunds and sediment ponds	in receiving waters; area re-vegetated in m <sup>2</sup> ; amount of bunds constructed [length in meter, area in m <sup>2</sup> , or volume in m <sup>3</sup> ]	practices – once for each site	provisions)	
35	Nuisance to nearby properties	Losses to neighbouring land uses/ values	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction	IA (Contractor through contract provisions)	Construction period
			As much as possible existing access ways will be used	Design basis and layout	Incorporating good design		
		Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m <sup>2</sup> )	Consultation with affected parties – twice –			
		Social inequities	Compensation will be paid for loss of production, if any.	Implementation of Tree/Crop compensation (amount paid)	Consultation with affected parties – once in a quarter	IA	Prior to construction
36	Flooding hazards due to construction impediments of natural drainage	Flooding and loss of soils, contamination of receptors (land, water)	Avoid natural drainage pattern/ facilities being disturbed/blocked/ diverted by ongoing construction activities	Contract clauses (e.g. suspended solids and BOD/COD in receiving water)	Incorporating good construction management practices–once for each site	IA (Contractor through contract provisions)	Construction period
37	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment stored at secure place above the high flood level(HFL)	Store room level to be above HFL (elevation difference in meters)	Store room level as per flood design–once	IA	Construction period
38	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	IA (Contractor through contract	Construction period

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
					for each site	provisions)	
39	Health and safety	Injury and sickness of workers and members of the public	Safety equipment's (PPEs) for construction workers Contract provisions specifying minimum requirements for construction camps Contractor to prepare and implement a health and safety plan. Contractor to arrange for health and safety training sessions	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	IA (Contractor through contract provisions)	Construction period
40	Inadequate construction stage monitoring	Likely to maximise damages	Training of environmental monitoring personnel Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements Appropriate contract clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Training schedules Respective contract checklists and remedial actions taken thereof. Compliance report related to environmental aspects for the contract	Number of programs attended by each person – once a year Submission of duly completed checklists of all contracts for each site - once Submission of duly completed compliance report for each contract – once	IA	Routinely throughout construction period
<b>Operation and Maintenance</b>							
41	Location of line towers/poles and overhead/ underground line alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Compliance with setback distances (“as-built” diagrams)	Setback distances to nearest houses – once in quarter	DPN	During operations
42	Line through identified bird	Injury/ mortality to	Avoidance of established/ identified migration path (Birds &	Regular monitoring for any incident of	No. of incidents- once every month	DPN	Part of detailed siting and

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
	flyways, migratory path	birds, bats etc due to collision and electrocution	Bats). Provision of flight diverter/reflectors, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	injury/mortality			alignment survey /design and Operation
43	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	DPN	During operations
44	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	DPN	During operations
45	SF <sub>6</sub> management	Emission of most potent GHG causing climate change	Reduction of SF <sub>6</sub> emission through awareness, replacement of old seals, proper handling & storage by controlled inventory and use, enhance recovery and applying new technologies to reduce leakage	Leakage and gas density/level	Continuous monitoring	DPN	During Operations
46	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	DPN	Design and operation
			Safety awareness raising for staff. Preparation of fire emergency action plan and training given to staff on implementing emergency action plan	Training/awareness programs and mock drills	Number of programs and percent of staff /workers covered – once each year		

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
			Provide adequate sanitation and water supply facilities	Provision of facilities	Complaints received from staff /workers every 2 weeks		
47	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	DPN	Design and Operation
			Security fences around substations	Maintenance of fences	Report on maintenance – every 2 weeks		
			Barriers to prevent climbing on/ dismantling of transmission	Maintenance of barriers			
			Appropriate warning signs on facilities	Maintenance of warning signs			
			Electricity safety awareness raising in project areas	Training /awareness programs and mock drills for all concerned parties	Number of programs and percent of total persons covered – once each year		
48	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	DPN	Operation
			Preparation and training in the use of O&M manuals and standard operating practices				
49	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	DPN	Operation

<b>Clause No.</b>	<b>Project activity/ stage</b>	<b>Potential Impact</b>	<b>Proposed mitigation measures</b>	<b>Parameter to be monitored</b>	<b>Measurement &amp; frequency</b>	<b>Institutional responsibility</b>	<b>Implementation schedule</b>
					each year		
50	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using chlorofluorocarbons (CFCs), including halon, should be phased out and to be disposed of in a manner consistent with the requirements of the Govt.	Process, equipment and system design	Phase out schedule to be prepared in case still in use – once in a quarter	DPN	Operations
51	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	DPN	Operations
52	Uncontrolled growth of vegetation	Fire hazard due to growth of tree/shrub /bamboo along RoW	Periodic pruning of vegetation to maintain requisite electrical clearance.  No use of herbicides/ pesticides	Requisite clearance (meters)	Assessment in consultation with forest authorities - once a year(pre-monsoon/post-monsoon)	DPN	Operations
53	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	DPN	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 Implementing Agency for the Project in six North Eastern States. However, the ownership of the assets shall be with the respective State Governments/State Utilities, which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of Assets at their own cost.

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

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

### **1.1 State Specific Details – Nagaland**

5 The State of Nagaland is spread over an area of about 16,579 sq. km with a population of more than 19.80 lakhs. The State of Nagaland faces significant bottlenecks in electricity access and availability. The present per capita energy consumption is of the order of 218 units (kWh) against the regional per capita consumption of about 258 units and national per capita consumption of about 779 units. DPN has generation capacity of 24 MW at Likimro Hydro Power Project of its own. Other mini hydel plants under the state sector are DuilomRoi stage I (0.54 MW), DuilomRoi stage II (0.2 MW), Telangsao (0.6 MW), Lang (1 MW) summing up to 26.34 MW. Apart from these sources of generation the remaining power requirements for DPN is met through its share from Central Sector Power generation and power purchases from electricity traders/other sources, which is wheeled through the PGCIL network of North Eastern Region. The present average peak demand of the State stands at 120 MW which is again restricted to 80 MW due to infrastructural constraints especially in the Transmission and Distribution networks.



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 Nagaland 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**

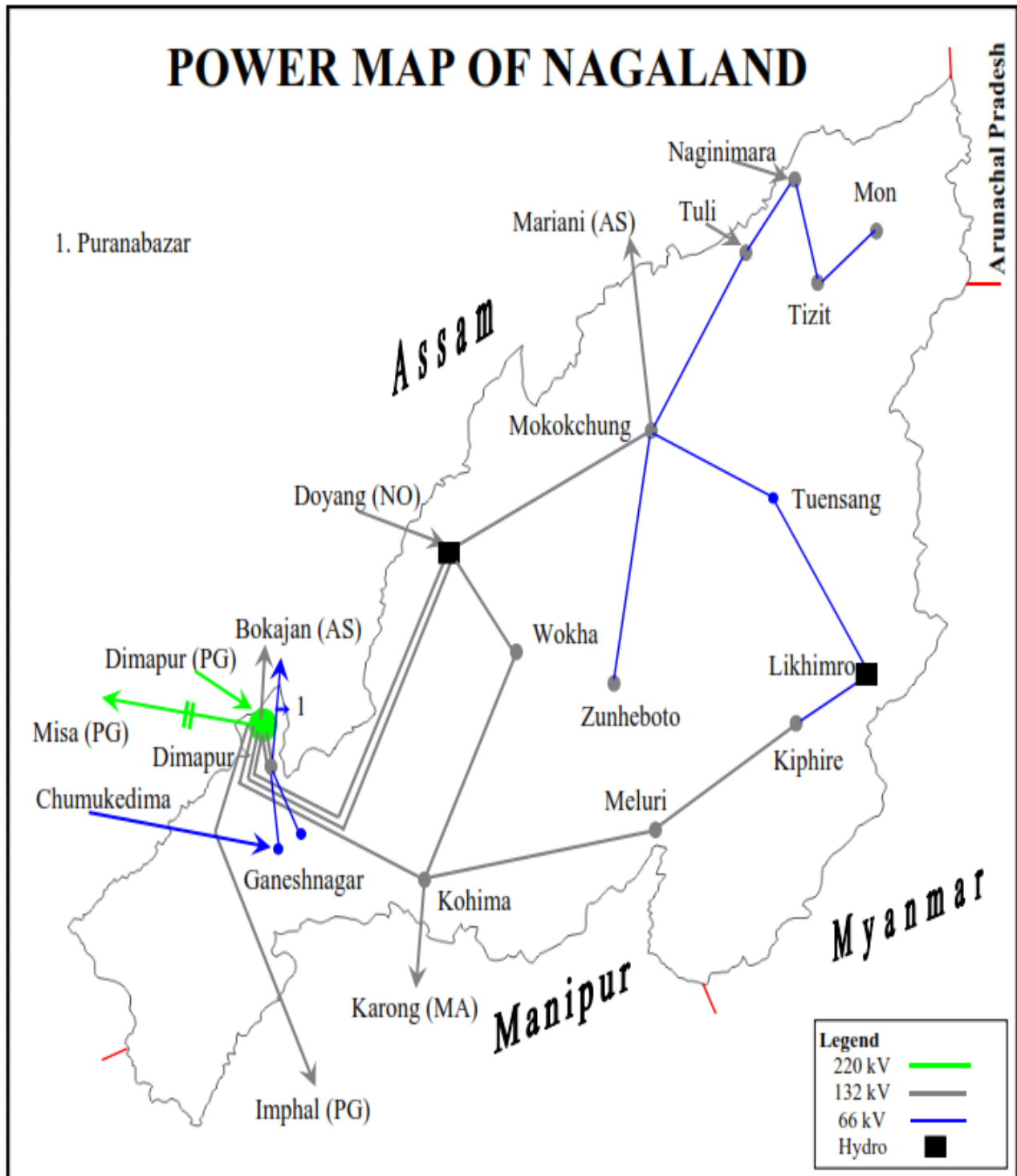
Sl. No.	Name of the subproject	Quantity (Nos.)	Capacity Addition (Km/MVA)	Estimated Cost* (in Millions)
1.	220/132 kV Transmission lines	7	376 km.	5811.20
2.	220/132/33kV substations (New/Augmentation)	10	245 MVA	
3.	33 kV Distribution lines	11	76.5 km.	1483.00
4.	33/11kV substations <sup>7</sup> (New)	10	190 MVA	

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

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

<sup>7</sup> The substation of 33/11 kV is installed for stepping down the voltage from 33 kV to 11 kV level to facilitate its further transmission to distribution network for its logical use by consumers after further stepping down to 433 V level. The electrical installations in the said substation comprises of transformers, breakers, capacitors etc. and other protection/controlling devices to ensure required power flow”.

FIGURE 1.1: POWER MAP OF NAGALAND



## 2. Environment and Social Context – Nagaland

8 Environment and Social Policy and Procedures (ESPP): As the DPN 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 etc., DPN 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 assist DPN in preparation of the Environment and Social Policy and Procedures (ESPP).

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

- 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

*DPN is fully aware of the rich natural resource and religious, social practice and customary laws and procedures of Nagaland and aspires to fulfill its commitments towards sustainable development through early identification, assessment and avoidance of the environmental and social and cultural issues at both planning and implementation and operational phases. It is also committed to comply with all statutes, customary laws, religious and social practice by following a principle of **avoidance, minimization and mitigation** of residual issues with complete transparency and due social responsibility.*

10 DPN 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. 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).

12 The basic approach broadly involved following;

- Review of environment & social baseline information from secondary sources;
- Review of existing national & state specific legislations and policy and guidelines of multilateral agencies;
- Review of project related documents; and
- 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. A detailed analysis of stakeholder consultations is presented in **Chapter– 4**.

## 2.3 Structure of the Report

14 **Chapter 1 & 2** provide 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 3** presents an overview of Nagaland State in respect of its social, economic, cultural, environment, infrastructure and administrative fronts. Stakeholder Analysis is presented in **Chapter-4**. While Chapters 1-3 lays foundation to both social and environmental front, subsequently, **Chapters 5 and 6** deal with issues, impacts and measures thereof in respect of social and environmental aspects. Integrating social and environmental management into the overall project cycle is made in the next chapter i.e. **Ch-7**. The remaining **Chapters (i.e. Chapters 8-12)** deal with implementation arrangements, capacity building, grievance redressal mechanism, monitoring & evaluation and budget.

### 3. Nagaland- An overview

15 Nagaland is located in the extreme northeast of India consisting of a narrow strip of hilly area running from the northeast to the southwest, which is located in the northern extension of the ArakanYoma ranges of Myanmar. It lies between latitudes of 25<sup>0</sup>6' N and 27<sup>0</sup>4' N and the longitudes of 93<sup>0</sup>20' E and 95<sup>0</sup>15' E and has geographic area of 16,579 sq. km. It is bounded by Assam in the West, Myanmar (Burma) on the east, Arunachal Pradesh and part of Assam on the North & West and Manipur in the South. The altitude ranges from 194 m to 3,048 m above sea level. The state is connected by both rail and road. The broad gauge railway connection to Dimapur links the state to the rest of the country. The different parts of the state is also connected by 370 km of national highways and 1094 kms of state highways The important national highways through the state include NH 61, NH 29, NH 36, NH 150 and NH 155 to the which connect Kohima, Dimapur, Mokokchung, Jessami and the adjoining states.

16 Geographically, the State largely has vast undulating terrain and hilly landscape and some low lying areas giving rise to a very conducive climate with presence of perennial water and moisture for truly rich variety of flora and fauna and also agriculture. About one-sixth of Nagaland is under the cover of tropical and sub-tropical evergreen forests. The state is reported to have potential for oil & gas though minimal exploration has taken place in the state. A detailed overview of the State is placed in **Annexure- 1**.

#### 3.1 History

17 The Naga's have distinct traditional customs and have always wanted the governance to be in accordance to the traditional customs and practice. After the independence of India in 1947, the area remained a part of the province of Assam. The 13<sup>th</sup> Amendment Bill of the Constitution and the Nagaland State Bill was formally adopted in September, 1962 leading to the formation of the state of Nagaland. The 13<sup>th</sup> Constitution Amendment added one Article to the constitution of India which was termed as Article 371A. This ensured the creation of the Nagaland state and made certain special provisions for the protection of the customary laws and religious beliefs of the Naga people. The Article 371 A laid down that no Act of Parliament in respect of - religious or social practices, customary law and procedure, administration of civil and criminal justice involving decisions according to Naga customary law, ownership and transfer of land and its resources would be applicable unless it is approved by the state legislature.

### 3.2 Governance and Administration

18 The State of Nagaland has been divided into 11 districts. These are: Dimapur, Kiphire, Kohima, Longleng, Mokokchung, Mon, Peren, Phek, Tuensang, Wokha and Zunheboto. The state capital is Kohima. Following **Table 3.1** depicts administrative setup of Nagaland. Most of the villages in Nagaland, are like little republics governed by their democratically elected Village Councils. The village councils determine the need for housing, sustenance and allotment of land management of community forests etc. It also lays down rules for the management of the community forests. The rights of the Village Council are absolute and their decisions are seldom questioned by the members of the community.

**TABLE 3.1: ADMINISTRATIVE SETUP IN NAGALAND**

Sl. No.	District	District Headquarters	Blocks
1	Mon	Mon	Chen, Aboi, Angjyang, Mon, Phomching, Tizit, Tobu, Wakching
2	Mokokchung	Mokokchung	Changtongya, Chuchuyimlang, Kubolong, Longchem, Mangkolemba, Ongpangkong South, Ongpangkong North, Tsurangkong, Tuli
3	Zunheboto	Zunheboto	Akuluto, Akuhaito, Ghathashi, Sataka, Suruhoto, Satoi, Tokiye, Zunheboto
4	Wokha	Wokha	Bhandari, Chukintong, Changpang, Sanis, Ralan, Wokha, Wozhuro-
5	Dimapur	Dimapur	Dhansiripar, Aghunaqa, Chumukedima, Kuhuboto, Medziphema, Niuland
6	Phek	Phek	Kikruma, Meluri, Pfutsero, Phek, Sekruzu
7	Tuensang	Tuensang	Tuensang, Chare, Chessore, Kiphrie, Longkhim, Tamlu, Longleng, Noklak, Noksen, Pungru, Samator, Sitimi, Thonoknyu
8	Longleng	Longleng	Longleng, Sakshi, Tamlu
9	Kiphire	Kiphire	Khonsa, Kiphire, Longmatra, Pungro, Sitimi
10	Kohima	Kohima	Chiephobozou, Jalukie, Jakhama, Kohima, Peren, Tenning, Tseminyu
11	Peren	Peren	Athibung, Jalukie, Peren, Tening

### 3.3 Demographic Profile

19 According to Census 2011, Nagaland has population of 19,78,502 Lakhs. Total male and female are 10,24,649 and 9,53,853 respectively. The population of Nagaland forms 0.16 percent of India in 2011. Literacy rate in Nagaland has seen upward trend with the literacy rate improving from

66.59 in 2001 to 79.55 percent in 2011 as per the census. The male literacy stands at 82.75 percent while female literacy is at 70.01 percent. Population density in Nagaland is 119 per sq km which is much lower than national average 382 per sq km. Also sex Ratio in the state is 931 which is also below national average of 940. The overall population of the State from 2001 to 2011 has shown a downward trend (-0.47%) as per Census 2011. However, an increasing trend in urban population from 17.22% to 28.86% has been reported in the last decade. The demographic profile of the state is presented in **Table 3.2**.

**TABLE 3.2: DEMOGRAPHIC PROFILE**

Sr. No.	District	Population	Male	Female	Sex Ratio	Literacy (%)	Population Density
1	Dimapur	378811	197394	181417	919	84.79	409
2	Kohima	267988	138966	129022	928	85.23	183
3	Mon	250260	131753	118507	899	56.99	140
4	Tuensang	196596	101933	94663	929	73.08	78
5	Mokokchung	194622	101092	93530	925	91.62	121
6	Wokha	166343	84505	81838	968	87.69	102
7	Phek	163418	83743	79675	951	78.05	81
8	Zunheboto	140757	71217	69540	976	85.26	112
9	Peren	95219	49714	45505	915	77.95	58
10	Kiphire	74004	37830	36174	956	69.54	65
11	Longleng	50484	26502	23982	905	72.17	90

*Source: Census of India, 2011*

20 The Naga people are a conglomeration of several tribes, have similar cultures and traditions. As of 2012, the State of Nagaland officially recognized 17 Naga tribes. Prominent Naga tribes include Angami, Ao, Chakhesang, Chang, Khamniungan, Konyak, Liangmai, Lotha, Pochury, Rongmei, Zeme. The Naga tribes constitute about 86% of the population. In addition, some other Naga tribes occupy territory in the contiguous adjoining states of Manipur, Assam, and Arunachal Pradesh, India; and across the border in Burma. The Naga speak various distinct Tibeto-Burman languages, including Lotha, Angami, Pochuri, Ao, Poula (Poumai Naga), Inpui, Rongmei (Ruangmei), Tangkhul, Thangal, Maram, and Zeme. In addition, they have developed Nagamese Creole, which they use between tribes and villages, which each have their own dialect of language.



### 3.4 Land, Agriculture and Forests

21 Geographically, the State largely has vast undulating terrain and hilly landscape and some low lying areas giving rise to a very conducive climate with presence of perennial water and moisture for truly rich variety of flora and fauna and also agriculture. About 70% of the population depends on agriculture. Rice is the staple food and occupies about 70% of the total cultivated area, consisting about 75% of the total food grain production. Other important crops include corn, millets, pulses, tobacco, oilseeds, sugarcane and potato. According to the State Human Development Report 2004, 90 percent of area under agricultural cultivation in Nagaland is under Jhum cultivation. In this state 6.3 lakh hectare of land is used for shifting cultivation involving 1, 16,046 families<sup>8</sup>.

22 Since the topography is interlocked with mountains in Nagaland, cultivable land is the most valued form of property for its economic, political and symbolic significance. It is a productive, wealth-creating and livelihood sustaining asset. Traditionally and up to the present, the land of most Naga tribes is classified broadly into primary or agricultural land and reserved land. The reserved land consists of (i) land kept for public purposes including forest land under the control of the village council. (ii) Clan or khel land used by clan members (iii) Inherited or acquired privately owned land.

23 In Nagaland, the land is owned either by the village community as a whole or by a clan within the village or by individuals. There are no records for conferring upon such ownership rights but the individuals rights are exclusively determined by tradition which is also referred to as customary laws. These Customary Laws are un-codified, and yet very effectively applied and interpreted by the traditional Village Councils in the event of any dispute. Thus, the land holding pattern in the state of Nagaland is unique, most of the land (more than 88%) is owned by the community. To establish individual land holdings in the state is an arduous task. Clan or community lands are allocated to willing individuals for cultivation.

24 Naga society is based on patrilineal descent; hence children take their social identity from their father and are placed in his agnatic group and familial unit. A female child's membership of her father's agnatic unit is neither permanent nor complete. In Naga societies, property is inherited by the male heirs and transmitted through them. They have legal rights in ancestral property. The women have no share in such inheritance although acquired properties can be gifted to daughters also. Forest Land can also belong to individual, clan or village.

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<sup>8</sup> *Shifting cultivation in North East India by R.S Tripathi and S.K Banik*

25 Forest cover constitutes 78.68 % of the total area of this State. However, the recorded forest area of Nagaland which is under the ownership of State is just 11.7%<sup>9</sup> while the remaining forest cover are thus under clan or individual ownership. The forest cover map and district wise forest cover of Nagaland is presented in **Figure 3.1** and **Table 3 3**. The provision of the Forest Conservation Act is only applicable to the forest areas under state ownership as per a circular issued by GoN. Forest of Nagaland is classified into six forest type group viz. Tropical Wet Evergreen, Tropical Semi-evergreen; Sub-Tropical Broad-leaf Wet Hill, Subtropical Pine, Montane Wet Temperate and Temperate forest where about 50% of forests are Tropical Moist Deciduous (47.43%) followed by Tropical Broad leaf Hill forest (15.56%). Tuensang district has largest area of Very Dense forest while Mon District has the least density of forest and most of it is open forest.

**TABLE 3-3: DISTRICT WISE FOREST COVERS**

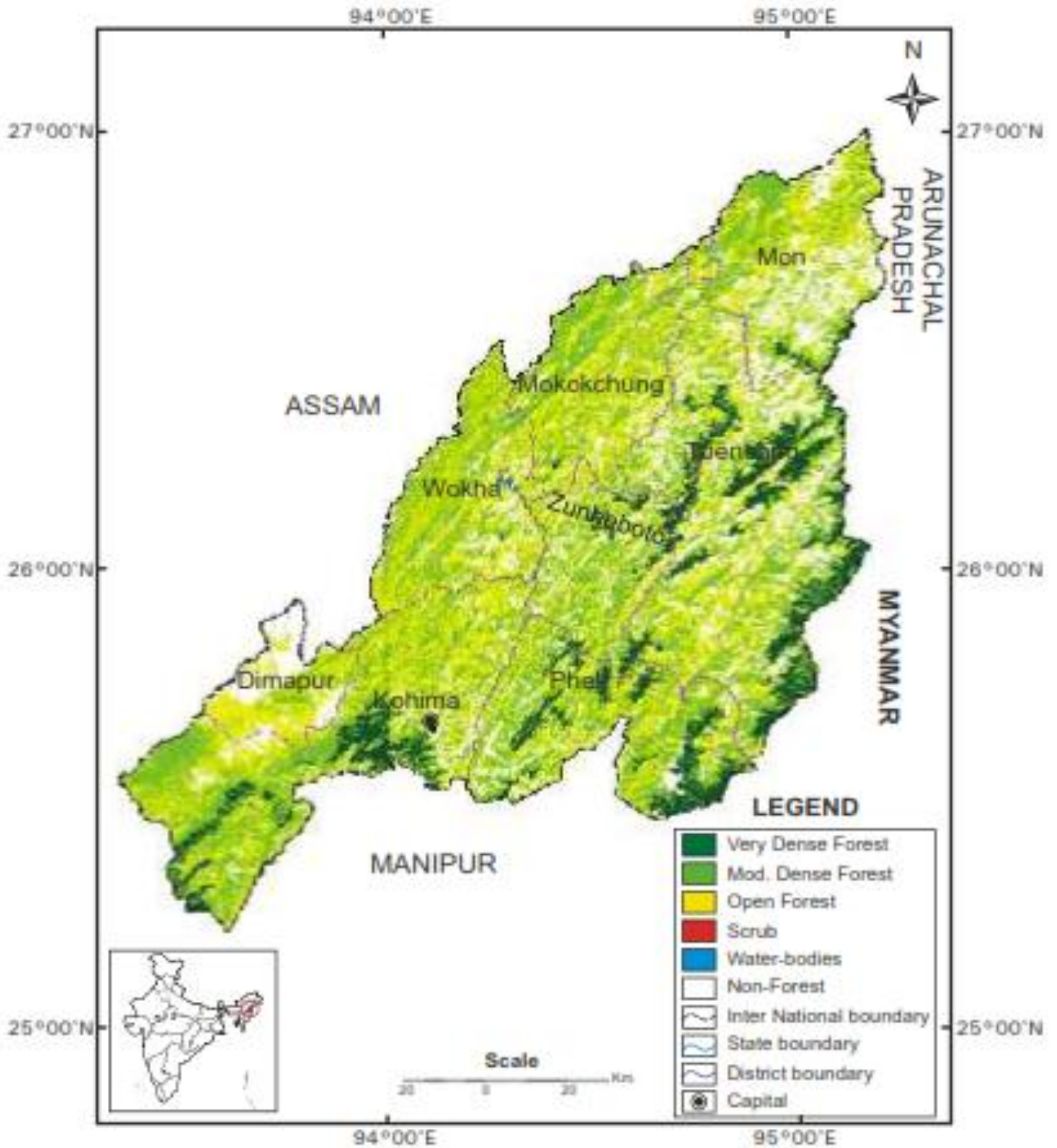
District	Geographical Area (sq. km.)	Very Dense Forest (sq. km.)	Moderately Dense Forest (sq. km.)	Open Forest (sq. km.)	Total (sq. km.)	Percent of Geographic Area (%)
Dimapur	758	0	75	325	427	56.33
Kohima	3283	289	1136	1472	2897	88.24
Peren*						
Mokokchung	1615	6	519	835	1360	84.21
Mon	1786	32	451	720	1203	67.36
Phek	2026	276	652	764	1692	83.51
Tuensang	4228	609	1027	1490	3126	73.94
Kiphire*						
Longleng*						
Wokha	1628	1	491	862	1354	83.17
Zunheboto	1255	85	385	515	985	78.49
Grand Total	16579	1298	4736	7010	13044	78.68

*Source: State Forest Report, 2013; \* These districts are recently carved out*

26 Thus, 90% of the forest in Nagaland is governed by private (individual or communities). These forests are mainly individual forest, village forest, group of village forests, restricted forest, sacred forests etc. Village committee or village council manages and protects these forests. Sometime forest committee is formed within the village council to manage village forests. These committees mainly regulate tree cutting, indiscriminate cattle grazing and any other prohibited work as laid down by the committee

<sup>9</sup><http://nagaforest.nic.in/Statistics.htm>, as on 31.01.2001

**FIGURE 3-1: FOREST COVER OF NAGALAND**



### 3.5 Protected Areas & Wetlands

27 The state is also endowed with a wide range of flora and fauna. There are four protected areas covering a total of 222.35 sq.km which is 1.34% of total geographical area of the State. Lists of protected area including its size, location and important habitat are presented in (Table- 3. 4).

**TABLE 3.4: PROTECTED AREAS IN NAGALAND**

Sl. No.	National Park/ Wildlife Sanctuary	Area (sq. km.)	District	Important Habitats
1	Intanki National Park	202.02	Peren	White-winged Duck, Rufous-necked Hornbill, Grey Sibia, common pheasant and black star
2	Fakim Wildlife Sanctuary	6.4	Kiphire	Blyth's Tragopan, Hume's Pheasant, Rufous-necked Hornbill, Grey Sibia
3	Puliebadze Wildlife Sanctuary	9.23	Kohima	Blyth's Tragopan, Chevron-breasted Babbler, Dark-rumped Swift, Striped Laughingthrush, Brown-capped Laughingthrush, Streak-throated Barwing, Grey Sibia, White-naped Yuhina
4	Rangapahar Wildlife Sanctuary	4.7	Mon	Sambar Deer, Spotted Deer and Barking Deer.

28 There are also nine Important Bird Area (IBA) sites (Table- 3. 5) in the State. Important bird species in Nagaland includes Blythe's Tragopan, Dark-rumped Swift, Chevron-breasted Babbler, Striped Laughingthrush, Brown-capped Laughingthrush, Streak-throated Barwing, Grey Sibia, White-naped Yuhina, Hume's Pheasant, Rufous-necked Hornbill, Beautiful Sibia, Pale-capped Pigeon, Wood Snipe, and Chevron-breasted Babbler etc. These birds are found not only in protected area and reserve forest but also in village forests. Amur falcon, a small raptor of the falcon family, is a passage migrant to Indian subcontinent. Nagaland in northeast India serves as a major stopover site for this species where it congregates in large numbers. The falcon, a pigeon sized bird descend to forested patches along the banks of the Doyang reservoir in Nagaland to roost at night.

**TABLE 3.5: IMPORTANT BIRD AREA IN NAGALAND**

Sl. No	Name of IBA Site	District	Area (sq. km)	Protection Status
1	Fakim and Saramati Area	Tuensang	300	Wildlife Sanctuary
2	Intanki	Dimapur, Kohima	202	National Park
3	Khonoma Nature Conservation	Kohima	25	Wild Life Sanctuary
4	Mount Paona	Kohima	30	Non officially protected

5	Mount Zanibu	Phek	40	Non-officially protected
6	Mount Ziphu	Phek	50	Non-officially protected
7	Pfutsero – Chizami	Phek	10	Non-officially protected

Source: [http://ibcn.in/wp-content/uploads/2011/12/33-793\\_812-Nagaland.pdf](http://ibcn.in/wp-content/uploads/2011/12/33-793_812-Nagaland.pdf)

29 In addition to the protected area network, there are a total of 421 wetlands. These have been identified in the National Wetland Atlas of Nagaland. The important wetlands in the state are:

- **Doyang Lake** located at a distance of 30 km from Wokha town and around 110 km away from Kohima. This man-made wetland is formed by putting a dam across the Doyangriver under the NEEPCO-Hydro-Electric project. The Lake covers an area of 15.2 sq km and shows significant changes in the water spread area.
- **Chathe Reservoir** located about 20 km away from Dimapur town. It is constructed as a water supply project to Dimapur town by the Dept. of Public Health Engineering. This wetland covers 601 hectares.
- **Shilloi Lake** located about 270 km away from Kohima and about 190 km from Phek towards the India- Myanmar border. This Natural Lake is just 0.11 sq km in area.
- **Part of Tizu River** located about 230 km from Kohima near India- Myanmar border. This river and its tributaries serve as one of the major source of irrigation and is one of the main fishing potential zones in the State.

### 3.6 Economy

30 Nagaland is mainly an agricultural state. At current prices, Nagaland's net state domestic product (NSDP) is about INR 163.28 billion in 2013-14. Service sector accounts 70 percent of NSDP where agricultural sector accounts for about 27 percent of NSDP. However industrial sector accounts only 3 percent of NSDP. The state is provided institutional support through various central and state government agencies such as North East Council, Ministry of Development of North Eastern Region and Nagaland Industrial Development Council. Further, Nagaland offers excellent policy and fiscal incentives for agro-based and forest-based industries, horticulture, food processing, mining, tourism and the handlooms and handicrafts sectors.

### 3.7 Power Scenario

31 DPN presently has a generation capacity of 26.34 MW from 4 hydro and mini hydro power stations viz. Likimro Hydro Power Project (24 MW) DuilumRoi stage I & II (0.54 MW and 0.2 MW

respectively ), Telangsao (0.6 MW), Lang (1 MW) In addition to this, it has diesel based generating units of about 1.0 MW which is now used only during exigency. The present average peak demand of the State stands at 120 MW which is again restricted to 80 MW due to infrastructural constraints especially in the Transmission and Distribution networks. The per capita consumption of the State is only 218 kWh which is much below the national average of 779 kWh. As on March'13, DPN operates approximately 670 Circuit KMs (Ckm) of 132 kV & 66 kV AC transmission lines and 6 Nos. of 132/66 kV, 9 nos of 66/33 kV substations with transformation capacity of about 328.5 MVA. In distribution front, it operates over 19,923.63Ckm of 33 kV, 11KV & 440 V distribution lines and 74 nos. of 33/11 KV Transformers and various capacities of other LT transformers (DTs) with transformation capacity of more than 470 MVA. The ratio of HT to LT lines in Nagaland is 0.94 which is heavily skewed. The state is forced to maintain a high HT line length ratio owing to the hilly terrain and sparsely distributed population of the region. This distributed population not only increased the capital investment requirements of the state but also makes the maintenance and monitoring work very difficult.

32 The department also implements the central programs - Rajiv Gandhi Gramin Vidyut Vitaran Yojana (RGGVY) aimed at rural electrification; and the Restructured Accelerated Power Reforms Project aimed at reducing transmission and distribution losses. The department has also introduced single point metering and communitisation in rural as well as urban areas as a strategy to improve

### **3.8 Road Ahead**

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

34 DPN recognizes that electricity plays an important role in the economic and social development of an economy. Performance of all important sectors, ranging from agriculture to commerce and industry as well as social sectors like health are largely depend on the desired availability of quality power. In fact, the consumption of electricity is an index of development for measuring the standard of living. The State has only one source of generation i.e. hydro. The state is endowed with natural sources potential for hydropower generation, without much damage to

environment. Peak demand of the State is 120 MW and average availability of power is 80 MW. There remains a shortfall to the tune of 40 MW which is being met from Central Generation Schemes. Efforts are underway not only to bridge the gap but also ensure that adequate power is made available in future for industry and other infrastructural development in order to enable boosting of State economy. To achieve such ambitious target/ goal, DPN has planned for major expansion and augmentation of its transmission and distribution network with sustainability and therefore, 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 Nagaland with the financial support amounting to about Rs. 695.31 Crores from GoI and The World Bank is placed at **Annexure- 2**.

## 4. Stakeholder Analysis

35 The prime objective of the proposed investment is to strengthen the power sector in the State of Nagaland and capacity building to achieve sustainable development in the long term. The implementation of schemes with proposed investments are expected to facilitate power delivery to remote/virgin areas, 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. The scheme is aimed to fulfill the above objectives in the following way:

- To feed the remote or unconnected areas.
- To meet the growing demand, both in domestic & industrial segments.
- To improve reliability and quality of power through bi-furcation/trifurcation of existing 11kV very long overloaded feeders and connection of the different sections of 11 kV feeder/line so formed to new substations.
- To improve availability of power by augmenting the capacity of existing overloaded power transformers.
- Reduction in technical losses due to improvement in voltage profile/power quality.

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 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 Ministry of Power	Improvement of overall power scenario of State and timely implementation of project to achieve the intended objective.



No.	Levels	Key Stakeholders	Expectations and Issues
		World Bank	Strengthening of T&D networks of State & Capacity development of Utility and ensuring implementation of environment and social safeguards.
		POWERGRID	Would expect active support from state utility and other stakeholders for timely implementation of project with intended benefits like providing electricity supply to remote or unconnected area
B	Regional Level	DONER	Economic development of the North Eastern region
		NEC	
C	State Level	Department of Power	Availability of land and other clearances for timely implementation projects. Capacity building activities to enable undertaking such projects on their own in future.
		Tribal Welfare Department	Ensuring protection of Naga customary laws, religious and social practice due to proposed intervention Proper implementation of welfare measures and policy initiatives as envisaged in the applicable legislation with structured and continuous consultation on project activities.
		State Forest Department	Protection of forest and protected areas, timely processing of approvals for utilization of forest land with minimum loss or implication to state forest
		Utilities like Water supply, PHE, Oil & 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	Ensuring that all the activities do take place as per the law of the land. Issuance of the proper guidelines and timely interpretations of the legalities, as appropriate.
		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	District Administration – Revenue Department	Project intervention would ensure requirement of minimum land area and affect minimum people as far as possible. Regular co-ordination/consultation between implementation agency and projected affected persons for early resolution of grievances & conflict management.
E	Village Level	Village council heads,	Implementation of project in their area would create employment and increase business

No.	Levels	Key Stakeholders	Expectations and Issues
		members, etc.	<p>opportunity to local and development of area though better accessibility of quality and reliable supply of power.</p> <p>Protection of right of the affected persons and early resolution of grievances during project implementation. Proper coordination and approvals for utilization/acquisition of land from village council and for carrying out other physical interventions in these areas as necessary.</p>
		Informal groups	Local community leaders, elders, community groups, women groups etc be involved and consulted to address issues related to compensation, employment opportunity due to project activity and coordination as necessary.
		Women	Involvement in all consultation process and be made part of decision making related to project in their domain.
		Others	Ensuring recognition and protection of their institutions, property, social, cultural, religious values and practices

## 5. Issues, Impacts & Management Measures - Social

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

- Securing/Alienation land for substation;
- Temporary damages to land, crops, trees or structures during construction;
- Community participation during project cycle i.e. planning, implementation and operation
- Health and Safety risk including HIV/AIDS
- Locals, Women and Inter-agency participation/coordination;

### 5.1 Impacts – Social

38 Potential social impacts of the proposed projects are identified in terms of the nature, magnitude, extent and location, timing and duration of the anticipated impacts and discussed in this section. These social impacts are both positive or negative relating to the different stages of the project cycle viz. project design stage, construction stage or the project operation and decommissioning stage.

#### i. Positive Impacts

- Improved and reliable power supply;
- Improved economic activity;
- Employment generation;
- Improved road infrastructure;
- Gender – Access to electricity would improve the quality of life and also reduce the time consumption of women for household activities which will entail availability of more time for other activities;
- Reduced consumption/ reliance of/ on fossil fuels like firewood, charcoal etc.;
- Lesser reliance of fossil fuels like Kerosene, firewood, charcoal etc.; and
- Capacity Building.

#### ii. Negative Impacts

- Loss of land;
- Restriction of land use;
- Temporary loss of access to Common Property Resources; and
- 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 DPN has developed a standard Environment Management Plan (Refer Annex.- A attached in ES) 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;

**“Administrator”** means an officer appointed for the purpose of rehabilitation and resettlement of affected families under sub-section (1) of section 43;

**"Affected area"** means such area as may be notified by the appropriate Government for the purposes of land acquisition;

**"Affected family"** includes;

- i) a family whose land or other immovable property has been acquired;
- ii) a family which does not own any land but a member or members of such family may be agricultural labourers, tenants including any form of tenancy or holding of usufruct right,

share-croppers or artisans or who may be working in the affected area for three years prior to the acquisition of the land, whose primary source of livelihood stand affected by the acquisition of land;

- iii) the Scheduled Tribes and other traditional forest dwellers who have lost any of their forest rights recognised under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 due to acquisition of land;
- iv) family whose primary source of livelihood for three years prior to the acquisition of the land is dependent on forests or water bodies and includes gatherers of forest produce, hunters, fisher folk and boatmen and such livelihood is affected due to acquisition of land;
- v) a member of the family who has been assigned land by the State Government or the Central Government under any of its schemes and such land is under acquisition;
- vi) a family residing on any land in the urban areas for preceding three years or more prior to the acquisition of the land or whose primary source of livelihood for three years prior to the acquisition of the land is affected by the acquisition of such land;

**"Appropriate Government"** means,—

- i) in relation to acquisition of land situated within the territory of, a State, the State Government;
- ii) in relation to acquisition of land situated within a Union territory (except Puducherry), the Central Government;
- iii) in relation to acquisition of land situated within the Union territory of Puducherry, the Government of Union territory of Puducherry;
- iv) in relation to acquisition of land for public purpose in more than one State, the Central Government, in consultation with the concerned State Governments or Union territories; and
- v) in relation to the acquisition of land for the purpose of the Union as may be specified by notification, the Central Government:

Provided that in respect of a public purpose in a District for an area not exceeding such as may be notified by the appropriate Government, the Collector of such District shall be deemed to be the appropriate Government;

**"Authority"** means the Land Acquisition and Rehabilitation and Resettlement Authority established under section 51;

**"Collector"** means the Collector of a revenue district, and includes a Deputy Commissioner and any officer specially designated by the appropriate Government to perform the functions of a Collector under this Act;

**"Commissioner"** means the Commissioner for Rehabilitation and Resettlement appointed under sub-section (/) of section 44;

**"Cost of acquisition"** includes;

- i) amount of compensation which includes solatium, any enhanced compensation ordered by the Land Acquisition and Rehabilitation and Resettlement Authority or the Court and interest payable thereon and any other amount determined as payable to the affected families by such Authority or Court;
- ii) demurrage to be paid for damages caused to the land and standing crops in the process of acquisition;
- iii) cost of acquisition of land and building for settlement of displaced or adversely affected families;
- iv) cost of development of infrastructure and amenities at the resettlement areas;
- v) cost of rehabilitation and resettlement as determined in accordance with the provisions of this Act;
- vi) administrative cost,—
  - a) for acquisition of land, including both in the project site and out of project area lands, not exceeding such percentage of the cost of compensation as may be specified by the appropriate Government;
  - b) for rehabilitation and resettlement of the owners of the land and other affected families whose land has been acquired or proposed to be acquired or other families affected by such acquisition;
  - c) cost of undertaking 'Social Impact Assessment study':

**"Displaced family"** means any family, who on account of acquisition of land has to be relocated and resettled from the affected area to the resettlement area;

**"Family"** includes a person, his or her spouse, minor children, minor brothers and minor sisters dependent on him:

Provided that widows, divorcees and women deserted by families shall be considered separate families;

**"Holding of land"** means the total land held by a person as an owner, occupant or tenant or otherwise;

**"Infrastructure project"** shall include any one or more of the items specified in clause (b) of sub-section (7) of section 2:

**"Land"** includes benefits to arise out of land, and things attached to the earth or permanently fastened to anything attached to the earth;

**"Landless"** means such persons or class of persons who may be,—

- i) considered or specified as such under any State law for the time being in force; or
- ii) in a case of landless not being specified under sub-clause (i) as may be specified by the appropriate Government;

**"Land owner"** includes any person,—

- i) whose name is recorded as (the owner of the land or building or part thereof, in the records of the authority concerned; or
- ii) any person who is granted forest rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or under any other law for the time being in force; or
- iii) who is entitled to be granted Patta rights on the land under any law of the State including assigned lands: or
- iv) any person who has been declared as such by an order of the court or Authority;

**"Local authority"** includes a town planning authority (by whatever name called) set up under any law for the time being in force, a Panchayat as defined in article 243 and a Municipality as defined in article 243P, of the Constitution;

**"Marginal farmer"** means a cultivator with an un-irrigated land holding up to one hectare or irrigated land holding up to one-half hectare:

**"Market value"** means the value of land determined in accordance with section 26;

**"Notification"** means a notification published in the Gazette of India or, as the case may be, the Gazette of a State and the expression "notify" shall be construed accordingly;

**"Patta"** shall have the same meaning as assigned to it in the relevant Central or State Acts or rules or regulations made thereunder;

**"Person interested"** means—

- i) all persons claiming an interest in compensation to be made on account of the acquisition of land under this Act;
- ii) the Scheduled Tribes and other traditional forest dwellers, who have lost any forest rights recognised under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006;
- iii) a person interested in an easement affecting the land;
- iv) persons having tenancy rights under the relevant State laws including share-croppers by whatever name they may be called; and
- v) any person whose primary source of livelihood is likely to be adversely affected;

**"Project"** means a project for which land is being acquired, irrespective of the number of persons affected;

**"Public purpose"** means the activities specified under sub-section (/) of section 2;

**"Requiring Body"** means a company, a body corporate, an institution, or any other organisation or person for whom land is to be acquired by the appropriate Government, and includes the appropriate Government, if the acquisition of land is for such Government either for its own use or for subsequent transfer of such land is for public purpose to a company, body corporate, an institution, or any other organisation, as the case may be, under lease, licence or through any other mode of transfer of land;

**"Resettlement Area"** means an area where the affected families who have been displaced as a result of land acquisition are resettled by the appropriate Government;

**"Scheduled Areas"** means the Scheduled Areas as defined in section 2 of the Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996;

**"Small farmer"** means a cultivator with an un-irrigated land holding up to two hectares or with an irrigated land holding up to one hectare, but more than the holding of a marginal farmer.



**TABLE 5.1: MANAGEMENT MEASURES TO ADDRESS POTENTIAL SOCIAL ISSUES**

S. N.	Potential Issues	Management Measures
1	Loss of land	<p>For Tranche-1, this is an issue as land for only 4 transmission substations (out of 10) and 2 distribution substations (out of 10) is available with the Utility (for details refer <b>Table-5.4</b> in the main report). For balance 6 transmission and 8 distribution substations, lands will have to be secured a fresh by DPN through adopting any of the following three methods;</p> <ol style="list-style-type: none"> <li>i. Purchase of land on willing buyer &amp; willing seller basis on negotiated rate;</li> <li>ii. Voluntary Donation; and</li> <li>iii. Involuntary Acquisition.</li> </ol> <p>In case of procurement of land through private purchase, DPN 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 DPN 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.</p> <p>In the case of voluntary donation of land, the following shall be ensured:</p> <ul style="list-style-type: none"> <li>• The land user(s) will not be subjected to undue pressure for parting of land;</li> <li>• All out efforts shall be made to avoid any physical relocation/displacement due to loss of land;</li> <li>• DPN shall facilitate in extending ‘gratitude’ to the land donor(s) in lieu of the ‘contribution’ if so agreed. The same shall be documented in the shape of MoU between donor and utility and subsequently title of land transferred in the name of DPN.</li> <li>• 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 GoN.</li> </ul> <p>In case of land acquired through involuntary acquisition, provisions of RFCTLARRA, 2013 shall be followed. (for details refer <b>Part – A</b> of Social Management Framework placed as <b>Annexure – 3</b>). However, the same will be applicable only when the new act is adopted by State Legislative Assembly (<b>refer para 22</b>).</p>
2.	Change in land use and population relocation for substations	<p>Due to inherent flexibility in locating substation and very small size of land, DPN avoids habituated area completely hence no relocation of population on account of setting up of substation is envisaged.</p> <p>Although securing land for construction of substations proposed under tranche-1 is an issue, DPN shall make all out efforts to secure such land</p>

S. N.	Potential Issues	Management Measures
		wherein possibility of physical relocation/displacement is not envisaged.
3	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 DPN 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.
4	Right of Way	Land for tower and right of way is not acquired as agricultural activities can continue. However, the project shall pay full compensation to all the affected persons/ community for any damages sustained during the execution of work. Accordingly, DPN 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 (for details refer <b>Part-B</b> of Social Management Framework placed as <b>Annexure – 3</b> ).
5	Impact on Tribal	The State of Nagaland is pre-dominantly a tribal state with > 89% population, inhabited by 16 major tribes under the umbrella term of the 'Naga', and along with a number of sub-tribes. Each tribe is distinct and unique in character from the others in terms of village administrations, customs, languages and attires. Traditionally, every Naga village had their own form of administrative system which differs from tribe to tribe and from village to village. However, they have a very effective self governance system of Village Council (VC) and a Village Development Board (VDB) - corresponding to a regulating and executive body. These institutions have evolved from indigenous practices of the Naga tribes and later regularized through legislation, facilitating their easy assimilation with existing village system. The council also has full powers to deal with the internal administration of the village, maintenance of law and order, enforce orders passed by competent authority, etc. Therefore, the intended benefits due to this project implementation (providing a basic amenity like power) would enhance the living standard and quality of life in general for the tribal population in the region. Any physical interventions (related to land acquisition and CPTD) in such areas can only be implemented with the prior consent of the VC/VDB.. Thus, it is further substantiated that the process of implementation as provided in the project cycle indicates this approval process as an integrated activity of the social mitigation plan as necessary. Further, RFCTLARRA, 2013 also stipulates additional provisions related to tribals and scheduled areas. All these are detailed in a TPDF ( <b>Annexure-3, Part-C</b> ) <sup>10</sup> .
6	Gender/ women	Women involvement will be planned through formal and informal group

<sup>10</sup> All the provisions will become applicable only if tribal land is acquired involuntarily by invoking provisions of this act.

S. N.	Potential Issues	Management Measures
	participation	consultations so that their participation is ensured during preparation and implementation of the project.
7	Induced secondary development during construction	DPN 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 DPN 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, DPN will follow the laid down procedure in the Section-4 of Indian Treasure Trove Act, 1878 as amended in 1949.

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

## 5.5 Legal and Regulatory Framework

43 The applicable acts, rules, and relevant policies in the context of the project are presented in **Table- 5.2**. The Project Authority will ensure that project implementation is consistent with provisions of such legal framework.

**TABLE 5-2: LEGAL AND REGULATORY PROVISIONS - SOCIAL**

S. N.	Acts, Rules and Policies	Relevance/ Applicability to the project
<b>1. Constitutional Provisions</b>		
1	Article 371 A of the Indian Constitution	Provisions provide Special Power to Legislative Assembly to make laws regarding the religious and social practice, ownership and transfer of land and its resource. The laws enacted by Parliament would only apply to the state once it is adopted by State Legislative Assembly.
<b>II. Provisions Law of the Land/Rules</b>		

S. N.	Acts, Rules and Policies	Relevance/ Applicability to the project
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 Nagaland then DPN 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 <b>Annexure - 4</b> . However, currently this act is not applicable in the State as the State Legislative Assembly has not yet adopted the resolution regarding applicability of new act as per provision under article 371 A of the constitution of India. As per past experience it has been noticed that the process of adoption of central act takes time due to involvement of elaborate consultation for arriving consensus. DPN taking note of that has taken a conscious decision that private land shall be secured through donations and/ or direct purchases on negotiated rate on willing buyer and willing seller basis till the new act is adopted by their State Assembly.
3.	Electricity Act, 2003	Transmission line projects are constructed under the ambit of Electricity Act, 2003 following the provisions of Section 67 & 68 of act.  Under the provisions of Section 68(1):-Prior approval of the Govt. of Nagaland(GoN) is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State which authorizes DPN to plan and coordinate activities to commission a new transmission/distribution project.  The electricity act under Section 164 has a provision to grant license the power of Telegraph Authority as provided in the Indian Telegraph Act, 1885 <sup>11</sup> . Govt. of Nagaland on request of DPN may by order in writing/through notification authorize them for using powers of telegraph authority after fulfilling the requirement as laid down in the rules thereof. The salient features of the Electricity Act 2003 are given in <b>Annexure- 5</b> .
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 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

<sup>11</sup> POWERGRID, the designated Implementing Agency has already been vested with powers of telegraph authority by GoI vide Gazette Notification dated Dec.24, 2003.

S. N.	Acts, Rules and Policies	Relevance/ Applicability to the project
		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.
6.	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, DPN will follow the laid down procedure in the Section-4 of act.
<b>III. World Bank OP (Operational Policy)</b>		
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. Comparison between World Bank Policy (OP 4.12) Requirements and RFCTLARR Act, 2013 is placed in <b>Table 5.3</b>
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.

**TABLE 5.3: ANALYSIS OF REQUIREMENT UNDER WB POLICY (OP 4.12) AND RFCTLARR ACT 2013**

S. N	World Bank Involuntary Resettlement Requirement	RFCTLARRA, 2013	Remarks and provisions in RFCTLARRA, 2013
<b>Policy objectives</b>			
1	Avoid involuntary	√	Social Impact assessment (SIA) should include: (i)

	resettlement (IR) wherever feasible		whether the extent of land proposed for acquisition is the absolute bare minimum extent needed for the project; (ii) whether land acquisition at an alternate place has been considered and found not feasible. [ <b>Section 4 sub-section 4(d) and 4(e)</b> ]
2	Where resettlement cannot be avoided, resettlement activities should be conceived and executed as a development programme by providing sufficient resources to enable Affected Persons (APs) to share in project benefits.	√	The cumulative outcome of compulsory acquisition should be that affected persons become partners in development leading [ <b>Preamble of the RFCTLARR Act</b> ]
3	APs should be meaningfully consulted and provided opportunities to participate in planning and implementing resettlement programs.	√	Whenever a SIA is required, the appropriate Government shall ensure that a public hearing is held at the affected area, after giving adequate publicity about the date, time and venue for the public hearing, to ascertain the views of the affected families to be recorded and included in the SIA Report. [ <b>Section 4 (1), 5, 45 (2)</b> ]
4	APs should be assisted in their efforts to improve their livelihoods and standards of living, or at least restore them, to pre-displacement levels or to pre-project levels.	√	The cumulative outcome of compulsory acquisition should be that affected persons become partners in development leading to an improvement in their post acquisition social and economic status and for matters connected therewith or incidental thereto. [ <b>Preamble of the RFCTLARR Act</b> ]
<b>Coverage of Impacts</b>			
5	Involuntary taking of land resulting in loss of income sources or means of livelihood, whether or not the affected persons must move to another place	√	Preamble of the said Act envisages restoration of livelihood as one of the guiding principle. In the definition of affected family in includes ‘a family which does not own any land but a member or members of such family may be agricultural labourers, tenants including any form of tenancy or holding of usufruct right, sharecroppers or artisans or who may be working in the affected area for three years prior to the acquisition of the land, whose primary source of livelihood stand affected by the acquisition of land; and further, a distinction is made between affected family and displaced family in the definition (i.e) a displaced family means any family, who on account of acquisition of land has to be relocated and resettled from the affected area to the resettlement area. [ <b>Section 3 sub-section c (ii) and k</b> ]
	Involuntary taking of land		In the definition of affected family, it includes ‘a

	resulting in loss of assets or access to assets		family whose land or other immovable property has been acquired' [ <b>Section 3 sub-section c (i)</b> ]
6	Involuntary restriction of access to of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.	√	In the definition of affected family in includes 'family whose primary source of livelihood for three years prior to the acquisition of the land is dependent on forests or water bodies and includes gatherers of forest produce, hunters, fisher folk and boatmen and such livelihood is affected due to acquisition of land' [ <b>Section 3 sub-section c (vi)</b> ]
<b>Eligibility Criteria</b>			
7	Those who have formal legal rights to land (including customary and traditional rights recognized under the laws of the country)	√	In the definition of affected family, it includes 'a family whose land or other immovable property has been acquired' [ <b>Section 3 sub-section c (i)</b> ]
8	Those who do not have formal legal rights to land <b>at the time the census begins but have a claim to such land or assets-- provided that such claims are recognized under the laws of the country or become recognized through a process identified in the resettlement plan</b>	√	In the definition of affected family, it includes 'the Scheduled Tribes and other traditional forest dwellers who have lost any of their forest rights recognized under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 due to acquisition of land'; and also includes 'a member of the family who has been assigned land by the State Government or the Central Government under any of its schemes and such land is under acquisition'; a family which does not own any land but a member or members of such family may be agricultural laborers, tenants including any form of tenancy or holding of usufruct right, share-croppers or artisans or who may be working in the <b>affected area for three years prior to the acquisition of the land;</b> a family residing on any land in the urban areas for preceding three years or more prior to the acquisition of the land or whose primary source of livelihood <b>for three years prior to the acquisition</b> of the land is affected by the acquisition of such land [ <b>Section 3 sub-section c (ii),(iii) and(v)</b> ]
<b>Measures/Entitlements</b>			
9	Ensure APs are informed about their options and rights pertaining to resettlement	√	Whenever a SIA is required, the appropriate Government shall ensure that a public hearing is held at the affected area, after giving adequate publicity about the date, time and venue for the

			public hearing, to ascertain the views of the affected families to be recorded and included in the SIA report. <b>[Section 5]</b>
10	Ensure APs are provided prompt and effective compensation at full replacement cost for losses of assets attributable directly to the project.	√	Though explicitly not stated, the compensations are expected to be much more than replacement costs. Total compensation and monetary benefits under R & R have to paid to PAPs before possession of land is granted. <b>{Section -38 (1)}</b>
11	If there is physical relocation, provide APs with (i) assistance(such as moving allowances) during relocation; and (ii) residential housing, or housing sites, or, as required, agricultural sites for which a combination of productive potential, locational advantages and other factors is at least equivalent to the advantages of the old site.	√	The Rehabilitation and Resettlement Award shall include all of the following..... (c) particulars of house site and house to be allotted, in case of displaced families; (d) particulars of land allotted to the displaced families; (e) particulars of one time subsistence allowance and transportation allowance in case of displaced families. <b>[Section 31 sub-section 2(c), (d) and (e)] and schedule-3</b>
12	Provide relocation assistance to displaced persons	√	Each affected family is to be given one time Resettlement Allowance of Rs. 50,000/-
13	Particular attention to be paid to the needs of vulnerable groups among those displaced, especially those below the poverty line, the landless, the elderly, women and children, indigenous peoples, ethnic minorities, or other displaced persons who may not be protected through national land compensation legislation	√	The act provides for special provisions and assistance for scheduled caste and scheduled tribe in scheduled area. <b>[ Section 41]</b> Further the act recognizes widows, divorcees and women deserted by families as separate families <b>[Section sub-section (m)]</b>
14	Provision of compensation and of other assistance required for relocation, prior to displacement, and preparation and provision of resettlement sites with adequate facilities, where required. In particular,	√	Total compensation and monetary benefits under R & R have to paid to PAPs before possession of land is granted. <b>{Section -38 (1)}.</b>



	taking of land and related assets may take place only after compensation has been paid and, where applicable resettlement sites and moving allowances have been provided to the displaced persons.		
15	Preference should be given to land- based resettlement strategies for displaced persons whose livelihoods are land-based.	√	Land for land is recommended in irrigation projects and in projects where SC/ST is involved equivalent land.  <b>[Section 41 &amp; Second Schedule S.No.2]</b>
16	Cash compensation levels should be sufficient to replace the lost land and other assets at full replacement cost in local markets.	√	Method of valuation of land and considering the higher value as base with multiplying factor of 1-2 and the 100 solatium with 12% interest comes out to be more than replacement cost for land. For structure, tree and crops, valuation by appropriate authority will be equivalent to replacement value with provision of expert assistance. <b>[Section 26 sub-section 1 and 2, Section 29 and Section 30]</b>
17	Appropriate and accessible grievance mechanisms are established for these groups.	√	For the purpose of providing speedy disposal of disputes relating to land acquisition, compensation, rehabilitation and resettlement, establish by notification. one or more Authorities to be known as "the Land Acquisition, Rehabilitation and Resettlement Authority" <b>[Section 51 sub-section 1]</b>
18	In new resettlement sites or host communities, infrastructure and public services are provided as necessary to improve, restore, or maintain accessibility and levels of service for the displaced persons and host communities.	√	In every resettlement area as defined under this Act, the Collector shall ensure the provision of all infrastructural facilities and basic minimum amenities specified in the Schedule-3 of the Act.  <b>[Section 32]</b>
19	Disclose the resettlement plan, including documentation of the consultation in an accessible place and a form and language(s) understandable to affected persons and other stakeholders.	√	Discloser of R&R Scheme along with records of public hearing to be put in public domain by uploading on specified website as well as placement in Panchayat/ Municipality in <b>vernacular language.</b>  <b>{ Sec. 19 (4)}</b>
20	Monitor and assess	√	Provision of post implementation social audit by

	resettlement outcomes, their impacts on the standards of living of displaced persons.		R&R Commissioner Rehabilitation & Resettlement Committee to carry out post implementation social audit in consultation with Gram Sabha/ Municipality. { Sec. 44 (3) & 45}
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## 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 an issue as fresh lands will be required for construction of substations. DPN has already been identified land for these substations and shall secure the required land either through direct purchase on willing buyer & willing seller basis on negotiated rate or through donation. However, efforts will be made to secure such land wherein possibility of physical relocation/displacement is not envisaged. Details of land availability status of substations are provided in **Table – 5.4.**

**TABLE 5.4: LAND AVAILABILITY FOR SUBSTATIONS**

S. N.	Name of the substation	Scope of work	Land Status
<b>A. Transmission Substations</b>			
1.	132/33 KV Longnak	New	Fresh Land is not needed for augmentation of substations except Wokha as additional land is already available with the Utility. However, fresh land to be acquired for all new substations. DPN, Nagaland has already identified land for these substations and land shall be secured either through direct purchase on willing buyer & willing seller basis on negotiated rate or through donation.
2.	132/33 KV Longleng	New	
3.	132/33 KV New Secretariat Complex Kohima	New	
4.	132/33 KV Pfutsero	New	
5.	132/33 KV Zunheboto	New	
6.	132/33 KV Wokha	Augmentation	
7.	132/33 KV Mokokchung (State)	Augmentation	
8.	220 KV Mokokchung (PGCIL)	Augmentation	
9.	132/33 KV Tuensung	Augmentation	
10.	220/132/33 KV New Kohima	Augmentation	
<b>B. Distribution Substations</b>			
1	33/11 kV substation (10Nos.)	New	Land available for only 2 substations i.e. Longleng, Mukokchong. For remaining 8 substations, DPN has identified land and shall secured the required land either through direct

S. N.	Name of the substation	Scope of work	Land Status
<b>A. Transmission Substations</b>			
			purchase on willing buyer & willing seller basis on negotiated rate or through donation

Thus Land for tranche-1 and subsequent investments under future tranches can be secured through three following methods;

- i. Purchase of land on willing buyer & Willing Seller basis on negotiated rate;
- ii. Voluntary Donation; and
- iii. Involuntary Acquisition.

Since the RCFTLARRA, 2013 is currently not applicable to State as it is not adopted by the state legislature under article 371 A of Constitution of India, securing of land can be made either through private negotiations or voluntary donations till the applicability of new act. In case of procurement of land through private purchase, DPN 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 DPN may organize an awareness camp where provisions of new act in respect of basis/modalities of compensation calculation shall be explained to land owners with specific State provision if any.

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

- The land user(s) will not be subjected to undue pressure for parting of land;
- All out efforts shall be made to avoid any physical relocation/displacement due to loss of land;
- The DPN shall facilitate in extending ‘gratitude’ to the land donor(s) in lieu of the ‘contribution’ if so agreed. The same shall be documented in the shape of MoU between donor and utility and subsequently title of land transferred in the name of DPN.
- 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 GoN.

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. GoN) 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 DPN’s responsibility is limited to identification and selection of suitable land based on technical requirement and ensuring budget allocation.

**Safeguards against land acquisition:**

Conducting Social Impact Assessments (SIA) has been made mandatory under RFCTLARRA, 2013 and results of these assessments are shared with all the stakeholders and public hearing held which makes the process transparent and informed. Subsequently, an entitlement package that includes both compensation (for land/structure and assets to land and structure) and R&R as necessary is prepared. Further to this individual awards are passed and all documents are disclosed in the public domain through local administration and internet. The flow chart of the land acquisition process with schedule prescribed for various activities is illustrated in **Figure – 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 –5.5** below

**TABLE 5.5: COMPENSATION AND R&R ENTITLEMENT FRAMEWORK FOR LAND ACQUISITION**

A Comprehensive Compensation Package	
Eligibility for Entitlement	Provisions

<p>The affected families</p> <ul style="list-style-type: none"> <li>• <b>Land Owners: includes any person-</b></li> <li>i) whose name is recorded as the owner of the land or building or part thereof, in the records of the authority concerned; or</li> <li>ii) any person who is granted forest rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or under any other law for the time being in force; or</li> <li>iii) who is entitled to be granted Patta rights on the land under any law of the State including assigned lands; or</li> <li>iv) any person who has been declared as such by an order of the court or Authority;</li> </ul>	<p><b>Determination of Compensation :</b></p> <p><b>1. Market value</b> of the land</p> <ul style="list-style-type: none"> <li>• as specified in the Indian Stamp Act, 1899 or</li> <li>• the average of the sale price for similar type of land situated in the village or vicinity, or</li> <li>• consented amount of compensation as agreed in case of acquisition of lands for private companies or for public private partnership project.</li> </ul> <p><b>whichever is higher</b></p> <p>Market value x <b>Multiplier* between 1 to 2 in rural areas only (No multiplier in urban areas).</b></p> <p><b>2. Value of the assets attached to land:</b></p> <p>Building/Trees/Wells/Crop etc. as valued by relevant govt. authority;</p> <p><b>Land compensation = 1+2</b></p> <p><b>3. Solatium:</b> 100% of total compensation</p> <p><b>Total Compensation : 1+2+3</b></p>
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(\* Precise scale shall be determined by the State Govt.

The indicative values of multiplier factor based on distance from urban areas as provided in the act.

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

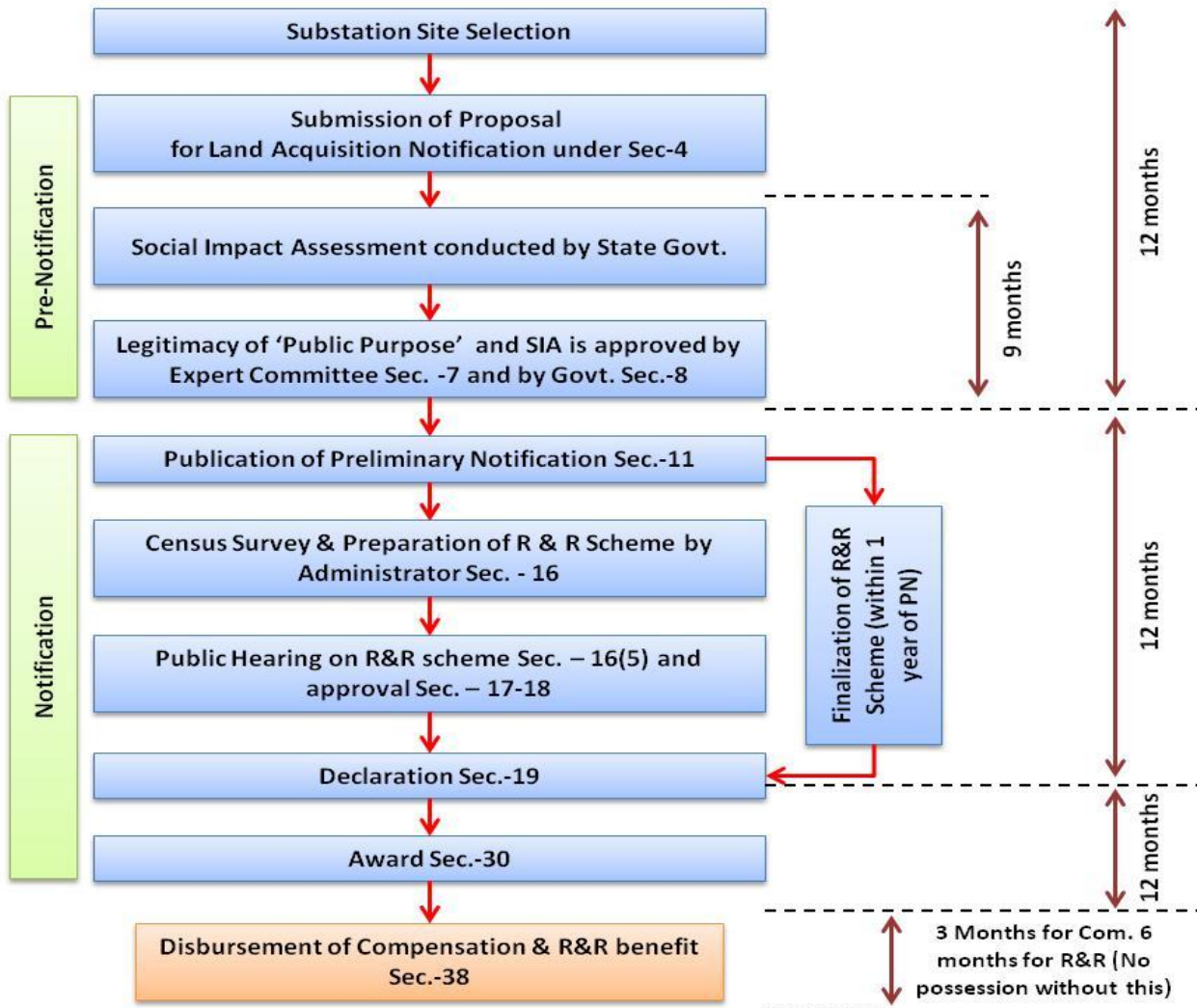
### B. R&R Package

Elements of Rehabilitation and Resettlement Entitlements for all the affected families (both land owners and the families whose livelihood is primarily dependent on land acquired) in addition to compensation provided above

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; <b>or</b> b) Rupees 5 lakhs per family; <b>or</b> c) Rupees 2000 per month per family as annuity for 20 years, with appropriate index for inflation;

		<b>The option of availing (a) or (b) or (c) shall be that of the affected family</b>
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. <b>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.</b> 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 State Govt. subject to minimum of Rs.25,000/-
<p><b>Special Provisions for SCs/STs</b> In addition to the R&amp;R package, <i>SC/ST families will be entitled to the following additional benefits:</i></p> <ol style="list-style-type: none"> <li>1. One time financial assistance of Rs. 50,000 per family;</li> <li>2. Families settled outside the district shall be entitled to an additional 25% R&amp;R benefits;</li> <li>3. Payment of one third of the compensation amount at very outset;</li> <li>4. Preference in relocation and resettlement in area in same compact block;</li> <li>5. Free land for community and social gatherings;</li> <li>6. In case of displacement, a Development Plan is to be prepared</li> <li>7. Continuation of reservation and other Schedule V and Schedule VI area benefits from <i>displaced area to resettlement area.</i></li> </ol>		

**FIGURE 5-1: ACTIVITY CHART OF RECTLARRA, 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, DPN 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 revenue department and affected person based on assessment (refer Part - B of Social Management Framework placed as **Annexure- 3**) The detailed process for crop/tree compensation is placed at **Annexure - 6 & Annexure - 6a**. The entitlement matrix for planning compensation for possible impact is provided in **Table – 5.6**.

**TABLE 5.6 - ENTITLEMENT MATRIX FOR CPTD**

S. N.	Issue/Impact	Beneficiary	Entitlement Options
1.	Land area below tower base.	Owner	100% land cost at market value as ascertained by revenue authorities or based on negotiated settlement without actual acquisition/title transfer.
2.	Loss/damage to crops and trees in line corridor	Owner/ Tenant/ sharecropper / leaseholder	Compensation to actual cultivator at market rate for crops and 8 years income for fruit bearing trees*. APs will be given advance notice to harvest their crops. All timber* will be allowed to retain by the owner.
3.	Other damages (if applicable)	All APs	Actual cost as assessed by the concerned authority.
4.	Loss of structure		
(i)	House	Titleholders	Cash compensation at replacement cost (without deduction for salvaged material) plus Rs. 25,000/- assistance (based on prevailing GOI norms for weaker section housing) for construction of house plus transition benefits as per category-5 below.
(ii)	Shop/ Institutions/ Cattle shed	Individual/ Titleholders	Cash compensation plus Rs. 10000/- for construction of working shed/shop plus transition benefits as per category-5 below
5.	Losses during transition under (i) & (ii) above for Shifting / Transport	Family/unit	Provision of transport or equivalent cash for shifting of material/ cattle from existing place to alternate place
6	Tribal/ Vulnerable APs	Vulnerable APs <sup>12</sup>	One time additional lump sum assistance not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC.

\* Assistance/help of Forest department for timber yielding trees and Horticulture department for fruit bearing trees shall be taken for assessing the true value.

c) **Tribal People:** The majority of the population in Nagaland is tribal as ST population is approximately 89% of the State's population. The Naga tribes constitute 98.2% of the total ST population. Since the project benefits will be largely accrued to tribal population of the state, there is no need for a separate Tribal Peoples' Development Framework/ Plan (TPDP) in the project as per the provisions of O.P.4.10.

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.

<sup>12</sup> Vulnerable APs include scheduled tribes residing in scheduled areas/ physically handicapped/ disabled families etc.



## 5.7 Health and Safety Requirements

45 DPN maintains safety as a top priority, apart from various labour laws dealing with workers' health and safety, such as the Workmen's Compensation Act. DPN 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 DPN (**Annexure- 7** for detailed checklist) are developed on the basis of World Bank EHS guidelines to be adopted by DPN.

## 5.8 Exposure to Electro Magnetic Fields (EMF)

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

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).

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

## 5.9 General Safety Standards

46 DPN 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 -8**).

## 6. Issues, Impacts and Management Measures - Environment

47 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

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

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

49 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**.

50 At present, a width clearance of 3 m is allowed below each conductor for the movement of tension stringing equipment (**Annexure-9**). 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 weeds. This can have added repercussions within a semi evergreen or evergreen biotope.

**TABLE 6-1: ROW CLEARANCE BETWEEN CONDUCTORS AND TREES**

<b>Transmission Voltage (In kV)</b>	<b>Max. ROW (In Meters)</b>	<b>Min. Clearance (in meters) between conductor &amp; Trees *</b>
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. DPN wherever possible utilises the existing path / access roads for the movement of man and machinery. The existing roads which cannot support heavy machinery load are upgraded and thus the village infrastructure is improved. In areas where lines traverse agricultural land, compensation is paid to owners for any crop damage incurred as a result of construction activities. Agricultural activities are allowed to continue following the construction period. If bunds or other on-farm works are disturbed during construction or maintenance, they are restored to the owner's satisfaction following cessation of construction or maintenance activities. In the event that private trees are felled during construction or maintenance operations, compensation is paid to the owner as determined by the forest / horticulture departments.

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

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

4) **Avian hazards from transmission/distribution lines:** Avian hazards mostly encountered in bird sanctuaries area and fly path of migratory bird predominantly related to nesting site. However, incidence of electrocution is rare due to the distance between the conductors is larger than the size of the bird.

## **B) Substations**

51 The key environmental issues associated with construction of substation are:

1) **Clearing/looping of Ground Vegetation:** The land requirement for substations varies from 0.3 acres to 10 acres depending on voltage level and no. of bays. The ground vegetation needs to be cleared to enable construction activity.

2) **Used Transformer Oil:** As a part of routine maintenance, transformer oil is changed every 10-15 years. The used transformer oil is categorised as hazardous wastes as per Hazardous waste (Management, Handling and Trans-boundary) Rules, 2008 and its unscientific disposal in environment may lead to soil and water contamination.

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

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

5) **SF6 gas** is a highly potential Green House Gas (GHG) being used in Circuit Breaker. Mishandling and leakage etc can lead to its escape into the atmosphere causing global warming.

## **6.2 Principles**

52 The basic principles that guide Environmental Management are:

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

### 6.3 Definitions

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

**“Battery”** means lead acid battery which is a source of electrical energy and contains lead metal;

**“Central Pollution Control Board”** means the Central Pollution Control Board constituted under sub-section (1) of section 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

**“Forest”** The word “forest” must be understood according to its dictionary meaning. This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise for the purpose of Section 2(i) of the Forest Conservation Act. The term "forest land", occurring in Section 2, will not only include "forest" as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership;

**“E-waste”** means waste electrical and electronic Equipments, whole or in part or rejects from their manufacturing and repair process, which are intended to be discarded;

**“Hazardous waste”** means any waste which by reason of any of its physical, chemical, reactive, toxic, flammable, explosive or corrosive characteristics causes danger or is likely to cause danger to health or environment, whether alone or when in contact with other wastes or substances, and shall include- (i) waste specified under column (3) of Schedule-I, (ii) wastes having constituents specified in Schedule-II if their concentration is equal to or more than the limit indicated in the said Schedule, and (iii) wastes specified in Part A or Part B of the Schedule-III in respect of import or export of such wastes in accordance with rules 12, 13 and 14 or the wastes other than those specified in Part A or Part B if they possess any of the hazardous characteristics specified in Part C of that Schedule;

**“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;

“State Pollution Control Board” means the State Pollution Control Board or the Pollution Control Committee constituted under sub-section (1) of section 4 of the Water(Prevention and Control of Pollution) Act, 1974 (6 of 1974);

## 6.4 Legal and Regulatory Framework

53 The applicable acts, rules, 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, Rules and policies	Relevance/ Applicability to the project
<b>I. Constitutional Provisions</b>		
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.
<b>II. Provisions Law of the Land/Rules</b>		
1.	Electricity Act, 2003	<p>Transmission line projects are constructed under the ambit of Electricity Act, 2003 following the provisions of Section 67 &amp; 68 of act.</p> <p>Under the provisions of Section 68(1):-Prior approval of the Govt. of Nagaland(GoN) is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State which authorizes DPN to plan and coordinate activities to commission a new transmission/distribution project.</p> <p>The electricity act under Section 164 has a provision to grant licensee the power of Telegraph Authority as provided in the Indian Telegraph Act, 1885. Govt. of Nagaland on request of DPN may by order in writing/through notification authorize them for using powers of telegraph authority after fulfilling the requirement as laid down in the rules thereof. The salient features of the Electricity Act 2003 are given in <b>Annexure- 5</b>.</p>
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,

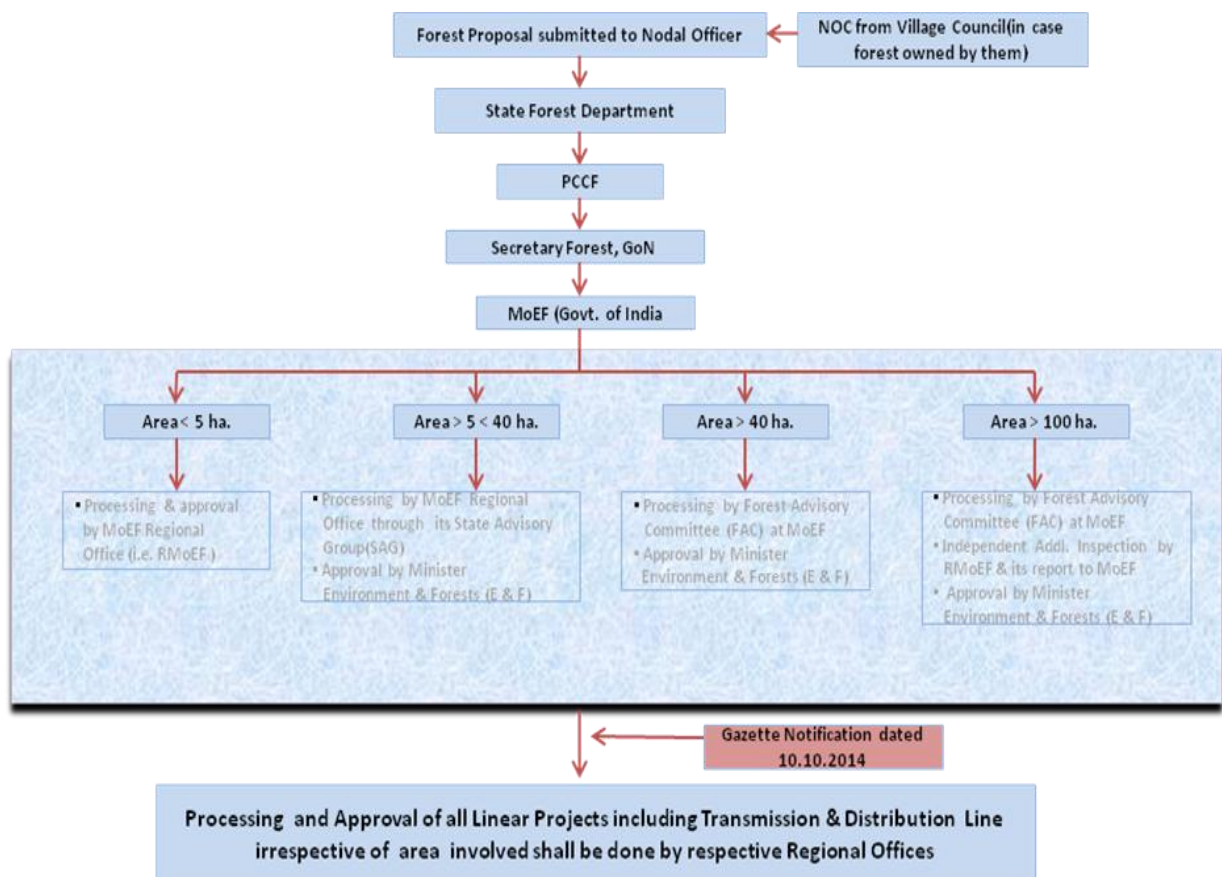
Sl. No.	Acts, Rules and policies	Relevance/ Applicability to the project
		<p>as per set procedure in the guideline under the act and rules is shown in <b>Figure 6.1</b> below. Flow charts for forest clearance process and procedure of online submission of application are provided in <b>Annexure- 10 &amp; 10a</b> respectively.</p> <p>However, Government of Nagaland vide its Notification No. FOR-58/82 dated 03-07-1986 has extended the application of this Act to forest lands under the control of Forest Department. Natural forest under control of private individuals or community is not under the preview of the Act.</p>
3.	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 DPN. Project categories specified under the schedule of the EIA notification is provided in <b>Annexure -11</b> . 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 DPN.
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 DPN 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 ( <b>Annexure -12</b> ) to the Nagaland 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 requires proper handling, storage and disposed only to authorized disposal facility (registered recyclers/ reproprocessors). DPN, as bulk user of transformer oil which is categorized as Hazardous Waste, shall comply with the provisions of the said rules (refer <b>Annexure -13</b> 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 DPN shall submit the desired return in prescribed form to concerned State Pollution Control Board at the time of disposal of used oil.
iv)	E-waste (Management and Handling) Rules, 2011	As per notification, bulk consumers like DPN is to dispose e-waste generated by them in environmentally sound manner by channelizing to authorized collection centers/ registered dismantler/ recyclers/return to producers. DPN, being a bulk consumer of electrical and electronics equipments shall maintain record as per Form-2 ( <b>Annexure -14</b> ) for scrutiny by State Pollution Control Board.

<b>Sl. No.</b>	<b>Acts, Rules and policies</b>	<b>Relevance/ Applicability to the project</b>
4.	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. DPN abides by the provision of the act wherever applicable, and avoids Biosphere Reserves during route alignment.
5.	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.
6.	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
7.	The Nagaland Tree Felling Regulation, 2002	Nagaland Tree Felling Regulation, 2002 deals with felling of trees from non-forest and registered plantation areas. Felling of trees for construction of transmission lines would be governed under this Act wherever it is applicable. DPN shall abide by the provisions of the Act wherever applicable.
8.	Ancient Monuments & Archaeological Sites and Remains Act, 1958	The Act has been enacted to prevent damage to archaeological sites and its maintenance. It also places restriction on activities which can cause harm to the monument /property. The law is however applicable only in monuments identified by the Archaeological Survey of India. According to this act, DPN cannot carry out any activity within a protected area as identified by the Archaeological Survey of India without obtaining necessary permissions.
<b>III. World Bank OP (Operational Policy)</b>		
10.	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.
11.	OP- 4.04: Natural Habitats	To promote sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions.
12.	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.



Sl. No.	Acts, Rules and policies	Relevance/ Applicability to the project
13.	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. 15<sup>th</sup> August 2014 (refer Annexure-10a)*

## 6.5 Assessment of Environment Impact

54 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**

- Availability of power reduces the demand of natural resources like kerosene, firewood, charcoal etc. resulting in conservation/protection of natural resources.

**ii. Negative Impacts**

- Clearance of tree within RoW;
- Impacts on forest, wildlife habitats and migratory birds;
- Impacts on drainage, soil erosion & water resources;
- Impacts on traffic and road infrastructure;
- Impacts on Aviation and Communication
- Aesthetic appeal of area;
- Impacts from likely oil spillage;
- Effect of electromagnetic fields(EMF);
- Leakage of SF6; and
- Health & Safety

**6.6 Management Framework**

55 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, DPN has developed an Environment Management Plan (EMP) (Ref.: Annex.-A attached in ES) 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**

S.N.	Potential Issues	Management Measures
1.	Minimising adverse impact on forests	DPN 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.

S.N.	Potential Issues	Management Measures
		However, in case of felling of trees in natural forest outside designated forest areas (which are not covered under the Forest Conservation Act vide Notification No. FOR-58/82 dated 03-07-1986). DPN/IA shall provide fund for compensatory afforestation for planting 3 trees for every tree to be felled subject to availability of land. However, in legally designated forest areas, provisions of the Forest (Conservation) Act, 1980 shall prevail.
2.	Clearing/Lopping of trees	Use of extended/special tower to reduce RoW and impact on trees.
3.	<ul style="list-style-type: none"> <li>• Vegetation damage</li> <li>• Habited Loss</li> </ul>	To minimise damage to vegetation and habitat fragmentation, DPN utilizes hand clearing and transportation of tower material by head loads into forestland and other land as well, wherever possible.
4.	<ul style="list-style-type: none"> <li>• Habitat fragmentation</li> <li>• Edge effect on flora &amp; fauna</li> </ul>	DPN maintains only a 3m wide strip for O&M and allows for regeneration of vegetation in the other one or two strips and beneath the transmission lines to avoid habitat fragmentation and edge effect. In hilly area this can possibly be totally avoided.
5.	Chances of accident involving elephant in the specified corridor due to placing of poles	DPN shall try to avoid such area to the extent possible. However, in case avoidance is not possible, suitable design modification in the pole like provision of spike guards, barbed wire fencing or any other arrangement shall be incorporated in such location, if required
6.	Chemical contamination from chemical maintenance techniques	DPN does not use chemicals for forest clearance/ RoW maintenance.
7.	Poly-Chloro-Biphenyls (PCBs) in electrical equipment.	DPN use mineral oil in electrical equipments. Specification of oil containing PCB less 2 mg/kg (non –detectable level) stated in the tender document.
8.	Change in land use and population relocation due to towers/poles	DPN does not acquire land for its transmission towers. It pays compensation for any crop loss and damage caused during its activities. DPN allows regeneration and cultivation beneath the towers for Transmission Line (TL), around poles/ structures and lines.
9.	Induced secondary development during construction	DPN operations are short-lived and do not induce secondary developments during construction.
10.	Erosion of soil and drainage along the cut and fill slopes in hilly areas	DPN 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.

S.N.	Potential Issues	Management Measures
11.	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. DPN shall take all possible precaution to avoid these areas by careful route selection. However, bird guards are provided to prevent any avian hazards.
12.	Air craft hazards from transmission lines and towers	DPN as per the requirement of IS 5613 of July'94 provides aviation markers, night-lights for easy identification of towers in notified/selected areas.
13.	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. DPN uses best available technology for lines and do not cause any hazards to health and safety.
14.	Fire Hazards	Fire hazards are mostly occurred in forest area. However, DPN 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 takes 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.
15.	Pollution	Although pollution is not an issue with transmission/ distribution projects still DPN will make efforts to further minimise it. Sites are cleared of all the leftover materials and debris to avoid any chance of pollution.
16.	GHG (SF <sub>6</sub> Gas)	Although leakage of SF <sub>6</sub> is not a major issue, DPN will make efforts to reduce the leakage through regular monitoring installing gas pressure monitor/ leak detectors in Circuit Breakers.

## 7. Integration of Environment and Social Management Measures into Overall Project Cycle

56 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.

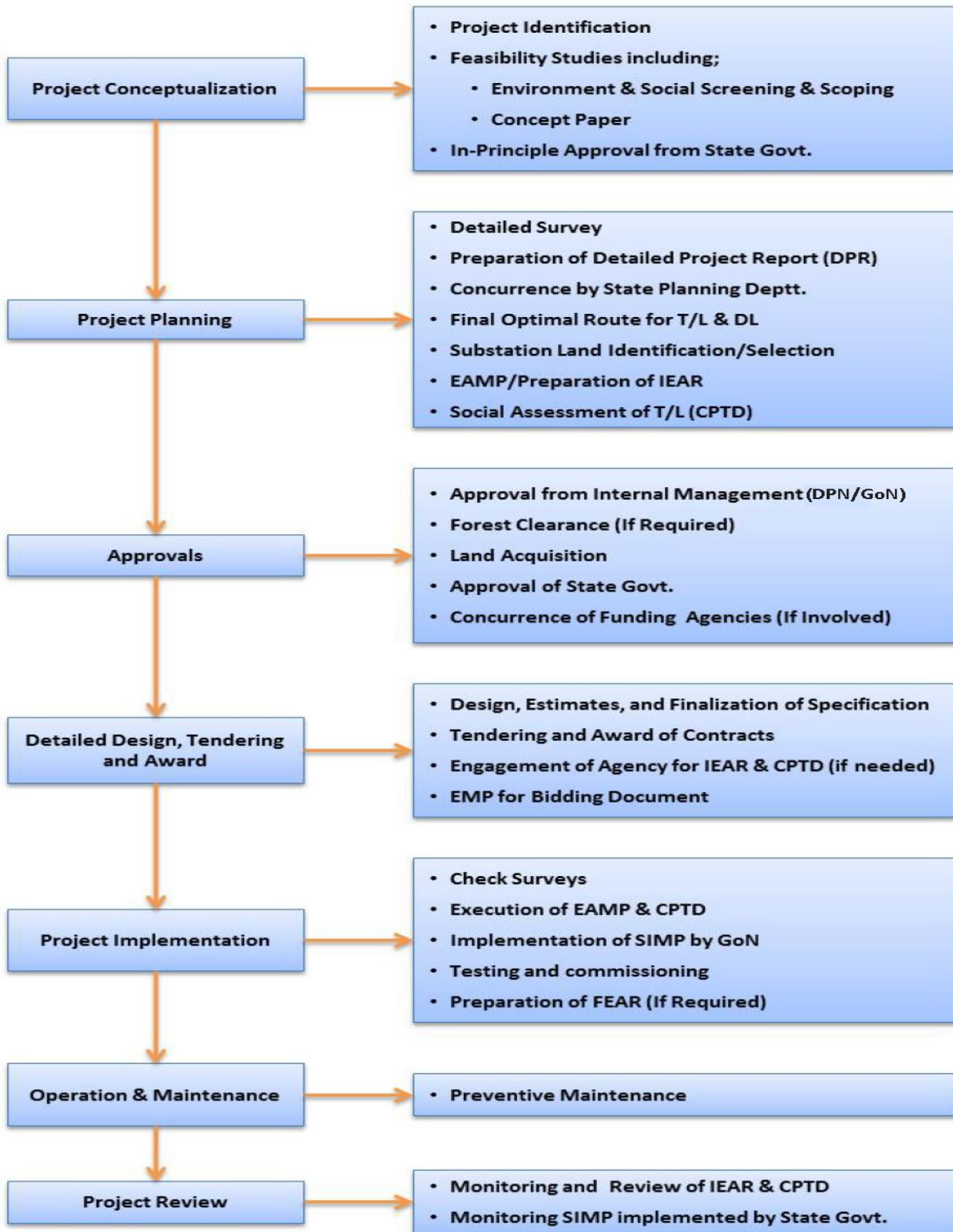
### 7.1 Project Cycle

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

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

58 **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

59 DPN identifies the need for a new project in consultation with the Central Electricity Authority (CEA) and Regional Electricity Boards (REB). A power transmission project is identified according to the demand and supply of a given region based on generating utilities.

60 Subsequent to identification based on the above requirements, initial feasibility studies are carried out that includes technicality, environmental, social, economic, and financial assessments. The project is prioritized and implementation schedule is developed. As a fully owned Govt. Utility feasibility study is carried out by the Chief Engineer's Office (Directorate) for the internal approval of the Department of Power headed by Commissioner & Secretary, Govt. of Nagaland. During the feasibility study, DPN develops various options for the location/siting of transmission/distribution lines and construction of substations/DTs 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 substations sites) avoiding environmentally and socially sensitive area. At least 3 (three) alternative are marked subject to site verification.

61 During the route alignment surveys/walkover surveys, all possible efforts are made to avoid forest, sacred grove, and archaeological sites, historical and cultural places etc.

62 Based on the above studies a concept paper is prepared indicating all the components environmental, social, techno-economic and cost estimate. Approval for the "Concept Paper" is obtained from the State Govt. Since financial approval of project may take longer time, certain critical project preparatory activities, such as preliminary or detailed survey, forest clearance, and land acquisition process are initiated with special permission of the State Govt. Such provisions/actions also facilitate more in-depth and timely assessment of environment & social issues due to availability of better lead time. In case of transmission project this "Concept Paper" after the appraisal/ recommendation of DPN, is forwarded to Planning Deptt., GoN for the in-principle approval and subsequent Budget allotment or posing to different funding agency. For distribution project the 'Concept Paper' after the appraisal/ recommendation of DPN, is forwarded to Planning Department, GoN for in-principle approval under State plan other than RGGVY- Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)/ Accelerated Power Development and Reform Program (APDRP)/ Restructured-Accelerated power development and Reform Program(RAPDRP) scheme under GoI.

### 7.1.2 Project Planning

63 Planning stage is started with preparation of Detailed Project Report (DPR). During this stage, detailed surveys are carried out and two or three route alternatives are studied in detail. Field officers record all critical information such as rivers, hills, railway crossings, telephone, and power transmission lines. Additionally, environmental and social details are also noted in the prescribed pro-forma for evaluation of alternatives (**Annexure-15**). Village Council and the community/individuals are also consulted during the survey.

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

65 DPN identifies number of probable substation sites suiting technical requirement based on data collected as per the checklist (refer **Annexure -16**) and a comprehensive analysis for each alternatives carried out. The analysis considers various site specific parameters that includes infrastructure facilities such as access roads, railheads, type of land viz. government private land, agricultural land; social impacts such as number of families; including its cost aspect also. An initial examination of the selected site is done to ascertain the scope and extent of social assessment. This helps in selecting particular land for substation with minimal impact after doing comparison assessment. Thereafter, DPN proposes for Land Acquisition other than Govt. land to the GoN, which in turn process the request as per the RFCTLARRA, 2013 for acquisition.

66 After identification and assessment of possible impacts, project specific Environment Assessment Management Plan (EAMP) is prepared including the Initial Environment Assessment



Report (IEAR) to mitigate adverse impact arising due to project activity. In case of lines passing through protected areas additional studies would be conducted by independent experts/consultants to ascertain the impacts on the bio-diversity. The terms of reference for Bio-Diversity studies in provided in **Annexure -17**. 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**

67 The DPR so finalized and recommended by DPN is forwarded to State Govt. and funding agency (if applicable) for concurrence and fund/budget allocation.

### **7.1.4 Detailed Design and Tendering**

68 DPN after detailed design, finalization of specifications for lines and substations start 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**

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

70 DPN's field staff and contractors conduct check survey to verify the ground profile and make necessary changes wherever required. Field staff fixes tower spots and heights (extensions) wherever necessary for tension towers. Construction work is then initiated for transmission /distribution line followed by tower/pole erection & stringing. Simultaneously works of substation are also initiated. Due care is taken to minimize / mitigate environmental impacts. Once the check survey is completed, DPN approach District Administration for acquisition/procuring the land. Negotiations are held with the owners of the land for compensation towards locating the tower/pole. The payment of

compensation has been made as per the rates assessed / fixed by the Deputy Commissioner / District Collector. The consultation with the land owners is primarily limited to their agreeing to part with their land and receiving compensation. In case there are any grievances regarding the tower location, consultation are held with the owner to resolve them and also convince them to part with their land. The District Administration also gets involved in the process. However, in case they fail to come to a consensus then the tower locations may be shifted meeting technical requirements.

71 DPN 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 -7** for checklist for health & safety and **Annexure-18** for Safety Plan). Before test charges both transmission/distribution lines and substations, pre-commissioning check and testing are rigorously done by DPN to ensure safety of commissioning of the project/subproject. Implementation of IEAR and CPTD are also to be taken up in parallel to above work.

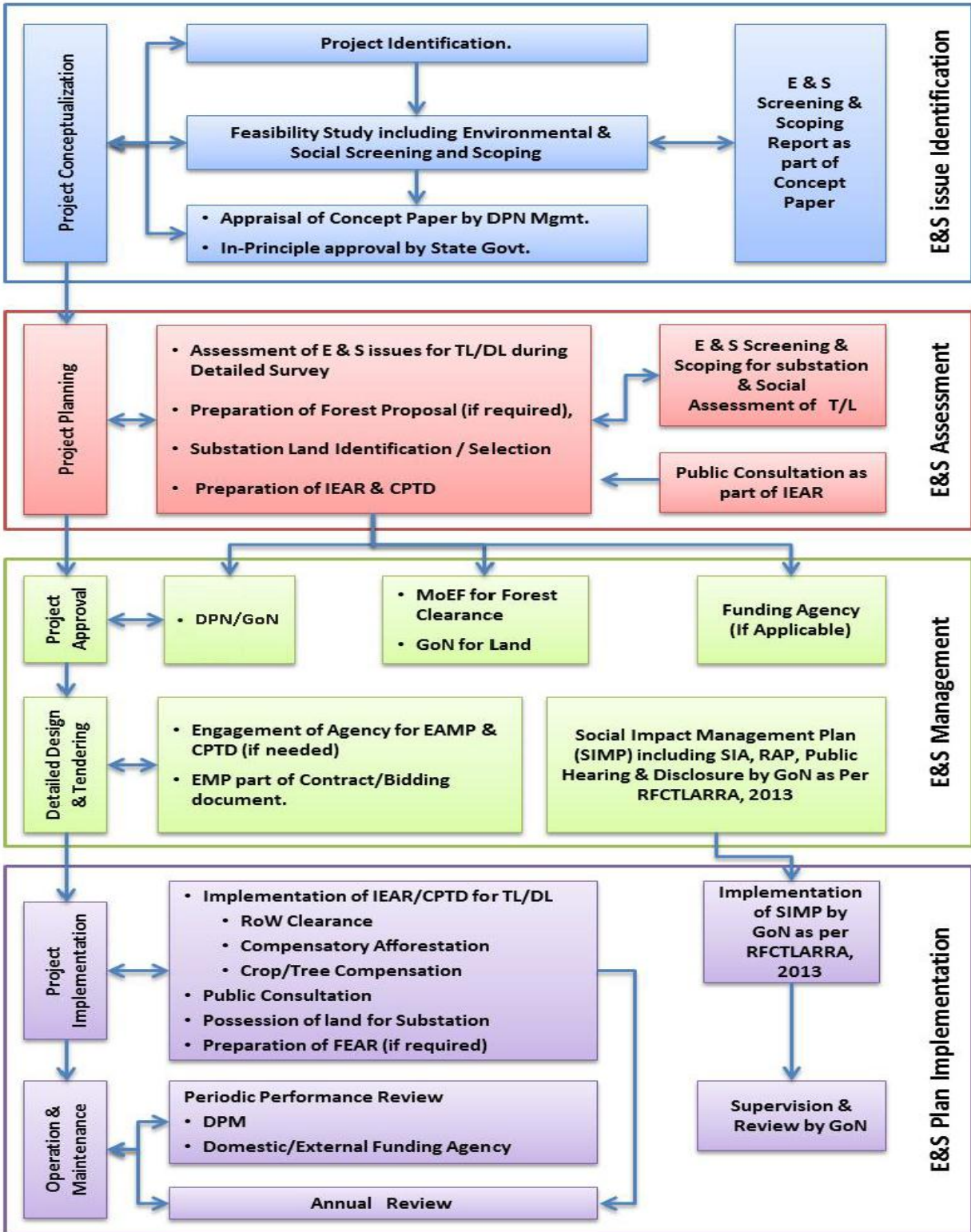
#### **7.1.6 Operation and Maintenance**

72 DPN 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 - 19**).

#### **7.1.7 Project Review**

73 DPN's site managers review the lines and substations on a daily basis including review of issues related to environment & social aspect. The ESMU also undertake monthly review of all such issues along with the progress of implementation of IEAR/ CPTD/ SIMP etc. The head office of DPN monitors construction, technical, environmental, and social components of the power transmission/distribution projects on quarterly basis.

FIGURE 7-2: ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCEDURE



## 7.2 Project Conceptualization

74 Conceptualisation of projects/subprojects necessarily entails identification of potential E & S issues that may require evaluation in relation to its nature, magnitude and measures to address them. Screening and scoping process enable this evaluation. In fact, 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 DPN management. The E & S issues identification process for any DPN project will include the following:

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

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

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

#### A. Objective

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

#### B. Process

- The DPN would mark the BEE line and at least 3 alternatives on a topographic sheet, satellite imagery or any higher level map of 1:50,000 scale. The map should show the environmental and social sensitivities (e.g. settlements, forests, vegetated areas, terrain, water bodies and water courses, administrative boundaries etc.).
- DPN will identify the environmental and social sensitivities along the BEE line based on secondary information (topographic sheet, forest atlas, satellite imagery and census record). Field Units would carry out spot verification or walk-over survey to confirm the environmental and social sensitivities identified during the desktop review. They would also identify alternatives to circumvent the environmental and social issues. Environmental and social details are also noted (refer **Annexure- 15** for alternative analysis format to gather relevant environment and social information for transmission lines and substations).
- During walkover survey/ spot verification, consultations are held with the village council to obtain their consent and also the landowners for routing the line along the village. Views of

public and any other related information (like public views and necessary inputs about surroundings/ villages/crops etc.) are noted for screening/scoping. After comparison and analysis of all E & S parameters so gathered for all alternatives and considering other significant economic benefit associated with the project/subproject, the most optimum route having minimum environment & social impact is selected for further investigation.

- Site office will consults with state forest departments if the line is passing through forest areas. Revenue authorities will be consulted for their views on revenue/other lands.

### **C. Output**

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

### **7.2.2 Approval**

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

## **7.3 Project Planning**

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

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

### **7.2.1 Environment and Social Screening for substation**

#### **A. Objectives**

- To identify environmental and social sensitivities associated with the project and to outline scope for land acquisition

#### **B. Process**

- DPN will identify tentative locations of the substation on village/revenue map and collect information from secondary source as per checklist (**Annexure -16**).

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

### **C. Output**

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

## **7.3.2 Environmental Assessment and Management Planning**

### **A. Objectives**

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

### **B. Process**

- While finalizing the route alignment during detailed survey, the involvement of forest area is ascertained. If protected areas (Wildlife Sanctuaries, National Parks, Biosphere Reserves, etc.) or any notified/recognized migratory path/fly path is encountered in spite of utmost care/optimization, a separate biodiversity assessment study through an independent expert/agency shall be carried out as part of the Environment Assessment (EA) process. The Terms of Reference of the biodiversity assessment study is provided in **Annexure - 17**. In case of forest involvement, forest proposal is prepared for transmission/distribution line with the help of Forest Department which includes details of species and girth wise classification of trees to be felled, cost benefit analysis, identified degraded forest land, details of Compensatory Afforestation (CA) enumerated on a map and preparation of CA scheme. Various digitalized map of diverted and CA area, NOC/certificate from DC under FRA, 2006 etc. are submitted along with the forest proposal. In case of village/community, individual forest, DPN shall obtain NOC from the Village Council or individual respectively before the formal process of forest clearance can be initiated.

- DPN would prepare IEAR detailing significant E&S issues identified during screening and scoping and would formulate a project specific Environment Management Plan (EMP) (Refer **Annexure -20** for contents of IEAR).
- Public Consultations are carried out for the final route alignment/site to ascertain views/suggestion of public, affected person and other stakeholders.

### **C. Output**

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

### **7.3.3 Social Assessment for Temporary Damages for TL (CPTD)**

#### **A. Objectives**

- To prepare Compensation Plan for Temporary Damages (CPTD)

#### **B. Process**

- On identification of the route for laying transmission line, DPN will access all likely damage to the land due to foundation, erection, and stringing works.
- DPN will prepare management plan to minimize damage and compensation plan for temporary damages in consultation with revenue dept. and affected persons. The compensation plan will be periodically updated during check survey and finalization of tower location (refer **Annexure - 21** for contents of CPTD).

#### **C. Output**

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

## **7.4 Approval**

78 Environment and social management steps are initiated during approvals stage of project cycle. The Detail Project Report including the EAMP, after recommendation of internal management, is forwarded to State Govt. and funding agency (if applicable) for concurrence and budget allocation/funding. Procedure of forest clearance (If needed) is initiated by submitting forest proposal to concerned authority. If land acquisition is involved, request/indent for the same is to be placed to State Government as per RFCTLARRA, 2013 (The process of acquisition would not be

initiated unless RFCTLARRA, 2013 is approved by State Legislature). During this stage, following activities are undertaken:

- Forest Clearance for land under FCA 1980
- State Government Approval
- Social Impact Management Plan (SIMP) for substation
- Funding Agency Concurrence/Acceptance (if applicable)

#### **7.4.1 Forest Clearance**

##### **A. Objectives**

- To obtain forest clearance from MoEF

##### **B. Process**

- DPN submits a forest proposal request through online on MoEF forest clearance web portal (<http://forestclearance.nic.in>). The forest proposal is processed only after the NoC is obtained from the village council for lines passing through village council owned forest. On receiving the request Nodal Officer (NO) after scrutiny forward the same to concerned Divisional Forest Officer (DFO) for assessment of the land proposed to be diverted for the transmission/distribution line and for formulation of proposal.
- After formulation, DFO recommend the proposal to CF (Conservator of Forests) and again send to CCF to NO and PCCF (Principal Chief Conservator of Forests) who will forward it to State Secretary of Forests and finally to MoEF.
- Forest clearance is issued in two stages Stage-I & Stage-II. Stage-I approval is conditional on DPN on depositing the cost of compensatory afforestation and Net Present Value to forest Dept. and fulfilling any other stipulated conditions. Work in forest area can be undertaken after realizing the fund by MoEF deposited towards CA & NPV by DPN. State Govt. informs MoEF about compliance of conditions and MoEF grant final approval.

##### **C. Output**

- Forest clearance from MoEF

#### **7.4.2 State Government Approval**

##### **A. Objectives**

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



## **B. Process**

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

## **C. Output**

- Approval of State Govt. for the project

### **7.4.3 Social Impact Management Plan (SIMP) for substation (*if applicable*)**

#### **A. Objectives**

- To prepare SIMP by State Government

#### **B. Process**

- On confirmation of the scheme, the DPN 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 GoN. 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 GoN is described below.

##### **1. *Establishment of Institutions***

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

- The State Social Impact Assessment Unit;
- The office of the Commissioner Rehabilitation & Resettlement;
- The State Level Monitoring Committee;

For a particular project, the following bodies will be established

- The Expert Group to appraise the SIA;
- The office of the Administrator Rehabilitation & Resettlement;
- Project Level Committees.

## 2. *Social Impact Assessments*<sup>13</sup>

- State SIA Unit, after the receipt of a request from GoN, will prepare a detailed project specific Terms of Reference (ToR) for each proposed case of land acquisition,
- Based on the nature and extent of the work involved, costs involved are decided and require to depositing the same with the Unit.
- SIA Unit deploys an external professional agency (or individuals) for the conduction of SIA.
- The first step in the SIA will involve building up a detailed understanding of the proposed project and reviewing its stated public purpose. The project should be screened to ensure that it meets the cause of “public purpose”.
- The SIA shall conduct a detailed land assessment, list out accurately the number of PAPs, socio-economic as well as cultural profile of the PAPs as well as that of their environ, and asses the nature and extent of impacts likely to occur as a result of the project intervention.
- Impacts are to be identified at different phases of the project cycle- planning, construction and O&M. Same time efforts are to be made on assessing: (i) direct/ indirect impacts; and (ii) differential impacts – on women, children, elderly and disabled. The latter can be done through gender impact assessments and/ or vulnerability and resilience mapping.
- Following the above assessment, a SIMP is prepared encompassing a comprehensive compensation as well as R&R entitlements in respect of each PAP.
- Formal public hearing/s will be held in the affected areas with the specific purpose of presenting the main findings of the SIA, seeking feedback on its contents, and making sure that any omissions or additional information and views are incorporated into the final documents. These hearings will be held in all the GPs and/ or Village Council whose lands are proposed to be acquired.
- Explicit consent will be required in the case of lands in respect of tribal areas from 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 GoN.

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<sup>13</sup> 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 (DPN)

### 3. *Disclosure*

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

- Village Councils, Municipal Corporation and the offices of the District Collector, Sub-Divisional Magistrate and the Tehsil;
- Published in the affected areas; and
- Uploaded on the websites of the government.

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

- Based on the SIMP, the Collector shall discuss the Package in a meeting with the Rehabilitation and Resettlement committee at project level, and submit the Package to Commissioner Rehabilitation and Resettlement along with his/ her remarks.
- The Commissioner Rehabilitation and Resettlement shall, after due vetting, accords approval to the scheme and make it available in public domain.
- After approval of R & R plan by Commissioner R & R, the Collector shall issue two awards one for land compensation based on procedures described in act & State's rules and second for R & R as per approved SIMP.

### 5 *Special Provisions for SCs/STs*

As far as possible, no acquisition of land shall be made in the Scheduled Areas and where such acquisition take place it shall be done only as a demonstrable last resort. In addition to the R&R package, SC/ST families will be entitled to the following additional benefits;

- One time financial assistance of Rs. 50,000 per family;
- Families settled outside the district shall be entitled to an additional 25% R&R benefits;
- Payment of one third of the compensation amount at very outset;
- Preference in relocation and resettlement in area in same compact block;
- Free land for community and social gatherings;
- In case of displacement, a *Development Plan is to be prepared*
- Continuation of reservation and other benefits of Schedule V and Schedule VI area from displaced area to resettlement area

## **C. Output**

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

#### **7.4.4 Funding Agency Concurrence/Acceptance (if applicable)**

##### **A. Objectives**

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

##### **B. Process**

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

##### **C. Output**

- Acceptance/concurrence of funding agencies

#### **7.5 Detailed Design & Tendering**

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

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

#### **7.6 Project Implementation**

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

- Execution of EMP & EAMP
- Execution of CPTD

##### **7.6.1 Execution of EMP & EAMP**

##### **A. Objectives**

- To undertake environmental management works

##### **B. Process**

- EAMP (IEAR) is implemented taking into account appropriate working clearance & ROW (by cutting/ felling/pruning trees etc. and other measures identified in clearance). Forest dept. undertakes CA Scheme.

- Other mitigation measures enlisted in EMP are executed by DPN and Contractor.
- DPN shall initiate the process (for WB funded projects) and prepare a Final Environmental Assessment Report (FEAR) (refer **Annexure -22** for contents of FEAR).

### **C. Output**

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

## **7.6.2 Execution of CPTD**

### **A. Objectives**

- To carryout social management works as prescribed in CPTD

### **B. Process**

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

### **C. Output**

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

## **7.6.3 Execution of SIMP (if applicable)**

### **A. Objectives**

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

### **B. Process**

80 The execution of the SIMP is the responsibility of the GoN. However, the following process is to be facilitated by DPN:

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

### **C. Output**

- Possession of land

## **7.7 Operation and Maintenance (O&M)**

81 The environment & social works undertaken in earlier phase of project cycle are monitored in this period

### **7.7.1 Environmental Monitoring**

#### **A. Objectives**

- To monitor work undertaken as part of EAMP

#### **B. Process**

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

#### **C. Output**

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

### **7.7.2 Social Monitoring:**

#### **A. Objectives**

- To monitor work undertaken as part of CPTD & SIMP

#### **B. Process**

- CPTD implementation.
- If land acquisition is involved, DPN (as member of State R & R committee) monitored SIMP implemented by GoN as per the provisions of RFCTLARRA,2013

#### **C. Output**

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

## **7.8 Review**

- Circle office of DPN shall monitor and review of E&S activities of the Transmission and Distribution project on monthly basis along with field office.

- The implementation/performance of environmental and social management measures along with other project works shall be reviewed by DPN initially every quarter for a period of at least 1 (one) year as this ESPP will be inducted in its functioning first time in implementation of DPN's Transmission/ Distribution Project.
- DPN 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.

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



Milestones	Objectives	Process	Responsibility	Product/Decision
		<ul style="list-style-type: none"> <li>➤ Undertake environmental review and formulate appropriate management measures</li> </ul> c. Public Consultation <ul style="list-style-type: none"> <li>➤ To inform/record public views for refinement / review if needed</li> </ul>		Management Measures <ul style="list-style-type: none"> <li>➤ Views of Public</li> </ul>
3.Social Assessment for Temporary Damages for TL	<ul style="list-style-type: none"> <li>▪ To prepare Compensation Plan for Temporary Damages(CPTD)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Undertake assessment of land area likely to be affected by putting up tower and line and extent of damages during foundation, erection &amp; stringing works.</li> <li>▪ Formulate appropriate management plan to minimize impact and prepare compensation plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Circle office</li> <li>▪ Field office</li> <li>▪ Authorised Agencies</li> </ul>	<ul style="list-style-type: none"> <li>▪ CPTD               <ul style="list-style-type: none"> <li>➤ Social review</li> <li>➤ Management measures</li> <li>➤ Compensation plan</li> </ul> </li> </ul>
<b>III. Project Approvals</b>				
1.State Govt.	<ul style="list-style-type: none"> <li>▪ To obtain project approval from GoN</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submit DPR (with EAMP and Social Screening and Scoping details) to Planning Dept./GoN for their review</li> </ul>	<ul style="list-style-type: none"> <li>▪ ESMU</li> <li>▪ Engg. Dept.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project approved by State Govt.</li> </ul>
2.Financial Agency's Acceptance	<ul style="list-style-type: none"> <li>▪ To obtain acceptance from FA for environmental &amp; social components of Concept Paper or IEAR &amp; CPTD</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submit DPR along with IEAR and CPTD to Financial Agency for acceptance</li> </ul>	<ul style="list-style-type: none"> <li>▪ ESMU</li> <li>▪ EnggDept</li> </ul>	<ul style="list-style-type: none"> <li>▪ Acceptance/concurrence by FA</li> </ul>
3.Forest Clearance	<ul style="list-style-type: none"> <li>▪ To obtain Forest Clearance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submit forest proposal to concerned authority.</li> <li>▪ Forest Proposal to MoEF for conditional approval after recommendation by GoN</li> <li>▪ Forward Compliance report by GoN to MoEF for Final Forest Clearance</li> </ul>	<ul style="list-style-type: none"> <li>▪ ESMU</li> <li>▪ Site office</li> <li>▪ Circle office</li> </ul>	<ul style="list-style-type: none"> <li>▪ Final Forest Clearance by MoEF</li> </ul>
<b>IV. Detailed Design &amp; Award</b>				
1.Environment Assessment and Social Management Measures	<ul style="list-style-type: none"> <li>▪ To appoint a suitable agency to implement IEAR/CPTD , if required</li> </ul>	<ul style="list-style-type: none"> <li>▪ Select and appoint suitable agency for IEAR/CPTD implementation, if required</li> </ul>	<ul style="list-style-type: none"> <li>▪ ESMU</li> <li>▪ Circle office</li> <li>▪ Site office</li> </ul>	<ul style="list-style-type: none"> <li>▪ Agency appointed for IEAR/CPTD</li> </ul>
	<ul style="list-style-type: none"> <li>▪ To include EMP part of bidding/contract document for implementation by contractor</li> </ul>	<ul style="list-style-type: none"> <li>▪ EMP included in bidding /contract document</li> </ul>	<ul style="list-style-type: none"> <li>▪ ESMU</li> <li>▪ Circle office</li> <li>▪ Site office</li> </ul>	<ul style="list-style-type: none"> <li>▪ EMP part of contract document</li> </ul>
<b>V. Project Implementation</b>				
1.Execution of Environmental	<ul style="list-style-type: none"> <li>▪ To undertake environmental management work as prescribed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Execute environmental management works               <ul style="list-style-type: none"> <li>➤ Appropriate clearance for transmission line ROW,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Circle office</li> <li>▪ Authorised</li> </ul>	<ul style="list-style-type: none"> <li>▪ Environmental management measures</li> </ul>

Milestones	Objectives	Process	Responsibility	Product/Decision
Management Works	in environmental assessment management plan	<ul style="list-style-type: none"> <li>etc.</li> <li>➤ Compensatory Afforestation</li> <li>➤ EMP by contractor</li> </ul>	<ul style="list-style-type: none"> <li>Agency</li> <li>▪ Field office</li> <li>▪ Contractors</li> </ul>	executed
	▪ Preparation of Final Environment Assessment Report(FEAR), If required (for WB funded project)	<ul style="list-style-type: none"> <li>▪ Compliance to mitigation measures listed in <ul style="list-style-type: none"> <li>➤ IEAR</li> <li>➤ EMP</li> <li>➤ Forest clearance</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Circle office</li> <li>▪ Authorised Agency</li> <li>▪ Field office</li> <li>▪ Contractors</li> </ul>	▪ FEAR for FA
2.Execution of CPTD for TL & SIMP for Substation	▪ To undertake social management work as prescribed in CPTD	<ul style="list-style-type: none"> <li>▪ Transmission lines <ul style="list-style-type: none"> <li>➤ Pay compensation in consultation with Revenue Authority and affected persons as agreed &amp; documented in CPTD and execute other measures</li> </ul> </li> <li>▪ Sub-stations <ul style="list-style-type: none"> <li>➤ Deposit cost for land and R &amp; R measures as per award</li> <li>➤ Transfer of compensation money to affected persons a/c</li> <li>➤ Possession of land</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ ESMU</li> <li>▪ Circle office</li> <li>▪ External Agency</li> <li>▪ Field Office</li> <li>▪ DPN</li> </ul>	<ul style="list-style-type: none"> <li>▪ Social management measures executed</li> <li>▪ Possession of land</li> </ul>
<b>VI. Operation &amp; Maintenance</b>				
1.Environmental & Social Monitoring	▪ To monitor work being undertaken as part of EAMP, CPTD & SIMP	<ul style="list-style-type: none"> <li>▪ Monitor EAMP measures <ul style="list-style-type: none"> <li>➤ Maintenance of ROWs</li> <li>➤ Progress on compensatory afforestation</li> <li>➤ Compliance to EMP as per schedule</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Circle office</li> <li>▪ Field office</li> </ul>	▪ Periodic monitoring reports
		<ul style="list-style-type: none"> <li>▪ Monitor CPTD measures <ul style="list-style-type: none"> <li>➤ Appropriate compensation and other measures during maintenance of towers and lines</li> </ul> </li> <li>▪ Monitor SIMP measures undertaken by State Government as per RFCTLARRA, 2013(If land acquisition involved)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Circle office</li> <li>▪ Field office</li> <li>▪ Circle office</li> <li>▪ Field office</li> </ul>	
<b>VII. Project Review</b>				
• 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	<ul style="list-style-type: none"> <li>▪ Circle office</li> <li>▪ Head office</li> </ul>	▪ Annual environmental and social review report

## **7.9 Risk Management Framework**

83 Environmental and Social Risk Assessment is a vital part of DPN'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 DPN evaluate these risks, both qualitatively and quantitatively, and prioritize them. Based on prioritization, environment and social management options are selected.

84 DPN'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

85 DPN, based on its environmental and social risk assessment process, decides on management options to eliminate or minimizes environmental and social impacts. The risk management process includes risk preparedness, risk mitigation and the sharing of liabilities (via Internal Arrangements and Insurance). Responsibilities in the event of occurrence of a risk have been illustrated in **Table 7-2.**

### **Internal Arrangement**

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

### **Via Insurance**

87 To share risk, DPN 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: DPN’S RISK RESPONSIBILITY FRAMEWORK**

Risk	Key Role-players			
	GoN	DPN	Contractor	Insurers
Non Compliance Regulatory <sup>14</sup> Contractual <sup>15</sup>	✓ - -	✓ - -	✓ ✓ -	- - -
Major hazards, e.g. tower fall during construction	-	✓	✓	✓
During O&M	-	✓	-	-
Impacts on health <sup>16</sup> etc.	-	✓	-	-
Force Majeure Insurable Non-Insurable	- ✓ -	- ✓ -	- - -	✓ - -
Inclusion/ Exclusion of concerned Communities	✓	✓	-	-
Public interest mitigation	✓	✓	-	-

<sup>14</sup> Regulatory like working in forest/protected areas without statutory clearances.

<sup>15</sup> Contractual like noncompliance of condition of clearance like fuel supply to labourer to avoid tree felling, no-work during night times, etc.

<sup>16</sup> Impact of health like any case of prolonged exposure to Electro-Magnetic Field (EMF).

## 8. Implementation Arrangements

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

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

### 8.1 Administrative Arrangement for Project Implementation

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

### 8.2 Review of Project Implementation Progress:

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

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

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

### **8.3 Implementation Arrangement for Environment & Social Management by DPN**

92 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 kilometers transmission lines in the country and abroad. POWERGRID is also leader in development and subsequent implementation of ESPP in the country. The service of POWERGRID's trained and experience personnel shall be utilized for training and establishment of institutional framework of DPN. Moreover, successful implementation of provision of ESPP requires involvement and support of higher officials of DPN who shall regularly monitor/review E & S aspects of transmission and distribution project.

### **8.3.1 Organizational Requirements**

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

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

94 DPN's commitment to the ESPP is evolved along these principles. To ensure effective implementation of its ESPP, DPN will focus on:

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

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

### 8.3.2 Organizational Structure and Responsibilities

96 An appropriate organizational structure shall have to be developed at the Head Office, Circle Office and site level to help effective implementation of the ESPP document. The organizational flowchart of DPN for the ESPP is given in **Figure 8 1** and **Table 8 1**.

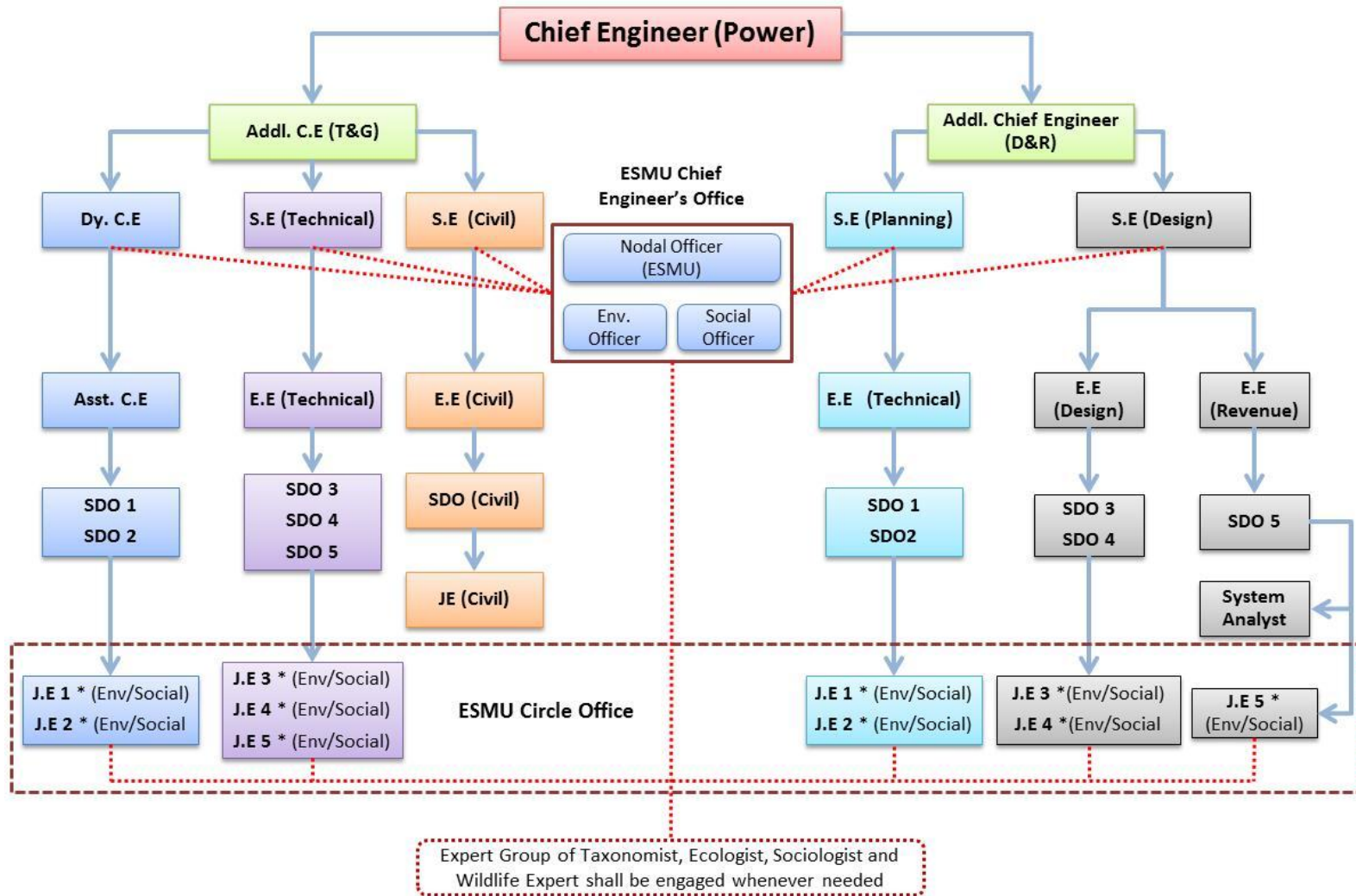
97 At the Head office level, an Environment and Social Management Unit (ESMU) will be formed under SPIU headed by Addl. Chief Engineer. However, other departments like planning , design deptt. shall extend help for the successful implementation of ESPP in DPN functioning. The key responsibilities of ESMU will include:

- Coordinating environmental and social commitments and initiatives with various multilateral agencies, GoN and MoEF.
- Coordination of all environmental activities related to a project from conceptualisation to operation and maintenance stage.
- Advising and coordinating site offices to carry out environmental and social surveys and route alignment for new projects.
- Advising circle/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.

98 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 DPN**



\* Through redeployment of personnel after due training with dual responsibility in the initial stage

**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
<b>I. Project Conceptualisation</b>						
Environmental & Social Screening and Scoping for TL/ D 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. ESMU	DPN Appraisal	Pre-appraisal by Planning Dept., GoN
Environmental & Social approval	Submit Concept paper (with E&S details) for Approval	DPN Appraisal	ESMU Planning Dept.	ESMU Engg. Dept. Planning Dept.	DPN Appraisal	In-principle approval by GoN
<b>II. Project Planning</b>						
Environmental & Social Screening and Scoping for substations	<ul style="list-style-type: none"> <li>Screen and scope substations sites from an environmental &amp; social perspective</li> <li>Consultation with Revenue Authorities</li> </ul>	<ul style="list-style-type: none"> <li>E &amp; S Screening and Scoping reports for substation sites</li> <li>Scope for land acquisition</li> </ul>	Site office ESMU	ESMU Engg. Dept. Planning Dept.	DPN Approval	Ext. agency like revenue, forest dept etc. for Social Screening & Scoping
Environmental Assessment and Management Planning	To prepare EAMP <ul style="list-style-type: none"> <li>TL/Distribution line</li> <li>Substations</li> <li>Public Consultation (line)</li> </ul>	Environmental/ Assessment Management Plan	ESMU Site office	ESMU	DPN Approval	State Forest Dept.
Social Assessment for Temporary Damages for TL	To prepare CPTD <ul style="list-style-type: none"> <li>Assessment of temporary damages</li> <li>Compensation plan</li> <li>Public consultation</li> </ul>	Compensation Plan for Temporary Damages (CPTD)	ESMU Site office	ESMU	DPN Approval	Revenue Dept.

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

Milestones	Process	Output / Indicators	Responsibility			
			Internal			External
			Preparation /Execution	Review	Approval	Preparation
<b>VI. Operation &amp; Maintenance</b>						
Environmental & Social Monitoring	Monitor EAMP &CPTD (TL/DL) measures	Periodic monitoring reports	ESMU Site Office	ESMU Circle office	DPN Approval	Periodic monitoring report
	Monitor SIMP Measures by SIA/GoN	Periodic monitoring reports (SIA)	Site office SIA/GoN	O&M circle office	SIA/GoN	Periodic monitoring reports
<b>VII. Project Review</b>						
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	Planning Dept. Engg. Dept Fin. dept	DPN Approval	FA appraisal GoN

## 9. Training & Capacity Building

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

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

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

**TABLE 9-1: DPN’S SKILL REQUIREMENT**

Milestones	Environment and Social Management Unit (ESMU) at Circle office	Engineering Department	Planning Department	Field office
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
Environmental & Social approval			EA & SA process ESPP & project cycle FA requirement E&S mgmt. Techniques	
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
Environmental Assessment and Management Planning	EA process EM techniques Risk assessment Forest proposal process Comp. afforestation process	EA process EM techniques		EA process EM techniques Risk assessment Forest proposal process Comp. afforestation process
Forest Clearance	Forest proposal process Compensatory afforestation process	Forest clearance process		Forest proposal process Compensatory afforestation process
GoN Approvals	FA requirements Awareness of Central/State laws,		Central and Ext. FA requirements	

Milestones	Environment and Social Management Unit (ESMU) at Circle office	Engineering Department	Planning Department	Field office
	policies on environment and social aspects		Awareness of Central/State laws, policies on environment and social aspects	
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	
Social Assessment for Temporary Damages	SA process, Public consult skills SM process	SA process SM techniques		SA process, Public consult skills SM process
Concurrence of FA for CPTD /SIMP			GoI/GoN& Ext. FA requirements Awareness of GoI/GoN laws, policies on env. and social aspects	
Consultation for IEAR/CPTD works	Skill to assess Consultation capabilities to meet IEAR/ CPTD			
Execution of EAMP works	EM techniques Compensatory Afforestation process	EM process		EM techniques Compensatory Afforestation process
Execution of CPTD	SM process SM techniques	SM process		SM process SM techniques
Monitoring	Monitoring Techniques			Monitoring techniques
Annual E & S Review	Review process			

**TABLE 9-2: STAFF DEVELOPMENT PROGRAMME**

Course	Training Schedule	Duration Of Programme	For Awareness/ Orientation and for Training of Staff	Department
ESPP Policy Contents of ESPP How DPN will implement the ESPP	Workshop	1/2 day or 1 day	All Senior staff (Chief Engineer, Additional Chief Engineer, Superintending Engineer, Executive Engineer 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	ESMU Engg. Dept. Planning Dept. Legal Dept. Fin. Dept.
RFCTLARRA, 2013 SIA R & R Planning Public consultation	Workshop	2 days	Interface with State Govt. Agencies like SIA, R & R Commissioner and External Expert	
ESPP Project cycle EA&SA process Env. & Soc. issue identification Public consultation Risk Assessment & Management EAMP &CPTD	Training Programme	3 days	Proposed ESPP Team and relevant staff	ESMU/Circle office Site/Field Officials



## 10. Grievance Redressal Mechanism (GRM)

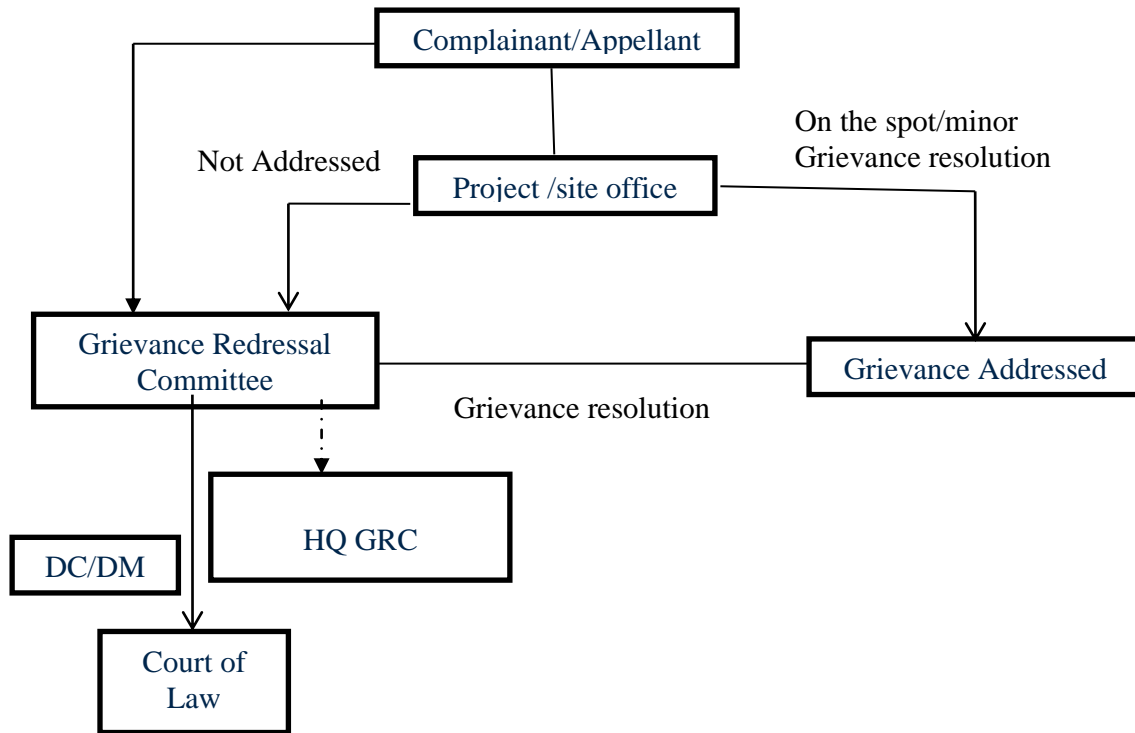
101 GRM is an integral and important mechanism for addressing/resolving the concern and grievances in a transparent and swift manner. Many minor concerns of peoples are addressed during public consultation process initiated at the beginning of the project and broadly outlined in **Annexure-23**. For handling grievance, DPN shall establish Grievance Redress Committee (GRC) at two places, one at the project/scheme level and another at Head Quarter (HQ) level. The GRCs shall include members from DPN, Local Administration, Village Panchayat Members, Affected Persons representative and reputed persons from the society and representative from the autonomous districts council in case of tribal districts selected/decided on nomination basis under the chairmanship of project head. The GRC is aimed to provide a trusted way to voice and resolve environment & social concerns of the project, and to address affected person/community concerns in a time bound manner without impacting project implementation. The composition of GRC shall be disclosed in villages/their councils office and concerned district headquarter for wider coverage.

102 The complainant will also be allowed to submit its complaint to local project official who will pass it to GRC immediately but not more than 5 days of receiving such complaint. The first meeting of GRC will be organized within 15 days of its constitution/disclosure to formulate procedure and frequency of meeting. However, GRC meeting shall be convened within 15 days of receiving a grievance for its solution. GRC endeavor will be to pronounce its decision/ may also refer it to GRC at HQ for solution within 30-45 days of receiving grievances. In case complainant/ appellants is not satisfied with the decision of GRC they can approach DPN HQ Level Committee /District Collector or Court of law for solution.

103 The Field /Site Office shall keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome.

104 The HQ level GRC shall function under the chairmanship of Chief Engineer who will nominate other members of GRC including one representative from corporate ESMU who is conversant with the environment & social issues. The composition of HQ level GRC shall be communicated to all project head who is also the chairman of project level GRC. The meeting of HQ GRC shall be convened within 7-10 days of receiving the reference from project GRC or complainant directly and pronounce its decision within next 15 days. The flow chart showing Grievance Redressal Mechanism is presented in **Figure 10.1**.

**Figure 10.1: FLOW CHART SHOWING GRIEVANCE REDRESSAL MECHANISM**



*Complainant/Appellant can approach only the Court of Law directly during ongoing Grievance Redressal process.*

105 The above referred GRCs are meant to act as supplement/ complement and in no way substitute the legal systems, especially embedded within RFCTLARR Act 2013, The Electricity Act, 2003, and Right to Information Act.

## 11. Monitoring & Evaluation

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

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

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

**TABLE 11.1: MONITORING INDICATOR**

Sl. No.	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
<b>1</b>	Pre-Construction	Tower Location and Line alignment w.r.t. Distances from; <ul style="list-style-type: none"> <li>• Set back from nearest dwellings or social institutions</li> </ul>	Once - at time of detailed siting and alignment survey and design	DPN

Sl. No.	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
		<ul style="list-style-type: none"> <li>• Water bodies</li> <li>• Agricultural land</li> <li>• Ecological protected area</li> <li>• Reserved forests</li> <li>• Elephant corridors/Bird's Migratory Paths</li> <li>• Flood Zone</li> </ul>		
		Exclusion of PCB in transformer	Once – As part of tender specification	DPN
		Exclusion of CFC in electrical or other equipment	Once – As part of tender specification	DPN
		EMF strength	Once – part of detailed alignment survey	DPN
		Noise level from Substation	Once – built in design criteria and specified in tender	DPN
		Sewage disposal system	Once – in tender specification	DPN
		Oil spill containment provision & spill cleanup	Once – Built in product specification	DPN
2.	Planning/ Approval /Construction	Government Clearances	Once for each subproject	DPN
		Fire prevention and fire protection equipment monitoring	Once – in tender specification	DPN
		Crop/tree disturbance during construction	Periodically when required	DPN
		Noise during construction	Once – during construction machinery specification or SOS	DPN assigned contractor
		Availability of land for Substation (New) <ul style="list-style-type: none"> <li>✓ Method of acquisition</li> <li>✓ SIA start/ disclosure date</li> <li>✓ Expert group recommendation</li> <li>✓ No. of PAPs</li> <li>✓ Date of Award               <ul style="list-style-type: none"> <li>➤ Compensation</li> <li>➤ R &amp; R</li> </ul> </li> <li>✓ Payment of Compensation</li> <li>✓ Implementation of R&amp;R plan (SIMP)</li> </ul>	Periodic monitoring as per provisions RFCTLARRA, 2013	GoN and DPN

Sl. No.	Project Activity/ Stage	Monitoring Indicator	Frequency	Responsibility
		Compensation for temporary loss of, trees/ crops. Monitoring of CPTD <ul style="list-style-type: none"> <li>➤ Number of APs</li> <li>➤ Date of issuance of Notice</li> <li>➤ Determination of compensation</li> <li>➤ Compensation Amount</li> <li>➤ Compensation paid</li> </ul>	Once a month/quarter – Based on consultation with PAP	DPN
		Air borne dust emissions during construction	Every two weeks	DPN assigned contractor
		Vegetation marking and clearance	Every two weeks – strictly limited to target vegetation	DPN assigned contractor
		Trimming and cutting of trees in ROW	Once per site – Identification of presence of target species with height following vegetation clearance plan	DPN assigned contractor
		Disposal of cleared vegetation	Once per site – as approved by statutory authorities	DPN assigned contractor
		Health & safety of workers	Once in quarter	DPN assigned contractor
		Disposal of excavated soil	Every 2 weeks	DPN assigned contractor
<b>3</b>	Operation and Maintenance	Effectiveness of Training programs and plan	Once a year	DPN
		Implementation of SIMP (other development works, infrastructure facilities etc.) within 15-18 months of possession of land.	Periodic monitoring as per provisions RFCTLARRA, 2013	DPN (being a member of State R & R committee)
		Implementation of CPTD	Periodically when required	DPN
		Compliance with transmission tower setback conditions	Once in quarter	DPN
		Maintenance of ground clearance to comply with limits of EMF	Once	DPN
		Noise levels at boundary nearest to substations	Once a year	DPN

## **12. Budget**

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