COMPENSATION PLAN FOR TEMPORARY DAMAGES (CPTD)

FOR

T & D NETWORK IN IMPHAL WEST, SENAPATI & BISHNUPUR DISTRICTS, MANIPUR

Prepared By

Environment and Social Management

POWER GRID CORPORATION OF INDIA LTD.

For

Manipur State Power Company Limited (MSPCL)

MANIPUR-1/CPTD/R0/2019 **NOVEMBER, 2019**

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LIST OF ABBREVIATIONS

ADC	:	Autonomous District Council
AP	:	Affected Person
CEA	:	Central Electricity Authority
Ckt-Km	:	Circuit-kilometer
CGWB	:	Central Ground Water Board
CP	:	Compensation Plan
CPTD	:	Compensation Plan for Temporary Damages
CPIU	:	Central Project Implementation Unit
CRM	:	Contractor Review Meeting
DC	:	District Collector
D/c	:	Double Circuit
DL	:	Distribution Line
DM	:	District Magistrate
DMS	:	Distribution Management System
EHV	:	Extra High Voltage
EHS	:	Environment Health & Safety
EMP	:	Environment Management Plan
E&S	:	Environmental & Social
ESPP	:	POWERGRID's Environmental and Social Policy & Procedures
ESPPF	:	MSPCL's Environmental and Social Policy & Procedures Framework
GoI	:	Government of India
GRC	:	Grievance Redress Committee
GRM	:	Grievance Redress Mechanism
Ha	:	Hectare
HPC	:	High Powered Committee
IA	:	Implementing Agency
INRs	:	Indian National Rupees
IP	:	Indigenous People
IR	:	Involuntary Resettlement
JCC	:	Joint Coordination Committee
kV	:	Kilo volt
Km	:	Kilometer
LA	:	Land Acquisition
MCM	:	Million Cubic Meter
MoP	:	Ministry of Power
MSPCL	:	Manipur State power Company Limited
M&E	:	Monitoring and Evaluation
NoC	:	No Objection Certificate
NER	:	North Eastern Region
NERPSIP	:	North Eastern Region Power System Improvement Project
O&M	:	Operation and Maintenance
OP	:	Operational Policy
PAP	:	Project Affected Person
POWERGRID	:	Power Grid Corporation of India Limited
PPIU	:	PMC Project Implementation Unit
RFCTLARRA	:	The Right to Fair Compensation and Transparency in Land, Acquisition, Rehabilitation and Resettlement Act, 2013
RoW	:	Right of Way
RP	:	Resettlement Plan
R&R	:	Resettlement and Rehabilitation

S/c	:	Single Circuit
SC	:	Scheduled Caste
Sq.M.	:	Square Meters
SMF	:	Social Management Framework
SPCU	:	State Project Coordination Unit
ST	:	Scheduled Tribe
T & D	:	Transmission & Distribution
TL	:	Transmission Line
USD	:	United States Dollar
WB	:	The Word Bank

GLOSSARY

Regional Council/Autonomous District Council/ Village Council	:	An autonomous body/institution formed under the provisions of 6th Schedule of Constitution of India which provides tribal people freedom to exercise legislative, judicial, executive and financial powers.
Village Headman	:	Elected head of the Village Council
Zila/District	:	It is the first administrative division at the State level.
Sub-division	:	A revenue sub-division, within a district
Block	:	An administrative sub-division within a district
Panchayat		The third tier of decentralized governance

EXECUTIVE SUMMARY

i. The Compensation Plan for Temporary Damages (CPTD) has been prepared for Transmission & Distribution (T & D) network in Imphal West, Senapati & Bishnupur districts of Manipur state under the North Eastern Region Power System Improvement Project (NERPSIP) which is being funded by Govt. of India (GoI) and the World Bank (WB). The Implementing Agency (IA) is Power Grid Corporation of India Limited (POWERGRID). The present CPTD is based on the Environmental and Social Policy & Procedures Framework (ESPPF) of Manipur State Power Company Limited (MSPCL).

ii. The project component includes construction of 34.035 km of 132 kV transmission lines & 23.152 km of 33 kV distribution lines with associated substations in Imphal East, Churachandpur, Thoubal & Tamenlong districts of Manipur State. The present CPTD has been prepared based on the detailed survey/ investigation. However, the temporary impacts on land and loss of crops/trees occurred only during the project implementation/construction. Therefore, the CPTD remains as draft, as actual temporary impacts on crop/tree including details of Affected Persons (AP) shall be ascertained during check survey and tower spotting once the construction contractor is mobilized for implementation MSPCL / POWERGRID[1] provide compensation for actual damages after assessment by revenue authority. Check survey is done progressively during the construction of the transmission/distribution line. Normally the work is done in off season when there is no standing crop. The compensation for damage is assessed in actual after construction activities of transmission lines in three stages i.e. after completion of foundation, tower erection and conductor stringing. The payment of compensation is also paid in three instances, if there are damages during all the above three stages. Assessment of damages at each stage and subsequent payment of compensation is a continuous process. Hence, CPTD updating will also be a continuous process during construction and updated data on APs shall be disclosed through semi-annual E & S monitoring report submitted by MSPCL/POWERGRID.

iii. The project components under the scope of present CPTD include following transmission/ distribution lines and associated substations;

Sr. No	Name of Sub-projects	New / Existing Substation

[1] *For the purpose of CPTD, MSPCL and POWERGRID may be referred as SPCU and PPIU respectively. For further details, please refer Chapter - VII Institutional arrangements.*

A. Transmission Scheme		
1	Imphal (PG) - Ningthoukhong 132kV D/C line - 32.525 km	Extension of 132/33 kV Imphal (PG) substation
2	LILO of Yurembam (Imphal-State) - Karong at Gamphajol - 1.51 km	Extension of 132/33 kV Ningthoukhong substation
		Establishment of 2x20 MVA, 132/33 kV New substation at Gamphajol
		Extension of 132/33 kV Yaingangpokpi substation
B. Distribution Scheme		
3	Pishum - Mongsangei 33 kV line– (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line) – 0.25 km.	33/11kV substation(New) at Pishum (GIS)
4	LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line) – 4.781 km	33/11 kV substation (New) at Hiyangthang
5	Iroisemba- Takyel 33 kV line – 5.1 km	33/11 kV substation (New) at Takyel
6	LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line) – 6.294 km	33/11 kV substation (New) at Kwakta
7	Nambol – Leimapokpam 33 kV line – 6.727	33/11kV substation (New) at Leimapokpam

iv. As per existing law, land for tower/pole and right of way is not acquired[2] and agricultural activities are allowed to continue after construction activity. Land requirements for erecting tower for 132 kV transmission lines are quite minimal and require placing of four legs which need an area of 4 to 6 sq.ft. Thereby, the actual impact is restricted to these 4 legs and some constraints in area coming in between these 4 legs of the tower. Further, line alignments are done in such a way so as to avoid settlements, structures etc. Hence, no relocation of affected persons on account of Transmission Line (TL) is envisaged. Most of the impacts are temporary in nature of loss of standing crops/ trees and other damages for which compensation will be paid to the affected persons including cost of land for tower base and corridor area to its owner without acquisition or transfer of title as per Govt. of Manipur notification dated 28.03.18 and Entitlement matrix as defined in ESPPF.

[2] *As per the present provision in the Electricity Act, 2003 read with relevant provisions of Indian Telegraph Act, 1885 all the damages without acquisition of subject land) accrued to person while placing the tower and line are to be compensated.*

v. For the temporary loss of crops, only agricultural land and private plantation land are considered for estimation. Though Right of Way (RoW) for 132 kV & 33 kV line are 27 meter & 15 meter respectively but average affected width/corridor would be limited to maximum 20 meter for 132 kV & 10 meter for 33 kV line. Accordingly, actual impacted area for crops and other damages worked out to be approx. 209.47 acre. Total number of trees to be affected is 56. Private trees will be compensated in cash as per the entitlement matrix. The total number of affected persons is estimated to be 437.

vi. Public participation and community consultations have been taken up as an integral part of the project's social and environmental assessment process. Public is informed about the project at every stage of execution. During survey also MSPCL & POWERGRID's site officials meet people and informed them about the routing of transmission/distribution line. During the construction, every individual, on whose land tower is erected and people affected by RoW, are consulted. There were many informal group and public consultation meetings conducted during survey of the entire routes of transmission lines and substation sites. The process of such consultation will be continued during project implementation and even during Operation & Maintenance (O&M) stage. The draft/ summary CPTD will be disclosed to the affected households and other stakeholders by placing it on website. To maintain the uninterrupted communication channel, MSPCL & POWERGRID's site officials are meeting APs and inform about norms and practices of damage assessment and compensation thereof. For wider circulation executive summary of the CPTD and Entitlement Matrix will be translated in local language and placed at construction offices/ sites.

vii. Grievance Redress Mechanism (GRM) is an integral part of project implementation, operation and maintenance stage of the project. For handling grievance, Grievance Redress Committee (GRC) will be established at two places, one at the project/scheme level and another at corporate/head quarter level. The GRCs shall include members from MSPCL, POWERGRID, Local Administration, Village Panchayat Members, Affected Persons representative and reputed persons from the society and representative from the autonomous district councils selected/decided on nomination basis under the chairmanship of project head. The composition of GRC shall be disclosed in Panchayat/village council office and concerned district headquarter for wider coverage. In case of any complaint, GRC meeting shall be convened within 15 days. If project level GRC is not able to take decision it may refer the complaint to corporate GRC for solution. GRC endeavours to pronounce its decision within 30-45 days of receiving grievances. In case complainant/appellant is not satisfied with the decision of project level GRC they can make an appeal to corporate GRC for review. The proposed mechanism does not impede access to the

country's judicial or administrative remedies at any stage. Further, grievance redressal is also in built tree/crop compensation in the process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector also provides forum for raising the grievance towards any irregularity/complaint.

viii. The CPTD is based on the MSPCL's ESPPF. Being a transmission project, the relevant national laws applicable for this project are (i) The Electricity Act, 2003 (ii) The Indian Telegraph Act, 1885 and (iii) Govt of Manipur notification dated 28th March 2018 on RoW Compensation. The compensation principles adopted for the project shall comply with applicable laws and regulations of the Governments of India, MSPCL's ESPPF as well as World Bank Safeguard Policies.

ix. APs will be entitled for compensation for temporary damages to crops/ trees/ structures etc. as per the Entitlement Matrix (EM) given in E-1.Temporary damage will occur during construction of transmission lines for which compensation will be paid as per eligibility criteria of EM and other applicable norms. All APs are paid compensation for actual damages irrespective of their religion, caste and their economic status including non-title holders. However, vulnerable households are provided additional one time lump-sum assistance on recommendation of State/local Authorities. As per policy provision construction contractors shall be encouraged to hire local labor that has the necessary skills.

E-1: Entitlement Matrix

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
1.	Land area below tower base ***(#)***	Owner	85% land cost at market value as ascertained by revenue authorities or based on negotiated settlement without actual acquisition/title transfer.
2	Land coming in corridor of width of Right of Way **(#)**	Owner	15% of land cost as decided by Deputy Commissioner
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		

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
(i)	House	Titleholders	Cash compensation at replacement cost (without deduction for salvaged material and depreciation value) 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
(iii)	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
(iv)	Tribal/ Vulnerable APs	Vulnerable APs[3]	One time additional lump sum assistance not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC.

(#) Since Govt. of Manipur has adopted MoP guidelines vide notification dated 28.03.18, land compensation @85% land value for tower base and @15% land value for corridor shall be paid to affected farmers/owners

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

x. Due to inherent flexibility in routing of line, no major damages to structures or physical displacement is envisaged in transmission/distribution line. Hence, there are no adverse impacts such as permanent loss of assets, livelihood loss or physical resettlement/relocation due to project intervention. However, in case it is completely unavoidable, compensation for structures as decided by committee based on government norms and entitlement matrix shall be provided. A notice for damage is issued to APs and the joint measurement by MSPCL/ POWERGRID and APs is carried out before start of construction and same is assessed and verified by revenue official during/after construction for estimation of compensation against actual damages. Hence, compensation is paid in parallel with the construction activity of transmission/distribution line. The cost estimate for the project includes eligible compensation for loss of crops, trees and support cost for implementation of CPTD, monitoring, other administrative cost etc. The budget estimation presented in CPTD is tentative and may get revised during the course of implementation. The total indicative cost is estimated to be INR 735.99 Lakhs equivalent to USD 1.133 million.

xi. The implementation and monitoring are critical activities which shall be followed as per Implementation Chart/Schedule provided in Chapter-X. POWERGRID will be the Implementing Agency (IA) for the Project. For the day to day implementation of Project activities, PMC Project

[3] Vulnerable APs include scheduled tribes residing in scheduled areas/ physically handicapped/ disabled families etc.

Implementation Units (PPIUs) located in each participating State, has been formed including members of Utility on deputation, with its personnel being distributed over work site & working in close association with the State Project Coordination Unit (SPCU) / Central Project Implementation Unit (CPIU). PPIU report to State level “Project Manager” nominated by the Project-in-Charge of IA. The IA will have a Core team stationed at the CPIU on permanent basis and other IA officers (with required skills) will visit as and when required by this core team. This team shall represent IA and shall be responsible for all coordination with SPCU, PIU, within IA and MoP, GoI. CPIU shall also assist MoP, GoI in monitoring project progress and in its coordination with The Bank.

xi. Monitoring will be the responsibility of both MSPCL & IA. MSPCL/ POWERGRID will submit semi-annual monitoring reports on their implementation performance and submit the reports to The World Bank. If required, MSPCL/ POWERGRID will engage the services of an independent agency/ external monitor for which necessary provisions have been kept in the budget.

I. INTRODUCTION AND PROJECT DESCRIPTION

1.1. Project Background

2. Recognizing that intrastate T&D systems in the North Eastern States (NER) states have remained very weak and that there is a critical need to improve the performance of these networks, the Central Electricity Authority (CEA) developed a comprehensive scheme for the NER in consultation with POWERGRID and the concerned state governments. This scheme is intended to (a) augment the existing T&D infrastructure to improve the reliability of service delivery across all the NER states and (b) build institutional capacity of the power utilities and departments in the NER. This scheme is part of the GoI's wider efforts to develop energy resources in the NER for electricity supply within the region, to strengthen transmission networks, expand and strengthen sub-transmission systems, and extend last mile electricity connectivity to household.

3. GoI requested for World Bank's support in implementing a set of priority investments in six NER states In 2016, the World Bank (WB) has approved a loan (IBRD 470 USD Million) to the Government of India (GoI) for North Eastern Region Power System Improvement Project (NERPSIP) which aims to create a robust intrastate transmission and distribution network in all the six (6) North Eastern States including Manipur. The project being funded on 50:50 (World Bank loan: GoI) basis except the component of capacity building for Rs.89 crore, which GoI will bear entirely. The scheme is to be taken up under a new Central Sector Plan Scheme of Ministry of Power (MoP).

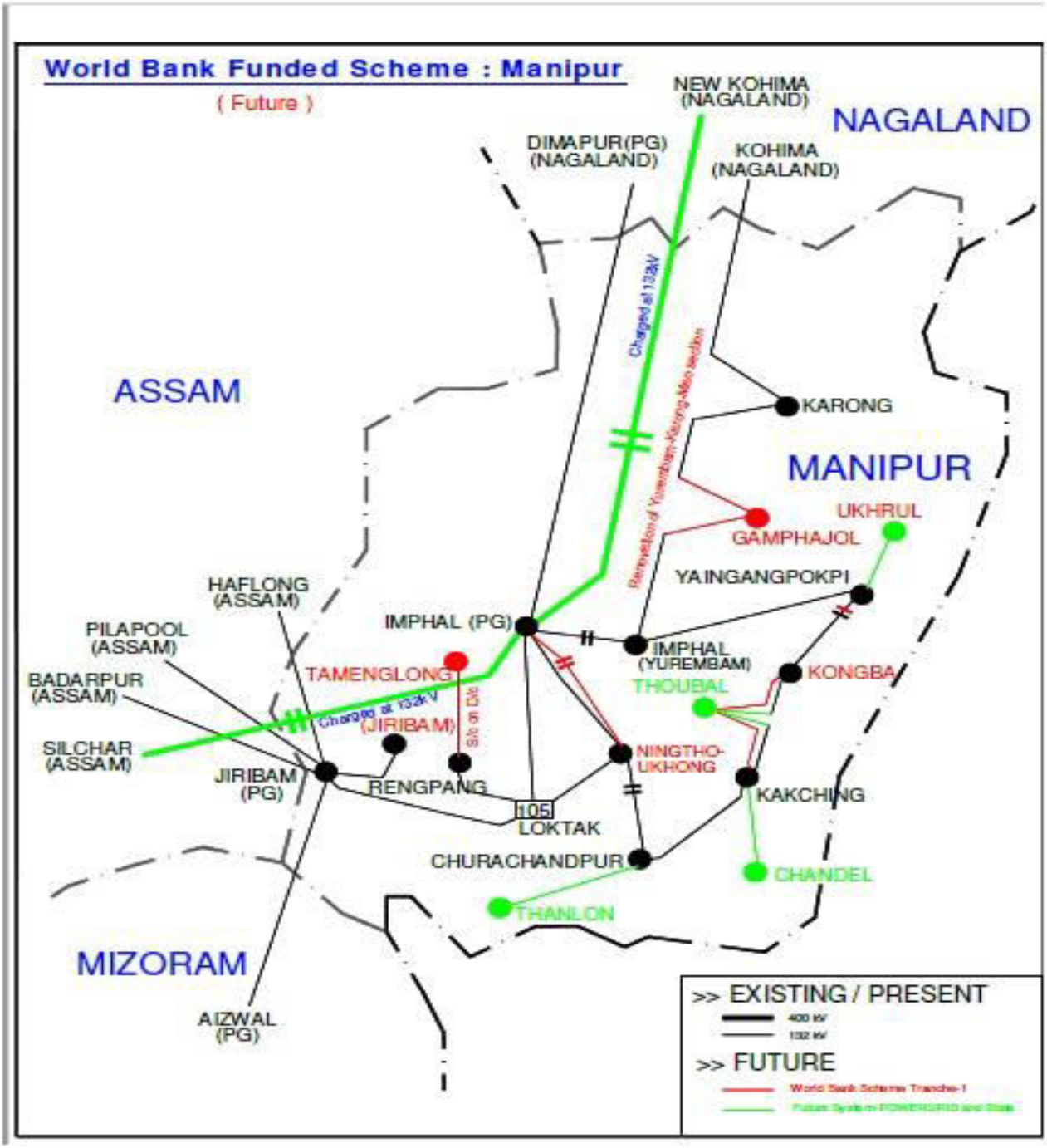
4. Ministry of Power, GoI has appointed POWERGRID as Implementing Agency (IA) to six North Eastern States for the said project. However, the ownership of the assets shall be with the respective State Utilities/State Government which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of assets.

5. The project will be implemented over a seven-year period and has two components, namely Component A: Priority Investments for Strengthening Intrastate Transmission, Sub-transmission, and Distribution Systems, and Component B: Technical Assistance for Capacity Building and Institutional Strengthening (CBIS) of Power Utilities and Departments of Participating States.

6. The scope of work under NERPSIP in state of Manipur include construction of 317 ckm of 132 kV transmission lines & associated 02 nos. substations and 111 ckm of 33 kV distribution lines & 13 nos. substation along with augmentation & strengthening of transmission and sub-transmission spread across the State. The power map of Manipur indicating the existing intra-state

transmission network along with proposed project under Tranche-1 of NERPSIP is presented in **Figure 1.1**.

Figure 1.1 : Power Map of Manipur along with proposed project



1.2. Project Components

7. The project components under the scope of present CPTD include following transmission/ distribution lines and associated Extra High Voltage(EHV) & Distribution Management System(DMS) substations proposed Imphal West, Senapati & Bishnupur Districts of Manipur State.;

Sr. No	Name of Sub-projects	New / Existing Substation
A. Transmission Scheme		
1	Imphal (PG) - Ningthoukhong 132kV D/C line - 32.525 km	Extension of 132/33 kV Imphal (PG) substation
2	LILO of Yurembam (Imphal-State) - Karong at Gamphajol - 1.51 km	Extension of 132/33 kV Ningthoukhong substation
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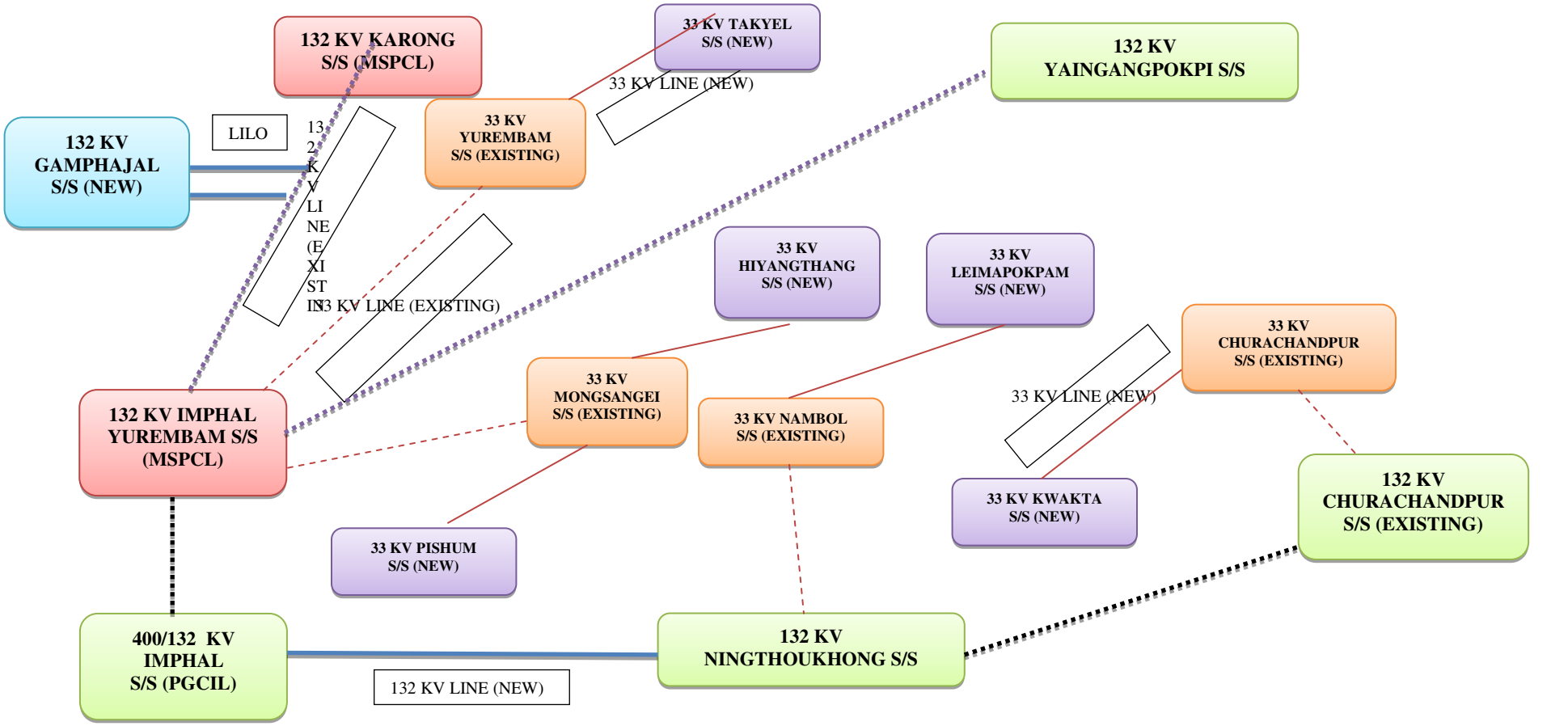
6	LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line) – 6.294 km	33/11 kV substation (New) at Kwakta
7	Nambol – Leimapokpam 33 kV line – 6.727	33/11kV substation (New) at Leimapokpam

8. The schematic diagram of proposed transmission and distribution network under Tranche-1 of NERPSIP is shown in **Figure 1.2** below:

Figure 1.2 : Proposed T & D Network in Imphal West, Senapati & Bishnupur Districts under NERPSIP



1.3. Objective of Compensation Plan for Temporary Damages (CPTD)

9. The primary objective of the CPTD is to identify impacts/damages and to plan measures to mitigate losses likely to be caused by the projects. The CPTD is based on the general findings of field visits, detailed survey and meetings with various project-affected persons in the project areas. The CPTD report include (i) introduction and project description (ii) socio-economic information and profile (iii) legal & regulatory framework (iv) project impacts,(v) entitlement, assistance and benefit (vi) information disclosure, consultation and participation (vii) institutional arrangements (viii) grievance redress mechanism (ix) budget (x) implementation schedule & (xi) monitoring and reporting.

1.4. Scope and Limitation of the CPTD

10. Based on the assessment of proposed project components and intervention well as provision of existing laws/ regulations, it has been established that no permanent land acquisition is involved and only temporary impacts on land loss and standing crops/trees are anticipated. The present CPTD has been prepared based on the detailed survey/ investigation. However, the temporary impacts on land and loss of crops/trees occurred only during the project implementation/construction. Therefore, the CPTD remains as draft, as actual temporary impacts on crop/tree including details of Affected Persons (AP) shall be ascertained during check survey and tower spotting once the construction contractor is mobilized for implementation. MSPCL / POWERGRID provide compensation for actual damages after assessment by revenue authority. Check survey is done progressively during the construction of the transmission/distribution line. Normally the work is done in off season when there is no standing crop. The compensation for damage is assessed in actual after construction activities of transmission/distribution lines in three stages i.e. after completion of foundation, tower erection and stringing of conductor. The payment of compensation shall be paid in three instances, if there are different damages during above all the three activities. Assessment of damages at each stage and payment of compensation is a simultaneous and continuous activity. Hence, CPTD updating will be a continuous process during construction and updated data on Aps shall be disclosed through semi-annual E & S monitoring report submitted by MSPCL/POWERGRID.

1.5. Measures to Minimize Impact

11. In keeping with provisions of ESPPF and Bank's Safeguard Policies MSPCL/ POWERGRID has selected and finalized the routes of transmission line with due consideration of avoidance and minimization to the extent possible and same principles shall also be followed during construction stages of project to further restrict the possibility of temporary damages on crops/ trees/ structures

etc. in the Right of Way (RoW). Similarly, the route of distribution lines are mostly selected/ finalized along the existing roads (PWD roads/ Village roads etc.) involving minimum habituated areas and also through barren lands wherever possible. Regular field visits and public consultations helped in developing the measures for further minimizing the possible social impacts.

12. For transmission/distribution line there is no permanent land acquisition involved as per applicable legal framework i.e. in exercise of the powers under Indian Telegraph Act-1885. Part 3, section 10 to 19 conferred under section 164 of the Electricity Act 2003 vide Govt. of Manipur, Power Department Notification dated 16th March, 2016, MSPCL has the mandate to place and maintain transmission lines under/ over/ along or across and posts in or upon, any immoveable property. However, clause 10 (d) of same act stipulates that the user agency shall pay full compensation to all interested for any damages sustained during the execution of said work. Therefore, MSPCL/ POWERGRID have developed a procedure which is designed to minimize impacts, during the preliminary survey/ investigation (for screening & scoping of the project with at least 3 alternative route alignments), thereafter during detailed survey (spot)/design followed by foundation work, tower erection and during the stringing of conductors.

13. All tower foundations and tower footings are dug and laid, including transportation of material and land clearance, generally at the end of a crop season to avoid impacts on cultivations and need for compensation. After construction of transmission towers, farmers are allowed to continue agricultural activity below tower.

14. Because the concrete needs time to dry and settle, all towers are erected normally three weeks after casting of foundation. Thus, both foundation and erection works are generally completed in available gap in between two crop seasons.

15. Given the limited time needed for the stringing, the latter can be done right after the tower construction, before the following crop season.

16. For this reason no household is significantly affected due to the project. Thus, productive loss due to construction is negligible. However, due care shall be taken to avoid damages to crop/trees by taking up the construction activities during lean period or post-harvest season. As per the prevailing norms farming activity shall be allowed after the construction work is completed. All affected farmers will be compensated for all sorts of damages during construction as per the laid down procedure.

1.6. Route Selection and Study of Alternatives

17. For selection of optimum route, the following points are taken into consideration:

(i) The route of the proposed transmission/distribution lines does not involve any human displacement/rehabilitation.
(ii) Any monument of cultural or historical importance is not affected by the route of the transmission/distribution line.
(iii) The proposed line route does not create any threat to the survival of any community with special reference to Tribal Community.
(iv) The proposed line route does not affect any public utility services like playgrounds, schools, other establishments etc.
(v) The line route does not pass through any National Parks, Sanctuaries etc.
(vi) The line route does not infringe with area of natural resources.

18. In order to achieve this, MSPCL /POWERGRID undertake route selection for individual line in close consultation with representatives of concerned Forest Department and the Department of Revenue. Although under the law, State Utilities have the right of eminent domain yet alternative alignments are considered, keeping in mind, the above-mentioned factors during site selection, with minor alterations often added to avoid environmentally sensitive areas and settlements at execution stage.

a. As a rule, alignments are generally cited away from major towns, whenever possible, to account for future urban expansion.
b. Similarly, forests are avoided to the extent possible, and when it is not possible, a route is selected in consultation with the local Divisional Forest Officer, that causes minimum damage to existing forest resources.
c. Alignments are selected to avoid wetlands and unstable areas for both financial and environmental reasons.

19. In addition, care is also taken to avoid National Parks and Wildlife Sanctuaries and any other forest area rich in wildlife. Keeping above in mind the route of proposed lines have been so aligned that it takes care of above factors. As such different alternatives were studied with the help of Govt. published data like Forest atlas, Survey of India topo maps, satellite imageries etc. to arrive at most optimum sections of the route which can be taken up for detailed survey and assessment of environmental & social impacts for their proper management.

20. The comparative details of three alternatives in respect of proposed lines are presented in **Annexure-1**.

II. SOCIOECONOMIC INFORMATION AND PROFILE

2.1. General

21. The socio-economic profile of the project area is based on general information collected from various secondary sources. As the assets of any sorts will not be acquired but for temporary damage to crops/trees or any other structures adequate compensation as per norms shall be paid to all APs. This chapter provides broad socio-economic profile in terms of demography, literacy, employment and other infrastructure etc. in the State of Manipur and project districts in particular i.e. Imphal East, Churachandpur, Thoubal & Tamenglong through which the various lines will traverse. Following section briefly discuss socio-economic profile.

2.2. Socio-Economic Profile

2.2.1. Land Use Pattern of Manipur

22. Manipur is one of the hilly states of the north eastern part of the country with an area of 21,427 sq km which is 0.68% of country's geographical area. It shares international border with Myanmar and lies between the latitudes of 23°50' N and 25°42' N and the longitudes of 92°59' E and 94°46' E. Geographically, the state comprises flat plateau of alluvial valley and the hill territory. The general land use pattern of the state is given in **Table 2.1**.

Table-2.1 Land Use Pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	2,142	
Reporting area for land utilization	2,142	100.00
Forests	1,742	81.32
Not available for cultivation	27	01.26
Permanent pastures and other grazing lands	01	00.05
Land under misc. tree crops & groves	06	00.28
Culturable wasteland	01	00.05
Fallow lands other than current fallows	00	00.00
Current Fallows	00	00.00
Net area sown	365	17.04

Source: Land use statistics, Ministry of Agriculture, GOI, 2011-12

2.2.2 Imphal West, Senapati & Bishnupur

23. The Imphal West district falls in the category of Manipur Valley region. The district has total area of 558 sq. kms and falls in the latitude of 24.30 N – 25.00 N and longitude of 93.45 E- 94.15 E. It lies 790 meters above MSL.

24. Senapati district is located in the northern part of Manipur. The district has total area of 3271 sq. kms and falls in the latitude of 24.30°N- 25.45 N and longitude of 93.29°E to 94.15°E. The District is at an altitude varying from 1061 m to 1788 m above sea level.

25. Bishnupur district came into existence in 1983. It lies between latitude 24.18 N- 24.44 N and longitude 93.43 E- 93.53 E and has total geographic area of 530 sq kms. It is located at the altitude of 828.18 meters above MSL.

Climate:

26. The climate of Manipur is mostly tropical with alpine climate. The northeastern region has an amiable climate and is very cold in the winters. The climate varies according to the elevations of the land forms in the state. The weather in the plains is however, similar to that of the other states in the country. But the hilly regions are different and enjoy a pleasant climate with dry and low temperature. The weather in the state is highly influenced by the winds blowing from the Bay of Bengal and is conducive for heavy rainfall in the rainy season. The state experiences three main seasons like summer, winter and the rainy season. Manipur does not experience extreme climatic conditions with temperature in summers rising upto 32º C, although the winter temperature may go below zero degree. The weather is bright and sunny and the hills experience a dry and warm climate, while the plains are hot and dry like any other part of the country. As the Himalayan region is close by and the hills are actually an extension of the Himalayas, the climate here is similar to the Himalayan region, but not extreme. Winters begin from November and stay on till February. The coldest month is January, as cold winds freeze the atmosphere. The monsoon season begins in May and continues till the mid of October. Average rainfall ranges from 1250 mm to 2700 mm. November to February are the dry months.

27. Imphal west district enjoys a moderate climate. The whole district is under the influence of the Monsoons characterized by hot and humid rainy seasons and cool and dry winters. Average temperature of the district is 20.4º C. Average rainfall varies in the range of 1085 mm – 1434 mm.

28. Senapati district enjoys humid subtropical climate with three distinct seasons, i.e. summer, winter and monsoon. The temperature ranges from a minimum of 3.36oC to a maximum of 34.14oC .The annual rainfall ranges from 671 mm to 1454 mm.

29. Bishnupur district experiences fair cold climate during winter and hot in summers. The maximum temperature is 33º C during May to September and the minimum dips down to 4º C in the month of January. However, the temperature of the district as a whole is moderate and there is no extreme climate in the district. Normal monsoon rain begins from the early part of June and

heavy rains occur in the district till the month of September. About 80% rainfall is due to South West monsoon.

Minerals:

30. The state government of Manipur has been developing the mineral industry for quite some time and measures have been taken to explore more into this field. The geological survey of India studies three districts namely; Churchandpur, Ukhrul and Chandel for minerals in its hill pockets. Considerable quantities of mineral deposits have been found here, like copper, salt, chromite, lignite, limestone, nickel and asbestos. However, the important mineral found here is lignite. Beds of lignite have been discovered in the southern part of Manipur. Careful extraction is necessary for the minerals to be extracted from their places. Government has proposed to work with the locals and bring out the minerals for its utilization. Minerals play an important role in the revenue of the state. As this state is rich in minerals, it has a bright future ahead of it. But there are some hurdles that are a setback to utilize more of the land for the production of these useful minerals. The state is the only place to produce Chromite in the north eastern region. It produced around 600 thousand tones of chromite. Various minerals can be found in the state like limestone, which is important for cement and is found in parts of Ukhrul district like Hundung, Kangoi, Kasom etc. Asbestos has been found in the areas of Moreh, Kwatha and Nepali Basti and in the eastern part of Ukhrul. Chromite is seen near Shiroi hills and near the Nepali Basti of the Chandel district. Copper is found in Chandel district, Ninghti and Kwatha and Humie of Ukhrul district.

Soils:

31. The soil cover can be divided into two broad types, viz. the red ferrogenous soil in the hill area and the alluvium in the valley. The soil generally contains small rock fragments, sand and sandy clay and are of varieties. The top soil on the steep slopes are very thin. In the plain areas, especially flood plains and deltas, the soil is of considerable thickness. Soil on the steep hill slopes is subjected to high erosion resulting into formation of sheets and gullies and barren rock slopes. Soils are acidic in nature the normal pH value ranges from 5.4 to 6.8. The soil is conducive for crop and horticulture. Horticultural crops like pineapple, orange, lemon and pears etc can be seen grown in plenty in the state. Due to the geographical reasons, the soil conservation is significant for the ecology of Manipur.

32. The soil of Imphal West and Bishnupur district is fertile and is mainly made up of alluvial soil of recent origin. However, the soil of Senapati district is moderately fertile with clay loam soil with little patches of clay and loam.

Water Resources:

Ground Water

33. Manipur is rich in water resources. The annual replenishable ground water resources of the state amount to 0.44 BCM, while net annual ground water availability stands at 0.40 BCM. As per Central Ground Water Board, stage of ground water development has been calculated as 1.02%. The state doesn't have any Over Exploited, Critical or Semicritical region as far as ground water is concerned. Barring certain pockets, quality of ground water has been found satisfactory.

Surface Water

34. Manipur receives heavy rainfall from South West and North East Monsoons. The main rivers of the state include the Imphal river, the Iril river, the Thoubal river, the Sekmai river, the Heirok river, the Khuga river, the Manipur river, the Barak river, the Chapki river the Tuining river etc. The Barak river basin draining the western part of the state and the Manipur river basin draining the Eastern part of the state are the two major river basins of Manipur. Manipur river basin accounts for 0.5192 M hectare meter of annual run off against a total catchment area of 6332 sq kms, while the Barak river basin has a discharge capacity of 1.3295 M hectare meter against a catchment of 9042 sq km.

35. Main rivers draining Imphal west district are Imphal river, Nambul river and their tributaries. The Nambul river is made up of a number of small streams on its upper course. The course of the river is short and its outlet falls on Loktak Lake, dividing the Imphal Municipality area into almost two equal halves midway. Senapati district is drained with 5 major rivers i.e. Barak, Iril, Ithoi, Irang, Imphal, Lane. Main rivers flowing through Bishnupur district include Thongjaorock, Nambol, Khuga, Ningthoukong, Sunusiphai, Iram and Yangoi. All these rivers except Khuga flow towards Loktak lake. However, the project activity is not going to impact these water bodies in any way as the route alignment of proposed transmission and distribution lines has one major river crossing of normal span only.

Ecological Resources:

36. The recorded forest area of the state is 17,418 sq km which is 78.01% of its geographical area. The Reserved Forests constitute 8.42%, Protected Forests 23.95% and Unclassed Forests 67.63% of the RFA. Forest Map of Manipur is enclosed as **Map-1**. The state has ten forest types as per Champion & Seth Classification system (1968) belonging to five forest type groups, viz. Tropical Semi-evergreen, Tropical Moist Deciduous, Subtropical Broadleaved Hill, Subtropical Pine and Montane Wet Temperate Forests. The details of forest resources available in the project districts are as follows:

District wise Forest Cover:

District	Geographic area	2013 Assessment (Area in Sq. km)				% Forest cover
		Very Dense forest	Mod Dense forest	Open forest	Total	
Imphal West	559	0	24	31	55	9.84
Senapati	3,271	233	870	1,080	2,183	66.74
Bishnupur	496	0	1	20	21	4.23

Protected Areas:

37. Manipur has one National Park and one Wildlife Sanctuary covering an area of 224 Sq Km which constitutes 1.01% of the state's geographical area. The Manipur Brow-antlered deer is an endemic species for which a conservation project was initiated in 1973.

Details of Protected Areas:

S.No.	Conservation site	District	Area in sq. km
1.	Keibul Lamjao National Park	Bishnupur	40.00
2.	Yangoupokpi Lokchao Wildlife Sanctuary	Chandel	184.80

The proposed transmission and distribution lines do not pass through any protected area like national parks, sanctuaries, elephant reserves/corridors and biosphere reserves etc. In the instant scheme all such areas are completely avoided through careful route selection.

Wetlands:

38. The state of Manipur has 708 wetlands including small wetlands, covering an area of 63616 Ha, constituting 2.85% of Geographic Area of the state. Manipur has 4 categories of lakes namely valley lakes, oxbow lakes, tectonic/landslide lakes and artificial reservoirs. Loktak lake with an area of 26,600 ha is a wetland of international importance which has been designated as a Ramsar site and is also a major tourist attraction.

39. Total wetland area of Imphal West is 8418 Ha, which is 13.27% of the Geographic Area of the District. Jaimeng Lake with an area of 85 ha. is a major wetland in Senapati district Bishnupur district has a total wetland area of 21753 Ha, which is 34.29% of the geographic area of the district. However, none of these wetlands are getting involved/ impacted in routing/RoW of proposed lines and locating substations.

Human and Economic Development:

40. The 2012-2013 gross state domestic product of Manipur at market prices was about ₹ 10188 Crore . Its economy is primarily agriculture, forestry, cottage and trade driven. Manipur acts

as India's 'Gateway to the East' through Moreh and Tamu towns, the land route for trade between India and Myanmar and other Southeast Asian countries. Manipur has the highest number of handicrafts units as well as the highest number of craftsperson's, in the entire northeastern region of India. The state is covered with over 3,000 square km of bamboo forests, making it one of India's largest contributors to its bamboo industry.

41. Imphal West district has a total population of 514,683 as per the census of 2011. The district has the distinction of having a positive sex ratio of 1029 female per 1000 male. The literacy rate of the district is 80.61%. Majority of population i.e. 55.51% reside in urban areas. 4.75% of the population belongs to Schedule Tribes while Schedule Castes constitute around 2.98% of the population. Imphal west being a largely urban district is comparatively more industrialized than rest of the state. However, majority of the industries located in the district are cottage industries like Handloom and Handicrafts.

42. Senapati is an entirely rural economy and agriculture is the main occupation of the people in the district. Paddy, Maize, Cabbage, Potato, cereals are the main crops of the District. Both jhum and terrace cultivation is done on the hill slopes of the district. Rice accounts for more than 90 percent of the total land area under cultivation. Although the average land holding is one of the lowest in India, yield per acre is comparatively high. The most important industry from the point of view of employment potential and volume of output is the handloom and handicraft industry, which is mainly run on a small-scale household industry basis. Moreh, which is 110 km away from Imphal, has emerged as an international trade centre with the inauguration of Indo-Myanmar Border Trade 1995. It is believed to be the prospective economic bridge between India and the other industrially developing South East Asian countries.

43. As per 2011 census, Bishnupur district has a population of 2,37,399. The district has a sex ratio of 999 female per 1000 male, which is better than the corresponding National figures. The literacy rate of the district stands at 75.85%. The population of Schedule Caste and Schedule Tribes constitute 1.29% and 5.30% respectively of the total population. There are 18 registered small scale industries in the district but no registered factories.

2.2.3 Demography Features

2.2.3.1. Total Population

44. Total population in Manipur stands at 2,855,794 of which total rural population stands at 2,021,640 (70.79 %) and total urban population stands at 834,154 (29.21 %). District wise details of are given in **Table 2.3.**

Table 2.3: Details on Total Population

Name/Particulars	Total Population	Total (Rural)	Total (Urban)	Percentage (Rural)	Percentage (Urban)
Manipur	2,855,794	2,021,640	834,154	70.79	29.21
Imphal West	5,17,992	1,95,113	3,22,879	37.67	62.33
Senapati	4,79,148	4,71,672	7,476	98.44	1.56
Bishnupur	2,37,399	1,49,894	87,505	63.14	36.86

Source: Census of India, 2011

2.2.3.2 Male and Female Population

45. Total population in Manipur stands at 2,855,794 of which male population stands at 1,438,586 (50.37%) and female population stands at 1,417,208 (49.63%). Project district wise details of are given in **Table 2.4.**

Table 2.4: Details on Male/ Female Population

Name /Particulars	Total Population	Total Male	Total Female	Percentage (Male)	Percentage (Female)	Sex Ratio
Manipur	2,855,794	1,438,586	1,417,208	50.37	49.63	985
Imphal West	5,17,992	2,55,054	2,62,938	49.24	50.76	1031
Senapati	4,79,148	2,47,323	2,31,825	51.62	48.38	937
Bishnupur	2,37,399	1,18,782	1,18,617	50.03	49.97	999

Source: Census of India, 2011

2.2.3.3 Scheduled Caste (SC) and Scheduled Tribe (ST) Population

46. Total Population in Manipur stands at 2,855,794 of which Scheduled Caste (SC) population stands at 97,328 (3.41 %) and Scheduled Tribe (ST) population stands at 11,67,422 (40.88%). District wise details population of SC/ST are given in **Table 2.5**. This is just the district profile about the scheduled caste and scheduled tribe population; however, the Project will not have any impact on scheduled caste/scheduled tribe population.

Table 2.5: Details on Percentage SC/ST

Name/ Particulars	Total Population	Total SC Population	Percentage of SC Population	Total ST Population	Percentage of ST Population
Manipur	2,855,794	97,328	3.41	11,67,422	40.88
Imphal West	5,17,992	16,530	3.19	24,161	4.66
Senapati	4,79,148	1,000	0.21	41,9210	87.49
Bishnupur	2,37,399	22,113	9.31	3,287	1.38

Source: Census of India, 2011

2.2.3.4 Literacy

47. Total Population in Manipur stands at 2,855,794 of which total literate population stands at 1,908,476 (76.94 %) and total illiterate population stands at 9,47,318 (33.16 %). Project district wise total literate population along with percentage of male female literacy is given in **Table 2.6**.

Table 2.6 : Literate and Illiterate Population

Name/Particulars	Total Population	Total Literate	Percentage of Literate	Percentage (Male)	Percentage (Female)
Manipur	2,855,794	1,908,476	76.94	52.46	47.54
Imphal West	5,17,992	3,92,626	75.80	52.46	47.54
Senapati	4,79,148	2,64,477	55.20	55.96	44.04
Bishnupur	2,37,399	1,56,333	65.85	55.85	44.15

Source: Census of India, 2011

2.3.3.5. Total Workers (Male and Female)

48. Total population into work in Manipur stands at 13,04,610 of which total Male (work) population stands at 7,39,408 (56.68 %) and total female (Work) population stands at 5,65,202 (43.32%). District wise total work population, total Male (work) population and total female (Work) population are given in **Table 2.7.**

Table 2.7: Details on Workers

Name/ Particulars	Total Population (Work)	Total Male (Work)	Total Female (Work)	Percentage (Male)	Percentage (Female)
Manipur	13,04,610	7,39,408	5,65,202	56.68	43.32
Imphal West	2,13,387	1,28,540	84847	60.24	39.76
Senapati	2,33,622	1,24,143	1,09,479	53.14	46.86
Bishnupur	1,09,937	62,807	47,130	57.13	42.87

Source: Census of India, 2011

2.3.3.6 Households

49. Total households in Manipur stands at 5, 07,152 of which Rural households stands at 3,35,752 (66.02 %) and Urban households stands at 1,71,400 (33.98 %). District wise details of are given in **Table 2.8.**

Table 2.8: Details on Households

Name/ Particulars	Total Households	Total (Rural)	Total (Urban)	Percentage (Rural)	Percentage (Urban)
Manipur	5,07,152	3,35,752	1,71,400	66.20	33.80
Imphal West	111156	41595	69561	37.42	62.58
Senapati	83411	81974	1437	98.28	1.72
Bishnupur	46580	29237	17343	62.77	37.23

Source: Census of India, 2011

III. LEGAL & REGULATORY FRAMEWORK

3.1. Overview

7. In India, compensation for land acquisition (LA) and rehabilitation/resettlement of project affected persons/ families is governed by the National law i.e. "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (hereafter RFCTLARR, 2013"), effective from 1st January 2014. Since in case of transmission line project, land for tower/pole and right of way is not acquired and ownership of land remains with the owner this act is not applicable. However, as per existing laws6 compensation for all damages is paid to the individual land owner. The relevant national laws applicable for transmission project are (i) The Electricity Act, 2003 and (ii) The Indian Telegraph Act, 1885 and (iii) Govt of Manipur notification dated 28th March 2018 on RoW Compensation. The compensation principles adopted for this project shall comply with applicable laws and regulations of the GOI/ State Govt., World Bank's Safeguard Policies MSPCL's ESPPF.

3.2. Statutory Requirements

50. Transmission lines are constructed under the ambit of Electricity Act, 2003. The provisions stipulated in section 67-68 of the Electricity Act, 2003 read with section 10 & 16 of the Indian Telegraph Act, 1885 governs the compensation as MSPCL has been vested with the powers of Telegraph Authority vide Govt. of Manipur, Power Department Notification dated 16th March, 2016 under section 164 of the Electricity Act. As per the provision of Indian Telegraph Act, 1885 under section 10 (b), MSPCL is not authorized to acquire any land hence land under tower is not acquired. However, compensation for all damages are paid to the individual land owner as per the provision of Section-10 (d) of Indian Telegraph Act, 1885.

51. The provisions in the Electricity Act, 2003 and Indian Telegraph Act, 1885 regarding compensation for laying of transmission lines are as follows:

3.2.1. The Electricity Act, 2003, Part-VIII, Section 67 & 68

Quote:

Section 67 (3-5):

(3) A licensee shall, in exercise of any of the powers conferred by or under this section and the rules made thereunder, cause as little damage, detriment and inconvenience as may be, and shall make full compensation for any damage, detriment or inconvenience caused by him or by any one employed by him.

(4) Where any difference or dispute [including amount of compensation under sub-section (3)] arises under this section, the matter shall be determined by the Appropriate Commission.

(5) The Appropriate Commission, while determining any difference or dispute arising under this section in addition to any compensation under sub-section (3), may impose a penalty not exceeding the amount of compensation payable under that sub-section.

Section 68 (5 & 6):

(5) Where any ***tree standing or lying near an overhead line or where any structure or other object which has been placed or has fallen near an overhead line*** *subsequent to the placing of such line, interrupts or interferes with, or is likely to interrupt or interfere with, the conveyance or transmission of electricity or to interrupt or interfere with, the conveyance or transmission of electricity or the accessibility of any works, an Executive Magistrate or authority specified by the Appropriate Government may, on the application of the licensee, cause the tree, structure or object to be removed or otherwise dealt with as he or it thinks fit.*

(6) When disposing of an application under sub-section (5), an Executive Magistrate or authority specified under that sub-section shall, in the case of any tree in existence before the placing of the overhead line, ***award to the person interested in the tree such compensation as he thinks reasonable, and such person may recover the same from the licensee.***

Explanation. - For purposes of this section, the expression "tree" shall be deemed to include any shrub, hedge, jungle growth or other plant.

Unquote.

3.2.2. The Indian Telegraph Act, 1885, Part-III, Section 10 :

Quote:

Section 10 – *The telegraph authority may, from time to time, place and maintain a telegraph line under, over, along, or across, and posts in or upon any immovable property, Provided that*

a) the telegraph authority shall not exercise the powers conferred by this section except for the purposes of a telegraph established or maintained by the [Central Government], or to be so established or maintained;

b) ***the [Central Government] shall not acquire any right other than that of user only*** *in the property under, over, along, across in or upon which the telegraph authority places any telegraph line or post; and*

c) except as hereinafter provided, the telegraph authority shall not exercise those powers in respect of any property vested in or under the control or management of any local authority, without the permission of that authority; and

d) *in the exercise of the powers conferred by this section, the telegraph* ***authority shall do as little damage as possible, and, when it has exercised those powers in respect of any property other than that referred to in clause (c), shall pay full compensation to all persons interested for any damage sustained by them*** *by reason of the exercise of those powers.*

Unquote.

Section 16 of the Indian Telegraph Act, 1885 which stipulates as under:

16. Exercise of powers conferred by section 10, and disputes as to compensation, in case of property other than that of a local authority:

(1) If the exercise of the powers mentioned in Section 10 in respect of property referred to in clause (d) of that section is resisted or obstructed, the District Magistrate may, in his discretion, order that the telegraph authority shall be permitted to exercise them.

(2) If, after the making of an order under sub section (1), any person resists the exercise of those powers, or, having control over the property, does not give all facilities for this being exercised, he shall be deemed to have committed an offence under section 188 of the Indian Penal Code (45 of 1860).

3.2.3. MoP guidelines dated 15th October, 2015 for payment of compensation toward damages in regard to RoW

52. Ministry of Power (MoP) vide its order No. 3/7/2015-Trans dated 15th April'15 constituted a Committee comprising of representatives of various State Govt., MoP, Central Electricity Authority (CEA) & POWERGRID under the chairmanship of Special Secretary, MoP to analyze the issues relating to Right of Way for laying of transmission lines in the country and to suggest a uniform methodology for payment of compensation on this account. Based on recommendation of the Committee, Ministry of Power, Govt. of India vide its notification dated 15th Oct'15 has issued guidelines for payment of compensation for damages in regard to RoW Ministry of Power (MoP) has also written to all the States for taking suitable decisions regarding adoption of these guidelines considering that acquisition of land is a State subject. The said guidelines were adopted by Govt. of Manipur vide its notification dated 28th March 2018 for implementation (**Annexure-2**), which is applicable to transmission lines supported by tower base of 66 kV and above only and not for sub transmission & distribution lines below 66 kV. As per the guidelines following compensation shall be paid to all affected farmers/land owners in addition to normal tree and crop damage compensation;

i) **Tower base**: Compensation @ 85% of land value as determined by District Magistrate or any other competent authority based on Circle rate/ Guideline value/ Stamp Act rates for tower base area (between four legs).

ii) **Line corridor**: Compensation @ maximum 15% of land value towards diminution of land value in the width of RoW corridor as determined by District Magistrate or any other competent authority based on Circle rate/ Guideline value/ Stamp Act.

3.3. MSPCL's ESPPF

53. To address the environmental and social issues related to its power transmission and distribution projects under NERPSIP, MSPCL has adopted an Environmental and Social Policy & Procedures Framework (ESPPF) in 2015 based on the principles of avoidance, minimization, and mitigation. The ESPPF had been developed by POWERGRID on behalf of the State Utility based on ESPP of POWERGRID who has proven credentials in management of environmental and social issues of large number of power transmission projects both within and outside the country after a comprehensive review of Utility's existing policies/provisions and consultation with Stakeholders.

54. ESPPF's outlines Utility's approach and commitment in dealing with the environmental and social issues relating to its transmission projects, lays down the management procedures and protocols for the purpose that includes the framework for identification, assessment, and management of environmental and social concerns at both organizational and project levels.

55. Specifically on social, the following criteria and approach are considered in the ESPPF:

(i) Take due precautions to minimize disturbance to human habitations, tribal areas and places of cultural significance.
(ii) Take due care of Project Affected Persons (PAP).
(iii) Involve affected people from inception stage to operation and maintenance.
(iv) Consult affected people in issues of RoWs, land acquisition or loss of livelihood.
(v) Encourage consultation with communities in identifying environmental and social implications of projects.
(vi) Guarantee entitlements and compensation to affected people as per entitlement matrix.
(vii) Share information with local communities about environmental and social implications.
(viii) Always maintain highest standards of health and safety and adequately compensate affected persons in case of any eventuality.

3.4. Basic Principles for the Project

56. The basic principles adopted for the Project are:

(i) Avoid negative impacts of land acquisition and involuntary resettlement on persons affected by the Project to the extent possible.

(ii) Where negative impacts cannot be avoided, assist affected persons (AP), in improving or at least regaining their standard of living and income.

(iii) Carry out meaningful consultations with affected persons and inform all displaced persons of their entitlements and resettlement options. Ensure their participation in planning, implementation and monitoring of the Project

(iv) Disclose all information related to, and ensure AP participation in resettlement planning and implementation.

(v) Provide compensation for acquired assets at replacement/market value in accordance with the RP/CPTD.

(vi) Ensure that displaced persons without titles to land or any recognizable legal rights to land are eligible for resettlement assistance and compensation for loss of non-land assets.

(vii) Provide resettlement assistance and income restoration to APs.

(viii) Provide for APs not present during enumeration. However, anyone moving into the project area after will not be entitled to assistance.

(ix) Develop procedures in a transparent, consistent, and equitable manner if land acquisition is through negotiated settlement to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status.

(x) Provide compensation and resettlement assistance prior to taking possession of the acquired lands and properties.

(xi) Establish grievance redress mechanisms to ensure speedy resolution of disputes.

(xii) Ensure adequate budgetary support to cover implementation costs for CPTD.

(xiii) Monitoring of the implementation of CPTD.

57. Additionally, the issues related to the Right of Way (RoW) for the transmission/distribution lines will be dealt with proper care especially for the temporary loss. For the loss of crops and trees due to construction of overhead lines, cash compensation payable by cheque/through online transfer will be provided during construction works. Further, cash compensation (by cheque/ online transfer) to the APs for the temporary loss of crop and loss of trees if occurred, during the time of maintenance and repair.

3.5. World Bank's Environmental & Social Safeguard Policies

58. The objective of Bank's policies is to prevent and mitigate undue harm to people and their

environment in the development process. Safeguard policies provide a platform for the participation of stakeholders in project design, and act as an important instrument for building ownership among local populations. Operational Policies (OP) are the statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, whereas Bank Procedures (BP) is the mandatory procedures to be followed by the Borrower and the Bank. Apart from these, World Bank Group Environmental, Health, and Safety (EHS) General Guidelines and EHS Guidelines for Electric Power Transmission and Distribution are also relevant for environmental protection and monitoring of transmission projects. The WB's relevant social safeguard policies and their objective are given in **Table – 3.1**.

Table 3.1: World Bank's Operational Policies for Social Safeguard

Operational Policy (OP)	Policy Objectives
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.
OP 4.12 – Involuntary Resettlement	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.
OP 4.10 – Indigenous Peoples	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.

IV. PROJECT IMPACTS

4.1. General

59. The project does not require any private land acquisition for construction of transmission/distribution lines. Due to inherent flexibility in routing of line, no major damages to structures or physical displacement is envisaged. Hence, there are no adverse impacts such as permanent loss of assets, livelihood loss or physical resettlement/relocation due to project intervention. However, there are some social impacts due to construction of lines/placing of towers & poles which are temporary in nature in terms of loss of standing crops/trees/structures in the RoW. Preliminary investigation/survey has been carried out for transmission/distribution line to estimate/arrive at the selection of one best feasible alignment route out of at least 3 alternative alignments studied, for detailed survey to be undertaken during execution of main contracts. The details of tower/pole schedule depicting location & its coordinate including major crossings along with maps of proposed route alignment is placed as **Annexure-3.** The compensation for damage is assessed in actual after construction activities of transmission lines in three stages i.e. after completion of foundation, tower erection and stringing of conductor. The payment of compensation is also paid in three instances, if there are damages during all the above three stages. Assessment of damages at each stage and subsequent payment of compensation is a continuous process. Hence, CPTD updating will also be a continuous process during construction. The details of land use have been gathered to have an idea about the temporary damages that might occur during construction of the transmission lines. The RoW width is 27 and 15 meter for 132kV transmission line & 33 kV distribution line respectively.

60. Soil & Surface Geology: In plain areas impact on soil & geology will be almost negligible as the excavated pit material is stacked properly and back filled as well as used for resurfacing the area. On hill slopes where soil is disturbed will be prone to erosion is suitably protected by revetment, breast walls, and proper drainage. Besides extensive leg /chimney extension shall be used to avoid benching or cutting of slopes to minimize the impact on slope stability.

61. The land requirement for erection of tower legs is very small i.e. for each leg of tower actual construction is done on a small square area with side length ranging from 0.20 to 0.30 meter depending on the types of tower. Four such square pieces of land will be required to place the legs of tower. The area that becomes unavailable because of the erection of tower legs for an average 132 kV D/c transmission tower ranges from 0.16-0.36 sq.m. of land. Thus, the actual impact is restricted to 4 legs of the tower and agriculture can continue as clearly depicted in the **Figure-4.1.**

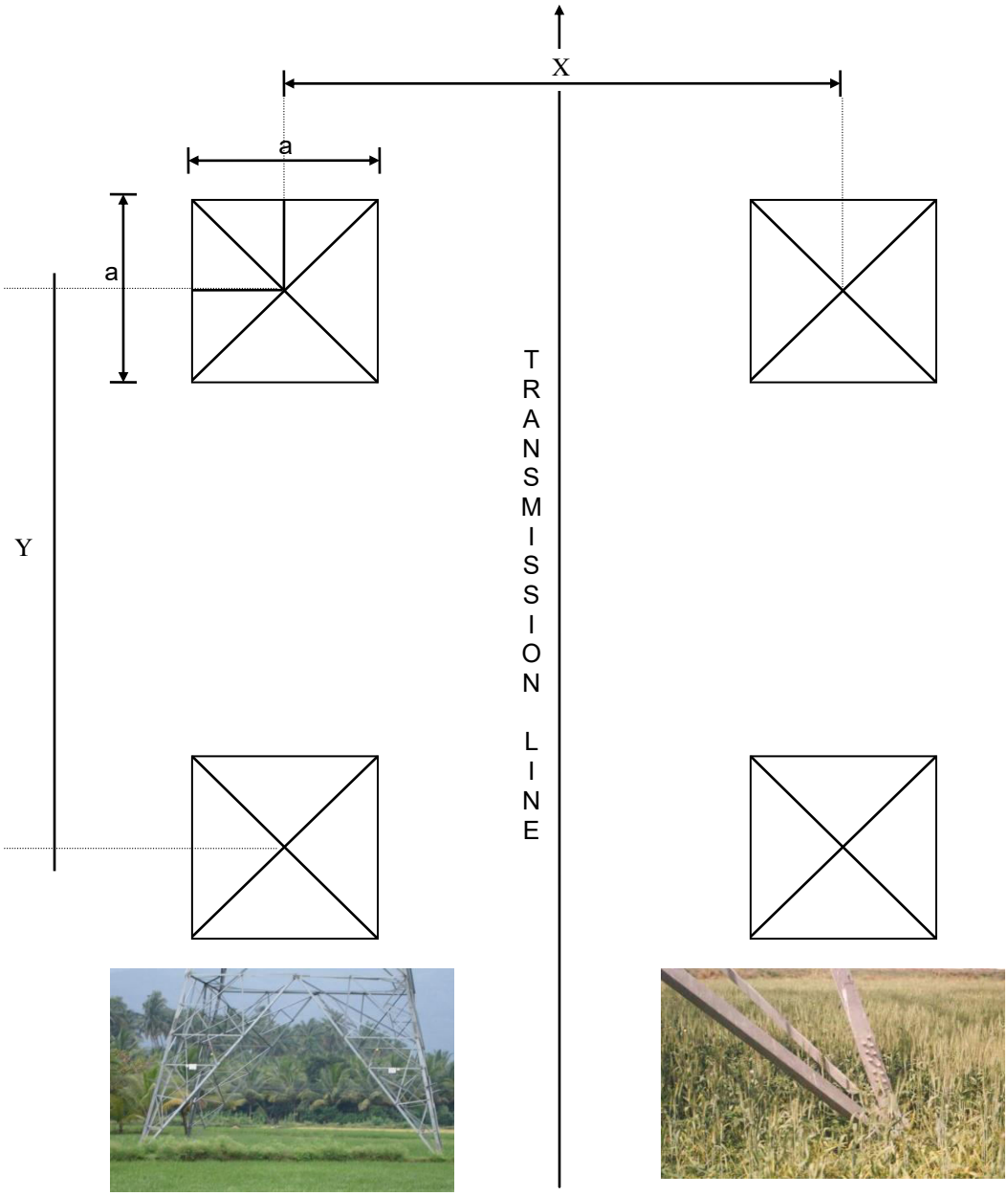
In case of 33 kV distribution line area that becomes unavailable because of the erection of pole is insignificant as approx. 1 sq. ft. land area is occupied for one pole (refer **Figure. 4.2** depicting actual base area impact). Due diligence confirms that land is either agricultural or barren, and current land use is not altered and resumed after construction.

62. Crops: Construction of line in crop season is avoided as far as possible. In case when installation of towers/poles impacts on agricultural activity, detailed assessment/survey is conducted looking at existing crops, general crop patterns, seasonal particulars, nature and extent of yield. This data is compiled and analysed to study the extent and nature of impact. The compensation is in terms of yield/hectare and rate/quantity for prevailing crops in the area. Based on this, total compensation is calculated in consultation with revenue authorities. Compensation is paid to the owners and their acknowledgement obtained.

63. Trees: Construction of line in fruit bearing season is avoided as far as possible. Tree compensation is calculated on the basis of tree enumeration, tree species and an estimate of the yield. In case of fruit bearing trees compensation will be calculated on the basis of 8 years yield (assessed by revenue/horticulture department). Market rates of compensation are assessed by the relevant government authorities. The total estimate is submitted for approval of the competent authority. Payments are made to owners in the presence of local revenue authorities or village head/ Sarpanch and respective acknowledgements are obtained.

64. Other Damages: Like bunds, water bodies, fish ponds, approach paths, drainage and irrigation canals etc. are at best avoided. However, if damaged the Revenue Department assess the cost of damage as per State Govt. norms. The total estimate is submitted for approval to the competent authority. Payments are made to owners in the presence of local revenue authorities or village headman/ Sarpanch and respective acknowledgements are obtained and POWERGRID/ MSPCL pays the compensation. Hindrances to power, telecom carrier & communication lines etc. shall be paid as per Govt. norms.

Figure- 4.1: Typical Plan of Transmission Line Tower Footing



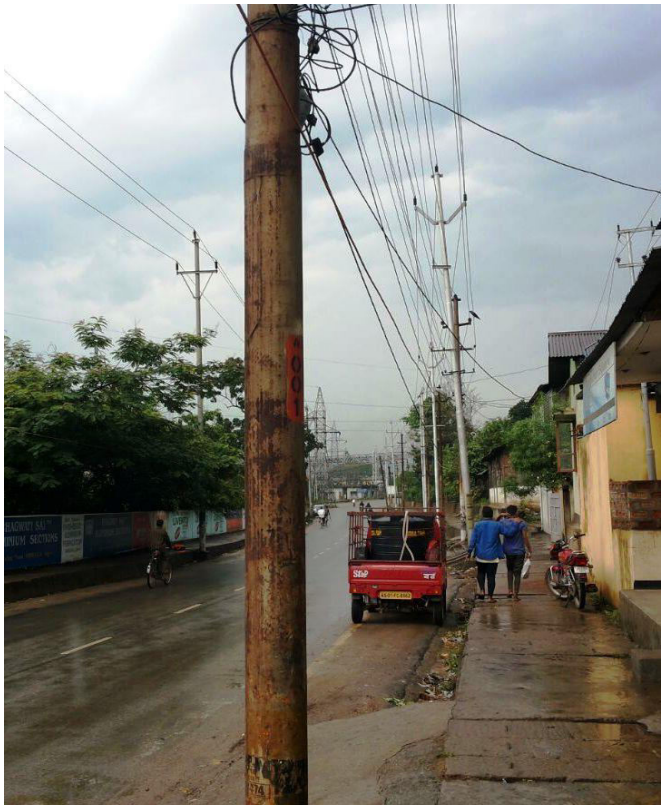
INDICATIVE MEASURES

X & Y = 5-10 METERS

a = 200- 300 mm

Figure- 4.2: 33 KV lines (Single & H pole) depicting base area impact

Actual Impact of 33 kV Pole at Base Area



33 kV line inside city area of Assam

33 kV (H Pole) line inside substation

4.2. Impact due to construction of New Substation and Bay extension

65. The project component consists of establishment of one 132/33 kV substation and 3 numbers extension along with five new 33/11 kV. Lands for new substations have already been purchased on negotiated rates based on “willing buyer-willing seller basis”. Bay extensions of the EHV and DMS substations will be done within the existing substations campus and the land belongs to POWERGRID/ MSPCL. Since no fresh land acquisition is involved, R&R will not be an issue in the instant project. The details are provided in **Table 4.1**:

Table 4.1: Details of Substation

Name of the Substation	Permanent Impact on Land Use	Temporary Impact on loss of crops	Impact on Loss of Trees	Details of Land			
				Land Area (acre)	No. of Land owner	Compensation (Rs. Million)	Land Type/ Securing method
Transmission Scheme.							
132/33 kV at Gamphajol	Yes	Nil	15	2.96	1	2.79	Direct Purchase on negotiated rate
Extension of 132/33 kV Imphal (PG) substation	Nil	Nil	Nil	NA	NA	NA	MSPCL/ POWERGRID Land
Extension of 132/33 kV Ningthoukhong substation	Nil	Nil	Nil				
Extension of 132/33 kV Yaingangpokpi substation	Nil	Nil	Nil				
Distribution Scheme							
33/11kV at Pishum (GIS)	Yes	Nil	Nil	0.249	NA	NA	Govt. Land through transfer
33/11 kV at Takyel	Yes	Nil	Nil	0.59	NA	NA	
33/11 kV at Hiyangthang	Yes	Nil	Nil	0.73	1	4.424	Direct Purchase on negotiated rate
33/11 kV at Kwakta	Yes	Nil	Nil	0.31	1	1.008	
33/11kV at Leimapokpam	Yes	Nil	Nil	0.63	1	0.955	

4.3. Temporary Impacts Caused due to Transmission/Distribution Line (Right of Way)

4.3.1. Type and Use of Land within Corridor Right of Way

66. The lines corridor will pass through mixed land uses which are generally agricultural land,

private plantation, forest land, govt. land etc. The calculations are based on detailed survey/ investigation carried out along the route of T & D lines and considering the total line length of the line and its right of way. The total line length of transmission line is 34.035 km which will impact an estimated of 227.07 acres[4] of land which is passing through agricultural land only. However, the total 23.152 km distribution line corridor is passing through 13.02 km (48.26 acre) of agricultural land, 3.671 km (13.61 acre) of private plantation, 0.8 km (2.965 acre) of riverine and 5.66 km (20.98 acre) of government/ barren land. The calculations are based on detailed survey/ investigation carried out along the route of distribution lines and considering the total line length of the line and its right of way. A brief description about the type and use of land in the corridor is given in **Table 4.2.**

Table 4.2: Type and Use of Land within Corridor of RoW (in km/ acres)

Name of the Lines	RoW	Agricultural land	Private Plantation	Riverine	Gov/ Barren	Total
Transmission Line						
Imphal (PG) - Ningthoukhong 132kV D/C line	27	32.525 km (217 acre)	NIL	NIl	NIL	32.525 km (217 acre)
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol		1.51 km (10.07 acre)	NIL	NIL	NIL	1.51 km (10.07 acre)
Sub-Total A		**34.035 km (227.07 acre)**	**NIL**	**NIL**	**NIL**	**34.035 km (227.07 acre)**
Distribution Line						
Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	15	NIL	NIL	NIL	0.25 km (0.93 acre)	0.25 km (0.93 acre)
LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)		2.3 km (8.52 acre)	1.27 km (4.71 acre)	NIL	1.21 km (4.48 acre)	4.781 km (17.72 acre)
Iroisemba- Takyel 33 kV line		0.9 km (3.34 acre)	NIL	NIL	4.2 km (15.57 acre)	5.1 km (18.88 acre)
LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)		4.87 km (11.12 acre)	1.424 km (59.31 acre)	Nil	NIL	6.294 km (23.33 acre)
Nambol – Leimapokpam 33 kV line		4.95 km (18.347 acre)	0.977 km (3.621 acre)	0.8 km (2.965 acre)	NIL	6.727 km (24.93 acre)
Sub-Total B		**13.02 km (48.26acre)**	**3.671 km (13.61 acre)**	**0.8 km (2.965 acre)**	**5.66 km (20.98acre)**	**23.152 km (85.81 acre)**
Total		**47.055 Km (275.33 acre)**	**3.671 km (13.61 acre)**	**0.8 km (2.965 acre)**	**5.66 km (20.98acre)**	**57.187 km (312.88 acre)**

Source: Detailed Survey

4.3.2 Total loss of crop area (RoW Corridor & Tower/Pole)

67. For the temporary loss of crops, only agricultural land and private plantation land are considered for estimation. The damages are not done in complete RoW of line (27 m for 132 kV

[4] Total Line Length (kilometers) X Right of Way (meters)X1000/4,047= Area in Acre

D/c) but mostly restricted to tip to tip of the conductor and tower base area where average affected width/corridor would be limited to 20 meter (maximum). In 33 kV distribution lines, damages are minimal (mostly near bi-pole//quad-pole structure) however, 10 meter corridor is considered for accessing the damages. Moreover, all efforts are made to reduce the damages to crops and to minimize the impacts whatsoever. One of the reasons is that schedules of construction activities are undertaken in lean season or post-harvest periods. As the assets of any sorts will not be acquired but during construction, only temporary damages will occur for which the compensation shall be paid to affected persons as per entitlement matrix.

68. Based on the above estimation, the total land considered for crop compensation for transmission/distribution line corridor and tower/pole foundation for the entire subproject covered under the scope of above CPTD is 209.47 acre. Details of estimated impacted area for crop damages are given in **Table 4.3.**

Table 4.3: Estimation on Loss of Land for Crop Damage due to Overhead Lines

Name of the line	Width Considered for Estimation of Loss of Crops and other impacts (Meter)	Total Agricultural Land (km)	Total Private Plantation (km)	Total Line Length Considered for Crop Compensation (km)	Total Land Area considered for Crop Compensation (Acre)
Imphal (PG) - Ningthoukhong 132kV D/C line	20	32.525	NIl	32.525	160.74
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol		1.51	NIL	1.51	7.46
Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	10	NIL	NIL	NIL	NIL
LILO of Yurembam- Mayang-Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)		2.3	1.28	3.58	8.85
Iroisemba- Takyel 33 kV line		0.9	NIL	0.9	2.22
LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)		4.87	1.424	6.294	15.55
Nambol – Leimapokpam 33 kV line		4.95	0.977	5.927	14.65
TOTAL		**47.055**	**3.681**	**50.736**	**209.47**

Source: Detailed Survey

4.3.3 Actual loss of land for Tower Base & Pole

69. As already explained, the impact of transmission line is restricted to 4 legs of the tower and

agriculture can continue after construction activity is over. The average land area will be unavailable for erection of one 132 kV T/L tower and one pole for 33 kV D/L is approx. 0.25 sq.m & 0.092 sq.m. respectively. Based on above, total land loss for construction of 33 kV surveyed distribution line proposed under the present scheme is estimated to be 0.013 acre and that of 132 kV line is 0.007 acre as only stringing and renovation work is involved in 132kV lines. However, compensation toward loss land shall be provided to APs which is part of RoW compensation. Details of land loss for tower base & pole are given in **Table- 4.4**.

Table 4.4: Estimation of Actual Loss of Land for Tower Base & Pole

Name of the line	Line length (km)	Total Tower/Pole (Nos.)	Land loss per tower/ pole base (sq.m.)	Total land loss Area for tower & pole base (sq.m.)
A. Transmission Line				
Imphal (PG) - Ningthoukhong 132kV D/C line	32.525	116	0.25	29
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol	1.51	5	0.25	1.25
Sub-Total A				**30.25≅0.007 acre**
B. Distribution Line				
Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	0.25	11	0.092	1.012
LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)	4.781	116	0.092	10.672
Iroisemba- Takyel 33 kV line	5.1	128	0.092	11.776
LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)	6.294	175	0.092	16.1
Nambol – Leimapokpam 33 kV line	6.727	157	0.092	14.44
Sub-Total B				**54≅0.013 acre**
Total				**84.25≅0.02 acre**

4.3.4 Land area for RoW compensation as per MoP Guidelines

70. Subsequent to the notification of Govt. of Manipur on adoption of MoP guidelines, compensation toward damages in regard to RoW for proposed 132 kV line @ 85% land value for tower base & @ maximum 15% land value for width of RoW corridor as decided District Commissioner or any other authority shall paid to land owners. Details of land areas considered for such compensation is given in **Table 4.5**.

Table 4.5 Land area for RoW Compensation

Name of the line	Line length (km)	Nos. of Tower	Land area for Tower base per km (in acre)	Total land area for tower base (In acre)	*RoW Corridor area per km(In acre)	Total land area for RoW Corridor (In acre)	Total Land area (In acre)
Imphal (PG) - Ningthoukhong 132kV D/C line	32.525	116	0.036	1.171	6.635	215.80	216.97
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol	1.51	5	0.036	0.054	6.635	10.02	10.07

* ***Effective RoW corridor area has been considered after excluding tower base area.***

4.3.5. Loss of Trees

71. Total numbers of trees likely to be affected due to construction of line is approx. 56 which are in private trees. The major species to be affected are Bamboo (*Bambusa vulgaris*), Betel nut (*Areca catechu*) & Shisham (*Dalbergia sissoo*). During construction, private trees will be compensated as per the entitlement matrix. Details on number of trees for each line are given in **Table 4.6**.

Table 4.6: Loss of Trees

Name of Line	Trees in Private Area (Numbers)	Trees in Govt. Area (Numbers)	Total Trees (Numbers)
Imphal (PG) - Ningthoukhong 132kV D/C line	48	Nil	48
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol	3	Nil	3
Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	Nil	Nil	Nil
LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)	Nil	Nil	Nil
Iroisemba- Takyel 33 kV line	5	Nil	5
LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)	Nil	Nil	Nil
Nambol – Leimapokpam 33 kV line	Nil	Nil	Nil
Total	**56**	Nil	**56**

Source: Detailed Survey

4.3.6. Loss of Other Assets (Small Shed in Agriculture Fields)

72. It has been observed during survey that approximately 20 numbers of small structures exist along the right of way of proposed lines. These are small storage sheds/huts which are mostly temporary structure associated with the agricultural fields. People do not use these small structures/sheds for residential purpose and they use it as storage of agricultural purpose only.

During construction, these will be compensated in cash as per the entitlement matrix. Details on impacts on small structures are given in **Table 4.7**.

Table 4.7: Loss of Other Assets

Name of Line	Total Number of Cattle sheds/huts
Imphal (PG) - Ningthoukhong 132kV D/C line	10
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol	1
Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	NIL
LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)	02
Iroisemba- Takyel 33 kV line	03
LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)	02
Nambol – Leimapokpam 33 kV line	02
Total	**20**

Source: Detailed Survey

4.4 Details of Affected Persons

73. It is estimated that total number of affected persons which may be impacted temporarily will be approximately 437 Details are given in **Table 4.8.** The number of APs in the table refers to the most conservative option. State Utilities/ POWERGRID will schedule civil works in such a way to minimize impacts and substantially reduce the damages to crops and therefore the number of affected persons and Agricultural Households (AHH).

Table 4.8: Number of Affected Persons

Name of Line	Total APs
Imphal (PG) - Ningthoukhong 132kV D/C line	300
LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol	6
Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	NIL
LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)	25
Iroisemba- Takyel 33 kV line	52
LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)	24
Nambol – Leimapokpam 33 kV line	30
Total	437

Source: Detailed Survey

4.5 Other Damages

74. As far as possible damages to bunds, water bodies, fish ponds, approach paths, drainage and irrigation canals etc. are avoided. However, if damaged during construction activities, compensation as per practice is paid after assessment of the cost of damage by the State Govt. Revenue Department. The total estimate is submitted for approval to the competent authority. MSPCL/POWERGRID pays the compensation to owners in the presence of local revenue authorities or Village head/ Sarpanch and respective acknowledgements are obtained. Any hindrances to power, telecom carrier & communication lines etc. shall also be paid as per Govt. norms.

4.6 Impact on Indigenous People

75. Government of India, under Article 342 of the Constitution, considers the following characteristics to define indigenous peoples [Scheduled Tribes (ST)]:

(i) tribes' primitive traits;
(ii) distinctive culture;
(iii) shyness with the public at large;
(iv) geographical isolation; and
(v) social and economic backwardness before notifying them as a Scheduled Tribe.

76. Essentially, indigenous people have a social and cultural identity distinct from the 'mainstream' society that makes them vulnerable to being overlooked or marginalized in the development processes. STs, who have no modern means of subsistence, with distinctive culture and are characterized by socio-economic backwardness, could be identified as Indigenous Peoples. Indigenous people are also characterized by cultural continuity. Constitution of India identifies schedule areas which are predominately inhabited by such people.

77. Further, under Article 371 C of Constitution of India provides special provision to the State of Manipur for the Constitution and functions of a committee of the Legislative Assembly of the State consisting of members of that Assembly elected from the Hill Areas of the State. Under this Manipur (Hill Areas) District Council Act was enacted in 1971 which has provisions similar to those contained in the Sixth Schedule and has established six Autonomous Hill District Councils, covering 5 hill districts of the State. These Autonomous Hill District Councils (AHDC) are empowered to maintain and manage the property: movable and immovable, and institutions under

their jurisdiction (e.g. in the field of agriculture, animal husbandry, community development, social and tribal welfare, village planning, management of any forest except RF, regulation of the Jhum /shifting cultivation or any other matter.) Under this act, the administrations of the Tribal areas is vested in village/district council under supervision of concerned DC at local/district level and Hill area Committee at State level. All activities sited in AHDC area needs their consent.

78. The instant project is being implemented in the Imphal East, Churachandpur, Thoubal and Tamenglong districts. However, Churachanpur and Tamenglong are part of Manipur Hill Areas Autonomous District Council Act, 2000 (Manipur Act 11 of 2000) created by Govt. of Manipur, which has approximately 94.32 % of Scheduled Tribe population. Since, the project under NERPSIP is envisaged for economic upliftment of the NE region, hence, no indigenous population will be negatively impacted in the project area. However, It may be noted that all social issues shall be dealt separately in accordance with the provisions of Social Management Framework (SMF, A-C) placed in the MSPCL's ESPPF.

4.7. Summary of Impacts

79. Based on the above assessment, temporary impacts on loss of crops, trees, other structures and number of APs are summarized below in **Table 4.9**.

Table 4.9: Summary of Impacts

Particulars	Details	
	Transmission Line	Distribution Line
Length in km	34.035	23.152
Number of Towers/ Poles	121	587
Total Area of actual land loss under Tower/Pole Base (acre)	0.007	0.013
Total APs	306	131
Affected Structures (Small Sheds for agricultural purpose)	11	09
Area of Temporary Damages for crop compensation (In acre)	168.2	41.27
Total Trees	51	5

Source: Detailed Survey

V. ENTITLEMENTS, ASSISTANCE AND BENEFITS

5.1. Entitlements

80. There is no involuntary acquisition of land involved; only temporary damage will occur during construction of transmission lines for which compensation is paid as per relevant regulations/ norms. APs will be entitled for compensation for land loss and other towards temporary damages to crops/ trees/ structures etc. as per the Entitlement Matrix given in **Table-5.1.** Compensation towards temporary damages to all eligible APs including non-title holders is paid after assessment by relevant authorities of State Govt.

81. All APs are paid compensation for actual damages irrespective of their religion, caste and their economic status. One time additional lump sum assistance will be paid to vulnerable households not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC. As an additional assistance, construction contractors are encouraged to hire local labour that has the necessary skills.

5.2. Entitlement Matrix

82. An Entitlement Matrix for the subprojects is given in **Table 5.1**.

Table 5.1: Entitlement Matrix

Sl.	Type of 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.	Land coming in corridor of width of Right of Way **(#)**	Owner	15% of land cost as decided by Deputy Commissioner
3.	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.
4.	Other damages (if applicable)	All APs	Actual cost as assessed by the concerned authority.
5.	Loss of structure		
(i)	House	Titleholders	Cash compensation at replacement cost (without deduction for salvaged material and depreciation value) plus Rs. 25,000/- assistance (based on

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
			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
(iii)	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
(iv)	Tribal/ Vulnerable APs	Vulnerable APs[5]	One time additional lump sum assistance not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC.

(#) Since Govt. of Manipur has adopted MoP guidelines vide notification dated 28.03.18, land compensation @85% land value for tower base and @15% land value for corridor shall be paid to affected farmers/owners

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

5.3. Procedure of Tree/crop compensation

83. In exercise of the powers conferred by section 164 of the Electricity Act, 2003, Power Department, Govt. of Manipur vide notification dated 16th March, 2016 has authorized MSPCL to exercise all the power vested in the Telegraph Authority under part-III of the Indian Telegraph Act, 1885, to place and maintain transmission lines under over along or across and posts in or upon, any immoveable property. However, the provisions of same act in Section 10 (d) stipulates that the user agency shall pay full compensation to all interested for any damages sustained during the execution of said work. Accordingly, MSPCL/ POWERGRID shall pay compensation to land owners towards damages, if any for tree, crop etc. during implementation of project as well as during operation and maintenance phase. The procedure followed for such compensation is as follows:

84. MSPCL follows the principle of Avoidance, Minimization and Mitigation in the construction of line in agricultural field and cropping areas due to inherent flexibility in phasing the construction activity and tries to defer construction in cropped area to facilitate crop harvesting. However, if it is unavoidable and is likely to affect project schedule, compensation is given at market rate for standing crops. All efforts are also taken to minimize the crop damage to the extent possible in such cases.

[5] Vulnerable APs include scheduled tribes residing in scheduled areas/ physically handicapped/ disabled families etc.

85. As regard of trees coming in the Right of Way (RoW) following procedure is adopted for enumeration:

- All the trees which are coming within the clearance belt of RoW on either side of the center line are identified and marked/numbered from one AP to the other and documented.
- Type, Girth (Measured 1 m. above ground level), approximate height of the tree is also noted for each tree
- Trees belonging to Govt., Forest, Highways and other local bodies may be separately noted down or timely follow up with the concerned authorities for inspection and removal.
- Guava, Lemon, and other hybrid trees which are not of tall growing nature are not marked for cutting since these trees can be crossed using standard tower extensions if required.

86. A notice under Electricity Act, 2003/ Indian Telegraph Act, 1885 is served to the landowners informing that the proposed transmission line is being routed through the property of the individual concerned. The notice shall contain the particulars of the land, ownership details and the details of the trees/crops/land inevitability likely to be damaged during the course of the construction of the proposed transmission line and acknowledgement received from land owners. A copy of said notice is further issued to the Revenue Officer/SDM, who has been authorized by the Manipur Govt. for the purpose of assessment/valuation and disbursement of compensation to the affected parties.

87. The revenue officer shall further issue a notice of intimation to the concerned land owner and inspect the site to verify the documents related to the proof of ownership and a detailed Mouja list is prepared for the identified trees/ crops/ land for tower footing inevitability damaged during the course of the construction. For assessing the true value of timber yielding trees help of forest officials is taken and for fruit bearing trees help of Horticulture department is taken.

88. The Mouja list shall contain the land owner details; type of tree/crop, its present age, variety, yielding pattern etc. and the same is prepared at site in the presence of the land owner. These Mouja lists are further compiled and a random verification is conducted by the concerned DC or his authorized representative in order to ascertain the assessment carried out by the revenue office is genuine and correct. After this process the District Collector/ a tree cutting permit to MSPCL to enable removal / damage to the standing tree/crop identified in the line corridor.

89. Once the tree/crop is removed / damaged, MSPCL shall issue a tree cutting/crop damaged notice to the land owner with a copy to the Revenue Officer to process the compensation payment. Based on the above the compensation payment is generated by means of a computerized programme developed by the National Informatics Center exclusively for this purpose. The detailed Valuation statement thus generated using this programme is verified at various levels and

approval of payment of compensation is accorded by the concerned District Collectors or Council Authority.

90. On approval of compensation, the revenue officer shall further intimate the amount payable to the different landowners and MSPCL/POWERGRID will arrange the payment by way Cheque/online transfer to the affected parties. The payment is further disbursed at the local village office after due verification of the documents in presence of other witnesses. Process of tree/crop compensation is depicted in **Figure-5.1**.

5.4. Land compensation for Tower Footing & RoW Corridor

91. Govt of Manipur adopted the MoP guidelines dated 15th October 2015 for land compensation for tower footing and RoW Corridor on 28th March 2018 which provide payment of @ 85% and @ 15% of land value towards compensation for land coming under tower base and line corridor respectively. Further, as per said guidelines land compensation provisions is only applicable to new or ongoing transmission lines and shall not be applicable in case of existing line, stringing of 2nd circuit, reconductoring/re stringing, repairing, construction of existing towers etc . Since in instance project only stringing and renovation work is involved in proposed 132 kV lines provisions of said guidelines shall not be applicable.

5.4. Compensation for Structure

44. No physical displacement is envisaged in the proposed project. Displacement of structures is normally not envisaged due to flexibility of routing of transmission/distribution line. However, whenever it is necessary, compensation for structures as per entitlement matrix shall be provided **(refer Table 5.1)**. In the instant case, 20 nos. of small structures/sheds likely to be encountered in the right of way of proposed transmission/distribution lines. These are small sheds/ small storage which are associated with the agricultural fields. People do not use these small structures/ sheds for residential purpose. A notice for damage is issued to APs and the joint measurement by MSPCL/ POWERGRID and APs will be done and verified by revenue official for actual damages. The compensation will be paid to the APs as decided by committee based on state government norms. Hence, compensation is paid parallel with the construction activity of line.

5.5. Compensation Disbursement Module

92. In order to streamline the compensation process, a disbursement modules has been developed (**Table -5.2**) specifying the time period with respect to various process/activities which

will be implemented during the project execution.

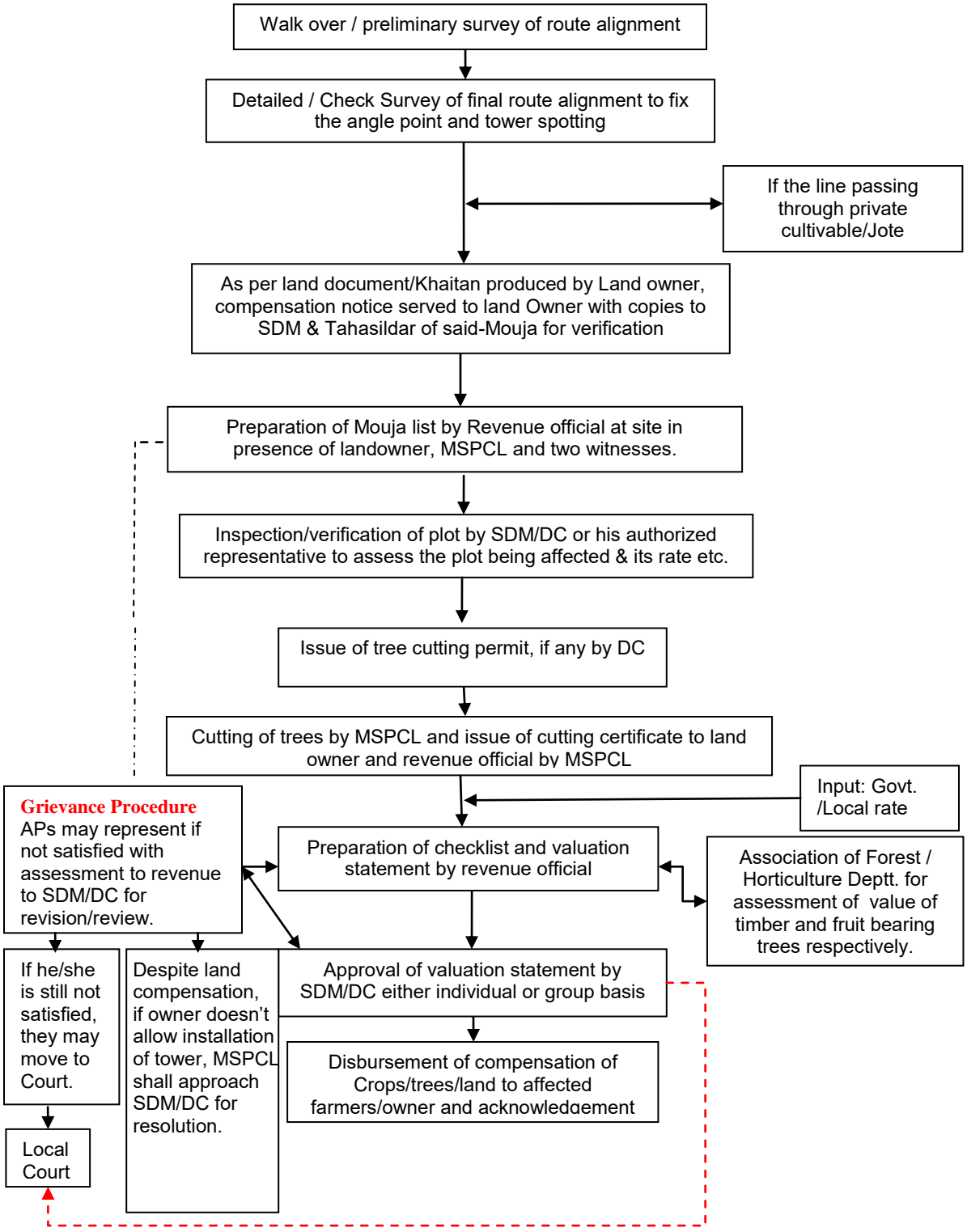
Table 5.2: Compensation Disbursement Module

Activity/Stage	Process	Maximum Time Period from Cut-Off date
Tower Foundation/ Erection/ Stringing	Serving of Notice ***(Cut-off date)***	0 date
	Verification of Ownership by Revenue Deptt.	15 days
	Assessment/Verification of damages by Revenue Deptt.	45 days
	Online disbursement*	60 days**

* ***Provision of advance payment up to 25% (Rs. 1 lakh maximum) of total estimated land compensation already made in the RoW guidelines of POWERGRID and may also be implemented in the NERPSIP after consent of concerned State Utilities.***

** ***60 days is on maximum side. However, based on past experience it's normally concluded within 30-45 days.***

Figure-5.1: Tree / Crop Compensation Process



VI. INFORMATION DISCLOSURE, CONSULTATION & PARTICIPATION

6.1. Consultations

93. Public consultation/information is an integral part of the project implementation. Public is informed about the project at every stage of execution. During survey also MSPCL & POWERGRID site officials meet people and inform them about the routing of transmission and distribution lines. During the construction, every individual, on whose land tower is erected and people affected by RoW, are consulted. Apart from this, Public consultation using different technique like Public Meeting, Small Group Meeting, informal Meeting shall also be carried out during different activities of project cycle. During such consultation the public are informed about the project in general and in particular about the following;

- Complete project plan (i.e. its route and terminating point and substations, if any, in between);
- Design standards in relation to approved international standards;
- Health impacts in relation to EMF;
- Measures taken to avoid public utilities such as school, hospitals, etc.;
- Other impacts associated with transmission & distribution lines and MSPCL approach to minimizing and solving them;
- Trees and crop compensation process.

94. In the instant project also, many group meetings were organized (informally and formally) in all villages where the interventions are likely to happen (**Table - 6.1**). These meetings were attended by Village Council/headman, Senior/respected person of village, interested villagers/general public and representatives from MSPCL & POWERGRID. Besides, gender issues have also been addressed to the extent possible during such consultation process (total 40 female out of 87 participants). To ensure maximum participation, prior intimation in local language was given and such notices were also displayed at prominent places/panchayat office etc. Details of above public consultation meetings including minutes of meeting, list of participants and photographs are enclosed as **Annexure -4**.

Table 6.1 Details of Consultations

Date of meeting	Venue of Meeting	No. of Persons attended	Persons Attended
Public Consultation Meeting			
11.11.2014	Ningthoukhong	17	Project affected families, Village headman & general public, POWERGRID and MSPCL

			officials
Informal Group Meeting			
11.03.2019	Ningthoukhong	09	Project affected families, Village headman & general public
07.11.2018	Gamphajol	12	Project affected families, Village headman
25.01.2018	Leimpokpan	14	Project affected families, Village headman etc.
07.08.2018	Leimpokpan	10	Project affected families, Village headman & interested general public
29.01.2018	Keithelmanbi	25	Project affected families, Village headman & interested general public

95. During consultations/interaction processes with people of the localized areas, MSPCL/POWERGRID field staffs explained benefit of the project, impacts of transmission/distribution line, payment of compensation for damaged of crops, trees, huts etc. as per The Indian Electricity Act, 2003 and The Indian Telegraph Act, 1885 and measures to avoid public utilities such as schools, hospital etc. People more or less welcomed the construction of the proposed project.

96. Various issues inter alia raised by the people during public consultation and informal group meetings are as follows;

- To Involve Village headman during survey work/finalization of line corridor;
- To engage local people in various works associated with construction of line and if required proper training may be provided to engage them.
- Early disbursement of compensation;

97. MSPCL & POWERGRID representative replied their queries satisfactorily and it was assured that compensation would be paid in time after Revenue department fixed/award the amount.

6.2. Plan for further Consultation and Community Participation during Project Implementation

98. The process of such consultation to be continued during project implementation and even during O&M stage. The progress and proposed plan for Public consultation is described in **Table 6.2**

Table 6.2: Plan for Future Consultations

S. N.	Activity	Technique	Schedule
1.	Detailed/ Check survey	Formal/Informal Meeting at different places (20-50 Km) en-route final route alignment of line	Public meeting during pre- construction stage

2.	Construction Phase	Localized group meeting, Pamphlet/ Information brochures, Public display etc.	During entire construction period.
3.	O&M Phase	Information brochures, Operating field offices, Response to public enquiries, Press release etc.	Continuous process as and when required.

6.3. Information Disclosure

99. The CPTD will be disclosed to the affected households and other stakeholders by placing it on website. To maintain the uninterrupted communication channel, MSPCL & POWERGRID site officials are meeting APs and inform about norms and practices of damage assessment and compensation thereof. A notice is also issued to APs after the detailed/ check survey and finalization of tower location during the construction. Affected persons also visit site/construction offices of MSPCL & POWERGRID to know about the compensation norms and policies and to discuss their grievances. For wider circulation, executive summary of the CPTD and Entitlement Matrix will be translated in local language and placed at construction offices/ sites. The CPTD will also be disclosed on the World Bank website. TSECL & POWERGRID will organize further public consultation meetings with the stakeholders to share the views of public and all possible clarifications. This consultation process will continue throughout the project implementation and even during operation and maintenance (O&M) stage.

VII. INSTITUTIONAL ARRANGEMENTS

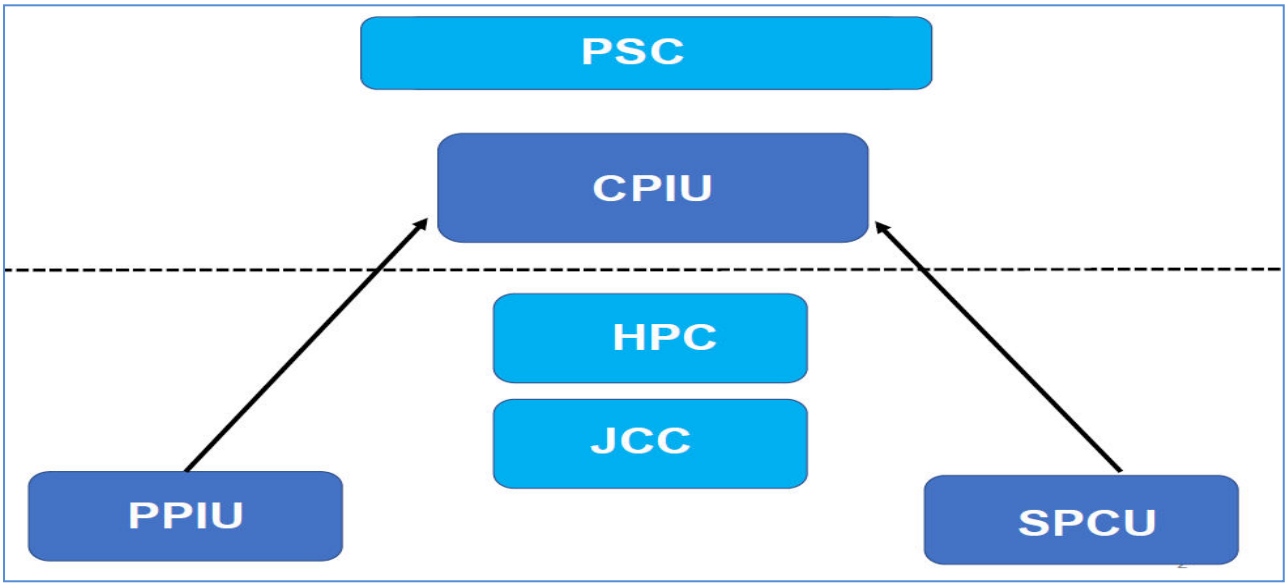
7.1 Administrative Arrangement for Project Implementation

100. Ministry of Power (MoP), GoI has appointed POWERGRID as Implementing Agency (IA) to implement the project in close coordination with the respective state power utilities and departments. POWERGRID will implement the project based on the Implementation/Participation agreements that were signed separately between POWERGRID and the power utilities. . However, the ownership of the assets shall be with respective State government or State Utilities, which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of assets. 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;

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 the Utility.

PMC Project Implementation Unit (PPIU) – A body formed by the IA, including members of Utility on deputation, and responsible for implementing the Project across the State, with its personnel being distributed over work site & working in close association with the SPCU/ CPIU. 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. This team shall represent IA and shall be responsible for all coordination with SPCU, PIU, within IA and MoP, GoI. CPIU shall also assist MoP, GoI in monitoring project progress and in its coordination with The Bank.



7.2. Review of Project Implementation Progress:

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

A. **Joint Co-ordination Committee (JCC):** IA and SPCU nominate their representatives in a body called JCC to review the project. IA shall specify quarterly milestones or targets, which shall be reviewed by JCC through a formal monthly review meeting. This meeting forum shall be called as Joint Co-ordination Committee Meeting (JCCM).The IA shall convene & keep a record of every meeting. MoP, GoI and The Bank may join as and when needed. Minutes of the meeting will be shared with all concerned and if required, with GoI and The Bank.

B. **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.

C. 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 IA 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.

D. 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 IA and shared with all concerned.

7.3. Arrangement for Safeguard Implementation

102. At the central project implementation level (CPIU) based at Guwahati, POWERGRID has set up an Environmental and Social Management cell (ESMC) which is headed by Dy. General Manager(DGM) to oversee Environmental and Social issues of the projects and to coordinate the SPCU & Site Offices.

103. At the State level, POWERGRID has already set up PPIU at the capital of each participating State. The PPIU is staffed with dedicated multidisciplinary team headed by Project Manager who is also responsible for overseeing and implementing the environmental and social aspects of project in their respective state. The PPIU team is assisted by a dedicated Field Officer (Environment & Social Management) who has been specifically recruited for this purpose by POWERGRID. Moreover, State Utilities have constituted State Project Coordination Unit (SPCU) at each state and also designated their Environmental & Social Officer within SPCU to work in close co-ordination with the PMC Project Implementation Unit of POWERGRID and CPIU team at Guwahati. Major responsibilities of Environment and Social team at State level are conducting surveys on environmental and social aspects to finalize the route/substation land, implementation Environment Management Plan (EMP)/CPTD, co-ordination with the various statutory departments, monitoring EMP/CPTD implementation and producing periodic progress reports to CPIU.

104. In the instant subprojects, POWERGRID will implement the CPTD in close co-ordination with MSPCL which includes overall coordination, planning, implementation, financing and maintaining all databases & also work closely with APs and other stakeholders. A central database will also be maintained for regular updation of social assessment & compensation data. State

Utilities & POWERGRID will ensure that local governments are involved in the CPTD implementation to facilitate smooth settlement of compensation related activities. Roles and responsibilities of various agencies for CPTD implementation are presented in **Table 7.1.**

Table 7.1: Agencies Responsible for CPTD Implementation

Activity	Agency Responsible
Implementing CPTD	Field staffs of POWERGRID & MSPCL
Updating the CPTD	POWERGRID & MSPCL
Review and Approval of CPTD	POWERGRID & MSPCL
Verification survey for identification of APs	POWERGRID, MSPCL field staffs & Revenue Officials
Survey for identification of plots for Crop/Tree/ other damages Compensation	POWERGRID, MSPCL & Revenue Officials
Consultation and disclosure of CPTD to APs	POWERGRID, MSPCL & Revenue officials
Compensation award and payment of compensation	Revenue Dept / Competent Authority
Fixing of replace cost and assistance	Revenue Dept / Competent Authority
Payment of replacement cost compensation	POWERGRID, MSPCL
Takeover temporary possession of land/houses	POWERGRID, MSPCL and Revenue Department
Hand over temporary possession land to contractors for construction	POWERGRID & MSPCL
Notify construction starting date to APs	POWERGRID, MSPCL Field Staff
Restoration of temporarily acquired land to its original state including restoration of private or common property resources	Contractors subject to monitoring by POWERGRID, MSPCL
Development, maintenance and updating of Compensation database	POWERGRID, MSPCL
Development, maintenance and updating of central database	POWERGRID, MSPCL
Internal monitoring	POWERGRID, MSPCL
External monitoring, if required	External Monitoring Agency

7.4. Responsibility Matrix to manage RoW Compensation

105. In order to manage the RoW compensation effectively, a Work Time Breakdown (WTB) matrix depicting sequence of activities, timing, agencies responsible have been drawn both for Tree/Crop and Land compensation which will be implemented during project execution.

a) WTB for Tree/Crop Compensation

Activities	Responsibility		Time Schedule
	Primary	Secondary	
Identification of APs (During Tower spotting & Check Survey)	Contractor	MSPCL & IA field staffs	In 3 different Stages i.e. before start of Foundation, Erection & Stringing Works
Serving Notice to APs	MSPCL & IA field staffs	Revenue Dept.,	0 date
Verification of ownership	MSPCL, IA & Revenue Dept.	AHDC (if applicable)	0-15 days
Joint Assessment of damages	Revenue Dept. & APs	MSPCL / IA	16-45 days
Payment (online/DD) of compensation to AP*	MSPCL & IA		46-60 days

b) WTB for Land Compensation** for Tower base and RoW corridor

Activities	Responsibility		Time Schedule
	Primary	Secondary	
Identification of APs (During Tower spotting and Check Survey)	Contractors	MSPCL & IA field staffs	Before start of Foundation/ Erection & Stringing Works
Fixation of land rate	DC, AHDC/ Executive Committee (if applicable)	MSPCL & IA	0 date
Serving Notice to APs	MSPCL, IA field staffs	Revenue Dept.,	0-7 days
Assessment of compensation/ Verification of ownership	Revenue Dept./ AHDC	MSPCL & IA	8-15 days
Payment (online/DD) of compensation to AP*	MSPCL & IA		16-30 days

* ***AP can approach to DC for any grievance on compensation.***

** ***Discussion for release of certain % as advance is also under progress with Utilities.***

Note: Both a and b activities shall run parallel

VIII. GRIEVANCE REDRESS MECHANISM

106. Grievance Redress Mechanism (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. For handling grievance, a two tier GRM consisting of Grievance Redress Committee (GRC) at two levels, i.e. project/scheme level and Corporate/HQ level have been constituted. The project level GRCs include members from MSPCL, POWERGRID, Local Administration, Village Council/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 also disclosed in Panchayat/Village council offices and concerned district headquarter for wider coverage

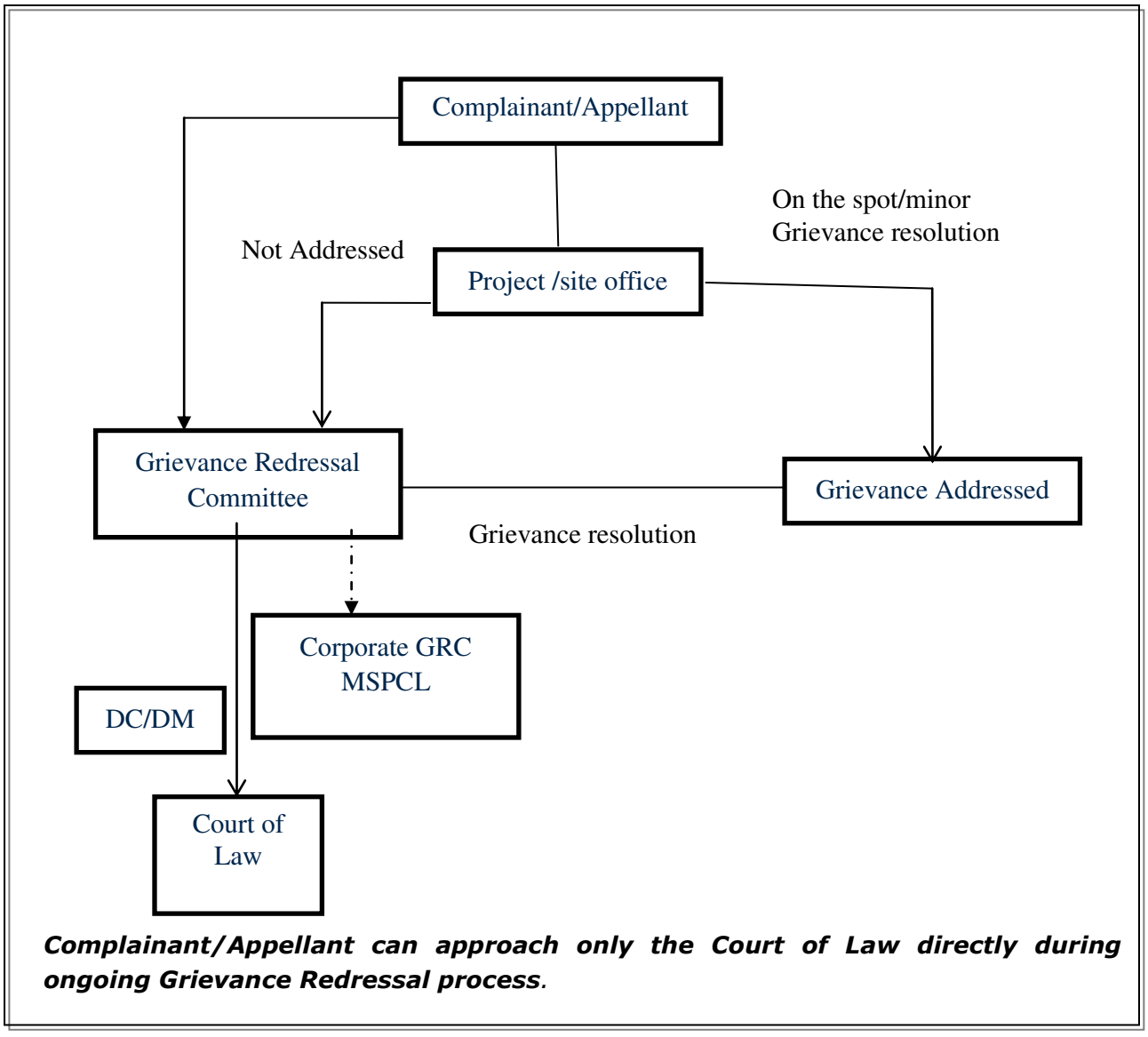
107. The complainant will also be allowed to submit its complaint to local project official who will pass it to GRC immediately but not more than 5 days of receiving such complaint. The first meeting of GRC will be organized within 15 days of its constitution/disclosure to formulate procedure and frequency of meeting. In case of any complaint, GRC meeting shall be convened within 15 days. If Project level GRC is not able to take decision it may refer the complaint to corporate GRC for solution. GRC endeavours to pronounce its decision within 30-45 days of receiving grievances. In case complainant/appellant is not satisfied with the decision of project level GRC they can make an appeal to corporate GRC for review. The proposed mechanism does not impede access to the country's judicial or administrative remedies at any stage.

108. The corporate level GRC shall function under the chairmanship of Director (Transmission) who will nominate other members of GRC including one representative from corporate ESMC who is conversant with the environment & social issues. The meeting of Corporate 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.

109. Apart from above, grievance redressal is in built in crop/tree compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector/ its authorised representative also provides forum for raising the grievance towards any irregularity/complain.

Moreover, MSPCL & POWERGRID officials also address to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful. Details are depicted below in **Figure-8.1**:

Figure-8.1: Flow Chart of Grievance Redress Mechanism



IX. BUDGET

110. The CPTD Implementation cost estimate for the project includes eligible compensation for loss of crops/ trees/ huts and support cost for implementation of CPTD, monitoring, other administrative cost etc. Although the Govt of Manipur adopted the MoP guidelines vide notification dated 28th March 2018, the provisions of land compensation for Tower Base (85% of the land cost) and RoW Corridor (15% of the land cost) shall not be applicable as the instant project involved only stringing and renovation works in proposed 132 kV lines . Therefore, no cost has been estimated for proposed 132 kV line in the budget by including these provisions. The unit cost for the loss of crop has been derived through rapid field appraisal and based on MSPCL & POWERGRID's previous experience of similar project implementation. Contingency provision equivalent to 3% of the total cost has also been made to accommodate any variations from this estimate. Sufficient budget has been provided to cover all compensation towards land use restrictions, crops losses, other damages etc. As per MSPCL & POWERGRID's previous projects and with strategy for minimization of impacts, an average of 50-60% of the affected land area is expected for compensation for crops and other damages. Structure will be avoided to the extent possible. However, if any structure is affected, budget provisions are available to cover all damages as per entitlement matrix. As detailed in above paras, initial study has confirmed that no residential structure shall be affected. Therefore, provisions of budget expenditure for implementation of CPTD for the subprojects considering corridor of 20 meter & 10 meter maximum for 132 kV & 33 kV line respectively.

9.1. Compensation for Land under Tower Base and along RoW Corridor

111. The land area for 132 kV tower base is estimated as 0.036 acre per km respectively. Similarly, for RoW corridor the area is estimated as 6.635 acre per km. The cost of land is estimated @ Rs. 15 lakh/acre considering the land use type as agriculture land in rural setting. Accordingly the cost of land compensation towards tower base & RoW corridor for overhead line is thus estimated as Rs. 523.71 Lakhs. A detail of cost is given below in **Table 9.1**.

Table 9.1: Cost of Land Compensation for Tower Base & RoW Corridor

Name of Line	Line Length (Km)	Land Area for Tower Base (acre)	Land Area for RoW Corridor* (acre)	Avg. Cost of Land (Lakhs / acre)	Total in Lakhs (Tower base @ 85% & Corridor@15%)
Imphal (PG) - Ningthoukhong 132kV D/C line	32.525	1.171	215.80	15.00	500.48
LILO of Yurembam – Karong 132 kV line at Gamphajol	1.51	0.054	10.02	15.00	23.23
Total					**523.71**

**** Effective RoW corridor has been considered after excluding tower base area***

9.2. Compensation for Crops and Trees

112. The crop compensation is calculated in consultation with revenue authorities in terms of yield/hectare and rate/quantity for prevailing crops in the area. Similarly, tree compensation is calculated on basis of tree enumeration, tree species and an estimate of the yield. In case of fruit bearing trees compensation will be calculated on the basis of 8 years yield (assessed by revenue/horticulture department). Market rates of compensation are assessed by the relevant government authorities. The estimation of crop and tree damages are based on preliminary investigation and accordingly budgetary provisions are made which will be updated during implementation. Details of line wise cost are given in **Table 9.2** below.

Table 9.2: Cost of Compensation for Crops and Trees

Sl No	Name of the Line	Total Length (Km)	Compensation /Km (In Lakh)	Total compensation cost for Crops & trees (Lakh)
1.	Imphal (PG) - Ningthoukhong 132kV D/C line	32.525	5.0	162.63
2.	LILO of Yurembam (Imphal-State) – Karong 132 kV line at Gamphajol	1.51	5.0	7.55
3.	Pishum - Mongsangei 33 kV line (MSPCL proposed to make LILO from the existing Mongsangei to Kakwa 33kV line).	0.25	0.5	0.13
4.	LILO of Yurembam- Mayang- Imphal line at Hiyangthang (33kV Mongsangei to Hiyangthang line)	4.781	0.5	2.39
5.	Iroisemba- Takyel 33 kV line	5.1	0.5	2.55
6.	LILO of Moirang - Moirangkhunou 33 kV line at Kwakta (Moirang to Kwakta 33 kV line)	6.294	0.5	3.15
7.	Nambol – Leimapokpam 33 kV line	6.727	0.5	3.36
Total				**181.75**

9.3. Summary of Budget

113. The total indicative cost is estimated for surveyed distribution line to be **INR 924.91 Lakhs** equivalent to **USD 1.424** million. Details are given in **Table 9.3**. The following estimated budget is part of complete project cost as on date. However, actual updation of the estimated cost shall be updated during execution.

Table 9.3: Summary of Budget

Item	Amount in Lakh (INR)	Amount in (Million USD)
A. Compensation		
A-1: Loss of Crops and Trees	181.75	0.280
A-2: Land Compensation for Tower Base and RoW Corridor	523.71	0.807
Sub Total-A	**705.46**	**1.086**
B: Implementation Support Cost		
B-1: Man-power involved for CPTD implementation & Monitoring	4.09	0.006
B-2: Independent Audit (LS) if needed	5.00	0.008
Sub Total- B	**9.09**	**0.014**
Total (A+B)	**714.55**	**1.100**
Contingency (3%)	**21.44**	**0.033**
Grand Total	**735.99**	**1.133**

X. IMPLEMENTATION SCHEDULE

114. Following work schedule has been drawn for implementation of CPTD considering letter of award for execution of work placed in end of 2016. Tentative implementation schedule for project including various sub tasks presented in **Table 10.1**.

Table 10.1 Tentative Implementation Schedule

Sl. No.	Activity	1st Year				2nd Year				3rd Year			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.	**Initial CPTD Matrix disclosure**												
2.	**Detailed Survey**												
3.	**Public Consultation**												
4.	**Compensation Plan Implementation**												
i)	Compilation of land record, ownership,												
ii)	Finalization of list of APs, fixing rate by DC												
iii)	Serving of Notice to APs												
iv)	Joint assessment &acknowledgement by APs												
v)	Validation of Compensation amount												
vi)	Compensation Payment												
5.	**Civil Works**												
6.	**Review/ Activity Monitoring**												
i)	Monthly												
ii)	Quarterly												
iii)	Half yearly												
iv)	Annual												
7.	**Grievance redress**												
8.	**CPTD Documentation**												
9.	**External Monitoring, if required**												

XI. MONITORING AND REPORTING

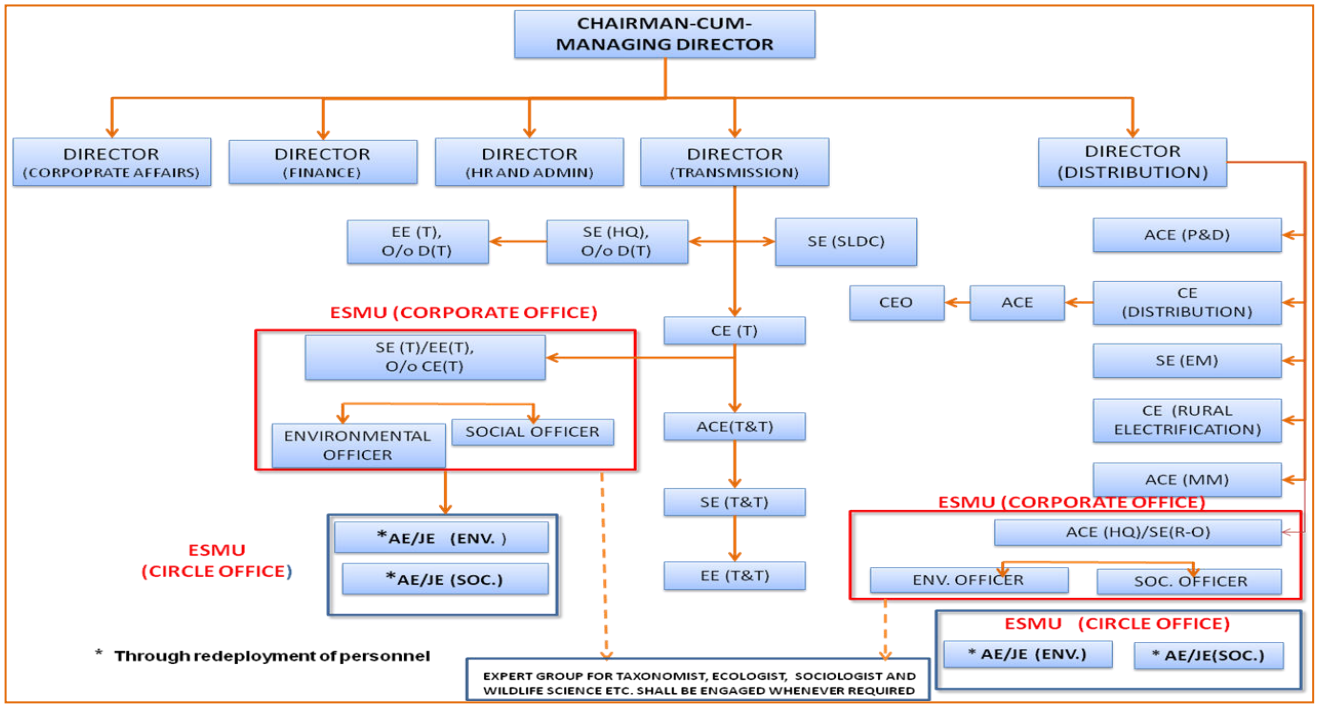
115. Monitoring is a continuous process at all stages of project. Monitoring of CPTD implementation will be the responsibility of POWERGRID as well as the State Utility.

116. Internal monitoring will include: (i) administrative monitoring: daily planning, implementation, feedback and troubleshooting, maintenance, and progress reports and (ii) socio-economic monitoring: compensation for land/crops/trees or any other damages, demolition if any, salvaging materials, dates for consultations and number of grievance/complaints received etc.. Monitoring and reports documenting progress on compensation/ implementation of CPTD will be provided by POWERGRID to World Bank for review semi-annually.

117. If required, POWERGRID/State Utility will engage the services of an independent agency/External monitoring and provisions for the same have been made in the budget component.

118. MSPCL is well equipped to implement and monitor its environment and social management plan including CPTD. Organizational Support Structure of MSPCL for monitoring of above is given in **Figure-11.1**.

Figure – 11.1: MSPCL Support Structure for Safeguard Monitoring



11.1 Status of Compensation (Tree/ Crop / Land / Structures)

119. As explained in previous chapters, compensation for the loss of crops, trees, land, structure etc. are paid to Affected Persons (APs) based on actual damages in 3 different stages i.e. during foundation work, tower erection & stringing as per norms. Till Oct, 2020, out of total of 123 tower locations work in 119 locations have been completed for which land compensation to the tune of Rs 4.69 million already paid to 89 affected persons whereas compensation assessment/ evaluation process for remaining 39 APs are under progress. However, no compensation in respect of tree or crop compensation has been paid against any of the subproject as no tree/crop is damaged till date. Details of line wise compensation status is placed below;

Sl. No.	Name of the Line	Land compensation							Tree/Crop Compensation				Remarks
		Foundation Completed	Total Affected Persons	Compensation already paid to Affected Persons	Compensation for APs under progress	Total Compensation paid for Tower Base	Stringing Completed	Total Compensation paid for RoW Corridor	Total Affected Persons	Compensation already paid to APs	Compensation for APs under progress	Total Compensation paid for Tree & Crop damages	
		(No.)	(No.)	(No.)	(No.)	(Rs. Million)	km	(Rs. Lakh)	(No.)	(No.)	(No.)	(Rs. Million	
1	132 kV D/c Imphal – Nin'khong	99	129	89	40	4.69	18.35	Identifi-cation of land owner under progress	Nil	Nil	Nil	Nil	So far no crops/trees have been damaged
2.	LILO of Yurembam - Karong at Gamphajol	**5**	Nil	Nil	Nil	Nil	Nil		Nil	Nil	Nil	Nil	No towers on private land. Hence, no PAs & compensation
Total		**104**	**124**	**85**	**44**	**4.69**	**18.35**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	

11.2 Status of Grievances

120. No minor or major complaints including court case has been registered till date against any of the subprojects covered under present CPTD.

ANNEXURE – 1

EVALUATION OF ALTERNATIVES ROUTE ALIGNMENT

EVALUATION OF ALTERNATIVES ROUTE ALIGNMENT

A EVALUATION OF ALTERNATIVES ROUTE ALIGNMENT FOR 132 KV S/C IMPHAL - NINGTHOUKHONG T/L

Three (3) different alignments (**Map-2**) were studied with the help of Google Maps and walkover survey to arrive at most optimum route for detailed survey. This was then verified on web-based IBAT database and an image for the same is provided in **Map-3**. The comparative details of these three alternatives in respect of proposed line are as follows:

S.N	Description	Alternative-I	Alternative-II	Alternative-III
1.	**Route particulars (BEE LINE LENGTH:-25.70 KM)**			
i.	Route Length (km)	32.525	31.2	31.5
ii.	Terrain			
	Hilly	-	-	-
	Plain	100%	100%	100%
2.	**Environmental Details**			
i.	Name of District through which the line passes	Imphal west and Bishnupur	Imphal west and Bishnupur	Imphal west and Bishnupur
ii.	Town in alignment	Ningthoukhong. Yurembam, Khabi, Konthoujam, Bomdiyar, Kamong, Upopki, Hairgrujam, Laimaram, Kainou, Nungoipokpi,	Imphal and Ningthoukhong.	Imphal and Ningthoukhong.
iii.	House within ROW	To be ascertained during detailed survey	To be ascertained during detailed survey	To be ascertained during detailed survey
iv.	Forest involvement in Ha/(km)	Nil	Nil	Nil
v.	Type of Forest (RF/PF/Mangrove/ Wildlife Area/ Elephant corridor/ Biodiversity Hotspots/Biosphere Reserve/Wetlands or any other environmentally sensitive area.	N.A.	N.A.	N.A.
vi.	Density of Forests	N.A.	N.A.	N.A.

S.N	Description	Alternative-I	Alternative-II	Alternative-III
vii.	Type of flora	Mango (*Mangifera indica*), Teak (*Tectona grandis*), Champa (*Michelia* champaca), Semal (*Bombax ceiba*), Arjuna (*Terminalia myriocarpa*), Gamari (*Gmelina arborea*) and many bamboo species like *Bambusa vulgaris*, *Melocanna bambusoides,* etc.	Mango (*Mangifera indica*), Teak (*Tectona grandis*) Champa (*Michelia* champaca), ,Semal (*Bombax ceiba*), Arjuna (*Terminalia myriocarpa*), Needlewood (*Skima wallichi*), Gamari (*Gmelina arborea*) and many bamboo species like *Bambusa vulgaris*, *Melocanna bambusoides,* etc	Mango (*Mangifera indica*), Teak (*Tectona grandis*), Champa (*Michelia* champaca), ,Semal (*Bombax ceiba*), Arjuna (*Terminalia myriocarpa*), Needlewood (*Skima wallichi*), Gamari (*Gmelina arborea*) and many bamboo species like *Bambusa vulgaris*, *Melocanna bambusoides,* etc
viii.	Type of fauna	Sparrow (*Passer domesticus*), Monitor Lizard(*Veranus benghalensis*), Boar (*Sus scrofa cristatus*), Fowl (*Gallus gallus*) Cuckoo(*Cuculus micropterus*) Civet cat (*Viverricula indica*) etc.	Sparrow (*Passer domesticus*), Monitor Lizard (*Veranus benghalensis*), Jackel (*Canis aureus*), Jungle cat (*Felis chaus*), Boar (*Sus scrofa cristatus*), fowl (*Gallus gallus*) Cuckoo(*Cuculus micropterus*) Civet cat (*Viverricula indica*) etc.	Sparrow (*Passer domesticus*), Monitor Lizard (*Veranus benghalensis*), Jackel (*Canis aureus*), Jungle cat (*Felis chaus*), Boar (*Sus scrofa cristatus*), fowl (*Gallus gallus*) Cuckoo(*Cuculus micropterus*) Civet cat (*Viverricula indica*) etc.
ix.	Endangered species, if any	Nil	Nil	Nil
x.	Historical/cultural monuments	Nil	Nil	Nil
xi.	Any other relevant information	Line is mostly passing through paddy fields and low lying areas in some portion	Line is mostly passing through paddy fields and low lying areas in some portion Portion of the line (appx. 11 km) is passing through biodiversity areas "Loktak lake and Kaibul Lanjao National Park"	Line is mostly passing through paddy fields and low lying areas in some portion Portion of the line (appx. 10.5 km) is passing through biodiversity areas. "Loktak lake and Kaibul Lanjao National Park"
3	**Compensation Cost (in Lakhs)**			
i.	Crop (Non Forest)	Rs. 5 Lakhs/km	Rs. 5 Lakhs/km	Rs. 5 Lakhs/km
ii.	Forest (CA+NPV)	NA	NA	NA
4.	**No. of Crossings (Nos.)**			
i.	Highway (National/State)	2 (NH)	2	2
ii.	Power line	5	3	3
iii.	Railway line	Nil	Nil	Nil
iv.	River crossing	1	1	2

S.N	Description	Alternative-I	Alternative-II	Alternative-III
5.	Overall Remarks	Comparatively easy as the route alignment is along with existing road and involving mostly paddy fields and low lying areas with minimum RoW problems.	Comparatively difficult due to inaccessibility & more RoW issues.	Comparatively difficult due to in accessibility & more RoW issues

From the comparative analysis it may be seen that Alternative-I is shorter in length than Alternative-II & III and do not involve any protected biodiversity areas/reserved forests, thus, there would be negligible impact on environment. Also this alignment is along NH-150 and is easily accessible through existing approach road/paths. The route is mostly passing through agriculture and revenue land, therefore RoW issue will be minimum. Therefore, Alternative-I is recommended for detailed survey.

B EVALUATION OF ALTERNATIVES ROUTE ALIGNMENT OF ASSOCIATED DISTRIBUTION LINES

The distribution lines proposed under this scheme connect two substations in close vicinity with their line length not exceeding 10 kms. 33 kV line from Mongsangei to Pishum is having length of 10 kms, out of which 5 kms will be constructed overhead and 5 kms will be underground in Imphal west city area in the vicinity of 33 KV Pishum GIS substation. Photograph depicting proposed route alignment/accessibility of both underground and overhead portion. These distribution lines are intended for providing power supply to the predestined areas, thus, having negligible environmental and social impacts. Hence alternative analysis studies are not required.

ANNEXURE – 2

GOVT. OF MANIPUR NOTIFICATION DATED 28TH MARCH 2016 ON ROW COMPENSATION

GOVERNMENT OF MANIPUR
SECRETARIAT: POWER DEPARTMENT

NOTIFICATION

Dated Imphal, the 28th March, 2018.

No. 14/15/2017- Power: The Governor of Manipur is pleased to notify the following methodology for payment of compensation towards damages in regard to Right of Way for transmission lines in accordance with the Guidelines of Ministry of Power, Govt. of India, Vide Ref. No. 3/7/2015-Trans dated 15.10.2015 for maintaining uniformity in compensation payment to the affected land owners during construction of transmission lines. These guidelines of payment methodology of compensation towards "damages" as stipulated in Section 67 & 68 of the Electricity Act, 2003 read with Section 10 and 16 of Indian Telegraph Act 1885 shall be in addition to the compensation towards normal crop and tree damages. This amount will be payable only for transmission lines supported by tower base of 66 KV and above, and not for sub-transmission and distribution lines below 66KV.

I. Compensation @ 85% of the land value as determined by District Magistrate or any other authority based on Circle rate/ Guideline value/ Stamp Act rates for tower base area (between four legs) impacted severely due to installation of tower/pylon structure.

II. Compensation towards diminution of land value in the width of Right of Way (RoW) corridor due to laying of transmission line and imposing certain restriction which would be decided by the States as per categorization/ type of land in different places of States, subject to a maximum of 15% of land value as determined based on Circle rate/ Guideline value/ Stamp Act rates.

III. In areas where land owner/ owners have been offered/ accepted alternate mode of compensation by concerned corporation/ Municipality under Transfer Development Rights(TDR) policy of State, the licensee/ Utility shall deposit compensation amount as per (i) & (ii) above with the concerned Corporation/ Municipality/ Local body or the State Government.

IV. For this purpose, the width of RoW corridor shall not be more than that prescribed in table below and shall not be less than the width directly below the conductors.

Table for RoW width for different voltage line*

Transmission voltage in kV	Width of Right of Way in metres
66 KV	18
132 KV	27
220 KV	35
400 KV S/C	46
400 KV D/C	46
765 S/C(with delta confirguration)	64
765 D/C	67

* Width of Right of Way is as per Ministry of Environment & Forests (MoEF) guidelines dated 05.05.2014.

These guidelines shall be effective from the date of issue of notification for those new transmission line/ projects and balance uncompleted portion of ongoing transmission lines/ project. This notification shall not be applicable for i) existing transmission lines which are already in service or completed portion of all ongoing transmission lines, ii) maintenance of any existing transmission line, iii) stringing of second circuit on the existing Double Circuit transmission towers, iv) re-conductoring / re-stringing of aged transmission lines and v) repairing/ reconstruction of existing transmission towers etc.

This is issued with the approval of the Cabinet in its meeting held on 12/03/2018 and in consultation with Law Department and Finance Department, Govt. of Manipur.

By order etc,

(Rajani Ranjan Rashmi)
Chief Secretary(Power), Govt. of Manipur.

Copy to :

1. Secretary to Chief Minister, Manipur
2. P.P.S. to Minister (Finance/Power/Revenue), Government of Manipur.
3. The Joint Secretary(Trans), Ministry of Power, Government of India, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.
4. Managing Director (MSPCL/MSPDCL).
5. The Executive Director, NERTS, Power Grid Corp. of India Ltd. (PGCIL),Dongtieh, Lower Nongrah, Lapalang, Shillong 793006, Meghalaya.
6. Director, Printing & Stationery, Government of Manipur, for publication in the State Gazette Notification.
7. Guard File.

ANNEXURE – 3

DETAILS OF TOWER/POLE SCHEDULE OF PROPOSED LINES ROUTE ALIGNMENT

CLIENT:P.G.C.I.L

DETAILED SURVEY TOWER SCHEDULE

LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	REMARKS	ANGLE OF DEVIATION	SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
1			Gantry						788.97	43.00	21.50		32.89	32.89		40.10	40.10		VILL-YUREMBAM	93°52'19.20"	24°47'2.81"
2	1	1/0	DD+0(Auxiliary X-Arm Suggested)		47°50'21"RT	43	43	43	788.7	166.00	83.00	10.11	72.71	82.82	2.90	79.81	82.70		VILL-YUREMBAM	93°52'19.08"	24°47'4.18"
3	2	2/0	DD+0		51°00'46"RT	123	123	166	787.94	229.00	114.50	50.29	47.87	98.16	43.49	44.61	87.81	33KV, S/S Boundary, 11KV	VILL-YUREMBAM	93°52'22.37"	24°47'6.81"
4	3	3/0	DD+0		53°42'09"RT	106	106	272	788.24	422.00	211.00	58.13	144.45	202.59	61.39	135.87	197.26	33KV, Nala, 11KV	VILL-YUREMBAM	93°52'26.01"	24°47'6.25"
5		3/1	DA+3	Used +3 tower at 3/1 due to Ground Clearence in between 3/0 & 3/1.		316			787.6	634.00	317.00	171.55	161.68	333.23	180.13	163.38	343.51			93°52'31.11"	24°46'57.05"
6		3/2	DA+3	Used +3 tower at 3/2 due to Ground Clearence in between 3/2 & 4/0.		318			787.13	636.00	318.00	156.32	173.83	330.15	154.62	183.22	337.84			93°52'36.21"	24°46'47.85"
7	4	4/0	DC+0		20°57'23"RT	318	952	1224	787.53	638.00	319.00	144.17	126.84	271.01	134.78	105.84	240.61	2 Nos. Nala, Pond, Vill Road	VILL-YUREMBAM	93°52'41.34"	24°46'38.71"
8		4/1	DA+6	Used +6 tower at 4/1 due to Clearence from 11 KV line in between 4/1 & 5/0.		320			787.38	640.00	320.00	193.16	199.68	392.84	214.16	224.81	438.97	3 Nos. Nala, Pond, Metal Road		93°52'42.84"	24°46'28.37"
9	5	5/0	DB+0		11°04'05"LT	320	640	1864	786.38	640.00	320.00	120.32	142.71	263.03	95.19	131.76	226.95	Pond, Metal Road, 11KV, Nala	VILL-YUREMBAM	93°52'44.33"	24°46'18.04"
10		5/1	DA+3	Used +3 tower at 5/1 due to Ground Clearence for both side.		320			786.43	640.00	320.00	177.29	172.36	349.65	188.24	180.18	368.42			93°52'47.74"	24°46'08.23"
11	6	6/0	DD+0		43°50'52"RT	320	640	2504	787.25	630.00	315.00	147.64	140.66	288.31	139.82	131.58	271.40	2 Nos. Vill Road	VILL-YUREMBAM	93°52'51.15"	24°45'58.41"
12		6/1	DA+3	Used +3 tower at 6/1 due to Ground Clearence for both side.		310			786.7	625.00	312.50	169.34	177.02	346.36	178.42	189.38	367.80			93°52'46.26"	24°45'49.36"
13		6/2	DB+0	Used B type tower instead od A due to Wt. Span Limit Crossed		315	625	3129	786.31	635.00	317.50	137.98	112.95	250.93	125.62	83.15	208.77			93°52'41.21"	24°45'40.02"
14	7	7/0	DD+9	Used +9 tower at 7/0 & 8/0 due to Propossed Rail way line crossing.	09°43'35"RT	320	320	3449	785.61	535.00	267.50	207.05	109.19	316.24	236.85	110.26	347.10	2 Nos. Vill Road, Nala	VILL-YUREMBAM	93°52'36.25"	24°45'30.82"
15	8	8/0	DD+9		14°37'24"RT	215	215	3664	785.41	506.00	253.00	105.81	202.48	308.29	104.74	238.56	343.30	Vill Road, 11KV, Lt Line, 33KV, Proposed Railway	VILL-BHARATPUR	93°52'31.76"	24°45'25.3"
16		8/1	DB+0	Used B type tower instead of A due to Wt. Span		291	291	3955	785.27	608.00	304.00	88.52	143.51	232.03	52.44	134.01	186.46			93°52'23.73"	24°45'19.28"
17		8/2	DA+3	Used +3 tower at 8/2 due to Ground Clearence for both side.		317			784.89	633.00	316.50	173.49	177.46	350.95	182.99	189.78	372.77	River		93°52'14.99"	24°45'12.72"
18	9	9/0	DD+0		36°35'03"RT	316	633	4588	784.5	658.00	329.00	138.54	135.67	274.21	126.22	113.30	239.52		VILL-BHARATPUR	93°52'06.27"	24°45'06.19"
19		9/1	DB+6	Used +6 tower at 9/1 due to Ground Clearence for both side.		342	342	4930	785.16	672.00	336.00	206.33	197.71	404.03	228.70	218.42	447.11			93°51'55.65"	24°45'05.73"
20	10	10/0	DD+0		31°12'25"LT	330	330	5260	785.21	630.00	315.00	132.29	136.88	269.17	111.58	128.57	240.15	Nala, Vill Road, Metal Road, Play Ground	VILL-BHAMDIAR	93°51'42.3"	24°45'05.17"
21		10/1	DA+3	Used +3 tower at 10/1 due to Ground Clearence for both side.		300			784.38	615.00	307.50	163.12	175.87	338.99	171.43	187.50	358.93	Unmetal Road		93°51'33.48"	24°44'59.70"

Checked and found to be in order.

Santosh

SUBMITTED BY:
SHYAMA POWER(I) LTD.

Rehman 26/12/18

Abdur Rohman
Field Engineer (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

CHECKED BY:
P.G.C.I.L

31/12/18

H. RAJEN SINGH
Senior DGM (N.E.R.P.S.I.P.)
POWERGRID, Imphal

KH. DHIRENDRA SINGH
Sr. General Manager (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

APPROVED BY:
P.G.C.I.L

CLIENT:P.G.C.I.L

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LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

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												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
21		10/1	DA+3	Used +3 tower at 10/1 due to Ground Clearence for both side.					784.38	615.00	307.50	163.12	175.87	338.99	171.43	187.50	358.93			93°51'33.48"	24°44'59.70"
						315															
22		10/2	DA+0						784.19	605.00	302.50	139.13	145.63	284.76	127.50	146.02	273.52			93°51'24.22"	24°44'53.96"
						290															
23		10/3	DA+0						784.09	592.00	296.00	144.37	152.14	296.52	143.98	152.86	296.84			93°51'15.69"	24°44'48.68"
						302															
24		10/4	DA+0						783.9	603.00	301.50	149.86	148.51	298.37	149.14	147.25	296.39			93°51'06.81"	24°44'43.18"
						301															
25		10/5	DA+0						784.23	585.00	292.50	152.49	141.55	294.04	153.75	141.27	295.02			93°50'57.96"	24°44'37.70"
						284												FP			
26		10/6	DA+0						784.3	584.00	292.00	142.45	151.63	294.08	142.73	152.67	295.40			93°50'49.61"	24°44'32.53"
						300															
27		10/7	DA+0						784.03	600.00	300.00	148.37	151.69	300.06	147.33	152.77	300.10			93°50'40.79"	24°44'27.06"
						300	2392	7652													
28	11	11/0	DC+0		18°36'54"RT				783.75	570.00	285.00	148.31	10.57	158.88	147.23	-68.22	79.01		VILL-BHAMDIAR	93°50'31.98"	24°44'21.62"
						270												11KV, Vill Road, Play Ground			
29	12	12/0	DD+18	Used +18 tower at 12/0 due to Clearence from 132 KV line in between 12/0 & 13/0.	25°30'33"RT		270	7922	784.27	495.00	247.50	259.43	191.67	451.10	338.22	241.81	580.03		VILL-THANKO	93°50'22.70"	24°44'19.4"
						225												132KV S/C IMPHAL - NINTHOUKHONG T/L, Play Ground			
30	13	13/0	DD+9	Used +18(with 1m RC) tower at 14/0 and +9 tower at 13/0 due to Clearence from 132 KV line in between 13/0 & 14/0.	40°11'00"RT		225	8147	783.45	486.00	243.00	33.33	59.89	93.21	-16.81	15.17	-1.64		VILL-THANKO	93°50'14.76"	24°44'20.35"
						261												132KV S/C IMPHAL - LOKTAK T/L., Pond			
31	14	14/0	DD+18(With 1M RC)		21°50'19"RT		261	8408	783.61	541.00	270.50	201.11	261.67	462.78	245.83	338.72	584.55		VILL-THANKO	93°50'08.79"	24°44'26.92"
						280												Nala, Pond			
32		14/1	DB+0	Used B type tower instead of A due to Wt. Span			280	8688	783.83	505.00	252.50	18.33	84.20	102.53	-58.72	66.28	7.57		-	93°50'5.73"	24°44'35.60"
						225												Pond			
33		14/2	DA+3	Used +3 tower at 14/2 & 15/0 due to Wt. Span limitation at 14/2.					784.34	475.00	237.50	140.80	146.19	286.99	158.72	159.60	318.32			93°50'3.27"	24°44'42.57"
						250	475	9163													
34	15	15/0	DD+0(Auxiliary X-Arm Suggested)		57°47'11"LT				784.42	356.00	178.00	103.81	86.71	190.53	90.40	108.06	198.46		VILL-KHABI	93°50'00.55"	24°44'50.33"
						106												Unmetal Road			
35		15/1	Gantry						784.26	166.00	83.00	19.29	30.30	49.59	-2.06	30.49	28.43			93°49'56.89"	24°44'51.18"
						60												400KV D/C Imphal - Thobal T/L.			
36		15/2	Gantry						784.25	162.00	81.00	29.70	9.56	39.26	29.51	-16.68	12.83			93°49'54.82"	24°44'51.66"
						102	268	9431													
37	16	16/0	DD+0		35°50'45"RT				784.77	434.00	217.00	92.44	146.22	238.66	118.68	133.70	252.37		VILL-KHABI	93°49'51.30"	24°44'52.49"
						332	332	9763										Unmetal Road, Nala			
38	16A	16A/0	DC+3		20°00'02"LT				785.39	657.00	328.50	185.78	164.40	350.18	198.30	165.60	363.90		VILL-KHABI	93°49'43.62"	24°45'00.73"

Santosh

SUBMITTED BY:
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31/12/18
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DETAILED SURVEY TOWER SCHEDULE

LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	REMARKS	ANGLE OF DEVIATION	SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
38	16A	16A/0	DC+3	Used +3 tower at 16A/0 & 17/0 due to Ground Clearence in between 16A/0 &17/0.	20°00'02"LT				785.39	657.00	328.50	185.78	164.40	350.18	198.30	165.60	363.90			93°49'43.62"	24°45'00.73"
39	17	17/0	DD+3		53°36'52"LT	325	325	10088	785.05	638.00	319.00	160.60	157.25	317.86	159.40	157.73	317.13	Nala	VILL-KHABI	93°49'33.44"	24°45'5.15"
40		17/1	DA+3	Used +3 tower at 17/1 due to Wt. Span limitation		313			784.92	611.00	305.50	155.75	143.52	299.27	155.27	140.05	295.32	Nala		93°49'23.24"	24°45'1.25"
41		17/2	DA+3	Used +3 tower at 17/2 due to Ground Clearence for both side.		298			785.82	618.00	309.00	154.48	170.54	325.02	157.95	177.22	335.17	Nala		93°49'13.53"	24°44'57.54"
42		17/3	DA+0			320			786.96	615.00	307.50	149.46	141.04	290.50	142.78	136.95	279.73	Metal Road, LT Line		93°49'3.1"	24°44'53.56"
43		17/4	DA+0			295			788.01	580.00	290.00	153.96	134.86	288.82	158.05	130.03	288.07	Unmetal Road		93°48'53.50"	24°44'49.89"
44	18	18/0	DC+0		15°09'26"RT	285	1511	11599	789.21	603.00	301.50	150.14	137.44	287.58	154.97	123.78	278.76	Vill Road	VILL-KANGMONG	93°48'44.24"	24°44'46.37"
45		18/1	DA+3	Used +3 tower at 18/1due to Ground Clearence for both side.		318			789.99	635.00	317.50	180.56	169.14	349.71	194.22	175.88	370.10			93°48'33.09"	24°44'44.68"
46		18/2	DA+0			317			791.13	618.00	309.00	147.86	140.86	288.71	141.12	134.75	275.87			93°48'21.97"	24°44'42.99"
47		18/3	DA+0			301			792.73	604.00	302.00	160.14	133.06	293.20	166.25	121.38	287.63	Vill Road		93°48'11.41"	24°44'41.38"
48		18/4	DA+0			303			795.81	590.00	295.00	169.94	125.61	295.55	181.62	114.29	295.90			93°48'00.79"	24°44'39.77"
49		18/5	DA+0			287			798.64	574.00	287.00	161.39	124.16	285.55	172.71	111.91	284.63	Vill Road, Pond		93°47'50.72"	24°44'38.24"
50		18/6	DA+0			287			801.7	591.00	295.50	162.84	142.51	305.35	175.09	136.50	311.59			93°47'40.65"	24°44'36.71"
51	19	19/0	DD+0		47°44'47"LT	304	2117	13716	803.29	624.00	312.00	161.49	124.91	286.40	167.50	102.69	270.19	Unmetal Road	VILL-KANGMONG	93°47'30.02"	24°44'35.1"
52		19/1	DA+3	Used +3 tower at 19/1 due to Ground Clearence in between 19/0 & 19/1.		320			806.48	640.00	320.00	195.09	138.74	333.83	217.31	125.28	342.59	Vill Road		93°47'23.83"	24°44'26.42"
53		19/2	DA+3	Used +3 tower at 19/2 & 19/3 due to Ground Clearence in between 19/2 & 19/3 .		320			810.23	640.00	320.00	181.26	131.54	312.80	194.72	113.52	308.24	Nala		93°47'17.64"	24°44'17.74"
54		19/3	DA+3			320			815.25	640.00	320.00	188.46	130.58	319.04	206.48	111.95	318.43			93°47'11.45"	24°44'09.06"
55		19/4	DA+3	Used +3 tower at 19/4 due to Ground Clearence in between 19/4 &19/5.		320			820.44	640.00	320.00	189.42	149.51	338.93	208.05	142.87	350.92	Vill Road		93°47'05.26"	24°44'00.38"

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Field Engineer (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

CHECKED BY:
P.G.C.I.L

H. RAJEN SINGH
Senior DGM (N.E.R.P.S.I.P.)
POWERGRID,Imphal

KH. DHIRENDRA SINGH
Sr General Manager (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

APPROVED BY:
P.G.C.I.L

CLIENT:P.G.C.I.L

DETAILED SURVEY TOWER SCHEDULE

LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	REMARKS	ANGLE OF DEVIATION	SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
55		19/4	DA+3	Used +3 tower at 19/4 due to Ground Clearence in between 19/4 &19/5.					820.44	640.00	320.00	189.42	149.51	338.93	208.05	142.87	350.92			93°47'05.26"	24°44'00.38"
56		19/5	DA+0			320			825.29	620.00	310.00	170.49	126.30	296.78	177.13	111.29	288.42	Vill Road		93°46'59.45"	24°43'52.24"
57		19/6	DA+0			300			829.21	606.00	303.00	173.70	133.91	307.61	188.71	121.82	310.54	Metal Road		93°46'53.53"	24°43'43.94"
58		19/7	DA+0			306			832.43	623.00	311.50	172.09	131.55	303.64	184.18	114.48	298.66	Nala		93°46'47.40"	24°43'35.34"
59		19/8	DA+3	Used +3 tower at 19/8 due to Ground Clearence for both side.		317			834.14	611.00	305.50	185.45	170.01	355.47	202.52	184.59	387.11	Pond		93°46'41.26"	24°43'26.74"
60	20	20/0	DD+0		30°14'58"LT	294	2817	16533	833.41	548.00	274.00	123.99	121.64	245.63	109.41	118.25	227.66	Pond	VILL-LEIMARAM	93°46'35.34"	24°43'18.43"
61		20/1	DA+3	Used +3 tower at 20/1 due to Wt. Span limitation		254			831.16	562.00	281.00	132.36	174.67	307.03	135.75	187.76	323.51	Nala, 11KV, Metal Road		93°46'34.77"	24°43'10.19"
62		20/2	DA+3	Used +3 tower at 20/2 due to Ground Clearence in between 20/1 & 20/2.		308			827.65	624.00	312.00	133.33	191.98	325.31	120.24	213.50	333.74	Unmetal Road		93°46'34.08"	24°43'00.20"
63		20/3	DA+3	Used +3 tower at 20/3 & 20/4 due to Wt. Span limitation at 20/3 & 20/4		316			821.73	634.00	317.00	124.02	190.49	314.50	102.50	210.43	312.92	Nala		93°46'33.37'	24°42'49.54"
64		20/4	DA+3			318			816.21	635.00	317.50	127.51	192.49	320.00	107.57	214.02	321.59			93°46'32.64"	24°42'39.64"
65		20/5	DA+3	Used +3 tower at 20/5 due to Ground Clearence in between 20/5 & 20/6.		317			810.27	631.00	315.50	124.51	217.95	342.46	102.98	256.54	359.53			93°46'31.92"	24°42'29.36"
66		20/6	DB+0	Used B type tower instead of A due to Wt. Span		314	1827	18360	802.72	591.00	295.50	96.05	96.00	192.05	57.46	69.08	126.54	Metal Road		93°46'31.21"	24°42'19.18"
67	21	21/0	DB+0		05°48'19"RT	277	277	18637	809.21	577.00	288.50	181.00	117.65	298.65	207.92	97.16	305.08	Nala	VILL-LERENGBAM	93°46'30.6"	24°42'10.21"
68		21/1	DA+3	Used +3 tower at 21/1 & 21/2 due to Clearence from 11 KV line in between 21/1 & 21/2.		300			811.56	620.00	310.00	182.35	138.01	320.35	202.84	124.08	326.91			93°46'28.87"	24°42'00.59"
69		21/2	DA+3			320			815.44	622.00	311.00	181.99	161.57	343.57	195.92	168.27	364.19	11KV, Metal Road		93°46'27.02"	24°41'50.33"
70		21/3	DA+0			302			816.68	599.00	299.50	140.43	166.58	307.01	133.73	178.03	311.76	Nala		93°46'25.27"	24°41'40.65"
71		21/4	DA+0			297			813.72	583.00	291.50	130.42	168.62	299.05	118.97	184.85	303.82			93°46'23.55"	24°41'31.13"
72		21/5	DA+0			286			809.68	585.00	292.50	117.38	190.69	308.07	101.15	216.78	317.93			93°46'21.90"	24°41'21.96"

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Field Engineer (N.E.R.P.S.I.P.)
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DETAILED SURVEY TOWER SCHEDULE

LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	REMARKS	ANGLE OF DEVIATION	SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
72		21/5	DA+0						809.68	585.00	292.50	117.38	190.69	308.07	101.15	216.78	317.93			93°46'21.90"	24°41'21.96"
73		21/6	DB+0	Used B type tower instead of A due to Wt. Span		299	1804	20441	802.89	575.00	287.50	108.31	116.77	225.08	82.22	103.33	185.55			93°46'20.17"	24°41'12.38"
74		21/7	DA+0			276			806.12	570.00	285.00	159.23	123.31	282.54	172.67	108.30	280.98			93°46'18.51"	24°41'03.21"
75	22	22/0	DB+0		09°43'29"LT	294	570	21011	809.96	614.00	307.00	170.69	166.97	337.67	185.70	171.39	357.09	Vill Road, Nala	VILL-LEIMARAM	93°46'16.89"	24°40'54.12"
76		22/1	DA+3	Used +3 tower at 22/1 due to Ground Clearence in between 22/0 & 22/1.		320			805.73	640.00	320.00	153.03	196.62	349.65	148.61	219.81	368.42	11KV, Metal Road		93°46'16.98"	24°40'43.71"
77		22/2	DA+3	Used +3 tower at 22/2 & 22/3 due to Wt. Span limitation at 22/2 & 22/3.		320			799.27	638.00	319.00	123.38	189.63	313.01	100.19	209.03	309.22			93°46'17.01"	24°40'33.31"
78		22/3	DA+3			318			793.9	638.00	319.00	128.37	186.25	314.61	108.97	202.87	311.84			93°46'17.07"	24°40'22.97"
79		22/4	DA+0			320			792.27	638.00	319.00	133.75	172.86	306.62	117.13	181.64	298.77	Unmetal Road, Nala		93°46'17.13"	24°40'12.56"
80		22/5	DA+3	Used +3 tower at 22/5 due to Ground Clearence in between 22/4 & 22/5.		318			786.84	589.00	294.50	145.14	147.82	292.95	136.36	155.62	291.98	Unmetal Road, Nala		93°46'17.19"	24°40'02.22"
81		22/6	DA+3	Used +6 tower at 22/6 due to Clearence from 11 KV line in between 22/5 & 22/6.		271			785	538.00	269.00	123.18	159.18	282.36	115.38	175.44	290.83	11KV		93°46'17.24"	24°39'53.41"
82	23	23/0	DB+0		12°02'17"RT	267	2134	23145	784.22	443.00	221.50	107.82	59.86	167.68	91.56	42.04	133.60		VILL-LEIMARAM	93°46'17.32"	24°39'44.74"
83		23/1	DA+3	Used +6 tower at 23/1 due to Clearence from 11 KV line in between 23/0 & 23/1.		176			783.95	463.00	231.50	116.14	158.16	274.30	133.96	167.45	301.41	Metal Road, 11KV		93°46'16.08"	24°39'39.11"
84	24	24/0	DD+0		41°11'57"LT	287	463	23608	784.63	409.00	204.50	128.84	36.32	165.15	119.55	20.69	140.24	11KV			
85	25	25/0	DD+3	Used +6 tower at 25/0 due to Clearence from 11 KV line in between 24/0 & 25/0.	38°44'13"RT	122	122	23730	783.29	428.00	214.00	85.68	169.72	255.40	101.31	180.30	281.62	11KV, NH-150	VILL-BISAMPUR	93°46'14.06"	24°39'29.92"
86		25/1	DA+3	Used +3 tower at 25/1 due to Ground Clearence in between 25/1 & 25/2.		306			780.47	626.00	313.00	136.28	178.20	314.48	125.70	189.72	315.42	Nala	VILL-BISAMPUR	93°46'16.11"	24°39'26.38"
87		25/2	DB+0	Used B type tower instead of A due to Wt. Span		320	626	24356	780.26	597.00	298.50	141.80	122.13	263.93	130.28	111.76	242.04	Pond		93°46'14.39"	24°39'16.59"
88		25/3	DA+0			277			782.76	595.00	297.50	154.87	126.94	281.81	165.24	106.64	271.88	11KV, Unmetal Road		93°46'12.59"	24°39'06.35"
89		25/4	DA+3	Used +3 tower at 25/4 due to Ground Clearence for both side.		318			785.38	638.00	319.00	191.06	133.13	324.19	211.36	116.11	327.47			93°46'11.03"	24°38'57.48"
																				93°46'09.24"	24°38'47.31"

Santosh

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SHYAMA POWER(I) LTD.

Abdur Rohman 26/12/18
Abdur Rohman
Field Engineer (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

CHECKED BY:
P.G.C.I.L

31/12/18
H. RAJEN SINGH
Senior DGM (N.E.R.P.S.I.P.)
POWERGRID,Imphal

KH. DHIRENDRA SINGH
Sr. General Manager (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

APPROVED BY:
P.G.C.I.L

CLIENT:P.G.C.I.L

DETAILED SURVEY TOWER SCHEDULE

LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	REMARKS	ANGLE OF DEVIATION	SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
89		25/4	DA+3	Used +3 tower at 25/4 due to Ground Clearence for both side.					785.38	638.00	319.00	191.06	133.13	324.19	211.36	116.11	327.47			93°46'09.24"	24°38'47.31"
90		25/5	DA+3	Used +3 tower at 25/5 & 25/6 due to Ground Clearence in between 25/5 & 25/6 .		320			790.12	640.00	320.00	186.87	135.79	322.66	203.89	120.47	324.35	Nala, Unmetal Road		93°46'07.44"	24°38'37.07"
91		25/6	DA+3			320			794:39	638.00	319.00	184.21	169.95	354.16	199.53	176.89	376.42			93°46'05.65"	24°38'26.83"
92	26	26/0	DC+0		23°34'30"LT	318	1553	25909	795.47	636.00	318.00	148.05	116.73	264.78	141.11	89.96	231.07		VILL-BISAMPUR	93°46'3.89"	24°38'16.66"
93	27	27/0	DD+6	Used +6 tower at 27/0 and + 18 at 28/0 due to Clearence from 132 KV line in between 27/0 & 28/0.	50°14'12"LT	318	318	26227	796.88	523.00	261.50	201.27	7.55	208.82	228.04	-52.57	175.46	Vill Road	VILL-BISAMPUR	93°46'6.61"	24°38'6.62"
94	28	28/0	DD+18		09°26'31"RT	205	205	26432	795.61	330.00	165.00	197.45	203.56	401.01	257.57	292.88	550.46	132KV S/C IMPHAL - LOKTAK T/L,, Vill Road	VILL-BISHNUPUR	93°46'13.11"	24°38'3.66"
95	29	29/0	DD+9	Used +9 tower at 29/0 due to Clearence from 132 KV line in between 28/0 & 29/0.	52°35'38"RT	125	125	26557	794.89	445.00	222.50	-78.56	165.84	87.28	-167.88	169.54	1.65	132KV S/C IMPHAL - NINTHOUKHONG T/L.	VILL-BISHNUPUR	93°46'16.7"	24°38'1.32"
96		29/1	DA+6	Used +6 tower at 29/1 due to Wt Span.		320			796.86	638.00	319.00	154.16	166.07	320.23	150.46	170.55	321.02	Metal Road		93°46'17.22"	24°37'50.57"
97		29/2	DA+3	Used +3 tower at 29/2 due to Clearence from 11 KV line in between 29/2 & 30/0.		318			798.62	605.00	302.50	151.93	166.63	318.56	147.45	181.28	328.73			93°46'17.74"	24°37'40.29"
98	30	30/0	DC+0		21°59'31"RT	287	925	27482	797.96	607.00	303.50	120.37	116.69	237.06	105.72	89.26	194.98	11KV, Metal Road	VILL-BISHNUPUR	93°46'18.22"	24°37'31.43"
99		30/1	DA+3	Used +3 tower at 30/1 & 30/2 due to Ground Clearence in between 30/1 & 30/2		320			802.6	640.00	320.00	203.31	158.47	361.78	230.74	157.50	388.24			93°46'14.37"	24°37'21.61"
100		30/2	DA+3			320			802.87	640.00	320.00	161.53	175.70	337.23	162.50	185.65	348.15	Nala, Metal Road		93°46'10.52"	24°37'11.79"
101		30/3	DA+3	Used +3 tower at 30/3 due to Wt Span Limitation.		320			800.1	640.00	320.00	144.30	169.47	313.76	134.35	175.46	309.82	Unmetal Road		93°46'06.67"	24°37'01.97"
102		30/4	DA+3	Used +3 tower at 30/4 due to Ground Clearence for both side.		320			798.43	640.00	320.00	150.53	188.74	339.27	144.54	206.94	351.48			93°46'02.82"	24°36'52.14"
103		30/5	DA+0			320			796.36	640.00	320.00	131.26	158.53	289.79	113.06	157.59	270.65	11KV, Unmetal Road		93°45'58.97"	24°36'42.32"
104		30/6	DA+3	Used +3 tower at 30/6 due to Ground Clearence for both side.		320			793.62	640.00	320.00	161.47	191.24	352.71	162.41	211.01	373.42			93°45'55.12"	24°36'32.50"
105	31	31/0	DD+0		52°05'22"RT	320	2240	29722	791.11	526.00	263.00	128.76	23.57	152.34	108.99	-26.73	82.26	Nala	VILL-BISHNUPUR	93°45'51.32"	24°36'22.68"
106	32	32/0	DD+6	Used +6 tower at 32/0 due to Clearence from 11 KV line in between 32/0 & 33/0.	58°23'00"LT	206	206	29928	794.13	467.00	233.50	182.43	179.99	362.41	232.73	211.32	444.05	NH-150, 2 Nos. 11KV	VILL-BISHNUPUR	93°45'44.47"	24°36'20.67"

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DETAILED SURVEY TOWER SCHEDULE

LINK:132 KV DC IMPHAL TO NINTHOUKHONGTRANSMISSION LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	REMARKS	ANGLE OF DEVIATION	SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
												LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
106	32	32/0	DD+6	Used +6 tower at 32/0 due to Clearence from 11 KV line in between 32/0 & 33/0.	58°23'00"LT				794.13	467.00	233.50	182.43	179.99	362.41	232.73	211.32	444.05		VILL-BISHNUPUR	93°45'44.47"	24°36'20.67"
107	33	33/0	DB+0		05°08'31"LT	261	261	30189	793.01	541.00	270.50	81.01	142.53	223.54	49.68	144.13	193.80	11KV, Lt Line, Unmetal Road	VILL-NINTHOUKHONG	93°45'42.35"	24°36'12.45"
108		33/1	DA+3	Used +3 tower at 33/1 due to Ground Clearence for both side.		280			789.62	599.00	299.50	137.47	170.42	307.89	135.87	177.33	313.21	Nala		93°45'40.95"	24°36'03.43"
109		33/2	DA+3	Used +3 tower at 33/2 due to Ground Clearence for both side.		319			787.7	639.00	319.50	148.58	174.46	323.04	141.67	183.61	325.28	2 Nos. Nala		93°45'39.35"	24°35'53.15"
110		33/3	DA+0			320			788.15	640.00	320.00	145.54	162.10	307.64	136.39	163.43	299.82	Metal Road		93°45'37.75"	24°35'42.84"
111		33/4	DA+0			320			787.78	640.00	320.00	157.90	138.91	296.81	156.57	125.56	282.13			93°45'36.15"	24°35'32.53"
112		33/5	DA+3	Used +3 tower at 33/5 due to Ground Clearence for both side.		320			788.5	638.00	319.00	181.09	171.95	353.04	194.44	180.15	374.59	Vill Road		93°45'34.55"	24°35'22.22"
113		33/6	DB+0	Used B type tower instead od A due to Wt. Span Limit Crossed		318	1877	32066	789.23	638.00	319.00	146.05	23.89	169.94	137.85	-62.30	75.55			93°45'32.96"	24°35'11.97"
114	34	34/0	DD+25	Used +25 tower at 34/0 and + 9 at 35/0 due to Clearence from 132 KV line in between 34/0 & 35/0.	04°39'46"RT	320	320	32386	788.24	429.00	214.50	296.11	322.28	618.38	382.30	491.84	874.14	Unmetal & Vill Road	VILL-NINTHOUKHONG	93°45'31.37"	24°35'1.66"
115	35	35/0	DD+9		02°00'26"RT	109	109	32495	788.15	139.00	69.50	-213.28	509.62	296.35	-382.84	822.84	440.00	132KV D/C Ningthoukhong - Chora Chandpur	VILL-NINTHOUKHONG	93°45'30.31"	24°34'58.25"
116			Gantry			30	30	32525	788.97	30.00	15.00	-479.62		-479.62	-792.84		-792.84	11KV, S/S Boundary	-	93°45'30.22"	24°34'57.31"

SUBMITTED BY:
SHYAMA POWER(I) LTD.

Abdur Rohman
Field Engineer (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

CHECKED BY:
P.G.C.I.L

H. RAJEN SINGH
Senior DGM (N.E.R.P.S.I.P.)
POWERGRID, Imphal

KH. DHIRENDRA SINGH
Sr. General Manager (N.E.R.P.S.I.P.)
Power Grid Corporation of India Ltd.
Imphal, Manipur

APPROVED BY
P.G.C.I.L

ANNEXURE – 4

DETAILS OF PUBLIC CONSULTATION

Details Public Consultation

1. 132 kV D/C Imphal (POWERGRID)-Ningthoukhong TL

At Nithoukhong 11-03-2019

At Nithoukhong 11-03-2019

2. LILO of 132kV S/C Yurembam (Imphal)-Karong TL at Gamphajol SS

At Gamphajol 07-11-2018

At Gamphajol 10-12-2018

3. 33 kV Line From Nambol S/s to Leimapokpam S/s

At Leimapokpam on 25-01-2018

At Leimapokpam on 07-08-2018

1. 33 kV Line From Yurembam – Noney Line to Keithelmanbi New S/s

At Keithelmanbi on 29-01-2018

At Keithelmanbi on 29-01-2018