

Environment and Social Due Diligence Report

July 2016

IND: Accelerating Infrastructure Investment Facility in India –Western UP Power Transmission Co. Ltd.

Prepared by

India Infrastructure Finance Company Limited for the Asian Development Bank

This report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



Environmental and Social Safeguards Due Diligence Report

CONSTRUCTION OF 765KV AND 400KV TRANSMISSION LINES & ASSOCIATED SUBSTATIONS IN THE STATE OF UTTAR PRADESH




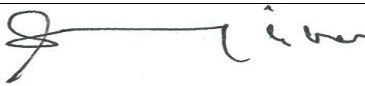


Sub Project Developer – Western UP Power Transmission Company Ltd (WUPPTCL)

ESDDR NO.IIFCL/ESMU/ADB-DL/2016/80

May - 2016

**CONSTRUCTION OF 765KV AND 400KV TRANSMISSION LINES & ASSOCIATED
SUBSTATIONS IN THE STATE OF UTTAR PRADESH****Western UP Power Transmission Company Ltd, Uttar Pradesh****Environmental and Social Safeguards Due Diligence Report**

Prepared By	Dr. Bhavesh K. Singh, Consultant, Environmental Safeguard Specialist, IIFCL Mr. Krupasindhu Guru, Assistant General Manager, IIFCL	 
Review By	Dr. S. S. Garg, General Manager and Head , ESMU, IIFCL	
Approved By	Mr. Sanjeev Ghai, Chief General Manager, IIFCL	

CONTENTS

PROJECT BACKGROUND:	5
1. PURPOSE OF THE REPORT	6
2. SUBPROJECT TITLE	6
3. INTRODUCTION:	6
4. SUBPROJECT SCOPE	7
5. ANALYSIS OF ALTERNATIVES	9
6. PROJECT ADMINISTRATIVE DETAILS:	9
7. PHYSICAL PROGRESS	10
8. PROJECT AGAINST THE PROHIBITED INVESTMENT ACTIVITIES LIST	10
9. STATUS OF REGULATORY PERMISSIONS AND APPROVALS	10
10. EPC CONTRACTOR	12
11. DEBT COMPONENT OF THE PROJECT	12
DUE DILIGENCE ON ENVIRONMENTAL SAFEGUARDS	13
12. AVAILABILITY OF EIA/EMP REPORTS:	14
13. ENVIRONMENTAL SENSITIVITY AND DUE DILIGENCE:	14
14. CATEGORIZATION OF SUB-PROJECT:	15
15. STATUS OF REGULATORY CLEARANCES:	16
16. ENVIRONMENTAL MANAGEMENT & HEALTH SAFETY PLAN:	17
17. PROJECT CONTRACTUAL STRUCTURE:	19
18. SITE VISIT:	19
19. ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE SUBPROJECT:	20
20. CONCLUSIONS AND RECOMMENDATION:	26
DUE DILIGENCE ON SOCIAL SAFEGUARDS	28
21. OBJECTIVE OF SOCIAL SAFEGUARDS DUE DILIGENCE:	29
22. APPROACH AND METHODOLOGY:	29
23. INFORMATION DISCLOSURE AND CONSULTATION:	29
24. SOCIAL IMPACT OF THE PROJECT:	30
24.1 Impact on structure:	30
24.2 Impact on Tribal people:	30
24.3 Impact on land during Foundation, Erection, and Stringing of Transmission Line:	30
24.4 Crop Compensation during Excavation, Erection and Stringing:	32
24.5 Impact on Land d for setting up of sub stations/switchyard;	32
25. GRIEVANCE REDRESSAL MECHANISM:	35
26. LOCAL EMPLOYMENT:	35
27. LABOUR HEALTH, SAFETY, AND HYGIENE OF CONSTRUCTION WORKERS: ..	36
28. SITE VISIT OBSERVATION:	37
29. DISCLOSURE:	37
30. CONCLUSIONS AND RECOMMENDATIONS:	38

List of Table

Table-1: Transmission Line	7
Table-2: Sub-Station.....	8
Table- 3: Switch Yard	8
Table-4: Project Information.....	9
Table-5: Availability of documents	11
Table-6: Status of ambient air quality	21
Table 7 Substation wise status of land acquisition.....	33
Table- 8: Pending litigation cases related to land acquisition and compensation.....	34
Table-9: Employment generated by the EPC Contractor	36

APPENDICES:

APPENDIX-I Transmission License under Section 68 of the Electricity Act-2003	APPENDIX-II Transmission License under Section 14 of the Electricity Act-2003
APPENDIX-III Transmission License under Section 164 of the Electricity Act-2003	APPENDIX-IV Gazette Notification
APPENDIX-V- Labour License	APPENDIX-VI- EPC Contract
APPENDIX-VII Safety Reporting structure of the EPC Contractor	APPENDIX-VIII Public Notice regarding the Project
APPENDIX-IX -Details of Crop compensation during Tower Foundation	APPENDIX-X Details of Crop compensation during Tower Erection
APPENDIX-XI Details of Crop compensation during Tower Stringing	APPENDIX-XII Lease Deed
APPENDIX-XIII Land Conversion Letter	APPENDIX-XIV Labour Insurance
APPENDIX-XV Environmental Impacts and Mitigative Measures	

PROJECT BACKGROUND:

1. PURPOSE OF THE REPORT

1. This Environmental and Social Due Diligence Report (ESDDR) has been carried out by India Infrastructure Finance Company Limited (IIFCL) in consultation with the Concessionaire, Western UP Power Transmission Co. Ltd. (WUPPTCL) to assess the adequacy of the project with the applicable National Safeguard compliance. The report has been prepared as per the documents/information received from the concessionaire and on the basis of site visit observations. In order to be eligible for funding from the ADB, IIFCL has prepared the Environmental and Social Due Diligence Report (ESDDR) for the sub-project on behalf of the concessionaire WUPPTCL. The information given in the ESDDR is agreed and confirmed by the Concessionaire.

2. SUBPROJECT TITLE

2. Construction of 765kv and 400kv transmission lines & associated substations in the state of Uttar Pradesh being implemented on Public Private Partnership (PPP) under Build, Own, Operate, Transfer (BOOT) basis.

3. INTRODUCTION:

3. The Transmission & Distribution system in India is a 3-tier structure comprising distribution networks, state grids and regional grids. The distribution networks and state grids are principally owned by state electricity boards while the interstate and inter-regional transmission lines are owned and operated by PGCIL or its joint ventures. Currently, there are 5 regional transmission grids for the northern, eastern, north eastern, western and southern regions. Transmission was recognized as an independent activity by the Indian government in 1998, with the enactment of the Electricity Laws (Amendment) Act which also allowed private investments in the sector. The Electricity Act, 2003 has created a new paradigm for the development of power sector in the country. In recent years, the number of transactions and quantity of power flows on the transmission grid has increased significantly.

4. In order to overcome the prevailing power deficit conditions and to cater to increase in load growth, the subproject Western UP Power Transmission Company Limited (WUPPTCL) is undertaking to implement the transmission project for the construction of the Transmission lines (765 kV and 400 kV) and the Sub-stations for system strengthening and evacuation of power in the state of Uttar Pradesh. The project was awarded on Public Private Partnership (PPP) basis, through international competitive bidding on the basis of lowest levelized transmission charges quoted in the bid process coordinated by UP Power Transmission Company Limited (UPPTCL).

5. WUPPTCL is implementing the Project on BOOT (Build, Own, Operate, Transfer) basis and is responsible for undertaking ownership, financing, design, engineering, procurement, construction, commissioning, O & M of the Project and to provide Transmission Services for 35 years to the Long Term Transmission Customers.

6. WUPPTCL provide Transmission Services for 35 years to the Long Term Transmission Customers (LTTCs) namely Paschimanchal Vidyut Vitran Nigam Ltd. (PVVNL), Dakshinanchal Vidyut Vitran Nigam Ltd. (DVVNL), Purvanchal Vidyut Vitran Nigam Ltd. (PuVVNL) and Madhyanchal Vidyut Vitran Nigam Ltd. (MVVNL).

7. The Govt. of Uttar Pradesh constituted an Energy Task Force which authorized Uttar Pradesh Power Transmission Corporation Ltd. (UPPTCL) to act as the Bid Process Coordinator (BPC), for the purpose of selection of Bidder as Transmission Service Provider to establish the Transmission Line and Substation. The Project was awarded to the consortium of Cobra Instalaciones Y Servicios SA and Megha Engineering & Infrastructures Ltd (MEIL). UPPTCL, the Bid Process Coordinator (BPC) awarded the Letter of Intent (LOI) to the Consortium on May 31, 2011. Subsequently, the Transmission Service Agreement (TSA) was signed between LTTCs and

WUPPTCL on December 27, 2011. The Consortium quoted an annual levelized tariff of Rs 875 cr and emerged as the successful bidder.

8. The Special Purpose Vehicle created by the BPC to implement the project as Transmission Service Provider (TSP), as Western UP Power Transmission Company Ltd. (WUPPTCL).

9. The Project is estimated to cost Rs 5028.96 Crore and is funded with a debt: equity (including preference equity) ratio of 75:25. The debt requirement of the Project, i.e. Rs. 3771.72. WUPPTCL has awarded LoI to M/s MEIL for a fixed-price fixed-time turnkey EPC contract through International Competitive Bidding. The scope of EPC Contract is expected to include design, engineering, manufacturing, procurement, supply, transportation, erection, installation, construction, start-up and testing of the transmission lines and Substations.

10. The Project was awarded to the consortium (hereinafter to as “the Consortium”) of Megha Engineering & Infrastructures Ltd (hereinafter to as “MEIL”) and Cobra Instalaciones Y Servicios SA (hereinafter referred to as “COBRA”). The Consortium quoted an annual levelized tariff of Rs 875 Crore and emerged as the successful bidder for the PPP Project.

4. SUBPROJECT SCOPE

11. The scope of the Project involves the construction of the following Transmission System for 765 kV S/C Mainpuri- Hapur & Mainpuri- Greater Noida line with 765/400 kV AIS at Hapur & Greater Noida and Associated Schemes/Works: The transmission line is passing through eight districts, The total length of Transmission line is 861 Km. and 1850 numbers of towers are erected. The details of project scope is given in **Table-1, Table-2 and Table-3**

Table-1: Transmission Line

Sl. No.	Transmission Line	District through which transmission line passing through	Distance in Km.	No. of Towers
1.	765 kV SC Mainpuri- Hapur with Quad Bersimis	Mainpuri, Etah, Aligarh, Bulandshar, Gautham Budh Nagar, Gaziabad, Hapur and Bijnore.	250	602
2.	LILO of 400 kV Moradabad- Muradnagar Line at 765 kV Hapur with Twin moose		20	7
3.	400 kV DC (Quad) Hapur- Ataur (Ghaziabad)		65	154
4.	765 kV SC Greater Noida- Hapur with Quad Bersimis		75	187
5.	LILO of 765 kV Meerut (PG)-Agra (PG) at 765 kV Greater Noida with Quad Bersimis		8	35
6.	765 kV SC Mainpuri- Greater Noida with Quad Bersimis		265	494

7.	LILO of 400 kV Muradnagar-Muzaffarnagar at 400 kV Ataur S/S with Twin Moose		40	48
8.	400 kV DC Greater Noida (765 kV)-Sikandarabad with Quad Moose		25	53
9.	LILO of 400 kV Rishikesh- Kashipur at 400 kV Nehtaur S/S with Twin Moose		10	44
10.	400 kV DC (Quad) Ataur (765 kV)-Indirapuram		25	7
11.	400 kV DC (Quad) Hapur- (765 kV) Dasna		23	44
12.	400 kV DC (Quad) Greater Noida (765 kV)- Noida (Sector 148)		55	130
Total			861	1850

Source: PIM

Table-2: Sub-Station

Sl. No	Substation
1	2 X 1500 MVA, 765/ 400 kV, 2 X 500 MVA, 400/ 220 kV AIS at Hapur
2	2 X 1500 MVA, 765/ 400 kV, 2 X 315 MVA, 400/ 220 kV AIS at Greater Noida
3	2 X 500 MVA, 400/ 220 kV, 3 X 60 MVA, 220/ 33 kV GIS at Ataur (Ghaziabad)
4	2 X 500 MVA, 400/ 220 kV AIS at Sikandarabad
5	2 X 200 MVA, 400/ 132 kV AIS at Nehtaur
6	2 X 315 MVA, 400/ 220 kV, 3 X100 MVA, 220/ 132 kV GIS at Dasna
7	2 X 500 MVA, 400/ 220 kV, 3 X 60 MVA, 220/ 33 kV GIS at Indirapuram

Source: PIM

Table- 3: Switch Yard

Sl. No	Switch Yard
1	Hapur: One & Half breaker with double main bus scheme for 765 & 400 kV side & Double Main & Transfer

	scheme for 220 kV side
2	Greater Noida: One & Half breaker with double main bus scheme for 765 & 400 kV side & Double Main & Transfer scheme for 220 kV side
3	Ataur: Double Main Bus scheme for 400 kV, 220 kV & 33 kV side
4	Sikandrabad : One & half breaker with double main bus scheme for 400 kV & Double Main & Transfer scheme for 220 kV side
5	Nehtaur: One & half breaker with double main bus scheme for 400 kV & single main & transfer scheme for 132 kV side
6	Dasna: Double main bus scheme for 400 kV, 220 kV & 132 kV side
7	Indirapuram: Double main bus scheme for 400 kV, 220 kV & 33 kV side.

Source: PIM

5. ANALYSIS OF ALTERNATIVES

12. During the finalization of transmission line, the following points were taken into consideration for selection of optimum transmission route and the best alternative has been selected based upon the criteria of optimum transmission route:

- The proposed transmission line corridor does not pass through any wildlife sanctuary/national park, any ecologically sensitive area or forest area;
- The proposed transmission line does not involve any rehabilitation and resettlement;
- Any monument of cultural or historical importance is not getting affected due to the proposed sections of the project;
- The project does not fall under any Schedule Area and no Tribal People are getting affected;
- The route does not affect any public utility services like playground, school or such other establishments, etc.;
- The proposed route alignment does not intersect any village settlement and also does not pass through any urban establishment in the entire stretch;
- The proposed route alignment has been finalized by avoiding common property resources, viz., schools, colleges, hospitals, community hall, etc.

6. PROJECT ADMINISTRATIVE DETAILS:

13. The summary of project information details is highlighted in the **Table 4**.

Table-4: Project Information

Sl. No.	Component	Project Information
1	Concessionaire	M/s Western UP Power Transmission Company Ltd. (WUPPTCL)
2	Project Name	Construction of 765kv and 400kv transmission lines & associated substations in the state of Uttar Pradesh
3	Means of Finance	Debt: Rs. 3771.72 Cr Equity: Rs.1257.24 Cr.
4	Total Length of Transmission Line	861 Km.
5	Total Numbers of Towers	1850
6	EPC Contractor	M/s Mega Engineering & Infrastructures Ltd. Hyderabad
7	Beneficiaries	Paschimanchal Vidyut Vitran Nigam Ltd., Dakshinanchal Vidyut Vitran Nigam Ltd., Purvanchal Vidyut Vitran Nigam Ltd. and Madhyanchal Vidyut Vitran Nigam Ltd..
8	Debt: Equity Ratio	75:25
9	Project Cost	Rs 5028.96 Crore
10	Promoters	Consortium of M/s Megha Engineering & Infrastructures Limited and M/s Cobra Instalaciones Y Servicios SA

Source: Project Information Memorandum

7. PHYSICAL PROGRESS

14. The project is being implemented with financial assistance from different financial institutes including the Lead Lender Power Finance Corporation Ltd. (PFC), who acts as Facility Agent. A monthly progress report has been prepared by M/s Mega Engineering & Infrastructures Ltd. Hyderabad in consultation with the WUPPTCL. As per the monthly progress report for the month of January 2016 is 100 % transmission line and 91% substation engineering has been completed.

8. PROJECT AGAINST THE PROHIBITED INVESTMENT ACTIVITIES LIST

15. The sub - project does not involve any prohibited activity as per the Prohibited Investment Activities List (PIAL) of ADB.

9. STATUS OF REGULATORY PERMISSIONS AND APPROVALS

16. **Ministry of Power order/sanction under the Electricity Act, 2003:** The Electricity Act, 2003, is an act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity in India. Sanction of Ministry of Energy, Government of UP (GOI) is a mandatory requirement for execution of a new transmission project under the section 68(1) and section 164 of Electricity Act, 2003. The sanction authorizes

WUPPTCL to plan and coordinate activities to commission the new project. The details of required/available of documents for the subproject is given in **Table-5**:

Table-5: Availability of documents

S. No.	Key Environmental & Social Safeguards/ permits/ licenses/ documents requirements	Availability Status	Remark
1.	Environmental & Social Impact Assessment Study (ESIAS)	Not Required	Environmental Impact Assessment Notification dated September 14, 2006 of Ministry of Environment; Forests & Climate Change (MoEFCC) provides a list of project activities requiring prior environmental clearance. This does not include transmission projects; hence no environment clearance from MoEFCC is required for the Project.
2.	License for overhead Transmission Line	Available	Govt. of UP, Ministry of Energy, under sub section (i) of Section 68 of the Electricity Act, 2003, has given approval for laying of overhead transmission line in favor of the SPV WUPPTCL on dated 29 th May 2012. The approval copy of the laying of overhead transmission line attached as Appendix-I .
3	Transmission License	Obtained	UP Electricity Regulatory Commission, Lucknow, under Section 14 of the Electricity Act, 2003 has confers the license to WUPPTCL to undertake the business of establishing, commissioning, operation and maintenance of the transmission line. The approval copy of the license is attached as Appendix-II .
4	Telegraph line permission	Available	Under Section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885 WUPPTCL has been granted approval by the Ministry of Power to establish and operate the transmission line. The copy of the Gazette Notification attached as Appendix-III .
5	Gazette Notification	Available	Under Section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885 WUPPTCL has been granted approval by the Ministry of Power to establish and operate the transmission line. The copy of the Gazette Notification attached as Appendix-IV . The Gazette Notification has been published on dated 26 th November 2012 by Uttar Pradesh Govt.

6	Resettlement Action Plan	Not Applicable	As the proposed transmission line does not affect any village or settlement area in the entire stretch of the project, it is also noted that the resettlement has been completely avoided. Since there is no resettlement impact, Resettlement Action Plan (RAP) is not required to be prepared for the project.
7	Common Property Resources (CPR)	Not Applicable	The project does not affect any common property resources, viz., schools, colleges, hospitals, community hall, etc. in the whole stretch of the subproject.
8	Tribal Development Plan (if required)	Not Applicable	The route does not pass through any Tribal settlement area. The Developer has also confirmed that no tribal population is affected on the project. Thus no Tribal Development Plan is required.
9	Labour License	Available	Labour License has been granted to the subproject Under Sub Section 2 of Section 7 of the Contract Labour (Regulation & Abolition) Act, 1970. The copy of the Certificate of Registration copy is given in Appendix-V .

10. EPC CONTRACTOR

17. M/s Western UP Power Transmission Company Ltd. has signed the Engineering Procurement and Construction Contract (EPC) agreement with M/s Mega Engineering & Infrastructures Ltd., Hyderabad on 23rd August 2012 and the EPC cost is INR 3589.93 Cr. The EPC Contract is attached as **Appendix-VI**.

11. DEBT COMPONENT OF THE PROJECT

18. The total cost of the project is estimated at Rs 5028.96 Crore and is financed with a debt to equity ratio. The total debt requirement for the project is Rs. 3771.72 Cr. and the Equity of the promoter is Rs.1257.24 Cr. The debt¹ allocation to various banks and IIFCL for the proposed project is being financed by a syndication of loan. WUPPTCL, has signed a Common Rupee Loan Agreement with consortium of Lenders comprises of Power Finance Corporation Ltd. (PFC) as the Lead Lender, and the other lenders are comprises of Rural Electrification Corporation Ltd. (REC), India Infrastructure Finance Company Ltd. (IIFCL) and Bank of India (BOI).

¹ The loan sanctioned (Rupees in Crores) by various banks, which include: PFC: Rs.2000.00 Cr., REC: Rs. 1000.00 Cr., IIFCL: Rs. 471.72 Cr. and BOI: Rs. 300.00 Cr.

DUE DILIGENCE ON ENVIRONMENTAL SAFEGUARDS

12. AVAILABILITY OF EIA/EMP REPORTS:

19. The proposed subproject is transmission project and as per EIA Notification 2006 and its subsequent amendment of MOEF&CC, no environmental clearance is required for the transmission project. However, impact assessment has been carried out for the subproject and a consolidated EMP has been prepared considering the environmental impacts (**Appendix-XV**).

13. ENVIRONMENTAL SENSITIVITY AND DUE DILIGENCE:

20. The subproject site was visited by the ESMU Team of IIFCL along with the concessionaire's officials on 21st and 22nd January, 2016 for field verification of environmental safeguards:

- The proposed transmission corridor is near to major towns in the state of Uttar Pradesh. As intimated by WUPPTCL, road network is present all throughout the corridor and at some places, if required; roads will be strengthened by WUPPTCL for ensuring uninterrupted construction activities of project.
- Seven substations (Table 3) are proposed to be constructed. Location of substations are identified ensuring that the substations sites do not involve:
 - human resettlements
 - monuments of cultural or historical importance
 - threat to the survival of any community with special reference to tribal communities
 - public utility services like playgrounds or schools, etc.
 - sanctuaries, national parks, etc.
- All substations will be enclosed in a fenced area. Sufficient space provision will be kept in these substations for future addition of circuits.
- All substations will be controlled from remote by computer-based Supervision Control and Data Acquisition (SCADA) system. The control metering and protection panels with all required Bay Controllers, PLCC panels, etc. will be provided in the Substation Control Building (SCB). The SCB will also house the necessary auxiliary equipment including 415V ACDBs, DC battery chargers and air-conditioning equipment.
- Gap-less type (Zinc Oxide) Lightning (Surge) Arrestors will be used. The Lightning Arrestors will be heavy duty type, station class, single pole per phase, self-supported with porcelain bushings and installed outdoor. Corona-free full flexible ampacity connections will be provided between the surge arrestors and the associated bushings. Each Arrestor will have a pressure relief device for venting gas pressures to prevent explosion in the event of arrestor failure.
- The Lightning Arrestors will be capable of discharging over-voltages occurring during switching of unloaded transformers, reactors and long lines.
- The Lightning Arrestors will protect power transformers, circuit breakers, disconnecting switches, instrument transformers, shunt reactors, etc. with insulation levels.
- In addition to providing Lightning/Surge Arrestors, the substation will be adequately protected from direct lightning strokes by suitably located Lightning Masts

- For communication of voice, protection and control signals, Power Line Carrier Communication (PLCC) system as well as Synchronous Digital Hierarchy (SDH) system over optic fibers of OPGW system will be provided.
- Wave Traps will be provided for all the 765 and 400 kV line feeders to prevent undue loss of carrier signal all power system conditions. Two wave traps will be provided on each feeder.
- A grounding mat will be provided at a depth not less than 600 mm within the substation to provide low impedance to earth for lightning surge and fault energy of the system. To ensure safety to the personnel, it will be designed for permissible touch and step potential. All equipment/structures will be connected to this mat.
- A comprehensive illumination system including lightning fixtures, distribution boards, lighting panels, receptacles, switchboards, cables and wires, conduits, poles and mates, etc. will be provided for entire substation. The illumination system will include all interior lightning and exterior lightning. Substation outdoor lightning will be carried out by fixtures mounted on the lightning masts or separate structures/masts to be provided at appropriate locations.
- Construction/erection works of Substations are under progress. Construction and erection completed works of substations are 98%, 70% and 75% in Lot-I, Lot-II and Lot-III, respectively. Testing and commissioning activities have also been started at Sinkandrabad and Greater Noida substations.
- The substation sites will be leveled considering the scope and cost of the work to the minimum extent. The proposed grade levels will be such that to prevent entry of surrounding storm water into the substation area.
- Water harvesting system will be provided in the substation area to harvest the rainy water to the extent possible and balance water, if any will be discharged suitably outside the substation boundary wall.
- Fire protection walls will be provided around the transformers/reactors as per layout requirements and in line with relevant national/international guidelines.
- Boundary walls will be provided along the periphery of each substation. The wall will be of masonry structure or precast structure with barbed wire fencing.
- The total length of the transmission line is about 861 km and about 1850 towers will be erected. About 287 acre of land is required including RoW and entire land is under possession except stretch (S/C Mainpuri-Greater Noida T/L falls within jurisdiction of Hathras village in in Bartas Khas/Sikandra Rao tehsil) of RoW passing through the forest area. Proposal has been submitted to District Forest Officer for the grant of concerned crossings which is expected shortly. No reserve forest/national park/sanctuary land is involved in the RoW land.
- Occurrence of rare and/or endangered (both flora and fauna) species has not been reported within the project alignment.
- The project corridor (RoW) covers Mainpuri, Etah, Aligarh, Bulandshahar, Gautam Budh Nagar, Gaziabad, Hapur and Bijnore Districts of Uttar Pradesh.

14. CATEGORIZATION OF SUB-PROJECT:

21. The sub-project can be classified as category B based upon ADB's Safeguard Policy Statement (2009). This classification is also based on site visit observation, discussions with the contractors/developer's officials and review of the available documents.

15. STATUS OF REGULATORY CLEARANCES:

22. It is required that the sub-project meets the requirements of appropriate Indian legislations by considering appropriate obligations and guidelines of Regulatory Authorities. The sub project should have necessary national and local regulatory clearances as well as permits and approvals for project implementation. The statutory clearances required with their current status have been provided below:

- **Environmental Clearance:** No environmental clearance is required for the transmission project as per MOEF&CC. However clearance from forest Authority is required for the corridor passes through forest land;
- **Forestry Clearance:** Transmission line is passing through the forest area within the jurisdiction of Hathras village in Bartas Khas/Sikandra Rao tehsils. Proposal for the grant of approval (divert the forest area in favour of Western UP Power Transmission Co. Ltd) has been submitted to the District Forest Officer and approval is expected shortly;
- **License for overhead Transmission Line:** Govt. of UP, Ministry of Energy, under sub section (i) of Section 68 of the Electricity Act. 2003, has given approval for laying of overhead transmission line in favor of the SPV WUPPTCL on dated 29th May 2012. The approval copy of the laying of overhead transmission line attached as Appendix-I;
- **Transmission License:** UP Electricity Regulatory Commission, Lucknow, under Section 14 of the Electricity Act, 2003 has confers the license to WUPPTCL to undertake the business of establishing, commissioning, operation and maintenance of the transmission line. The approval copy of the license is attached as Appendix-II;
- **Telegraph line permission:** Under Section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885 WUPPTCL has been granted approval by the Ministry of Power to establish and operate the transmission line. The copy of the Gazette Notification attached as Appendix-III;
- **Gazette Notification:** Under Section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885 WUPPTCL has been granted approval by the Ministry of Power to establish and operate the transmission line. The copy of the Gazette Notification attached as Appendix-IV. The Gazette Notification has been published on dated 26th November 2012 by Uttar Pradesh Govt;
- **Labour License:** Labour License has been granted to the subproject Under Sub Section 2 of Section 7 of the Contract Labour (Regulation & Abolition) Act, 1970. The copy of the Certificate of Registration is given in Appendix-V;
- **NOC from Airport Authority of India:** No Objection Certificate has been received from Airport Authority of India for height clearance vide letter No. AAI/NOC/2014/258/6877-78 dated 25 July, 2014;
- **Permission from GAIL(India) Limited:** Permission for crossing GAIL's natural gas pipeline has been granted by GAIL (India) Limited vide letter No. GAIL/NCR/GAS/O&M/2014/433 dated 24 July, 2014;
- **Permission from Railway:** Permission for crossing of 400 kV, S/C Quad transmission line at Gangraul Halt (km 1379/1-4), Ghaziabad has been granted by North Central Railway, Allahabad vide letter No. 86- W/KM 1379/1-4 dated 23 December, 2014;

- **NOC from National Highways Authority of India:** No Objection Certificate has been accorded for crossing of NH-91 by 765 kV S/C Mainpuri – Greater Noida Transmission Line at Km 192.175 by NHAI vide letter No. NHAI/PIU-ALG/15016/2014/D-3172 dated 10.02.2014.

16. ENVIRONMENTAL MANAGEMENT & HEALTH SAFETY PLAN:

23. WUPPTCL is committed to execute all construction and operation related activities for the transmission line as per the best established environmental health and safety (EHS) standards. The company is totally committed to the policy of prevention, reduction and elimination of events that could result in loss and damage to men and machinery.

24. The company is further committed to provide a congenial environment and promotion of personal health of workers and staff of the company. The company is committed to ensure that the HSE policy is implemented at all levels of the company by involvement of employees on methods, structures, attitudes and culture.

25. WUPPTCL has commendably considered a large number of potential impacts during the selection of route, which includes avoiding densely populated area, flora & fauna, environmentally sensitive locations such as protected/reserve forests/national parks/sanctuaries, educational institutions/ hospitals compensation for land acquisition, etc.

26. The range of services envisaged to be carried out during O&M phase of the project are listed below:

Transmission Lines:

- a) Routine patrolling of transmission lines at regular intervals.
- b) Visual inspection of insulator discs and jumpers.
- c) Inspection of foundations and completeness of tower members.
- d) Replacement of missing/damaged tower members.
- e) Minor rectification/repair works not involving tower collapse or foundation failure under shut down.
- f) Pre and post monsoon inspections.
- g) Special patrolling on tripping of the line.
- h) Repair of conductor.
- j) Punctured insulator detection in insulator failure prone stretches on need basis without availing shut down.
- k) Replacement of accessories like spacers and vibration dampers.
- l) Rectification in respect of conductor and earth-wire snapping not involving tower collapse.

Substations

- a) Routine and preventive maintenance of Transformers, Reactors and other Bay equipment to be carried out.
- b) Minor rectification / repair works involving shutdown but not involving any kind of collapse/failure.

- c) Breakdown rectification works due to natural calamities/acts of God or otherwise involving any kind of collapse/failure etc. which are of capital nature.
- d) Spares for substation Primary & Auxiliary equipment shall be arranged to cater to emergency requirements in the event of failure of equipment.

27. Article 15.0 of Contract Agreement (**Appendix-VI**) describes the quality, work safety and regulation provision of the project:

- All quality requirements and procedure to be followed during installation of equipment/materials shall be in accordance with the relevant codes and accepted good engineering practice and applicable laws and regulations of the Government of the India.
- MEIL shall ensure proper safety at the site of all the workman, materials and equipment belonging to them or to WUPPTCL or Subcontractor. MEIL shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislations and WUPPTCL
- MEIL shall provide adequate training to WUPPTCL's staff as mutually agreed between MEIL and WUPPTCL during the execution of the Contract (Article 16.0)

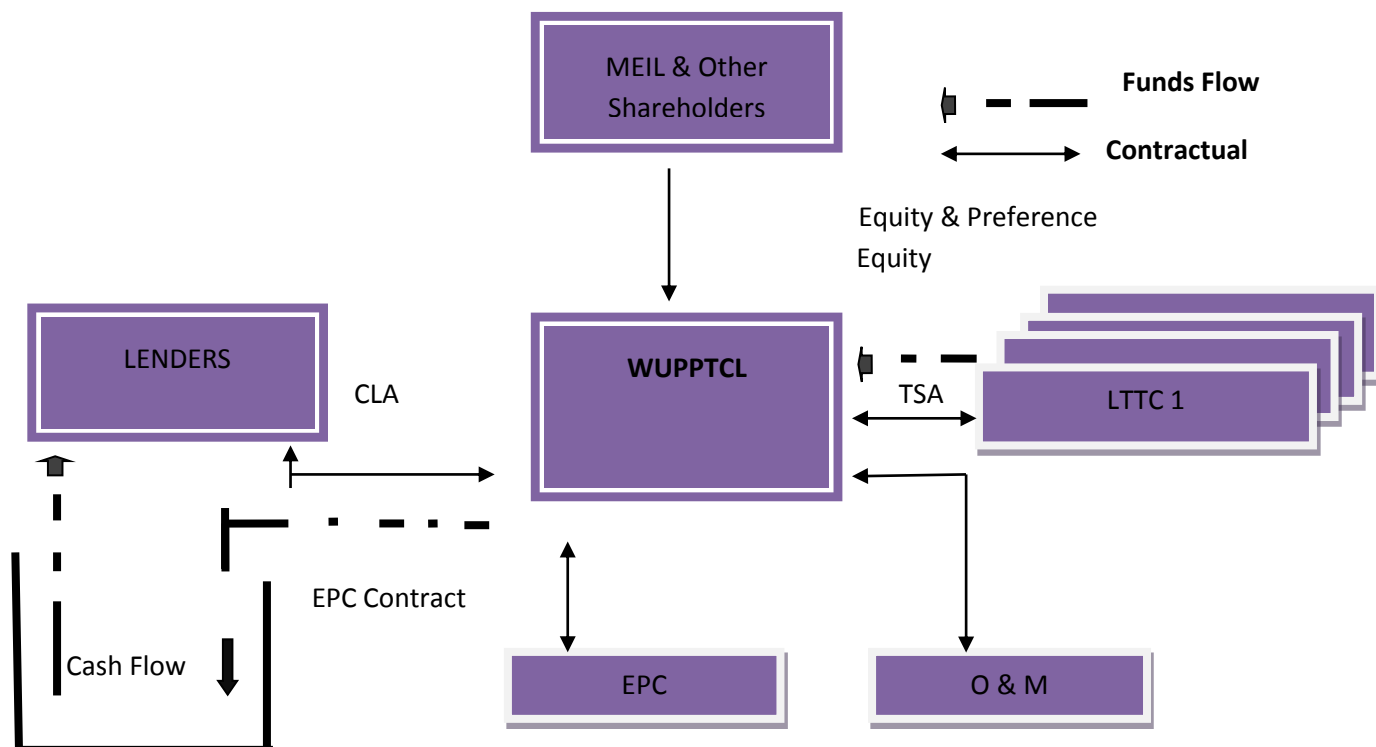
28. WUPPTCL Substation / Transmission Line Safety Reporting Structure are illustrated in **Appendix- VII**. WUPPTCL will ensure that all the contractors comply with the requirements of:

- Housekeeping
- Electrical, Mechanical and Personal Safeguarding;
- Fire Protection and Prevention
- Accident Recording and Investigation; and
- Safety Organization

17. PROJECT CONTRACTUAL STRUCTURE:

29. WUPPTCL is responsible for implementing the project. The following **Figure-1** depicts various stakeholders and the envisaged transaction structure amongst the parties based arrangements/agreements:

Figure-1: Project Contractual Structure



CLA – Common Loan Agreement	O & M – Operation & Maintenance
EPC – Engineering, Procurement Construction	LTTC – Long Term Transmission Customers
TSA – Transmission Service Agreement	

18. SITE VISIT:

30. Site visit was conducted on 21st and 22nd January 2016 by Head ESMU, Environmental Safeguard Specialist and Social Safeguard Specialist of IIFCL. The team also conducted meetings with the officials/workers on site and it was observed that no major & significant impacts are going to be caused due to project construction in proposed corridor of impact.

- A route with the least sensitive ecological areas was selected to minimize adverse environmental impacts and most of the settlements were avoided so that no displacement is involved in this project;
- No reserve/protected forests/national parks/sanctuaries are involved in the project. However, Transmission line is passing through the forest area within the jurisdiction of Hathras village in Bartas Khas/Sikandra Rao tehsils. Proposal for the grant of approval (diversion of forest area in favour of Western UP Power Transmission Co. Ltd) has been submitted to the District Forest Officer and approval is expected shortly;

- No archaeological site will be affected due to construction of this project;
- Self-supporting hot dip galvanized steel towers, designed to carry the line conductors with insulators, earth-wires and fittings under all loading conditions are/being installed. Stringing work is also in progress;
- Vibration dampers cum spacers are also being provided to reduce the damages due to vibration of wires;
- Precautions are being taken to avoid crop damages. To minimize damage to crops in the fields to be traversed by the proposed line, maximum works is being carried out after harvest. In the event that the crops are destroyed, adequate compensation are being provided to the affected farmers;
- All (seven) substations are enclosed in a fenced area. Sufficient space provision has been kept in these substations for future addition of circuits. Offices at substations are well maintained;
- First aid box is available at each substation. In case of major accident/emergency, patient will get treatment in the local reputed hospital;
- Fire safety facilities are also provided in all substations. Personal protective equipment such as gum boots, helmets, jackets and gloves are also provided to the workers;
- Transformer oil drums are stored properly to avoid the soil contamination in case of oil leakage/spillage.

19. ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE SUBPROJECT:

31. Electricity is one of the important requirements for the industrial, commercial and agricultural growth of the region. Transmission line is required for adequate and reliable supply of electricity. Construction and operation of the project will succor the economic growth of the region.

32. The project will affect the general physical, biological and social environments in the immediate project area through the works associated with construction of the line. A project of this magnitude has potential to influence to influence the social and economic activities of the region. Some of these issues are described below:

33. Project area: Transmission line passes through Ghaziabad, Gautam Budh Nagar, Hapur, Etah, Hathrus, Bijnor, Meerut and Mainpuri District of Uttar Pradesh. All Districts are located in the western part of the State. The project site is located mainly between the rivers the Ganga and the Yamuna. Ghaziabad, the District town, is located adjacent to the National Capital. Gautam Bugh Nagar District is also located adjacent to the National capital. Meerut town is located at about 70 km Northeast of Delhi. It is situated between Ghaziabad and Muzaffarnagar Districts in North South Muradabad. District Bijnor forms the eastern part of the Muradabad division. District Manpuri occupies south-western corner of Uttar Pradesh in Agra division.

34. Almost entire region is plan and famous for the success of green revolution. The majority of area along the alignment is covered by unconsolidated sedimentary rock mainly composed of alluvium. Wherever alkaline/saline patches are developed, reh soils are also present. The vast alluvial and sandy tracts occupy the significant part of the region especially in the vicinity of the river.

35. The development of soils in the region can be ascertained to different erosional and depositional agencies. Different morphological units have been bestowed with different types of soils. The soil range from pure sand to stiff clays, with combinations of these two extreme litho units. The pure sand is called Bhur. Clay is called Matiyar.

When the sand is mixed with clay in equal proportion the soil may be termed as Dumat or loam a good agricultural soil.

36. The rainfall in the area is mainly due to southwest monsoon and nearly 80 to 85% of the annual rains occur between July and September. Remaining 15% to 20% rain is distributed unevenly, sometimes rain also occurs between January and March. There is a large variation in rainfall in space and time. The region is endowed with typical climate with extremes in summer as in winters. The mercury shoots up to 40⁰ C or even more during peak summer and dips to less than 5 degree C. during the month of January. Winter spans from December to February. Summer months are March to May which ends with onset of monsoon.

37. Ambient Air Quality: A significant stretch of the transmission line is passing the NCR region and in this region air quality is of prime concern. To describe the existing ambient air quality in the region monitored data of Central Pollution Control Board have been used. Ambient air quality data for the SO₂ and NO₂ reveals that the concentration of SO₂ and NO₂ are within prescribed limit of National Ambient Air Quality Standards of 80 µg/m³. Analysis of Ambient Air Quality data of the NCR region reveals that the concentrations of particulate matter exceeds the 24-hourly prescribed limit of National Ambient Air Quality Standards of 100 and 60 µg/m³ for PM₁₀ and PM_{2.5}. Some representative data, monitored by Central Pollution Control Board are provided in **Table-6**. However in the rural area for example near Jewar in the Gautam Budh Nagar District monitored parameters are well below the prescribed limit.

38. During construction phase of the project air pollution due to vehicular movement and installation of towers and switchyard is envisaged, but the amount of emissions and fugitive dust will not be significant and limited to immediate vicinity of the construction site, therefore, no significant impact on the existing air quality is envisaged. To control the fugitive emission adequate water sprinkling facilities have been provided.

Table-6: Status of ambient air quality

Sampling Date	Name of Monitoring Station	City / Border	Concentration in µg/m ³ (24 Hourly NAAQS 2009 for PM _{2.5} , PM ₁₀ , NO ₂ , SO ₂ is 60, 100, 80, 80 µg/m ³ respectively)			
			SO ₂	NO ₂	PM ₁₀	PM _{2.5}
16.02.15 & 17.02.15 2 days average	Near D.P.S School Village Achheja Hapur	Hapur (Delhi-UP border)	7	24	240	-
16.02.2015*	PAC Ghaziabad Vaishali Near-NH24, 700 meters approx.. from the UP, Delhi border	Ghaziabad (Delhi- UP border)	12	23	155	114
17.02.2015*	PAC Ghaziabad Vaishali Near- NH24, 700 meters approx.. from the UP, Delhi border	Ghaziabad (Delhi- UP border)	11	18	157	158
16.02.2015*	AIPL Apsara border GT road, 1km approx. from the UP, Delhi border	Ghaziabad (Delhi- UP border)	12	23	148	105
17.02.2015*	AIPL Apsara border GT road, 1km approx. from the UP, Delhi border	Ghaziabad (Delhi- UP border)	12	23	161	120
16.02.2015*	Pari Chowk, Greater Noida	Near Expressway (Delhi-UP border)	13	24	152	105
16.02.2015*	Pari Chowk, Greater Noida	Near Expressway (Delhi-UP border)	12	23	146	117
05.12.14	Sahibabad Industrial Area		22.75	35.5	268(RS PM)	
09.12.14	Sahibabad Industrial Area		22.75	36	296(RS)	

					PM)	
12.12.14	Sahibabad Industrial Area		23.5	36	298(RS PM)	
16.12.14	Sahibabad Industrial Area		23.25	37.5	306(RS PM)	
19.12.14	Sahibabad Industrial Area		25	39.75	317.5(R SPM)	
26.12.14	Sahibabad Industrial Area		24	38.5	282(RS PM)	
30.12.14	Sahibabad Industrial Area		23.5	35.75	259(RS PM)	
08.12.14	B.S. Road Industrial Area		23	37.25	271.5(R SPM)	
11.12.14	B.S. Road Industrial Area		22.75	34.75	239.5(R SPM)	
15.12.14	B.S. Road Industrial Area		22.75	35.75	281(RS PM)	
18.12.14	B.S. Road Industrial Area		22	33.75	276.5(R SPM)	
22.12.14	B.S. Road Industrial Area		23.25	36	274.5(R SPM)	
29*.12.14	B.S. Road Industrial Area		24	38	215.5(R SPM)	

Source: Final report on Ambient Air Quality Status in the National Capital Region, in Compliance of Hon'ble Green Tribunal Order Dated 4th December 2014 and 19th January, 2015.

Note: * Monitored by Enviro International

39. Noise pollution that affects people and animals occurs with increase in industrial noise, vehicular noise, friction between vehicles and the road surface, driver's behaviour, as well as maintenance activities. On the basis of literature survey it may be concluded that noise levels in the vicinity of Highways are higher than the prescribed limit of Central Pollution Control Board., However in the rural area existing noise levels are reported below the prescribed limit.

40. Noise levels may increase due to construction activities and vehicular movement but due to intermittent low noise levels generated during construction phase and no significant impact on the existing noise levels is envisaged.

41. Water: The project area is drained by river Yamuna and Ganga and their tributaries namely Hindon and Kali, Minor distributaries of Kali Nadi being Hawa drain Chhoiya Nala and Chhoiya Nadi.

42. On the basis of literature survey it may concluded that river water quality is not suitable for drinking. Biological Oxygen Demand (BOD) and Total Coliforms of Hindon river water at Ghaziabad are 67.20 mg/l and 330000 MPN/100ml. At Meerut the BOD and Total Coliforms (Hindon river) as reported are 56.00 mg/l and 140000 MPN/100ml, respectively. However, at Meerut the Kali River water quality shows BOD 62.00 mg/l and Total Coliforms 210000 MPN/100ml. Water quality of the Ganga River (Downstream) at Garhmukteshwar (Ghaziabad District) shows dissolved oxygen, BOD and Total Coliforms 7.76 mg/l, 30 mg/l and 1500 MPN/100ml, respectively.

43. Substations (of the proposed project) area have been selected considering the impact on the drainage pattern of the area. No steam is affected due to installation of the substations. Towers are also being installed so that no water body should be affected due to the construction activities of the project.

44. Depth to water levels are deep in Loni, Hapur and Garhmukteshwar blocks and show declining trend in ground water due to overexploitation. The areas west of Hindon River represent complex nature of ground water where in pockets; the quality of ground water is bad having high salinity and less medium alkalinity. The quality of ground water in Sahibabad area of Loni block at deeper reaches near 220 kV substations is brackish to saline.

45. Proper arrangements have been made to prevent the discharge of oil waste into any water body. Transformer areas (in the Substation Premises) are provided the concrete pit to collect the waste oil or leakage due to any fault.

46. To improve the ground water level in the vicinity of substation rain water harvesting system will be provided. Ground water recharge pit will be constructed in the considering the topography of the substations area. Drains are being constructed for the smooth flow the storm water and rain water will be used for ground water recharging to the extent possible and balance if any will be discharged in the natural drain.

47. Some E waste and hazardous waste will also be generated during construction and operation of the subproject. E waste will be handled as per E waste (Management and Handling) Rules, 2011 (MoEF&CC) and its amendment in 2015 requirements. Hazardous Waste will be handled satisfying the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 and its subsequent amendments. The occupiers, recyclers, re-processors, re-users and operators of facilities will store the hazardous wastes for the period of not exceeding the number of days as specified in the rule. They will maintain a record of sale, transfer, storage, recycling and reprocessing of such wastes and make the records available for inspections. Requirements of Basel Convention will also be considered in case of transboundary movement of the waste.

48. Biodiversity, which is the wealth of species and ecosystems, may be directly impacted due to construction activities. Large variety of animals including nilgai, chital, wolf, hyena, and deer are reported in the districts from which transmission line is passing. Cows, buffaloes and goats are important domestic animals. Western region of the state is very rich in avifauna. Main crop grown in the area are paddy, maize, wheat, sugarcane, barley and mustard. Variety of fruits and vegetables are also grown in the area such as mango, guava, potato, sorghum, brinjal and cauliflower, etc.

49. No environmental sensitive area will be affected due to construction and O&M activities of the project. However, transmission line RoW is passing through forest area near Mainpuri. Developer has applied to District Forest Officer to work in that stretch. Clearance is expected shortly. No work should be carried out in that stretch without obtaining required clearance. No endangered species are reported along the alignment of the transmission line. No significant impact is envisaged due to the proposed project.

50. Socio-Economic: Ghaziabad and Gautam Budh Nagar are industrialised districts of the State. Salient features of the Districts through which transmission line alignment is passing are provided below

- ❖ District Mainpuri ranks 50th in terms of population in the state.
- The percentage share of urban population in the district is 15.4 percent as against 22.3 percent of the population in urban areas of the state.
- Mainpuri district has population density of 677 persons per sq.km, which is less than the state average 829 persons per sq. km.

- Mainpuri district ranks 49th in terms of sex ratio (881) which is lower than the state average of 912 females per thousand males.
- Mainpuri district ranks 7th in literacy with 76.0 percent which is higher than the state average of 67.7 percent.
- There are only 31 uninhabited villages out of total of 851 villages in the district.
- Decadal growth rate of the district 17.0 percent which is lower than the state average of 20.2 percent.
- Bhogaon tahsil has the highest number (390) of inhabited villages while Karhal tahsil has the lowest number (185) of inhabited villages.
- There are 313,690 households in the district accounting for 0.9 per cent of the total households in the state. The average size of households in the district is 5.9 persons.
- ❖ District Ghaziabad ranks 3rd in terms of population in the state.
- The percentage share of urban population in the district is 67.6 percent as against 22.3 percent of the population in urban areas of the state.
- Ghaziabad district has population density of 3,971 persons per sq.km. which is higher than the state average 829 persons per sq. km?
- Ghaziabad district ranks 48th in terms of sex ratio (881) which is below than the state average of 912 females per thousand males.
- Ghaziabad district ranks 5th in literacy with 78.1 per cent which is higher than the state average 67.7 percent.
- There are only 36 uninhabited villages out of total 547 villages in the district.
- Decadal growth rate of the district is 41.3 percent. It is higher than the state average of 20.2 percent.
- Hapur tahsil has the highest number (202) of inhabited villages while Ghaziabad tehsil has the lowest number (72) of inhabited villages.
- There are 850,676 households in the district accounting for 2.5 percent of the total households in the state. The average size of households in the district is 5.5 persons.
- ❖ District Bijnor ranks 16th in terms of population in the state.
- The percentage share of urban population in the district is 25.1 percent as against 22.3 percent of the population in urban areas of the state
- Bijnor district has population density of 807 persons per sq.km. which is less than the state average 829 persons per sq. km?
- Bijnor district ranks 23th in terms of sex ratio (917) which is higher than the state average of 912 females per thousand males.
- Bijnor district ranks 40th in literacy with 68.5 percent which is higher than the state average of 67.7 percent.

- There are 798 uninhabited villages out of a total of 2,984 villages in the district.
- Decadal growth rate of the district 17.6 percent is lower than the state average of 20.2 percent.
- Dhampur tahsil has the highest number of inhabited villages 658 while Nagina tahsil has the lowest number 352 of inhabited villages.
- There are 633,197 households in the district accounting for 1.9 percent of the total households in the state. The average size of households in the district is 5.8 persons.
- ❖ District Etah ranks 55th in terms of population in the state.
- The percentage share of urban population in the district is 15.1 percent as against 22.3 percent of the population in urban areas of the state.
- Etah district has population density of 730 persons per sq.km. which is less than the state average 829 persons per sq. km?
- Etah district ranks 56th in terms of sex ratio (873) which is lower than the state average of 912 females per thousand males.
- Etah district ranks 28th in literacy with 70.8 percent which is higher than the state average 67.7 percent.
- There are only 29 uninhabited villages out of a total 882 villages in the district.
- Decadal growth rate of the district 15.9 percent is lower than the state average of 20.2 percent.
- Etah tahsil has the highest number of inhabited villages 471 while Jalesar tahsil has the lowest number (150) of inhabited villages.
- There are 290,683 households in the district accounting for 0.9 percent of the total households in the state. The average size of households in the district is 6.1 persons.
- ❖ District Gautam Buddha Nagar ranks 59th in terms of population in the state.
- The percentage share of urban population in the district is 59.1 percent as against 22.3 percent of the population in urban areas of the state.
- • Gautam Buddha Nagar district has a population density of 1,286 persons per sq.km. this is more than the state average of 829 persons per sq. km.
- Gautam Buddha Nagar district ranks 71th in terms of sex ratio (851) which is lower than the state average of 912 females per thousand males.
- Gautam Buddha Nagar district ranks 1st in literacy with 80.1 percent which is higher than the state average 67.7 percent.
- There are only 16 uninhabited villages out of total 320 villages in the district.

- Decadal growth rate of the district is 49.1 percent is higher than the state average of 20.2 percent.
- Gautam Buddha Nagar tahsil has the highest number of inhabited villages (113) while tahsil Jewar has the lowest number (83) of inhabited villages.
- There are 327,090 households in the district accounting for 1.0 per cent of the total households in the state. The average size of households in the district is 5.0 persons

51. The project will, among other things, enhance economic growth in the area and facilitate increased access to power in support of the Rural Electrification. The project will also inspire local economic and social development as it will provide employment opportunities to the local residents. In addition, the project will assist in meeting future objectives of expanding the transmission network. It is against this background that the proposed project is recommended for implementation.

20. CONCLUSIONS AND RECOMMENDATION:

52. Based upon the available documents and site visit, it is concluded that WUPPTCL their EPC contractors has undertaken adequate environmental safeguard measures. The conclusions and recommendations for the sub-project are provided below:

- The sub-project has been prepared by WUPPTCL as per its own funding requirement and not in anticipation to ADB operation;
- The sub-project has necessary national and local level clearance as well as permits and approvals for project implementation. Clearance from Forest Department is awaited for the stretch of RoW passing through the forest area;
- For selection of optimum route the analysis of alternative were taken into consideration for avoiding Sanctuaries, National Park, settlements, educational institutions, hospitals, etc. and it does not infringe with areas of natural resources;
- WUPPTCL is committed to execute all construction and operation related activities for the transmission line as per the best established environmental health and safety (EHS) standards. The specific objectives of the company's HSE policies are;
 - Provision and maintenance of safe, healthy and productive working environment
 - To place paramount emphasis on the prevention of accidents
 - The protection of life, equipment and property
- The company's management directly conveys the message to all the company's staff, workers and subcontractors representatives who are responsible for safety, health and environment;
- Periodic review meetings are conducted to see the effectiveness of the implementation of the EHS plan.
- As observed during site visit, EPC Contractors are taking mitigation measures/precautions to safeguard environment and ensure safety.

- The overhead power line should be laid below the existing gas pipeline (Chanage Km 463.9) at an angle of about 90 degree but not less than 45 degree.
- After laying the overhead power line, proper restoration and compacting should be done by WUPPTCL. A crest should be formed so as to avoid the possibility of depression. Back filling should be carried out as per standard practice.
- Utmost care should be taken to protect GAIL's pipeline/overhead power line and damage to the same if occurred, should be repaired by WUPPTCL as per GAIL's specification.
- No radio/TV Antenna, lighting arresters, staircases and attachments of any kind should project above the Permissible Top Elevation of AAI's Height Clearance.
- Based on the due diligence findings, the sub-project developer has taken adequate measures for environmental management so it can be deduced that the sub-project has no significant environmental safeguard issues.
- The current sub-project, therefore, does not appear to involve any kind of reputational risk to ADB funding on environmental safeguards and recommended for funding under the proposed project.

DUE DILIGENCE ON SOCIAL SAFEGUARDS

21. OBJECTIVE OF SOCIAL SAFEGUARDS DUE DILIGENCE:

53. Social Safeguards due diligence study is carried out to assess the social monitoring compliance status of the project as per the applicable National policies/procedures as observed during the site visit as well as the information received. The main objective of this Social Safeguard Due Diligence Report (SSDDR) is,

- To assess the likely social impacts and its minimization/mitigation majors adopted of the project with respect to land acquisition, compensation and involuntary resettlement, common properties, if any, in terms of displacement, loss of incomes, and community links;
- To ascertain, in case of any adverse impact, if appropriate mitigation measures have been taken during the project planning, designing and frameworks established for carrying out safeguard measures during the implementation stage to minimize and mitigate such if any adverse impacts;

22. APPROACH AND METHODOLOGY:

54. The social due diligence report for the project has been initiated after review of Information Memorandum (IM), DPR, all other clearances, licenses, Gazette notification, and notice Under Section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885. On site visit and detail consultation/discussion with the project developer WUPPTCL and various permits and approvals relating to the project to understand the salient features of the project and social concerns. The following documents/Reports/Licenses and notifications were referred in order to prepare the Social Safeguard Due Diligence Report:

- Information Memorandum (IM);
- Detail Project Report (DPR)
- Lenders Independents Engineers Report (LIE) (January 2016);
- Gazette Notification;
- Transmission License;
- Labour License;
- Notice under Indian Telegraphic Act, 1885
- Information regarding the methodology adopted for crop compensation;
- Discussion with developer.

23. INFORMATION DISCLOSURE AND CONSULTATION:

55. The Transmission project was disclosed through Gazette Notifications by Uttar Pradesh Govt. on dated 26th November 2012, under Section 164 of the Electricity Act, 2003 and under Indian Telegraph Act, 1885 attached as Appendix-IV.

56. Further, the notification which was published in the English daily News Paper “The Times of India on 29TH April 2012 on behalf of WUPPTCL have also been disclosed for the local people by Uttar Pradesh Electricity Regulatory Commission (UPERC). Moreover the details about the project which were published in the Vernacular language in the regional daily in English and Hindi Daily Newspapers like “The Hindustan Times” (English), “The Indian Express ” (English), “The Rashtriya Sahara ” (Hindi), and “The Hindustan” (Hindi) on dated 14th February 2012 simultaneously. The Public Notice regarding the project has been attached as **Appendix-VIII**.

57. **Gazette Notifications:** The Gazette of UP is a public journal and an authorized legal document of the Government of UP. It is authentic in content, accurate and strictly in accordance with the Government policies and decisions. Through the Gazette Notifications, the State Government, declared its intention to placing of telegraph lines and posts for the purpose of a telegraph established or maintained, undertake survey, construction, installation, inspection erection and other works to be followed by commissioning, operation, maintenance and other works for the transmission line in UP. The copy of Gazette Notifications attached in **Appendix-IV**.

58. **Notice issued to the affected people:** Under the Indian Telegraphic Act. 1884, section 10 to 19 read with section 42 of Electricity (Supply) Act 1984, notices is issued to the affected land owner. The notice/intimation letters were issued to the project affected people to communicate them about the project and the transmission line will go through the property. It was also documented in the notice that due care will be taken to minimize the damage, if damage occurred to any standing crops and trees then compensation is being paid during the excavation, erection and stringing of the line. The notice was framed in vernacular languages both in English and Hindi which was handed over to the owner of the property with receiving. The copy of the notice to the land owner, crop compensation evaluation sheets, measurement sheet of the affected area, personal detail of the land owners, bank details and regarding the tower foundation, erection and stringing is given in **Appendix-IX, Appendix- X and Appendix-XI**.

24. SOCIAL IMPACT OF THE PROJECT:

24.1 Impact on structure:

59. With the analysis of various alternatives, the final route has such been selected that the transmission line does not affect any village or settlement area. The transmission corridor has also been selected by completely avoiding the human habitation. Further, there is no adverse impact on residential or commercial or any other structures along the proposed alignment therefore Resettlement Action Plan (RAP) is not required to be prepared for the project.

24.2 Impact on Tribal people:

60. The criteria followed towards route selection indicate that the proposed route does not pass through any settlement area. And thus it does not disturb any tribal settlement and does not have any adverse impact or create any threat to the survival of any tribal community along the alignment.

24.3 Impact on land during Foundation, Erection, and Stringing of Transmission Line:

61. **Procedure for Land Acquisition:** First, WUPPTCL identified the land and submit a proposal to District Magistrate (DM) and Land Acquisition Officer (LAO). The proposal checked by LAO and they forwarded it to UP Administrative and Board of Revenue Department. By applying the land Acquisition Act, the concern department has issued a Gazette Notification showing the land details and its intention to acquire the land for the said project.

62. After that the gazette is published and informs to public through Newspaper, Block, Police Station and notices paste it in Public Places. After publishing Gazette, the agreement process starts with farmer by applying the UP Manual Agreement Act 1997 and DM approved the rates and sent it to the Circle Commissioner. The Government applies the Land Acquisition Act give a chance to the farmer to raise a complaint against Land Acquisition, if he is not satisfied with the rates. After the above process, payment awarding procedures starts. After awarding the payment procedures complete

63. The crop compensation procedure for the loss of crops is:

- Before taking up the construction activity in any farmer's land, the ownership of land is verified by taking up Form Land Revenue Record of Rights and Register with the help of village Patwari;
- Notice is issued by WUPPTCL to the farmer under the Indian Telegraphic Act, 1885;
- Finding out the yield of the crop as per the yield chart collected from the District Agriculture dept. and subsequent Market Committee. The rate of the crops is established as per market price as obtained from the Market Committee.
- The area damaged at the farmer's land is measured in the form of "Panchnama" and it is done in presence of farmer or his representative.
- The total area is evaluated based on the crop existing in the land and crop rates of that area are taken up from the Mandal Patreshad-Agriculture products & Market rate price of damaged crop per Qwintal. The Sample crop rate, which was fixed by District Agricultural Officer, of project area is being considered.
- The compensation is paid to farmers through cheques only;

64. During the site visit and discussion with the subproject developer it was observed that, WUPPTCL have issued three stage notices to the land owners for RoW clearance. Further, during the discussion with the developer, it was also noted that, the compensation for the loss crops or any other temporary impact due to the loss of property is paid in three stages during the whole construction stage. At first it is paid during the foundation of the tower at excavation, second time during the tower erection and lastly during the stringing of the transmission line.

65. The calculation of damage area is done in the presence of landowners and the subproject developers, based on the yield of the crop as per the yield chart collected from the District Agriculture dept. and subsequent Market Committee. The rate of the damaged crops is established as per market price as obtained from the Market Committee.

66. During foundation of tower, the land is temporarily excavated for the pit area which is then filled back and rehabilitated to allow continuation of normal agricultural activities by the farmers/landowner. The standard tower base area of tower is in 169 m² to 324 m² depending on the type of tower.

67. Apart from the land used for foundation, tower erection also requires a larger peripheral region of about 2-4 m on each side will be required to be cleared temporarily to carry out the construction activities to erect the tower.

68. It was informed during the site visit that the subproject developer prefers to start the construction erection and stringing activity after completion of harvesting and the agricultural damage should be minimum. Wherever the

damage cannot be avoided and creates substantial impacts in terms of damage to standing crops during the time of stringing, one across the fields lying in between the two towers.

24.4 Crop Compensation during Excavation, Erection and Stringing:

69. As per section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885, part III, section 10 to 19, the appropriate Government has the authority to place and maintain transmission lines under, over, along or across and posts in or upon any immovable property. Indian Telegraph Act 1885, Part III, Section 10 (b) prohibits acquisition of any right other than that of use only. Land for towers and right of way is not acquired and agricultural activities are allowed to continue.

70. For creating access roads for bringing in the material and the mobility of machinery and vehicles within the agricultural land to reach the tower site creates damage to the agricultural field. Crop compensation is being paid to the land owners as per section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885, which is being paid to the affected land owners for use of Right of Way during excavation, erection and stringing of transmission line.

71. The impact on land is temporary and the ownership status of the land remains with the landholder. WUPPTCL issued three stage notices to the land owners for ROW clearance. Further, during the discussion with the developer, it was also noted that, the compensation for the loss crops or any other temporary impact due to the loss of property is paid three times during the whole construction stage. At first it is paid during the construction of foundation of the tower, second time during the tower erection and lastly during the stringing stage.

72. **Valuation of Damaged Crop/Yield:** Any damage for the loss of crops or any other temporary impacts due to the activities involved in tower excavation, erection & stringing is compensated by providing adequate compensation. The damaged area and per sqm value of crop in the land is multiplied to get the value of compensation, (**Valuation of the Damaged Crop = total Area Damaged X Value of Crop yield as per in per Rs./sqm**).

73. **Tower foundation, Erection & Stringing payment and compensation:** During all the three process, construction materials are carried to the tower site and required access to agricultural fields for movement of vehicles and transportation of materials to the site. In such cases e compensation is being paid by the WUPPTCL to the persons whose land/ productivity is affected/ damaged due to the creation of these temporary approach roads to get the tower erection equipment and power line conductors and other materials to the locations where they are required. The copy of the notice to the land owner, crop compensation evaluation sheets, measurement sheet of the affected area, personal detail of the land owners, bank details and regarding the tower foundation, erection and stringing is given in Appendix-IX, Appendix-X and Appendix-XI respectively.

24.5 Impact on Land d for setting up of sub stations/switchyard;

74. WUPPTCL has initiated the land acquisition process and being a Public Private Participation (PPP) project, the land acquisition process is assisted by UPPTCL with the help of District Administration. The total land requires for setting up of seven numbers of substations at Greater Noida, Sikandrabad, Hapur, Aaur Dasna, Indrapuram and Nehtaur (Bijnor) is approx. 287.255 Acres. The requirements of land at each of the above-mentioned locations are given in **Table: 7**. The Lease Dead of land for the substation is made for twenty five year in the name of WUPPTCL acquired by UP Power Transmission Corporation Ltd. The details of the sample copy of the Lease Deed is attached **Appendix-XII**.

Table 7 Substation wise status of land acquisition

Sl. No.	Substation	Land Required in Acres	Land Possessed in Acres	Land Acquisition Status
1	Greater Noida (AIS)	80	80	Land acquired (approx. 80) acres by Yamuna Expressway Industrial Development Authority (YEIDA). Lease deed between UPPTCL& YEIDA is pending.
2	Sikandrabad (AIS)	45.356	45.356	Land possession taken over by WUPPTCL and lease agreement has executed.
3	Hapur (AIS)	75.7	75.7	100% Land possession has been completed, for widening of the approach road is pending with the district Administration, Hapur. The subproject developer is following up with the district Administration.
4	Ataur (GIS)	10.249	10.249	Land directly purchased by WUPPTCL. Land conversion under Section-143 of Zamindari Act is completed.
5.	Dasna (GIS)	9.96	9.96	Land has been registered in the name of WUPPTCL and mutation* of the same is in progress.
6	Indirapuram (GIS)	9.12	9.12	100% land is under the possession of WUPPTCL.
7	Nehtarur	56.87	56.87	100% land is under the possession of WUPPTCL.
Total		287.255	287.255	

Source: LIE Report, January 2016

*Description: **Mutation** of a **property** is the transfer or change of title entry in revenue records of the local municipal corporation. The change in title ownership may occur due to a number of reasons like death of the original owner and subsequent transfer of the ownership due to inheritance or succession.

75. As per Section 143 of the Zamindari Abolition and Land Reforms Act-1950, the subproject developer has got the permission for land conversion from District Sub- Collector Gaziabad for the purpose of Commercial use of the land. The land conversion letter is attached as **Appendix-XIII**.

76. As documented in the monthly progress report January 2016, prepared by the concessionaire, there are few pending litigation cases related to land acquisition and compensation which are being dealt by the competent authorities and expected to settle the issues on time. Further, during the discussion it is also noted that the pending litigation cases is not affecting the physical progress of the project. The reason of dispute and their current status is detailed in the below **Table: 8**

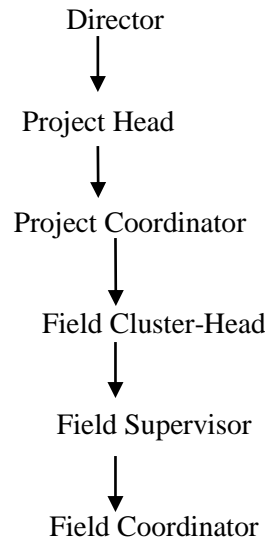
Table- 8: Pending litigation cases related to land acquisition and compensation

Sl. No.	District	Location	Owner	Remarks
1	Hapur	765KV Mainpuri- Hapur T/L, Loc. No. 97/2, Village- Morepur Fajilpur, Tehsil- Hapur	1. Gurmeet s/o Kuwarpal Singh 2. Smt. Mahender Kaur w/o Kuwarpal Singh, 3. Harsharan S/o Roopram 4. Rampal S/o Gangasharan 5. Amarpal S/o Gangasharan , R/ o Village Nawada, Tehsil & Dist: Hapur	Asking for land Compensation
2	Hapur	765KV Mainpuri- Hapur T/L, Loc. No. 97/3, Village- Shahabuddin Nagar, Tehsil-Dhaulana,	1. Gurmeet S/o Kuwarpal Singh 2. Smt. Mahender Kaur W/o Kuwarpal Singh 3. Harsharan S/o Roopram 4. Rampal S/o Gangasharan, 5. Amarpal S/o Gangasharan 6. Smt. Sudeshvir Singh S/o Ratan Singh, 7. Rajender Singh S/o Ratan Singh 8. Devi Singh S/o Amichand, R/o Village- Nawada, Tehsil & Distt: Hapur	Asking for Land Compensation
3	Hapur	765KV Mainpuri- Hapur T/L, Loc. No. 97/4, Villlage- Shahabuddin Nagar, Tehsil- Dhaulana	Narendra Kumar s/o Bhopal Singh, R/o Village-Nawada, Tehsil & Distt: Hapur	Asking for Land Compensation
4	Hapur	765KV Mainpuri- Hapur T/L, Loc. No. 97/5, Village- Shahabuddin Nagar, Tehsil- Dhaulana,	1. Yogender Singh S/o Rajender Singh, 2. Harender Singh S/o Rajender Singh, 3. Satender S/o Rajender Singh 4. Rajesh S/o Rajender Singh, R/o Village- Ubarpur. Tehsil & Distt: Hapur	Asking for Land Compensation
5	Hapur	765KV Mainpuri- Hapur T/L, Loc. No. 98-C/3, Village- Girdharpurtumrel, Tehsil-Hapur,	Dadri, Distt; G.B. Nagar, 2. Brijesh Sharma s/o Kalicharan Sharma, R/o Village- Girdharpurtumrel, Tehsil&Distt: Hapur	Asking for Land Compensation
6	Meerut	400KV Hapur- Ataur T/L, Loc No. 5/2, Village- Uldhan, Tehsil- Meerut,	Adesh Tyagi S/o Rajbir Singh, R/o Village- Prahladgarhi, Distt: Ghaziabad	Asking for higher compensation
7	Meerut	400KV Hapur- Ataur T/L, Loc No. 5/3, Village- Uldhan, Tehsil- Meerut,	Dilawar s/o Maharaj, Village- Uldhan, Tehsil & Distt: Meerut	Asking for higher compensation

Source: MPR January 2016

25. GRIEVANCE REDRESSAL MECHANISM:

77. For timely completion of the project, project proponent has constituted their own Grievance Redressal Mechanism (GRM) to set up the issues and concerns early in the project level. If some issues come to them regarding compensation and finalization of rate and fixation of crop price, at first the aggrieved person/farmers will approach to the field co- ordinate, if not able to resolve then the unresolved issue will be taken up with the field supervisor, if unresolved then field supervisor would forward the issue to the field cluster head, then to the project coordinator and project head and finally the project head takes up the issue with the Director and resolve the issues. The Grievance Redressal Cell comprises as follows:



78. Further the subproject developer has confirmed that the GRM is in place during the construction and operation period as well. The towers were designed to withstand the worst climatic situations of the respective areas and also considering the additional factors of safety as the transmission lines are EHV lines. Therefore, extra protection is already factored to meet any unforeseen exigencies/accidents. However, in the very unlikely event of tower felling down due to heavy cyclone, etc, the lines get automatically tripped and there will be no movement of current/power. The conductors are cut open by the experienced engineers and make way for the further processes like surveys for the damage occurred, areas affected, etc. In the event of any loss to the farmers/owners of land, the same will be compensated as per the local established practices, by the developer.

26. LOCAL EMPLOYMENT:

79. The project provides employment opportunities to the local people during the construction stage, especially with respect to unskilled labor. As informed during the site visit, the nature of work requires specialized skill for the highly technical work such as erecting or stringing. Local people normally do not have such experience. Thus, the contractors working for tower erection have their own gang of skilled labour who are trained in similar activities. As confirmed by the developer, local labour has been employed for the day today activity.

80. Further, as informed by the developer the EPC contractor have given job opportunity to local people giving them as security guard, driver and office assistants. Few Vehicles/tractors from the locality have taken on hire basis as per the requirements. The local labour employed in the project by the sub project developer is given in **Table-9**.

Table-9: Employment generated by the EPC Contractor

Sl. No.	Component	Local Labour Employed	Total
1	Skilled	50	50
2	Un skilled	115	165

Source: Information received from Sub project Developer

27. LABOUR HEALTH, SAFETY, AND HYGIENE OF CONSTRUCTION WORKERS:

81. WUPPTCL has obtained the Labour license for the subproject received from Assistant Commissioner of Labour, UP under Contract Labour (Regulation and Abolition) Act 1970 Sub Section (2) of Section 7 for the purpose of Construction of Substation & Transmission Lines in the state of UP for the district of Ghaziabad, Noida, Hapur, Meerut, Bijnor, Hathrus (Maha Maya Nagar), Etah and Mainpuri.

82. As per the labour license given by Government of UP, the maximum number of labour can be engaged in a day for construction of substation and Transmission lines is 500, for engagement of civil work of tower footing is 300 in a day, engagement of labours for erection & commissioning and protection of GIS/AIS substation is 400, for civil work construction 60 and for construction control of building, staff quarter the subproject developer can engage 60 labours in a day. The detail of Labour license obtained by the developer is attached as **Appendix-V**.

83. These workers have been provided with e safety measures such as safety helmets, safety boots, jackets and gloves. Facilities like onsite accommodation with basic amenities like water & toilets, transportation to work site and safety gears. Construction workers have also been provided with ready access to on- or off-site health care check-up facilities and provide first aid for minor injuries.

84. For administrative convenience and to facilitate the activity, WUPPTCL has insured the contractors and sub-contractors, manufactures, suppliers, consultants, employees' architects for onsite activities. The detail of insurance obtained and the insurance covers by the company is given in **Appendix-XIV**.

85. For occupational health and Safety of workers, the subcontractor has given responsibility for managing the gang of labours and the supervisors are provided the telephone numbers of nearby Public Health Centres. In case of any on or off site medical aid is required to any labours this has been facilitated by the supervisor for giving medical aid accordingly. Labours are also provided with basic amenities like drinking water, transportation to work site and safety gears.

86. As far as the project site is concerned most of the site is available with good road networks. However, it is ensured that the subcontractor in charge of the section is responsible for site activity and available at site throughout the working period. For any emergency situation/incidents vehicles are provided to each section in-charge along with telephone numbers of nearby hospital. The subproject developer has confirmed that the Emergency vehicle remains with the site along with the first aid box is available to the labours.

87. Engineers, linemen may get be injured or meet accidents during construction and maintenance of transmission lines including injuries, bruises, transmissible diseases, etc. As part of the health and safety policy, WUPPTCL ensures that the workers involved working in heights are provided with necessary personal protective equipment like safety shoes, hand gloves, safety belts, ladders/monkey ladders ,fall arrestor etc. There have been some concerns about the possibility of an increased risk from exposure to electromagnetic radiations from overhead transmission lines. However, the exposure limit shall be kept as per standards and regular medical checkup of the employees shall be conducted to minimize such impacts.

88. As informed by the concessionaire, adequate electrical clearances are maintained as per Indian Electricity Rules-1956. The transmission route has such been finalized that no structure falls within the transmission route corridor. To avoid any untoward incident during the operation stage of the projects some of the points to be noted:

- Cable free from joint & routed through above or below the ground;
- All the electrical panel doors to be locked (including distribution board);
- Only authorized/competent person performed the electrical work;
- All the distribution board having 30ma ELCB, rain protected/Industrial socket/Insulatedmat/earthing/warning sign;
- Required PPE available & use like: Insulated gloves & tools/safety shoe & helmet/special clothing/eye & face protection;
- Operation under authorized or competent supervision

28. SITE VISIT OBSERVATION:

89. A site visit was undertaken by IIFCL's Environmental and Social Safeguard specialists during 21st and 22nd of February 2016 to review the implementation of the environment and social safeguards compliance status of the project. During the site visit it was observed that:

- As informed by the concessionaire employment opportunity have been given to skilled, semiskilled and unskilled labourers by the EPC Contractors;
- The workers and staff at the site were seen wearing personal protective equipment such as helmets, jackets, boots, gloves etc.
- During discussion with the project official it was informed that the project does not disturb any tribal settlement and does not have any adverse impact or create any threat to the survival of any tribal community along the alignment.
- Within the camp site the EPC contractor has maintained proper sanitation facilities hygiene messing facility, and portable drinking water have been provided for the workers;
- Construction workers are provided with ready access to on- or off-site health care check-up facilities and are being provided with first aid for minor injuries;
- Emergency contact numbers have been displayed at the prominent places in project site.

29. DISCLOSURE:

90. The final ESDDR report will be accepted by the subproject developer and endorsed by IIFCL. After getting the No Objection Certificate (NOC) from the Multi Development Partner like ADB, the report will be uploaded for public disclosure in IIFCL's website, Project developer's website as well as ADB's website.

30. CONCLUSIONS AND RECOMMENDATIONS:

91. The sub-project WUPPTCL has been prepared by UPPTCL, a Govt. of Uttar Pradesh Company established under the Companies Act 1956, which appears adequate social safeguard have been taken into consideration during project planning and preparation stage. Alternative have been considered as part of the project to minimize the impact on settlements, forests and tribal people.

- The subproject WUPPTCL was prepared by UPPTCL to establish and strengthen the transmission system in the state of UP tariff based competitive bidding process;
- The sup project, WUPPTCL has been prepared prior to the ADB's involvement and IIFCL entered into the project after technical closure and before the financial closure of the project.
- The subproject WUPPTCL was prepared by UPPTCL for its own requirement not in anticipation of ADB's procedure;
- Three stage Crop compensation is being paid to the affected land owners as per section 164 of The Electricity Act 2003 and Indian Telegraph Act 1885;
- The compensation for the loss crops or any other temporary impact due to the loss of property is being paid in three stages. At first it is paid during the construction of foundation of the tower, second time during the tower erection and lastly during the stringing stage;
- The project proponent has planned to maintain safe distances all along the corridor and ensure mitigations for adverse impacts if any. Grievances, if any are properly handled and addressed in a timely and appropriate manner;
- The sub project has planned to maintain safe distances all along the corridor and ensure mitigations for adverse impacts if any.
- Grievances, if any are properly handled and addressed in a timely and appropriate manner.
- The Right of Way (ROW) is being arranged by the WUPPTCL with payment of crop compensation during execution of the project.
- It appears that the transmission line is not lead to any impact on common property resources;
- The sub-contractors have obtained requisite labour licenses and labours are insured and covered under work men's compensation for any untoward incident.
- The EPC Contractors are adhering the proper health safety procedures, Safety Induction training is conducted on daily basis, observation of safety tool box talk, to create awareness on regular basis;

- For administrative convenience and to facilitate the activity, WUPPTCL has insured the contractors and sub-contractors, manufactures, suppliers, consultants, employees' architects for onsite activities;
- For timely completion of the project, project proponent has constituted their own Grievance Redressal Mechanism (GRM) to set up the issues and concerns early in the project level.

92. The project does not involve any major social safeguard issues. It seems that the sub-project does not appear to involve reputational risk to Asian Development Bank funding on social safeguards and recommended for funding under the proposed project.

COMPLIANCE TO ADB'S OBSERVATION ON ENVIRONMENTAL & SOCIAL SAFEGUARD FOR

Western UP Power Transmission Company Limited (WUPPTCL)

Sl. No.	Observation from ADB	Compliance to Observations
SOCIAL SAFEGUARDS		
1.	<p>Screening and categorization: Given that the project does not have any impact on resettlement and indigenous peoples, the checklist will provide proper justification and basis for the categorization of IR and IPs. Therefore, we would like to reiterate the need to attach the screening checklists as required by the ESSF (Annex S-4 and S-5) to the ESDDR. Although it has been noted that the project does not pose any adverse social safeguards impacts, the checklists will help substantiate these statements. Furthermore, the checklists pose succinct and sufficient choices to respond to screening questions, making them relevant and applicable, whether or not the projects have social impacts.</p> <p>Please note that a similar issue has been raised back in August 2015 for the Sand Land project. IIFCL eventually complied.</p>	Annexure S-4 & Annexure S-5 attached.
2.	<p>Grievance redress mechanism: In compliance with IIFCL's Annex S-10, item 1(iv), which requires an adequate grievance redress mechanism arrangements, please confirm with sub borrower if a functioning GRM is in place. Also, please provide a much clearer set of procedures in addressing complaints/grievances in the course of project implementation, not just before project commissioning, i.e., a transmission tower fell down during a strong cyclone making a parcel of land inaccessible to the farmer/landowner; how will this be dealt with?</p>	<p>The subproject developer has confirmed that the GRM is in place.</p> <p>This section has been modified. The details are given in the Revised ESDDR by adding a new Para-78 under Section 25.</p>
ENVIRONMENTAL SAFEGUARDS		
1.	<p>The revised ESDDR needs to be further strengthened with the EMP (attached as Appendix XV) to include the mitigation measures associated with the proposed widening of approach road, especially for Hapur sub-station;</p>	<p>The EMP (Appendix XV) has been further strengthened by including the mitigation measures implementation at WUPPTCL associated with road widening. A total of about 3 km existing approach roads (village roads) have been widened upto 1m by WUPPTCL; including about 700 m approach road to Hapur Substation. The ROW of the approach road to Hapur Substation was 3 meters from a railway crossing which was insufficient for shifting of transformer. Hence, additional land was procured from farmers and road was widened to 6 meters. Minor repairs to the</p>

		canal, if any, along the road side was also done. No approach road strengthened/widened is in forest area; all were existing village roads and no tree cutting involved in strengthening / widening. Water sprinkling was done all along the road during widening & strengthening by WUPPTL.
2.	The response at serial number 3 in the compliance matrix on environmental safeguards needs to be further strengthened by appropriately reflecting Appendix II titled "Environmental impacts and mitigation measures" prepared by WUPPTCL with the date of this document mentioned in the compliance matrix.	<p>The response in compliance matrix at serial number 3 has been further strengthened by incorporating a paragraph on impacts and mitigation measures (Appendix XV of the revised ESDDR). The consolidated document on impacts and mitigation has been prepared during due diligence with concurrence of the developer & validation.</p> <p>An impact assessment has been carried out for the subproject and a consolidated EMP has been prepared considering the environmental impacts. The impact assessment and EMP are enclosed as Appendix XV in the revised report. The status of EMP compliance is also given in the document. The EMP has been implemented at the project level since inception. The consolidated document on impacts and mitigation has been prepared during due diligence with concurrence of the developer & validation from WUPPTCL was received on 2nd April 2016.</p>
3.	Incorporation of above observations and re-submission of ESDDR and compliance matrix as elaborated above;	Revised ESDDR, Appendix XV and revised compliance matrix incorporating the above comments number 1 & 2 are enclosed
4.	Continued compliance by the facility owner and the O&M contractors with the terms and conditions stipulated while according statutory environmental permissions as applicable;	The Sub project developer has confirmed that the continued compliance is carried out.

5.	Regular field verification undertaken by its safeguards team to reassess and confirm compliance with the agreed environmental measures by the concessionaire, including carrying out public consultations; and	Noted
6.	The 2016 audit report for this sub-project shall provide an update on the implementation of environmental management and monitoring measures as outlined in the Appendix XV of the ESDDR.	Noted

ANNEX S-4: RESETTLEMENT SCREENING CHECKLIST

Impact	Not Known	Yes	No	Indication of scope (no. of affected persons, land area, land use, structures, etc.)
Is the prospective subproject company (PPC) undertaking or likely to undertake any land acquisition?		√		<p>Substation: As a Public Private Participation (PPP) project, the land acquisition process is assisted and executed by Uttar Pradesh Transmission Corporation Ltd. (UPPTCL), as a Govt. of Uttar Pradesh company with the help of District Administration.</p> <p>Erection of Transmission line: However, Indian Telegraph Act 1885, Part III, Section 10 (b) prohibits acquisition of any right other than that use of RoW only.</p>
Is the PPC acquiring land through willing buyer to willing seller transactions?		√		
Does the PPC have any agreements or is it likely to enter into agreements with the government for provision of sites or land or rights to land?		√		<p><i>Notice issued to the affected people:</i> under the indian telegraphic act. 1884, section 10 to 19 read with section 42 of electricity (supply) act 1984, notices is issued to the affected land owner. the notice/intimation letters were issued to the project affected people to communicate them about the project and the transmission line will go through the property.</p> <p>Land for the substation is being made available by UP Power Transmission Corporation Ltd. on lease basis. The detail of the Lease Deed was given in Appendix-XII in the ESDDR</p>
Is any of the land used by the PPC (or likely to be used by the PPC) compulsorily acquired?			✓	
Will any PPC activities involve restrictions of use on adjoining land?			NA	
Are the sites for land acquisition known?		√		
What is the ownership status of the land?				In case of substations lease deed has been made in the name of Western UP Power Transmission Co. Ltd. The detail of the Lease Deed was

				<p>given in Appendix-XII in the ESDDR.</p> <p>The subproject developer has got the permission for land conversion from District Sub- Collector Gaziabad for the purpose of Commercial use of the land. The land conversion letter was given in Appendix-XIII.</p> <p>In case of Transmission line only RoW has been used by the subproject developer and the ownership status of the land is with the land owner and crop compensation is paid for RoW use.</p>
Are non-titled persons present?			NA	
Will tenants, lessees, share farmers, or other third party users be affected?			NA	
Will there be loss of housing?			√	
Will there be loss of crops, trees, and other fixed assets?		√		<p>Crop compensation is being paid to the land owners for use if RoW clearance in accordance with Indian Telegraph Act 1885.</p> <p>The details of the copy of the notice to the land owner, crop compensation evaluation sheets, measurement sheet of the affected area, personal detail of the land owners, bank details and regarding the tower foundation, erection and stringing was given in Appendix-IX, Appendix- X and Appendix-XI of the ESDDR .</p>
Will there be loss of incomes and livelihoods?			NA	
Will access to facilities, services, or resources be lost?			NA	
Will there be loss of businesses or enterprises?			NA	
Will any social or economic activities be affected by land use related changes?			NA	
If involuntary resettlement impacts are expected:				
Are local laws and regulations compatible with DFI's			NA	

involuntary resettlement policy?				
Will land be acquired through the government or by the PPC?			NA	
Do PPC agreements with the government (if any) specify involuntary resettlement will be conducted in accordance with international standards?			NA	
Does the government executing agency/PPC have sufficient skilled resources for resettlement planning and implementation?			NA	
Are training and capacity building required prior to resettlement planning and implementation?			NA	

Note: The process of land acquisition/RoW use has been initiated before IIFCL's involvement with the project.

ANNEX S-5: TRIBAL PEOPLES EFFECTS SCREENING CHECKLIST

Impact on Tribal Peoples	Not Known	Yes	No	Remarks or identified problems, if any
Are there tribal groups present in project locations?			✓	
Do they maintain distinctive customs or economic activities that may make them vulnerable to hardship?			NA	
Will the subproject restrict their economic and social activity and make them particularly vulnerable in the context of project?			NA	
Will the subproject change their socioeconomic and cultural integrity? ¹			NA	
Will the subproject disrupt their community life?			NA	
Will the subproject positively affect their health, education, livelihood, or social security status?			NA	
Will the subproject negatively affect their health, education, livelihood, or social security status?			NA	
Will the subproject alter or undermine the recognition of their knowledge, preclude customary behaviors, or undermine customary institutions?			NA	
In case there is no disruption of tribal community life as a whole, will there be loss of housing, loss of land, crops, trees, and other fixed assets owned or controlled by individual tribal households?			NA	

¹ That is, undermine their production systems and the maintenance and transmission of their cultural patterns.

ENVIRONMENTAL IMPACTS AND MITIGATIVE MEASURES

During Construction Period

Land Use:

Land involved for the construction of substation and RoW for the transmission lines are mostly agricultural land. Construction work will involve only construction of foundation and erection of towers and stringing of lines. Due to construction of towers, crop production in the area occupied by the tower will be stopped for short run and after the erection of towers the agricultural work can start again. Thus the impact on land use during the construction work is temporary and not significant in nature.

Ambient Air Quality:

The construction sites are away from the habitats or any major habitation, therefore, no impact is envisaged to the local people. The potential effects on air quality are generally localized and temporary. There will be a temporary increase in vehicular and equipment traffic during clearing and construction activities associated with the project. As a result, there will potentially be higher vehicular and fugitive dust emissions that affect local air quality. Spraying of water during construction will reduce the dust fall to a great extent. Appropriate PPEs will be provided by the developer to minimize the dust impact to the working people.

Operation and maintenance activities will unlikely to affect local air quality, as inspection and maintenance patrols of the RoW, tower structures and hardware will be typically undertaken periodically.

Ambient Noise Levels:

A number of construction activities have the potential to increase noise levels and create disturbances to people as well as fauna. Construction will involve use of heavy machinery such as bulldozers, excavators, drilling rigs, cranes and concrete carrying trucks, etc.

Noise generated during construction activities will be temporary and intermittent and will typically fall within acceptable noise levels standard. Use of low noise generating equipment and restriction of construction activity for limited periods will further reduce the disturbance from noise pollution.

Operation of the transmission line will involve the production of corona discharge which can result in audible noise. The level of noise generation due to corona discharge will vary with time subject to operating mode and loading conditions of the line and to final line design, conductor condition and to external considerations. However, it is envisaged that noise levels will not increase significantly and will remain within the standards.

Water Quality:

Erecting of towers for transmission line will not have any significant impact on surface and groundwater quality along the line. The tower footing along the water bodies crossings are located at a sufficient distance to ensure minimum disturbance to riparian vegetation. As informed by project developer, laborers are staying in rented accommodations at nearby villages with adequate sanitation facilities as per the health and safety policy of the company thus minimizing the chances of degradation of water quality.

Soil:

The construction activities of the project have the potential to affect the soil. Due to construction activities loss of soil structure and increase in soil bulk density are envisaged. Repeated passes by heavy machineries can also disturb the ground surface, creating possibilities for erosion. To minimize the effects of off-road travel on soils, access to work sites will be limited to the RoW, existing roads/access trails where available.

The excavation work involved in the project is limited to construction of tower foundation. The loss of top soil as envisaged during such construction activities can largely be reduced by storing the top soil and spreading it back for filling up the excavated area of the tower foundation.

Flora:

The construction work along the alignment may cause loss of vegetation. Further, loss to flora would be due to loss of crops in the area occupied by the tower base. Care will be taken to avoid thick vegetation; towers are located where vegetation is thin. Maximum work will be carried out during post harvesting period. Controlled removal of vegetation will be employed to minimize the negative impacts on the flora.

As informed by the Developer, efforts have been taken to align transmission route in such a way that forests areas are avoided except a small stretch of social forest area, transmission line is traversing through that forest areas.

Application has been submitted for the forestry clearance and work in that stretch will be carried out after getting the clearance.

Fauna:

The existing land use for the transmission line is mostly agricultural land and open lands as observed. Hence minimal disturbance to local animals is anticipated during construction. The type of forest area affected falling in proposed transmission line route is not part of any Eco-sensitive areas like National Park or Sanctuaries thereby minimizing presence of rare and endangered species.

Socio-Economic Condition:

Socio-economic impacts during constructional phase due to erection of transmission lines will be mainly due to loss of agricultural land on which towers will be erected. However, as per the provisions of telegraph act, the land owners will be provided compensation for crop loss during the construction phase.

In order to maximize benefits to the local community, local people will be given priority when recruiting workers to meet the labourer requirements.

Resettlements:

As discussed with developer no significant issues related to resettlement and rehabilitation in this transmission line project is involved as it has been avoided during the selection of the present alignment and the alignment selected is far away from the human settlement. The details pertaining to the socio-economic conditions are provided in Social Due Diligence report.

Cultural Sites:

As informed by project developer, within the route of proposed transmission line, there are no known archaeological, historical or culturally important sites.

DURING OPERATION PHASE

Land Use:

Minor changes in land use pattern are envisaged during the operation phase. At present the portion of the land where towers will be erected is mainly agricultural land. During operation phase, the same land can again be utilized for agricultural purpose. Therefore the impact on land use is negligible though permanent in nature.

Ambient Air Quality:

The operation of transmission line does not involve any significant emission of gases and generation of dust particles. However, ionization of air molecules surrounding the conductor (corona effect) produces a small amount of ozone. Ozone is a reactive compound which could adversely affect the human respiratory system, animals, vegetation and buildings. Because of the total emissions of ozone from operating will be very less, therefore, no impact is envisaged due to emission of ozone.

Ambient Noise Levels

Operation of the transmission line will involve the production of corona discharge which can result in audible noise. The level of noise generation due to corona discharge will vary with time subject to operating mode and loading conditions of the line and to final line design, conductor condition and to external considerations. However, it is envisaged that noise levels will not increase significantly and will remain within the standards.

Water Quality:

The operation of transmission line do not involve generation of any effluent and discarding of any hazardous chemical which could have chances of impact on nearby water bodies. Transformer oil leakages will be contained. Concrete pits will be provided below the transformers to collect the oil. Used oils will be put in drums and will be given to authorized vendor according to the governing environmental regulations. Thus, no impacts on ground water or surface water quality are anticipated during the operational stage.

Soil:

The project line section will not block the drainage within the alignment and also do not increase the run-off in the local catchment area. Thus, from transmission line project the impact on soil quality is negligible during the operation stage.

Flora:

As part of maintaining the ROW such trimming of trees may need to be undertaken, this may require approval from Forest Department. The RoW maintenance team of M/s. WUPPTCL will coordinate with the forest department in order to obtain necessary NOC for tree cutting. Hence, a minor/ negligible impact on flora is predicted during operational phases.

Fauna:

Since avian fauna might be at small risks by hitting the transmission lines, hence a minor impact is predicted during the operational phases. Addition of deflectors is proposed to minimize the risk.

Health and Safety:

Engineers, linemen may get be injured or meet accidents during maintenance of transmission lines including injuries, bruises, transmissible diseases, etc. As part of the health and safety policy, through M/s. WUPPTCL will ensure that the workers involved in maintenance works provided with necessary personal protective equipment like safety shoes, Hand gloves, safety belts, ladders/monkey ladders ,fall arrestor, etc. There have been some concerns about the possibility of an increased risk from exposure to electromagnetic radiations from overhead transmission lines. However, the exposure limit shall be kept as per standards and regular medical checkup of the employees shall be conducted to minimize such impacts.

Socio-Economic Condition:

Socio-economic condition of the project villages around the proposed transmission lines is expected to be improved due to an overall increase in power supply in the grid and hence an increased power supply in the villages as well. Increase in power supply to these rural areas will beneficially impact the socio-economic conditions thereby directly/indirectly triggering the growth of agricultural up gradation, health and education facilities, infrastructural development etc. Therefore, the overall impact on socio-economic condition will be positive for this project.

ENVIRONMENT MANAGEMENT PLAN:

COMPONENTS OF EMP:

A consolidated EMP has been prepared by M/s. WUPPTCL compiling all the necessary information related to the actual activities been undertaken by the developer towards selection of project alignment and construction activities considering environmental impacts. The EMP has been prepared by collecting the information on several measures integrated in project documents towards minimizing negative environmental impacts. The major components of the EMP include:

- Mitigation of potentially adverse impacts;
- Monitoring during the project implementation and operation;
- Institutional arrangements.

IMPACT MITIGATION AND INSTITUTIONAL RESPONSIBILITIES:

The responsibility of implementing the environmental mitigation measures at the sub-project lies with WUPPTCL. The environmental issues and suggested mitigation measures with institutional arrangements for implementation and supervision mechanism and their compliance status as provided in the Table below.

Environment Management Plan during Construction and Operation Stage

Project Activity	Possible Impacts	Mitigation Measure	Parameters for Monitoring	Compliance status w.r.t. WUPPTL
Alignment selection	Chances of potential impacts on terrestrial habitat including (i) Forest Fire; (ii) Avifauna and bat collision and electrocutions. (iii) Impact on eco-sensitive Areas (like national parks, wildlife sanctuaries etc.) (iv) Impact on historical and cultural resources	Selection of an optimum route primarily avoiding: (i) Human settlements and grazing land; (ii) Environmental sensitive locations such as school, colleges, hospitals, religious structures, monuments, etc.; (iii) Notified Eco sensitive locations and dense plantation; and (iv) Socially, Culturally, Archaeologically sensitive area.	The project has already received authorization under section 68 and section 164 under electricity act under which the mitigation measures are already undertaken to avoid sensitive environmental location and minimizing impact on forest land and tree cutting.	No monument of archaeological or historical importance or any Govt & private construction is affected in the project route alignment.
Tower Location	Exposure to safety related risks; impact on water bodies, railway lines and roads	Overhead line route designed in accordance with permitted level of power frequency and the technical specification for ground clearance of towers. Location of towers has been avoided to be nearer to water bodies, railway lines and roads at maximum extent possible. When such crossing is unavoidable adequate care has been taken to make the crossing of the power line at least at the perpendicular direction to such crossings.		The tower spotting has been done away from water bodies. Also, approval from Respective authorities has been taken in case of railway lines.

Project Activity	Possible Impacts	Mitigation Measure	Parameters for Monitoring	Compliance status w.r.t. WUPPTL
Tree cutting and impact on forest land	Impact on biodiversity, chances of forest fire and electrocutions and sometimes impact on livelihood.	Minimize the impact by maintenance of ROW. Obtaining forest clearance and provide assistance towards compensatory afforestation to restore the forest land.	WUPPTL has avoided almost all the reserve forest stretches for the project and received forest related NOCs. WUPPTL to comply with tree cutting requirements for timber grade trees.	The finalized route involves minimum Forest stretch and area (which has been explained in route comparison statement).
Construction Stage				
Physical Construction	Disturbance on farming activities	Construction activities on land shall be timed to avoid disturbance on the nearby field crops, care shall be given to carry out construction activities in post-harvest season minimizing crop loss.	Time period of available field crops and are generally managed by the line managers.	The disturbance to the farming activity is minimized by selecting the proper timing for the construction activity.
	There could be impact on cultural and historical resources during excavation.	Construction work to stop immediately if any cultural property is found during excavation. The contractor is to intimate the same to WUPPTL, who will in turn report the same to State Archaeological department and approval shall be taken for further construction.	Records on cultural properties found during the excavation work if any.	This issue is properly addressed with four times survey which included walkover, detailed, air borne and check survey.
Mechanized Construction	Impact on noise and vibration to construction workers.	Modern machines are deployed fitted with noise control measures like silencers. Personal protective equipment shall be provided to the workers.	Constructional equipment to be monitored. WUPPTL generally monitors the construction activities and equipment	Modern machinery & techniques already are in practice.
Roads strengthening/ widening for accessibility	Increase of dust particles. Impact on trees / biodiversity	During widening of roads water sprinkling to be done all along the roads. Minimization of impact on biodiversity by avoiding tree cutting	Access roads, routes (length and width of new access roads to be constructed)	A total of about 3 km existing approach roads (village roads) have been widened upto 1m by WUPPTCL; including about 700 m approach road to Hapur Substation. The ROW of the approach road to Hapur Substation was 3 meters from a railway crossing which was insufficient for shifting of transformer. Hence, additional land was procured from farmers and road was widened to 6 meters. No approach road strengthened/widene

				<p>d is in forest area; all were existing village roads and no tree cutting involved in strengthening / widening. Minor repairs to the canal, if any, along the road side was also done.</p> <p>Water sprinkling done all along the road during widening & strengthening by WUPPTL.</p>
Project Activity	Possible Impacts	Mitigation Measure	Parameters for Monitoring	Compliance status w.r.t. WUPPTL
Site Clearance	Vegetation	<p>Tower erection to disturb minimum loss to vegetation /crops.</p> <p>Compensation shall be paid prior to tower erection.</p>	Vegetation marking and clearance control	Minimization of area is priority for smooth conduct of works. Ensured the timely crop/tree compensation payment disbursement.
Tree cutting or trimming for ROW maintenance	Loss of vegetation and Biodiversity	Adequate clearance between the tree top and the conductor as per the technical specification.	Species specific trees retention as approved by statutory authorities (maximum height at maturity) Disposal of felled trees as complied by forest department Compensatory afforestation for each trees felled.	This is carried out as per the statutory and technical requirements.
Impact on Utilities	Overflows or discharge	Temporary filling in nearby drains not to be permitted.	Temporary fill placement	In practice.
Tower Erection	Health and Safety impacts	The health and safety policy of the organization briefly outlines the safety aspects to be undertaken during working at height.	Records on accidents, if any during the tower erection to be verified during site visit.	EHS daily/ weekly/monthly report & compliance are in practice.
Operation Stage				
Workers health and Safety	Injury and sickness /health Hazards	<ul style="list-style-type: none"> Careful design Safety awareness Emergency plan Medical facilities 	Usage of appropriate technologies, awareness amongst the staff, provision of facilities etc.	
Electrical Shock Hazards	Injury/Mortality	<ul style="list-style-type: none"> Careful design Safety awareness Emergency plan Barriers to prevent climbing 	Proper maintenance of fences, barriers, signals, etc. along with number of injuries and accidents	
Transmission Lines	Exposure to electromagnetic Interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance, generally to be monitored by WUPPTL	