Semi-Annual Safeguard Social Monitoring Report

Loan Number : 2787-IND & 2788 -IND

Reporting Period : Oct.'14 to Mar'15

National Grid Improvement Project

Prepared by : ESMD, CORPORATE CENTRE, POWERGRID

Implementing Agency : POWERGRID

Executing Agency : POWERGRID

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ABBREVIATIONS

ADB	–	Asian Development Bank
APs	–	Affected Persons
CEA	–	Central Electricity Authority
CTU	–	Central Transmission Utility
EA	–	Executing Agency
EIA	–	Environment Impact Assessment
ESPP	–	Environment and Social Policy & Procedures
ESMD	–	Environment & Social Management Department
EMF	–	Electro Magnetic Fields
EMP	–	Environmental Management Plan
GIS	–	Gas Insulated Switchgear
GO	–	Government Order
GoI	–	Government of India
GRM	–	Grievances Redressal Mechanism
GRC	–	Grievance Redressal Committee
HVDC	–	High Voltage Direct Current
IEE	–	Initial Environmental Examination
IPP	–	Independent Power Producer
km	–	Kilometers
LTOA	–	Long-Term Open Access
MoEF	–	Ministry of Environment and Forests
PAPs	–	Project Affected Persons
POWERGRID	–	Power Grid Corporation of India Ltd.
PMU	–	Project Management Unit
RoW	–	Right of Way
RAP	–	Rehabilitation Action Plan
S/s	–	Substation
WR	–	Western Region
NR	–	Northern Region

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SECTION 1: INTRODUCTION

Power Grid Corporation of India Ltd. (POWERGRID), the Central Transmission Utility (CTU) of the country, is engaged in power transmission with the mandate for planning, co-ordination, supervision and control over complete Inter-State transmission system. It has been contributing significantly towards development of Indian power sector by undertaking coordinated development of power transmission network along with effective and transparent operation of regional grids and through continuous innovations in technical & managerial fields

POWERGRID has received a nos. of Long-Term Open Access (LTOA) applications from Independent Power Producer (IPP) generation projects coming up in Chhattisgarh for transfer of power to different target regions viz. Western and Northern region. It is estimated that IPP generation projects with long-term power transfer requirement of about 15000-16000 MW is coming up in Raigarh (Kotra), Champa, Raigarh (Tamnar) and Raipur generation complex in Chhattisgarh progressively in next 3-4 years. Out of the 15000-16000 MW quantum of power transfer requirement, about 5000 MW power is indicated for transfer to Northern region as the target region and balance power is to be transferred to the Western region. For evacuation and transfer of power from these generation projects, 765/400kV High Capacity Pooling stations viz. at Raigarh (Kotra), Raigarh (Tamnar), Raipur and Champa is proposed. However, considering the quantum of power transfer requirement (about 5000 MW) to Northern region, it is proposed that a new high capacity transmission corridor may be developed to effect above transfer.

Based on the discussion with IPPs and Central Electricity Authority (CEA) as well in the 29th & 30th Standing Committee meeting on Power System planning in Western region/11th meeting of WR constituents regarding LTOA application in WR, transmission system for above generation projects in Chhattisgarh with power transfer requirement to target regions was agreed. Looking at the transmission system requirement for transfer of power to Northern/Western region from generation projects coming up in Chhattisgarh, a comprehensive transmission scheme on system strengthening in Western- Northern inter-regional HVDC transmission corridor is proposed.

Presently, North-West inter-regional transmission corridors are being developed with AC technology. However, considering the long distance as well quantum of power transfer requirement to NR from IPP generation projects in Chhattisgarh, it is proposed that power from IPP generation projects in Chhattisgarh can be transferred over HVDC system. Development of such HVDC transmission corridors shall facilitate in establishing transmission corridors with hybrid technology. This shall also facilitate in meeting controlled power flow requirement, flexibility of operation as well as maintaining system parameters within limits through its control mechanism. For this ±800kV, 3000MW HVDC bipole between Champa Pooling Station and Kurukshetra, a major load center in NR is proposed. For power transfer from Kurukshetra onwards, a 400kV transmission corridor towards Nakodar/ Jallandhar in Punjab is proposed. It is also proposed that provision should be kept to upgrade above HVDC Bipole to 6000MW at a later date with increased power transfer requirement to Northern region.

To meet the funding requirement for the proposed project, Asian Development Bank (ADB) has accepted POWERGRID proposal to finance a loan of USD 750 million(USD 500 million as Sovereign & USD 250 million as Non-Sovereign) for implementation of HVDC Sub- Station at Champa & Kurukshetra and some package of transmission line. The funding for the remaining part will be met from POWERGRID's own Internal

Resources (IR).The loan was signed on 30th March, 2012 and became effective from 22nd October, 2012. The loan closing date is 30th June, 2017.

1.1 SCOPE OF PROJECT

The National Grid Improvement Project covered under Loan No. 2787-IND and 2788 - IND involves establishment of HVDC Inter-regional transmission system between the Northern (Haryana) and Western (Chhattisgarh) regions. The detail scope of the project covered under above loans include following transmission facilities:

1. Construction of ±800kV HVDC Bipole between Champa (in Chhattisgarh) and Kurukshetra (in Haryana)
2. Establishment of 800kV HVDC terminals at Champa and Kurukshetra

1.2 PROJECT OBJECTIVES

The objective of the project is to provide transmission arrangement so as to transfer power from future IPP generation projects in the State of Chhattisgarh to Northern and Western region with reliability and security.

1.3 OVERALL PROJECT PROGRESS, AGREED MILESTONES & COMPLETION SCHEDULES

Name of project	Project Details	Progress as on Mar.' 2015	Completion Schedule
Establishment of HVDC inter-Regional Transmission System between the Northern (Haryana) and Western (Chhattisgarh) Regions	**Transmission Line:** Construction of +800kV HVDC Bipole between Champa (in Chhattisgarh) and Kurukshetra (in Haryana) **Substation:** Establishment of 800kV HVDC terminals at Champa and Kurukshetra	Work under progress.	June' 2015

SECTION 2 : COMPLIANCE STATUS WITH MAJOR LOAN COVENANTS

POWERGRID has complied with various social safeguards as agreed in the loan covenants. The point wise compliance status is presented in the table below;

Project Specific Covenants	**Reference**	**Status of Compliance**
The Borrower shall ensure, or cause to be ensured, that all land and all rights-of-way required for the Project are made available to the works contractor in accordance with the schedule agreed under the related works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the Guarantor and the relevant States relating to land acquisition and involuntary resettlement; (b) ESPP; (c) the Involuntary Resettlement Safeguards; and (d) all measures and requirements set forth in the CPTD and the RP, and any corrective or preventative actions set forth in the Safeguards Monitoring Report.	LA, Sch. 5, para. 14	Being complied.
Without limiting the application of the Involuntary Resettlement Safeguards, the CPTD or the RP, the Borrower shall ensure that no physical or economic displacement takes place in connection with the Project until: (a) compensation and other entitlements have been provided to affected people in accordance with the CPTD or the RP; and (b) a comprehensive income and livelihood restoration program has been established in accordance with the RP.	LA, Sch. 5, para. 15	Being complied.
In the event irrigation supplies are disrupted and affected farmers experience losses, the Borrower shall ensure that a provision is made for independent valuation of the losses and timely compensation in respect thereof.	LA, Sch. 5, para. 16	Not applicable as no such instances observed/reported till date.
The Borrower shall make available necessary budgetary and human resources to fully implement the EMP, the CPTD and the RP.	LA, Sch. 5, para. 17	Complied.
The Borrower shall ensure that all bidding documents and contracts for works contain provisions that require contractors to: (a) comply with the measures relevant to the contractor set forth in the IEE, the EMP, the CPTD and the RP (to the extent they concern impacts on affected people during Construction), and any corrective or preventative actions set forth in the Safeguards Monitoring Report; (b) make available a budget for all such environmental and social measures; (c) provide the Borrower with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the CPTD and the RP; (d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	LA, Sch. 5, para. 18	Complied

The Borrower shall do the following: (a) submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the CPTD and the RP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan;	LA, Sch. 5, para. 19	Being complied. No such issues came across till date.
(c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, the CPTD and the RP promptly after becoming aware of the breach; and (d) in the event unexpected significant safeguard impacts are identified, promptly engage qualified and experienced external expert or agency under terms of reference intimated to ADB, to verify information produced through the Project monitoring process, and facilitate the carrying out of any verification activities by such external experts.		Not applicable as till date no such breach reported.
The Borrower shall ensure that subsequent to award of works contract, no works are commenced by the contractor unless the applicable provisions of the IEE, the EMP, the CPTD and the RP, as approved by ADB, have been complied with.	LA, Sch. 5, para. 20	Complied.
In relation to the Project, the Borrower shall cause the contractors to undertake detailed survey of the affected persons during transmission line alignment finalization. The Borrower shall prepare CPTD which meets ADB's requirements, and update it based upon the detailed design information during the survey carried out by work contractors. The Borrower shall submit to ADB for approval the revised CPTD progressively during the implementation of the related works.	LA, Sch. 5, para. 21	Complied
Any changes to the location, land alignment, or environment impacts on account of detailed designs of the Project shall be subject to prior approval by ADB before commencement of works for transmission lines under the Project.	LA, Sch. 5, para. 22	Not applicable as no such deviation reported so far.
In the event of any significant or related impacts on indigenous peoples, the Borrower shall prepare and implement an indigenous peoples plan in accordance with the applicable laws and regulations of the Guarantor and the relevant States, and the Indigenous Peoples Safeguards.	LA, Sch. 5, para. 23	Not applicable as No Indigenous people involved/ impacted so far.

SECTION: 3 COMPLIANCE STATUS WITH SOCIAL MANAGEMENT AND MONITORING PLAN AS AGRRED WITH ADB

A summary of the environmental & social mitigation measures its monitoring vis-a vis compliance by POWRGRID's is given in **Table 2**.

Details of land secured/acquired for both terminals is mentioned below-

A) Champa Substation: For construction of Champa HVDC Terminal, total 262.27 acre land comprising of 158 acre govt and 104.27 acre private land was secured.

Govt. Land (158 acre)
Govt. order for transfer of land issued on 30.09.11. DC issued order for possession of land on 23.11.11 and agreement signed on 25.11.11.

Private land (104.27 acre)
The private land was acquired by invoking Land Acquisition Act,1894. Sec. – 4 issued on 25.08.11. Sec. - 6 issued on 25.11.11. Public hearing under Sec. - 9 held on 03.01.12 and 06.01.12. Award under Sec.-11 issued on 30.11.12. Possession of land taken by POWERGRID on 15.04.13.

Rehabilitation Action Plan (RAP) is not required as all R & R measures /payment already made as per the demand of landowners. However as per policy the social assessment was awarded to third party (M/s Mittsoo Solution Pvt. Ltd. New Delhi) at the time of section-4 published under LA act 1894 which is in progress. Further many CSR activities have been taken up in the affected villages. The details of which are as follow-

1. construction/repair of roads in village Jayjaypur, District Janjgir –Champa – 20 lakhs
2. Health check up camp organised in village Taga. Total 186 villagers participated in the program. The helath check up includes for blood pressure, eye check up, ECG, general physician consultation etc. were organised.
3. Providing Furniture in Central school at village Janjgir- 52.91 lakhs

B) Kurukshetra Substation: Construction of Kurukshetra HVDC Terminal, 116.7 acre Govt. land was allotted by State Govt. and possession was taken on 17.10.14. Since govt. land was allotted there are no PAPs involved and no RAP required. However, a public consultation was done on 27.08.14 with villagers to identify the Community Development works. The following community development works were identified with priorities given by villagers:

- Construction of interlocking path within the village
- Const, of Shamshan shed, Bramda shamshan & B.Wall.
- Construction of interlocking paver main phirni and Nala.
- Construction of Community Centre and Shamshan Bramda.
- Interlocking pavement in Rajiv Gandhi Sewa Kendra.
- Construction of 5 nos. Toilets.
- Construction of Bramda in Harijan Choupal.

After the detailed discussion POWERGRID has agreed upon the CDW suggessted activites to develop in villge and made an estimate budget Rs. 92.34 lakhs. The status of work is as follows-

Sr. No.	Activity	Status
1	Construction of interlocking path within the village	Work under progress
2	Construction of Shmshan shed, boundrywall and bramda	Work under progress
3	Construction of ILPB main firni, construction of Nalla	Work under progress.
4	Construction of Community Center	Work under progress.
5	Construction of ILPB Pavement in Rajiv Gandhi Sewa Kendra	Work under progress.

Compensation for acquired land

POWERGRID always try to pay compensation at prevailing market prices/ replacement value. In instant case only Champa substation has partially private land requirement. At Champa after taking all the measures to find suitable site, the selected site by our committee has private land to acquire. Hence DC is approached by POWEWRGRID with request to take all possible steps for calculation of land cost at market price. Govt. of Chhattisgarh has 'Adarsh Punarvaas Neeti' as per this policy land compensation given at Rs. 10 Lakhs/ acre. In addition to this additional compensation of Rs. 10 Lakhs/ acre (Rs. 7 Lakhs towards land compensation enhancement and Rehabilitation Assistance, 3 Lakhs towards one time settlement in lieu of employment) paid as per demand/agreement with landowners. Total land compensation paid to land owners for private land is Rs. 1228 lakhs and additional compensation over and above land compensation (includes RA and in lieu of job) Rs.1043 lakhs.

The details for land for both the substation is mentioned below-

Substation Name	Acquired Land (in Acres)		No. of PAPs	Land compensation (in Lakhs)			R&R (in Lakhs)
	Pvt.	Govt		Pvt.	Govt	Total	
Champa	104.27	158	140	1229	711	1940	1043
Kurukshetra	NIL	116.7	NIL	NIL	2845	2845	NA

Compensation for Tree/crop damages:

POWERGRID follows the principle of Avoidance, Minimization and Mitigation in the construction of line in agricultural field having crop due to inherent flexibility in phasing the construction activity and tries to defer construction in cropped area to facilitate crop harvesting. However, if it is unavoidable and is likely to affect project schedule, compensation is given at market rate for standing crops. The process tree/crop compensation is depicted in **Figure 1**. All efforts are also taken to minimize the crop damage to the extent possible in such cases. In the instant project also POWERGRID is taking all possible measures to avoid damages to crop/trees by taking up the construction activities during lean period or post-harvest season. As per the prevailing norms farming activity allowed after the construction work is completed. However, compensation for the loss of crops/trees/any structure etc. paid to Affected Persons(APs) for the area of damaged to mitigate the impacts probably 3 times i.e.

during foundation work, tower erection & stringing as per the prevailing situation. Details of region wise compensation paid for tree/crop damages till Mar'15 is given below.

Sl. No.	Location/ Region	No. of AP's	Affected Land Area (in Ha.)	Nos. of Tree affected	Compensation Paid for Crop damages (Rs. Lakh)			Compensation Paid for Tree damages (Rs. Lakh)		
					Foundation	Erection	Stringing	Foundation	Erection	Stringing
1.	HVDC line (Western Region-I portion)	2617	498.97	17694	143.53	145.85	60.60	2.11	0.45	178.34
2.	HVDC line (Western Region-II portion)	2636	627.42	360	173.92	149.95	Not yet started	Notices being issued to owner, Payment to be disbursed shortly	Notices being issued to owner, Payment to be disbursed shortly	Not yet started
3.	HVDC line (Northern Region-I portion)	7868	944.34	1350	438.89	607.3	45.62	1.79	0.76	11.27

Total of **Rs.1960.38 lakhs** compensation paid towards tree/crop compensation till now against the provision kept in DPR Rs. 1273.21 lakhs.

Figure 1 : TREE / CROP COMPENSATION PROCESS

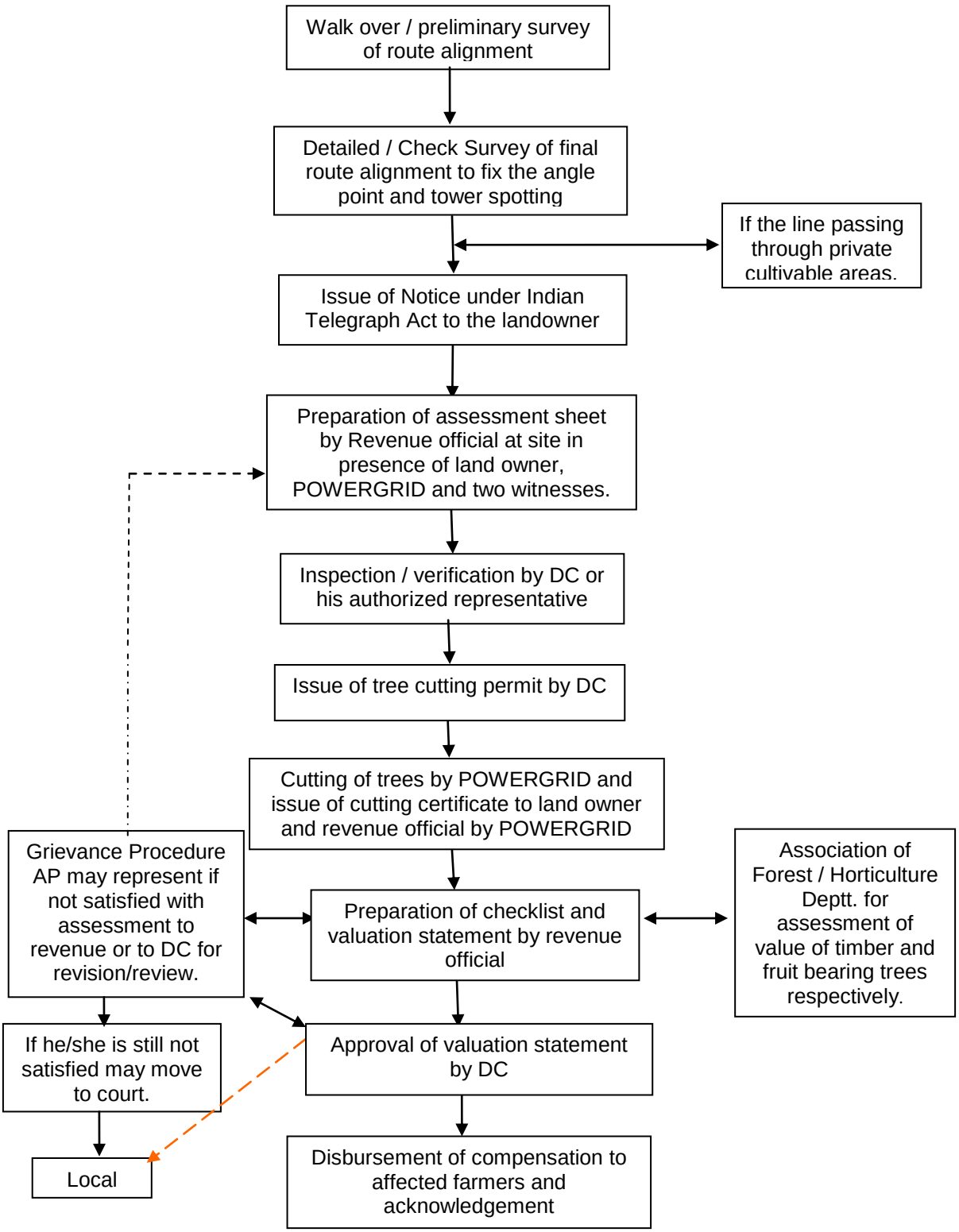

TABLE – 2 : ENVIRONMENT MANAGEMENT PLAN

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Pre-construction							
Location of transmission towers and transmission line alignment and design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Tower location and line alignment selection with respect to nearest dwellings	Setback distances to nearest houses - once	POWERGRID	Part of tower siting survey and detailed alignment survey and design	
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in substation transformers or other project facilities or equipment.	Transformer design	Exclusion of PCBs in transformers stated in tender specification - once	POWERGRID	Part of tender specifications for the equipment	
		Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in existing processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of the Govt..	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once	POWERGRID	Part of tender specifications for the equipment	
				Phase out schedule to be prepared in case still in use – once		Part of equipment and process design	
Transmission line design	Exposure to electromagnetic interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Electromagnetic field strength for proposed line design	Line design compliance with relevant standards - once	POWERGRID	Part of detailed alignment survey and design	
Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations.	Expected noise emissions based on substation design	Compliance with regulations - once	POWERGRID	Part of detailed siting survey and design	

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Location of transmission towers and transmission line alignment and design	Impact on water bodies and land	Consideration of tower location at where they could be located to avoid water bodies or agricultural land.	Tower location and line alignment selection (distance to water and/or agricultural land)	Consultation with local authorities and land owners - once	POWERGRID	Part of tower siting survey and detailed alignment survey and design	Complied during survey. Route alignment criterion is part of survey contract.
	Social inequities	Careful route selection to avoid existing settlements	Tower location and line alignment selection (distance to nearest dwellings or social institutions)	Consultation with local authorities and land owners - once	POWERGRID	Part of detailed tower siting and alignment survey and design	
		Minimise need to acquire agricultural land	Tower location and line alignment selection (distance to agricultural land)	Consultation with local authorities and land owners - once	POWERGRID	Part of detailed tower siting and alignment survey and design	
Involuntary resettlement or land acquisition	Social inequities	Compensation paid for temporary/permanent loss of productive land as per LAA and its process	RAP implementation	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction phase	Progressive social entitlement framework is part of policy and implemented in true spirit
Encroachment into precious ecological areas	Loss of precious ecological values/ damage to precious species	Avoid encroachment by careful site and alignment selection	Tower location and line alignment selection (distance to nearest designated ecological protection area)	Consultation with local forest authorities - once	POWERGRID	Part of detailed siting and alignment survey /design	
Transmission line through forestland	Deforestation and loss of biodiversity	Avoid encroachment by careful site and alignment selection	Tower location and line alignment selection (distance to nearest protected or reserved forest)	Consultation with local authorities - once	POWERGRID	Part of detailed siting and alignment survey/design	
		Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers - once			

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations – once for each subproject			
Encroachment into farmland	Loss of agricultural productivity	Use existing tower footings/towers wherever possible	Tower location and line alignment selection	Consultation with local authorities and design engineers - once	POWERGRID	Part of detailed alignment survey and design	Complied during survey which is part of survey contract. However, as per law of land no land is acquired for transmission line tower but all damages are compensated as per provision of Electricity Act, 2003 and Indian Telegraph Act, 1885.
		Avoid siting new towers on farmland wherever feasible	Tower location and line alignment selection	Consultation with local authorities and design engineers - once		Part of detailed siting and alignment survey /design	
		Farmers compensated for any permanent loss of productive land	Design of Implementation of Crop Compensation (based on affected area)	Consultation with affected parties – once in a quarter		Prior to construction phase	
		Farmers/landowners compensated for significant trees that need to be trimmed/ removed along RoW.	Design of Implementation of Tree compensation (estimated area to be trimmed/ removed)	Consultation with affected parties – once in a quarter		Part of detailed siting and alignment survey /design	
			Statutory approvals for tree trimming /removal	Compliance with regulations – once for each subproject			
Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance.	Noise levels	Noise levels to be specified in tender documents – once	POWERGRID	Part of detailed equipment design	
Interference with drainage patterns/Irriga	Flooding hazards/loss of agricultural	Appropriate siting of towers to avoid channel interference	Tower location and line alignment selection (distance	Consultation with local authorities and design	POWERGRID	Part of detailed alignment survey and design	Complied during survey. Route alignment criterion is part of survey contract.

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
tion channels	production		to nearest flood zone)	engineers - once			
Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill cleanup equipment.	Equipment specifications with respect to potential pollutants	Tender document to mention specifications - once	POWERGRID	Part of detailed equipment design /drawings	
		Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Substation sewage design	Tender document to mention detailed specifications - once	POWERGRID	Part of detailed substation layout and design /drawings	
Explosions /Fire	Hazards to life	Design of substations to include modern fire control systems/firewalls.	Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications - once	POWERGRID	Part of detailed substation layout and design /drawings	
		Provision of fire fighting equipment to be located close to transformers.					
Construction							
Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance- once at the start of each construction phase	POWERGRID (Contractor through contract provisions as per Sec- VII, 44.7)	Construction period	
Physical construction	Disturbed farming activity	Construction activities on cropping land timed to avoid disturbance of field crops (within one month of harvest wherever possible).	Timing of start of construction	Crop disturbance –Post harvest as soon as possible but before next crop - once per site	POWERGRID (Contractor through contract provisions as per Sec-II, 2.5)	Construction period	Construction on farm land undertaken mostly during post harvest period.

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints received by local authorities - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-VIII, 44.7)	Construction period	
	Noise, vibration, equipment wear and tear	Turning off plant not in use.	Construction equipment – estimated noise emissions and operating schedules	Complaints received by local authorities - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-VIII, 44.7)	Construction period	
Construction of roads for accessibility	Increase in airborne dust particles	Existing roads and tracks used for construction and maintenance access to the line wherever possible.	Access roads, routes (length and width of new access roads to be constructed)	Use of established roads wherever possible - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-II, 2.8)	Construction period	
	Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Access width (meters)	Access restricted to single carriage -way width within RoW - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-II, 2.8)	Construction period	Complied/ Being Complied
Temporary blockage of utilities	Overflows, reduced discharge	Temporary placement of fill in drains/canals not permitted.	Temporary fill placement (m^3)	Absence of fill in sensitive drainage areas - every 4 weeks	POWERGRID (Contractor through contract provisions as per Sec-II, 2.6)	Construction period	

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance control (area in m^2)	Clearance strictly limited to target vegetation - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-VIII, 43.5 & Sec. II, 2.6)	Construction period	
Trimming /cutting of trees within RoW	Fire hazards	Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.	Species-specific tree retention as approved by statutory authorities (average and maximum tree height at maturity, in meters)	Presence of target species in RoW following vegetation clearance – once per site	POWERGRID (Contractor through contract provisions)	Construction period	
	Loss of vegetation and deforestation	Trees that can survive pruning to comply should be pruned instead of cleared.	Species-specific tree retention as approved by statutory authorities	Presence of target species in RoW following vegetation clearance – once per site	POWERGRID (Contractor through contract provisions)	Construction period	
		Felled trees and other cleared or pruned vegetation to be disposed of as authorized by the statutory bodies.	Disposal of cleared vegetation as approved by the statutory authorities (area cleared in m^2)	Use or intended use of vegetation as approved by the statutory authorities – once per site	POWERGRID (Contractor through contract provisions)	Construction period	
Wood/ vegetation harvesting	Loss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities)	Illegal wood /vegetation harvesting (area in m^2, number of incidents reported)	Complaints by local people or other evidence of illegal harvesting - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-II, 2.3)	Construction period	

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings disposed of by placement along roadsides, or at nearby house blocks if requested by landowners	Soil disposal locations and volume (m^3)	Acceptable soil disposal sites - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-VIII, 43.5 & Sec-II, 2.6)	Construction period	
Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground cover left undisturbed	Ground disturbance during vegetation clearance (area, m^2)	Amount of ground disturbance - every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period	
			Statutory approvals	Statutory approvals for tree clearances – once for each site	POWERGRID (Contractor through contract provisions)	Construction period	
Tower construction – disposal of surplus earthwork/fill	Waste disposal	Excess fill from tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner	Location and amount (m^3)of fill disposal	Appropriate fill disposal locations - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-II, 2.6 & Sec-VIII, 43.5)	Construction period	
Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	Location of hazardous material storage; spill reports (type of material spilled, amount (kg or m^3) and action taken to control and clean up spill)	Fuel storage in appropriate locations and receptacles - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	
Construction schedules	Noise nuisance to	Construction activities only undertaken during the day	Timing of construction (noise	Daytime construction only	POWERGRID (Contractor	Construction period	

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
	neighbouring properties	and local communities informed of the construction schedule.	emissions, [dB(A)])	- every 2 weeks	through contract provisions as per Sec-VIII, 44.7)		
Provision of facilities for construction workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste disposal facilities - once each new facility	POWERGRID (Contractor through contract provisions)	Construction period	
Encroachment into farmland	Loss of agricultural productivity	Use existing access roads wherever possible	Usage of existing utilities	Complaints received by local people /authorities - every 4 weeks	POWERGRID (Contractor through contract provisions as per Sec-II, 2.8) Sec-II, 2.5 & Sec-II, 2.7	Construction period	Being complied. No complaints received from local peoples/ authorities
		Ensure existing irrigation facilities are maintained in working condition	Status of existing facilities				
		Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in m^3)				
		Repair /reinstate damaged bunds etc after construction completed	Status of facilities (earthwork in m^3)				
	Social inequities	Compensation for temporary loss in agricultural production	Implementation of Crop compensation (amount paid, dates, etc.)	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction	Tried to minimise the loss.
Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimised, use of existing roads.	Design basis and construction procedures (suspended solids in receiving waters; area re-vegetated in m^2; amount of bunds constructed [length in meter, area in m^2, or	Incorporating good design and construction management practices – once for each site	POWERGRID (Contractor through contract provisions as per Sec-II,2.8)	Construction period	
		Limit site clearing to work areas					
		Regeneration of vegetation to stabilise works areas on completion (where applicable)					

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		Avoidance of excavation in wet season	volume in m^3])		As per Sec-II, 2.6		
		Water courses protected from siltation through use of bunds and sediment ponds					
Nuisance to nearby properties	Losses to neighbouring land uses/ values	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction management practices – once for each site	POWERGRID (Contractor through contract provision as per Sec-II, 2.8)	Construction period	No complaints received
		As much as possible existing access ways will be used	Design basis and layout	Incorporating good design engineering practices– once for each site			Complied/ Being Complied
		Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m^2)	Consultation with affected parties – twice- immediately after completion of construction and after the first harvest			No complaints received
	Social inequities	Compensation will be paid for loss of production, if any.	Implementation of Tree/Crop compensation (amount paid)	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction	Compensation provided as per POWERGRID's procedure for tree/crop compensation
Inadequate siting of borrow areas	Loss of land values	Existing borrow sites will be used to source aggregates, therefore, no need to develop new sources of aggregates	Contract clauses	Incorporating good construction management practices – once for each site	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
Health and safety	Injury and sickness of workers and members of	Contract provisions specifying minimum requirements for construction camps	Contract clauses (number of incidents and total lost-work days caused by	Contract clauses compliance – once every quarter	POWERGRID (Contractor through contract	Construction period	Complied/ Being Complied

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
	the public	Contractor to prepare and implement a health and safety plan.	injuries and sickness)		provisions as per Sec-II, 2.2 (v,vii,viii) and also Safety precautions in spe. contract Condition 43.2)		
		Contractor to arrange for health and safety training sessions					
Inadequate construction stage monitoring	Likely to maximise damages	Training of POWERGRID environmental monitoring personnel	Training schedules	Number of programs attended by each person – once a year	POWERGRID	Routinely throughout construction period	
		Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	Respective contract checklists and remedial actions taken thereof.	Submission of duly completed checklists of all contracts for each site - once			
		Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Compliance report related to environmental aspects for the contract	Submission of duly completed compliance report for each contract - once			
Operation and Maintenance							
Location of transmission towers and transmission line alignment and design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Compliance with setback distances ("as-built" diagrams)	Setback distances to nearest houses – once in quarter	POWERGRID	During operations	
Equipment submerged under flood	Contaminatio n of receptors (land, water)	Equipment installed above the high flood level (HFL) by raising the foundation pad.	Substation design to account for HFL ("as-built" diagrams)	Base height as per flood design - once	POWERGRID	During operations	

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Oil spillage	Contamination of land/nearby water bodies	Substation transformers located within secure and impervious sump areas with a storage capacity of at least 100% of the capacity of oil in transformers and associated reserve tanks.	Substation bunding (Oil sump) ("as-built" diagrams)	Bunding (Oil sump) capacity and permeability - once	POWERGRID	During operations	
Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (lost work days due to illness and injuries)	Preparedness level for using these technologies in crisis – once each year	POWERGRID	Design and operation	
		Safety awareness raising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff /workers covered – once each year			
		Preparation of fire emergency action plan and training given to staff on implementing emergency action plan					
		Provide adequate sanitation and water supply facilities	Provision of facilities	Complaints received from staff /workers every 2 weeks			
Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (number of injury incidents, lost work days)	Preparedness level for using these technology in crisis – once a month	POWERGRID	Design and Operation	
		Security fences around substations	Maintenance of fences	Report on maintenance –			

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		Barriers to prevent climbing on/dismantling of transmission towers	Maintenance of barriers	every 2 weeks			
		Appropriate warning signs on facilities	Maintenance of warning signs				
		Electricity safety awareness raising in project areas	Training /awareness programs and mock drills for all concerned parties	Number of programs and percent of total persons covered – once each year			
Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of substations & transmission line maintenance crews.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	POWERGRID	Operation	
		Preparation and training in the use of O&M manuals and standard operating practices.					
Inadequate periodic environmental monitoring.	Diminished ecological and social values.	Power Grid staff to receive training in environmental monitoring of project operations and maintenance activities.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	POWERGRID	Operation	
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using cholofluorocarbons (CFCs), including halon, should be phased out and to be disposed of in a manner consistent with the requirements of the Govt.	Process, equipment and system design	Phase out schedule to be prepared in case still in use – once in a quarter	POWERGRID	Operations	

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Transmission line maintenance	Exposure to electromagnetic interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance (meters)	Ground clearance - once	POWERGRID	Operations	
Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance.	Noise levels (dB(A))	Noise levels at boundary nearest to properties and consultation with affected parties if any - once	POWERGRID	Operations	

SECTION: 5 APPROACH AND METHODOLOGY ADOPTED FOR MONITORING OF THE PROJECT

Monitoring is a continuous process throughout the Project life cycle starting from site selection to construction and maintenance state. A Project Management Unit (PMU) has been set up headed by Executive Director (Corporate Planning) at headquarters to coordinate and implement all environment and social issues with the assistance of functional department like Environment & Social Management Deptt., Engineering etc. Apart from site managers review the progress on daily basis and regular project review meetings held at least on monthly basis, chaired by the Executive Director of the region wherein the environmental aspects of the projects are discussed and remedial measures taken wherever required. The exceptions of these meetings will be submitted to the Directors and Chairman & Managing Director (CMD).

POWERGRID has separate monitoring departments which carry out real time monitoring of all parameters of project implementation including the environment and social issues. Such issues are discussed in detail during every quarter in the Project Review Meeting (PRM) Chaired by Director (Project). CMD also takes periodic review of project implementation

SECTION: 6 DEATAILS OF GRIEVENCE REDRESS COMMITTEE AND COMPLAINT RECEIVED AND ACTION TAKEN

POWERGRID has a well establish Grievance Redressal Mechanism (GRM) inbuilt in the process itself to receive complaints and grievances to facilitate concerns of project affected persons (PAPs). As a regular practice, wherever fresh land acquisition is involved, a committee is formed comprising of POWERGRID officials, representatives of local authorities, PAPs, Gram Panchayat and well-reputed person to address the grievances of the affected persons. However, in the instant project for Kurukshetra terminal station, no such committee is needed since the land area of 116.47 ha. acquired is a govt./Panchayat land. In case of Champa terminal station the private land has been acquired with negotiated settlement/consent award, Grievance Redressal Committee (GRC) has been constituted with representatives from POWERGRID, Revenue authorities, PAPs and Gram panchayat.

In case of transmission line, the GRM process is in built in the tree & crop compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector also provides forum for raising the grievance towards any irregularity/complaint. Apart from this POWERGRID officials also listen to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful and, if required POWERGRID takes necessary action to mitigate the concern of the affected.

SECTION: 7 CONCLUSION

It may be noted above that all the possible measures has taken to avoid/minimize the impact of land acquisition. As for Champa Substation, out of 270.80 acre land, 157.8 acre land is govt land and 113 acre private land was acquired from 124 land owners. Land compensation given at Rs. 10 Lakhs/ acre as per Aadarsh Punarvaas Neeti of Govt of Chhattisgarh and additional compensation of Rs. 10 Lakhs/ acre (Rs. 7 Lakhs towards land compensation enhancement, 3 Lakhs towards one time settlement in lieu of employment) for including Rehabilitation Assistance and cost for job paid as per demand/agreement.

For Kurukshetra Substation, 116.7 acre govt./panchayat land was acquired by State Govt. and possession was taken on 17.10.14. Since land was panchayat land and no PAPs were involved. Hence, no RAP was required. However, a public consultation was done on 27.08.14.
It is evident from above that mostly govt/panchayat land was selected for construction of substation. Private land was acquired for Champa Substation, but adequate compensation have been paid to land owners.

800kV Champa- Kurukshetra transmission line has length approximately 1286.7 KM with around 3220 towers location. During the construction in different phases i. e. foundation, erection, stringing of line we have paid the tree/crop compensation to the tune of Rs. 1960.38 lakh for 2070.78 ha. of affected land area.

R.K.SRIVASTAVA
Addl. General Manager (ESMD)

HEALTH CHECK UP CAMP AT CHAMPA

COMMUNITY DEVELOPMENT WORK AT KURUKSHETRA SUBSTATION

CONSTRUCTION OF INTERLOCKING PATH WITHIN THE VILLAGE

CONSTRUCTION OF SHAMSHAN SHED

BOUNDRYWALL OF SHAMSHAN & BRAMDA OF SHAMSHAN

CONSTRUCTION OF COMMUNITY CENTRE

CONSTRUCTION OF ILPB PAVEMENT IN RAJIV GANDHI SEWA KENDRA