Semi-Annual Social Safeguard Monitoring Report

Loan Number : 2415–IND & 2510–IND
Reporting Period : Apr. 2015 to Sep. 2015

Power Grid Development Investment Program (Tranche 1 & 2)

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Implementing Agency : POWERGRID

Executing Agency : POWERGRID

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ABBREVIATIONS

ADB	–	Asian Development Bank
APs	–	Affected Persons
CTU	–	Central Transmission Utility
EA	–	Executing Agency
EIA	–	Environment Impact Assessment
ESPP	–	Environment and Social Policy & Procedures
EMF	–	Electro Magnetic Fields
EMP	–	Environmental Management Plan
GO	–	Government Order
GOI	–	Government of India
GRM	–	Grievances Redressal Mechanism
GRC	–	Grievance Redressal Committee
IEE	–	Initial Environmental Examination
km	–	Kilometers
MoEF	–	Ministry of Environment and Forests
POWERGRID	–	Power Grid Corporation of India Ltd.
PMU	–	Project Management Unit
RoW	–	Right of Way
RAP	–	Rehabilitation Action Plan
S/s	–	Substation
NER	–	North Eastern Region
NR	–	Northern Region

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SECTION 1: INTRODUCTION

The power generation sources are unevenly distributed and often located far away from the load centers. The generation capacity addition will require development of an adequate intra and inter-states transmission system to ensure reliable and secured delivery of power from generation plants to end users. The North-eastern region mainly Arunachal Pradesh & Sikkim of India and Bhutan are endowed with large hydro potential. The generation addition of about 35,000 MW in Arunachal Pradesh and 15,000 MW in Sikkim & Bhutan is expected in future. Considering the low growth of power demand of NER including Sikkim and Bhutan, it is estimated that power to the order of about 42,000-45,000 MW would be surplus in these areas whereas the generation addition scenarios of the Northern Region (NR) and the Western Region (WR) indicate that these regions would remain in a serious deficit situation during 11th Plan and beyond. Therefore, surplus power from the above generation sources would have to be transmitted to the load centers of NR and WR over long distance through the narrow corridor in north of West Bengal. To optimally utilize the transmission corridor of the Chicken neck area and the difficult terrain of NER, it is necessary to plan evacuation system of major projects in NER and Bhutan in a comprehensive manner keeping in view the future generation expansion.

POWERGRID studied different transmission options i.e. high voltage HVDC and 765kV AC transmission system for transmission of surplus power from NER/ Sikkim/ Bhutan to NR/WR, and concluded that hybrid system of ± 800kV HVDC with 400kV AC system is the most optimal one and would need to be installed and commissioned in stages matching with the timeframe for development of hydro power generation projects. Generation addition, out of above potential in NER, as presently planned from Lower Subansiri (8x250MW=2000MW) and Kameng (4x150MW=600MW) Hydro Electric Projects in Arunachal Pradesh/Assam is expected to come up by XI Plan, beneficiaries being mainly NER, NR & WR. Evacuation of power from these Hydro Electric Projects has been envisaged with 400kV D/C Transmission systems at Biswanath Chariyali in Assam where 220/400/765kV HVAC power pooling point & ± 800kV HVDC Terminal is proposed. Transfer of bulk power from this Terminal Station (Biswanath Chariyali) has been proposed through ± 800kV HVDC Transmission line to Agra in Uttar Pradesh in Northern Grid for further dispersal to National Grid.

To meet the funding requirement of the proposed ± 800 kV High Voltage Direct Current (HVDC) Northern-Northern/Western Interconnector project, ADB has approved a Multi Tranche Financing Facility of $ 400 million & $ 200 million under Loan No. 2415-IND, Power Grid Development Investment Programme (Tranche 1) and under Loan No. 2510 -IND, Power Grid Development Investment Programme (Tranche 2) respectively. The loan for Tranche –1 was signed on 28th March 2008 and has been closed on 30th June 2015. Loan for Tranche - 2 was signed on 27th March 2009 and has been closed on 31st Dec'15.

1.1 OVERALL PROJECT DESCRICTION

The Power Grid Development Investment Project (Tranche 1 & 2) covered under Loan No. 2415-IND and Loan No. 2510-IND include establishment of ±800 kV HVDC Northern-Northern/Western Interconnector for transmission of power from North Eastern Region (NER) to NR and WR. The project involves construction about 1800 km ±800 kV HVDC transmission system from Biswanath Chariyali (Assam) to Agra (Uttar Pradesh) including 800 kV converting and inverting stations at both ends. The detail scope of the

project covered under above subject loan includes establishment of the following transmission facilities:

i) ±800 kV, 6000 MW HVDC Bipole line from Biswanath Chariali – Agra - 1812 km
ii) Earth electrode line at Biswanath Chariali end - 75 km
iii) Earth electrode line at Agra end - 148 km

(***Note:- Substation facilities for this project are excluded from above two loans scope***)

1.2 PROJECT OBJECTIVES

The main objective is to strengthen and enhance the economy and efficiency of intra- and inter-regional through establishment of a high capacity transmission system to evacuate bulk surplus power from NER. The Program will not only improve transmission reliability and security in this region but also provide uninterrupted power supply to energy deficit Northern and Western Region

1.3 OVERALL PROJECT PROGRESS, AGREED MILESTONES & IMPLEMENTATION SCHEDULES

Name of Project	**Project Details**	**Progress as on Oct.' 2015**	**Completion Schedule**
± 800 kV HVDC Northeastern - Northern/Western Interconnector	**Transmission System** • ± 800 kV, 6000 MW HVDC Bi-pole Transmission Line from Biswanath Chariyali (Assam) to Agra (Uttar Pradesh) - 1812 km • Earth electrode line at Biswanath Chariali end - 75 km • Earth electrode line at Agra end - 148 km	Construction of transmission line in all sections of ±800 kV Biswanath Chariyali- Agra completed on 31st Oct'2015.	Construction of transmission line in all sections of 800 kV Biswanath Chariyali- Agra completed on 31st Oct'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
Social		
The Borrower shall, subject to compliance with RF, RP, and CPTD, as agreed with ADB, and in accordance with all applicable laws, regulations, and policies of the Guarantor, and the relevant State, acquire or make available the land and rights to land free from any encumbrances, and clear the utilities, trees and any other obstruction from such land by providing adequate compensation and assistance required for commencement of construction activities in accordance with the schedule agreed under the related civil works contract.	LA, Sch. 5, para. 7	Being complied.
The Borrower shall ensure that land acquisition and resettlement is undertaken in accordance with applicable laws, regulations and policies of the Guarantor, the relevant State, ADB's Involuntary Resettlement Policy (1995), ESPP, as well as in accordance with the RF RP, and CPTD for each project under the Facility.	LA, Sch.5, para. 8	As per law of land, no land acquisition is involved for construction of transmission line However,compensation towards crop & trees being paid as per law/CPTD.
The Borrower shall (i) prepare and implement RPs for each project under the Facility that entails permanent losses, and CPTDs for each project under the Facility that entails only temporary losses, including any revisions thereto due to detailed designs, in accordance with ADB's Involuntary Resettlement Policy (1995), ESPP, and the RF and (ii) disclose the RP and CPTDs to affected persons in a form and language easily comprehended by the affected persons prior to submission to ADB for review.	LA, Sch. 5, para. 9	RP is not applicable as no substation is under scope of funding. However, CPTD prepared and is being implemented.
The Borrower shall ensure that prior to commencement of civil works under each project under the Facility, (i) full compensation based on replacement costs in accordance with the related RP is paid to the affected persons such that their living standards are not adversely affected, and (ii) resettlement assistance, grievance redress mechanisms, and monitoring systems are fully implemented. The Borrower shall implement additional activities, such as income generating programs, within 12 and 18 months of the commencement of civil works.	LA, Sch. 5, para. 10	Not applicable as no fresh land acquisition /RP involved.

The Borrower shall submit progress and completion reports on land acquisition and resettlement under the quarterly progress reports for the Project. In addition, the Borrower shall forward external monitoring report to ADB on a semi-annual basis for review.	LA, Sch. 5, para. 11	-do-
Prior to any land acquisition and resettlement for each project under the Facility, the Borrower shall ensure that RPs and CPTDs, including their updates, based on consultation with the affected persons are submitted to ADB for its approval, and uploading on ADB's website.	LA, Sch. 5, para. 12	-do-
The Borrower shall ensure that essential public infrastructure that may be affected under land acquisition and resettlement is replaced, as appropriate, in an expeditious manner in accordance with the related RP.	LA, Sch. 5, para. 13	-do-
The Borrower shall ensure that construction contracts contain binding requirements for construction contractors to fully reinstate pathways, other local infrastructures, and agricultural land to at least their pre-project condition upon construction completion; and provision is made for adequate recording of the condition of roads, agricultural land and other infrastructure prior to transport of material and construction commencement.	LA, Sch. 5, para. 14	Being Complied
In the event irrigation supplies are disrupted and adjacent farmers experience losses, the Borrower shall ensure that provision will be made for independent valuation of the losses and timely compensation in respect thereof.	LA, Sch. 5, para. 15	Not applicable as no such instances reported/ observed till date
The Borrower shall ensure timely provision of budget for land acquisition, resettlement and other activities outlined in the related RPs and shall meet any unforeseen obligations in excess of the RP budget estimate in order to satisfy the requirements of the RPs.	LA, Sch. 5, para. 16	Not Applicable
Within 3 months of the effective date the Borrower shall engage an independent external expert/agency acceptable to ADB for monitoring and verification of the Resettlement Plan implementation for each Project under the Facility that will be responsible for providing ADB through the Borrower quarterly monitoring and evaluation reports on resettlement implementation in accordance with the Resettlement Plans.	LA, Sch. 5, para. 17	Not Applicable as no fresh land acqusition and RP involved.

Within 3 months of the effective date of the related loan agreement, it establishes a grievance redress committee with representation from all the stakeholders to address any grievances from affected persons concerning resettlement and other social issues in a timely manner.	LA, Sch. 5, para. 18	Not applicable as grievances readdressal mechanism is in built in the process of crop/tree compensation.
In the event of any significant or related impacts on indigenous peoples under any project under the Facility, the borrower shall prepare and implement the IPDP in accordance with IPDF, ADBs Policy on Indigenous Peoples (1998), the applicable law, regulation, and policy of the Guarantor, and the relevant State. In the event of non-significant impact on indigenous peoples, the Borrower shall comply with the requirement set out in the related RP or CPTD.	LA, Sch. 5, para. 19	No Indigenous people involved/ impacted.

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

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 made to minimize the crop damage to the extent possible. 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 any damages to mitigate the impacts during foundation, tower erection & stringing. Details of package and region wise compensation paid for tree/crop damages till date is given in **Table - 2**.

Figure 1 : TREE / CROP COMPENSATION PROCESS

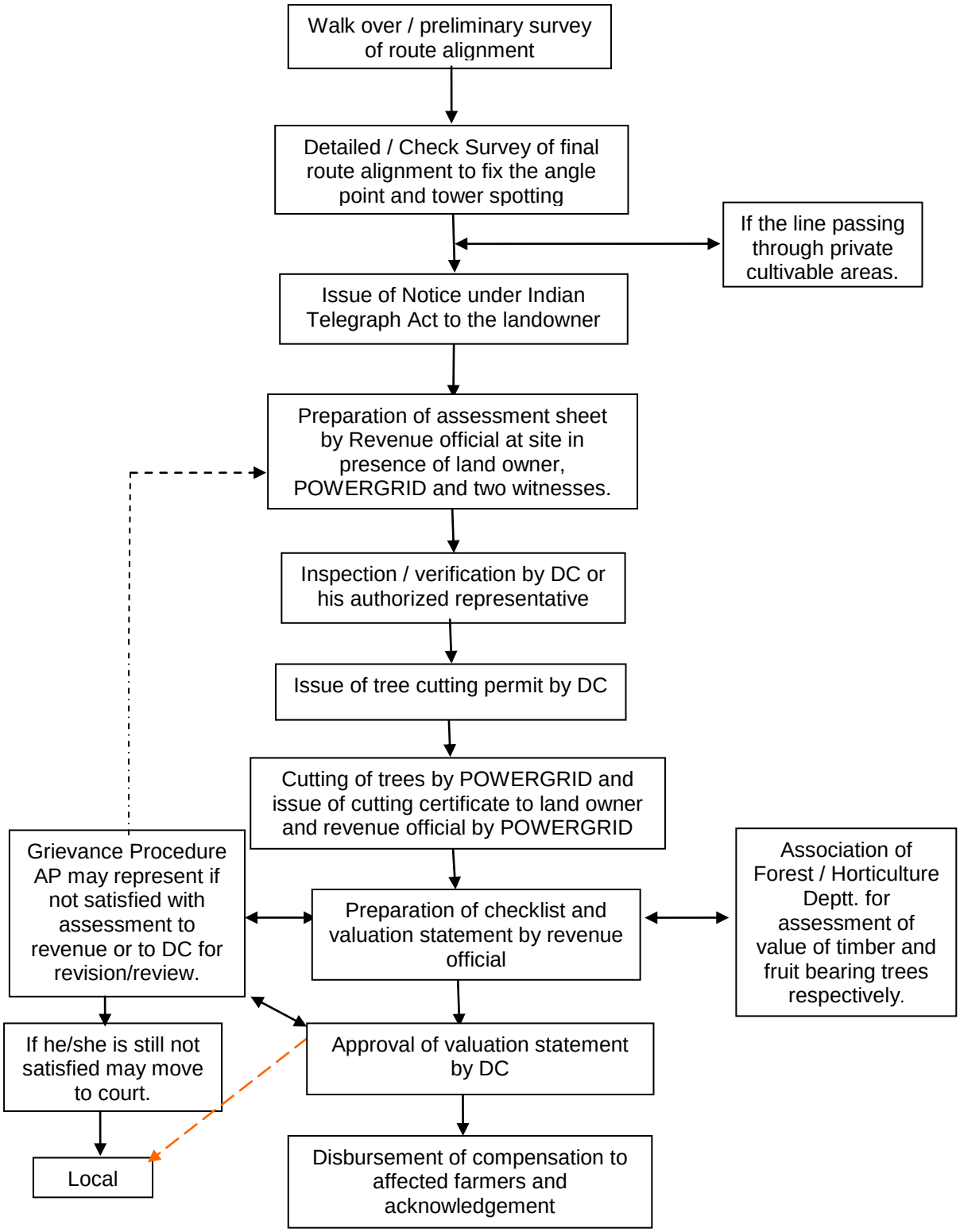

Table: 2 Status of Tree and Crop Compensation till date

Sl. No.	Name of Section/ Package	State/ Region	Line Length (km)	No. of APs (Person issued notices)	Land Area (Tower base & RoW) Affected (in Ha.)	Amount of Crop Compensation Paid (In Lakhs)			Amount of Tree Compensation Paid (In Lakhs)			Huts Compensation (In Lakhs)
						Foundn.	Erection	Stringing	Foundn.	Erection	Stringing	
1	Bis.Chariali- Tangla (A1) & Earth Electrode Line	Assam/ NER	240	15826	1270.50	281.42	957.47	4194.76	84.10	252.73	1643.54	--
2	Tangla -Kokrajhar-Barabisa (A2)		220	13646	1473.42	297.14	848.44	2041.10	120.18	400.14	6676.01	943.67
3	Barabisa- Moynaguri-Islampur (A3)	W.B/ ER-II	212	30917	252.45	1981.58	3116.83	5048.2	--	--	432.57	--
4	Islampur - Saharsa (A4)	Bihar/ ER- I	203	15486	350.93	197.39	283.93	1044.86	20.50	39.26	857.13	--
5	Saharsa - Gopalganj (A5)		182.6	12198	162.52	105.05	241.95	178.15	70.97	70.91	698.06	40.01
6	Gopalganj-Gorakhpur (A6)		187	6970	179.84	80.49	123.45	171.63	46.54	75.88	308.62	--
7	Gorakhpur-Gomti (A7)	U.P/ NR-I	194.3	4272	258.83	79.20	130.45	350.29	--	5.60	243.39	--
8	Gomti-Nidhura (A8)		201.2	5706	421.00	61.47	66.10	85.63	5.05	4.23	141.25	--
9	Nidhura –Agra (A9) & Earth Electrode Line		265	1494	553.68	76.04	138.67	245.33	--	--	134.39	--
Total			**1905**	**106515***	**4923.17**	**3159.78**	**5907.29**	**13359.95**	**347.34**	**848.75**	**11134.96**	**983.68**

*Not the actual representation of number of APs as more than 80 % APs are common in foundation, erection and stringing.

Apart from compensation, POWERGRID has also taken up various CSR projects/schemes in the affected villages (i.e. Fulbari Village) as agreed in consultation with Gram Panchayat and the affected persons. Till 31st Dec.' 2013, an expenditure to the tune of Rs. 56.79 Lakhs has been made in last three year (FY 2010-13) towards implementation of such schemes for upliftment of socio-economic conditions of the affected villages. Moreover, during FY 2013-14, POWERGRID has taken up CSR projects to the tune of Rs 55.74 lakhs in affected villages. Details of year wise CSR schemes undertaken along with cost involved and its implementation status is mentioned below (Photographs enclosed as **Plate-1**).

DETAILS OF YEAR WISE CSR ACTIVITIES UNDERTAKEN IN FULBARI VILLAGE

A. FY 2010-11

Sl. No.	CSR Activity/Village (Gram Panchayat)	Amount(Rs.) Sanctioned	Project Status	Amount (Rs.) Spent
1.	Health Camp at Kamrangaguri under Gram Panchayat, Fulbari-I	1,00,000	Completed	90, 105
2.	Supply of Wooden Desk Bench for BFP School, Kamrangaguri under Gram Panchayat, Fulbari-I	25,000	Completed	25,300
3.	Construction of Brick Boundary Wall for BFP School, Kamrangaguri under Gram Panchayat, Fulbari-I	3,06,271	Completed	3,32,073
4.	Improvement of Kachcha Road of Kamrangaguri under Gram Panchayat, Fulbari-I	1,63,441	Completed	1,93,399
5.	Construction of High Drain of Shantipara under Gram Panchayat, Fulbari-I	10,70,541	Completed	11,77,576

B. FY 2011-12

Sl. No.	CSR Activity/Village (Gram Panchayat)	Amount(Rs.) Sanctioned	Project Status	Amount (Rs.) Spent
1.	Health Camp at Kamrangaguri under Gram Panchayat Fulbari-I	2,00,000	Completed	1,99,768
2.	Supply of Wooden Desk Bench at SSK School, Shantipara under Gram Panchayat Fulbari-I	86,750	Completed	86,750
3.	Construction of High Drain (Balance Portion) Shantipara under Gram Panchayat Fulbari-I	10,98,599	Completed	6,14,188
4.	Constr.of Road at Shantipara under Gram Panchayat Fulbari-I	4,71,750	Completed	4,51,007
5.	Providing Solar Street Light at Porajhar village under Gram Panchayat, Fulbari-I	1,50,000	Installation awaited	1,44,480
6.	Base Line Survey & Skill Dev. & Capacity Building Program on Two Wheeler Repairing & Servicing Gram Panchayat, Fulbari-II	4,45,000	Completed	4,45,000

C. FY 2012-13

Sl. No.	CSR Activity/Village (Gram Panchayat)	Amount(Rs.) Sanctioned	Project Status	Amount (Rs.) Spent
1.	Improvement of Kachcha Road from Amaidighi Marketing check post to Kalibari BSF Road at Fulbari-II	14,11,468	Completed	8,23,983
2.	Health Camp at Amaidighi School, Fulbari-II	2,00,000	Completed	3,11,160
3.	Skill Dev. Training Program under Gram Panchayat, Fulbari-II	2,07,500	Completed	2,07,500

4.	Providing Solar Street Light at village of Fulbari under Gram Panchayat Fulbari-II	2,50,000	Installation awaited	2,50,000
5.	Toilets for Girls & Boys of Kamrangaguri BFP School village under Gram Panchayat Fulbari-I	3,00,000	Completed	3,26,836

D. FY 2013-14

Sl. No.	CSR Activity/Village (Gram Panchayat)	Amount(Rs.) Sanctioned	Project Status	Amount (Rs.) Spent
1.	Construction of Boundary Wall at Changrabandha ICDS & Changrabandha Primary School in Fulbari area	8,02,980	Completed	---
2.	Improvement of three village roads at Fulbari viz. (i) Balance portion of Kaccha road from Amaidighi checkpost to Kalibari, BSF Road (ii) Kaccha Road at Hatiram Jote, Leusipakuri (iii) Road at Juguvita village	47,71,227	Revised estimate approved & NIT is under process.	----

The project is being implemented as per approved EMP, IEE and CPTD and in accordance with applicable laws and ADB's Policies. POWERGRID has prepared Compensation Plan for Temporary Damages (CPTD) & Initial Environmental Examination (IEE) reports including Environmental Management Plan (EMP) and mitigation measures to ensure that all the anticipated impacts due to the project activities are minimized wherever possible. The EMP describes a detailed site-specific mitigation measures and monitoring plans anticipated during different stages of the proposed project i.e. pre-construction, construction, and operation & maintenance phase. A summary of monitoring requirements has also been included which identifies when and where the parameter will be monitored, how often and against what aspect. For proper implementation of EMP/CPTD and other mitigation measures separate fund has been allocated in the project cost.

Monitoring the implementation of safeguard mitigation measures is to ensure that these are undertaken in accordance with the EMP/CPTD. A summary of the measures and monitoring compliance by POWRGRID's is given in **Table 3**.

Table- 3: Environment Management Plan

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and 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 Government	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	

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and 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	Tower location and line alignment selection (distance to water bodies.	Consultation with local authorities and avoiding tower foundation in water bodies	POWERGRID	Part of tower siting survey and detailed alignment survey and design	Complied during survey. Route alignment criteria 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	
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 to avoid/minimize forest involvement - 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 and 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 & 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 & 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)	Consultation with affected parties – once in a quarter		Prior to construction phase	
			Statutory approvals for tree trimming /removal	Compliance with regulations –once for each subproject		Part of detailed siting and alignment survey /design	
Interference with drainage patterns/Irrigation channels	Flooding hazards/loss of agricultural production	Appropriate siting of towers to avoid channel interference	Tower location and line alignment selection (distance to nearest flood zone)	Consultation with local authorities and design engineers - once	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 and frequency	Institutional responsibility	Implementation schedule	Compliance Status
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. Wherever crop loss occurs compensation paid to farm owners and an amount of **Rs. 224.27 Cr**. has been paid so far .
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	

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule	Compliance Status
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	
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	
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	

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule	Compliance Status
		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	
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	
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 contrac 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	Fuel storage in appropriate locations and receptacles - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule	Compliance Status
			clean up spill)				
Construction schedules	Noise nuisance to neighbouring properties	Construction activities only undertaken during the day and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(A)])	Daytime construction only - every 2 weeks	POWERGRID (Contractor through contract provisions as per Sec-VIII, 44.7)	Construction period	
Provision of facilities for construction workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste disposal facilities - once each new facility	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. However, if there is any damage to tree/ crop then damages are compensated. An amount of **Rs. 357.41 Cr.** paid towards crop, tree & hut compensation during construction till Mar'2015 (refer **Table – 2**)

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule	Compliance Status
Uncontrolled erosion/silt runoff	Soil loss, downstream siltation;	Need for access tracks minimised, use of existing roads.	Design basis and construction procedures (suspended solids in receiving waters; area re-vegetated in m^2; amount of bunds constructed [length in meter, area in m^2, or volume in m^3])	Incorporating good design and construction management practices – once for each site	POWERGRID (Contractor through contrac provisions as per Sec-II, 2.8) As per Sec-II, 2.6	Construction period	
		Limit site clearing to work areas					
		Regeneration of vegetation to stabilise works areas on completion (where applicable)					
		Avoidance of excavation in wet season					
		Water courses protected from siltation through use of bunds and sediment ponds					
Nuisance to nearby properties	Losses to neighbouring land uses/ values	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction management practices – once for each site	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			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

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule	Compliance Status
Health and safety	Injury and sickness of workers and members of the public	Contract provisions specifying minimum requirements for construction camps	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	POWERGRID (Contractor through contract provisions as per Sec-II, 2.2 (v,vii,viii) and also Safety precautions in Special Contract Condition 43.2)	Construction period	
		Contractor to prepare and implement a health and safety plan.					
		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 envir-onmental 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 implement-tation 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	

Project activity/stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule	Compliance Status
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					
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 technologies in crisis – once a month	POWERGRID	Design and Operation	
		Security fences around substations	Maintenance of fences	Report on maintenance – every 2 weeks			
		Barriers to prevent climbing on/dismantling of transmission towers	Maintenance of barriers				
		Appropriate warning signs on facilities	Maintenance of warning signs				
		Electricity safety awareness raising in project areas	Training/awareness programs and mock drills for all concerned parties	Number of programs and percent of total persons covered – once each year			
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water,	Processes, equipment and systems using cholofluorocarbons (CFCs), including halon, should be phased out and to be	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 and frequency	Institutional responsibility	Implementation schedule	Compliance Status
	land)	disposed of in a manner consistent with the requirements of the Government.					
Transmission line maintenance	Exposure to electromagnetic interference	Transmission line design to comply with the limits of electro-magnetic interference from overhead 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: 4 MONITORING- APPROACH AND METHODOLOGY

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 and social 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 and Managing Director (CMD).

POWERGRID has a separate monitoring department which carries 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.

Furthermore as per agreed action plan, POWERGRID has designated social officers for each package working at different sites and also organized a two days training programme on ADB's safeguard requirements on 6th & 7th Aug' 2013 at Lucknow in which ADB environment & social expert also presented and informed the participants about ABD's safeguard requirements. All the designated social officials and site officials who are looking after the monitoring and implementation environmental and social safeguard measures at site level participated in this training programme.

SECTION: 5 GRIEVENCE REDRESS MECHANISM

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). POWERGRID set up a formal Grievance Redressal Committee (GRC) whenever the project involves acquisition of private land for establishment of substation. Since the scope of subject loan doesn't include any substation package, grievances redress process for PAPs in Substation area is not covered in this report. However for 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. Certain grievances of Project Affected Person (PAP) regarding compensation and community development works were received and same has been addressed as per the norms.

A complaint by Rajganj Block HT Line Affected People Forum, West Bengal regarding implementation compensation plan was received by POWERGRID on 28th April 2012. POWERGRID had taken prompt action and arranged a meeting on 18th May 2012 at District Magistrate Office, Jalpaiguri where concerned authorities including Addl. District Magistrate, Revenue Authority & Block Development Officer, affected persons, members of people forum and POWERGRID officials were present. As decided in the meeting, joint site inspection by officials from POWERGRID, B.D.O and Revenue Officials in presence of Gram Pradhan and affected persons were undertaken on 25th June 2012 and resolved their grievances/issues. A point wise reply against the queries raised in the complaint was also submitted to Rajganj Block HT Line Affected People Forum with a copy to ADB. ADB review mission team visited construction sites and held discussion with the Members of Rajganj Block HT Line Affected People Forum and POWERGRID Officials on 23.02.2013 at Siliguri. As per the agreed time frame with APs and revenue official, POWERGRID shall close this issue by Oct' 2013 by resolving all complaints of compensation including demand for additional compensation in accordance with applicable law/guideline. As agreed, POWERGRID paid adequate compensation to land owners as decided during joint measurement and construction work started in affected locations without any resistance/complaint except at one location i.e. 253/0 where the land owner refused to accept the due compensation and demanded compensation towards land value also which is not payable as per the provisions of existing law. After failing to convince the land owner regarding compensation provisions as per the act and practices, POWERGRID approached District Administration for resolving the issue as per provisions section 16(1) of the Indian Telegraph Act, 1885. District Magistrate, Jalpaiguri after hearing both parties on 18.02.2014 passed order directing land owner to allow POWERGRID for implementation of the project in the larger interest of public and due compensation be paid to land owner as per provisions of Telegraph Act, 1885 (Copy of Order enclosed as **Annexure –I**). In the order, District Magistrate, Jalpaiguri has directed to disburse the compensation to the legal owner of the land. POWERGRID has requested B.L.L.R.O., Rajganj to identify the plots where tower is located and intimate the legal owner. However, the information is still awaited from Government of West Bengal even after taking follow up from POWERGRID. Copy of communication is attached as **Annexure-II.**

In the meantime Sh. N. Chakraborty has made an appeal for and on behalf of Shanti Devi Memorial Trust before the court of Ld. District Judge at Darjeeling against the Order No. 11 dated 1st March, 2014 passed by the Ld. Civil Judge, Junior Division at Siliguri in Title (Declaration) suit no. 11/2014, Shanti Devi Memorial Trust Vs Power Grid Corporation of India Ltd. in which Hon'ble court passed order to maintain status quo with regard to the nature, character and possession off the suit land till disposal of the suit (Copy of Order enclosed as **Annexure-III**). POWERGRID has approached Hon'ble High Court of Kolkata to set aside the order of Lower Court. In the order of Hon'ble High Court vide CO2044 of 2014 (Copy of Order enclosed as **Annexure-IV**) has directed POWERGRID to deposit Rs. 3 lakhs as possible compensation and also directed District Magistrate, Darjeeling to pass appropriate order under 16 (1) after deposition of the said amount and will await appropriate order from District Judge under 16 (3). Accordingly, District Magistrate, Darjeeling has heard the case on 28.10.2014 from both the parties. Taking cognizance of this order, the District Magistrate, Darjeeling passed further necessary orders on 13 February 2015(Copy of order enclosed as **Annexure-V**). POWERGRID in compliance of this order has deposited the compensation money and completed the long pending work.

SECTION: 6 CONCLUSION

POWERGRID approach of project implementation involving selection of most optimum route due assessment and planning and then ensure implementation of EMP/CPTD and monitoring mechanism throughout project life cycle supported by strong institutional arrangement has considerably nullified the adverse impacts arising out of project activities. Moreover, 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 activities are allowed after the construction work is completed. However, compensation for the loss of crops/trees/any structure etc. paid to APs for any damages to mitigate the impacts during foundation, tower erection & stringing.

Till date, a total of **Rs.357.41 Cr. for 4923.17 ha. area** have been paid to affected persons towards tree/crop and hut compensation.

Apart from the compensation, many infrastructure development activities amounting to Rs.120.60 lakhs were also implemented under CSR initiatives for overall development of affected village.

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

Plate-1

CSR Activities

Distribution of sports item

Skill development program

Health Checkup camp

Health Checkup camp