Resettlement Plan

Project Number: 45224 (IND)
June 2012

India: Rajasthan Renewable Energy Transmission Investment Program: Project 1

Prepared by:

Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL)
Government of Rajasthan

ABBREVIATIONS

ADB	Asian Development Bank
APs	Affected Persons
BPL	Below Poverty Line
DC	District Collector
DEA	Department of Economic Affairs
DP	Displaced Persons
EA	Executing Agency
ESC	Environment and Social Cell
FGD	Focus Group Discussions
GOI	Government of India
GoR	Government of Rajasthan
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IA	Implementing Agency
JNNSM	Jawaharlal Nehru National Solar Mission
LAA	Land Acquisition Act 1894
LAO	Land Acquisition Officer
MFF	Multi-Tranche Financing Facility
NGOs	Non-Government Organizations
NRRP	National Rehabilitation and Resettlement Policy, 2007
PMU	Project Management Unit
RF	Resettlement Framework
RP	Resettlement Plan
RRETIP	Rajasthan Renewable Energy Transmission Investment Program
RRVPNL	Rajasthan Rajya Vidyut Prasaran Nigam Limited
SIA	Social Impact Assessment
SPS	Safeguard Policy Statement, 2009
STs	Scheduled Tribes
STU	State Transmission Utility
WHH	Women Headed Household

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EXECUTIVE SUMMARY

i. The Government of Rajasthan (GoR) through the Government of India (GoI) has requested Asian Development Bank (ADB) to provide a Multi-Tranche Financing Facility (MFF) to partly fund the Rajasthan Renewable Energy Transmission Investment Program (RRETIP) in the State of Rajasthan. The investment program covers investments for transmission of clean energy to National Grid of India by construction of pooling substations and Extra High Voltage (EHV) transmission lines. This Resettlement Plan (RP)1 is based on engineering design. The resettlement impact is insignificant and the Project has been Categorized as "B"2 for Involuntary Resettlement (IR) and "C" for Indigenous Peoples as per the ADB's Safeguard Policy Statement, 2009 (SPS).

ii. The project will not entail any private land acquisition. There will be no permanent impact on physical displacement, economic displacement and loss of livelihood. Construction of grid substations usually requires land acquisition. The grid substations (Bhadla, Ramgarh and Bap) under the project are proposed to be constructed in the government land which is waste land and free from any use. The construction of transmission lines will not entail any land acquisition and resettlement. However, temporary impacts are foreseen on crop damage during the implementation and construction of project activities.

iii. Consultations were carried out with various stakeholders during RP preparation and will continue throughout project implementation. The social assessment involved interviewing 400 heads of households as part of social impact assessment during the month of November 2011 to January 2012. Additionally, public consultations were carried out by the social survey team through focused group discussions (FGDs) along the transmission lines. Project information will be disseminated by the project through the disclosure of resettlement planning documents. The summary of the RP including the entitlement matrix will be translated into the local language (Hindi) and will be disclosed to the APs; and made available at the local revenue offices and EA offices. A copy of the RP will also be disclosed on the RRVPNL and ADB websites. A Grievance Redress Mechanism (GRM) will be established to ensure affected peoples (APs) grievances are addressed to facilitate timely project implementation.

iv. The policy framework and entitlements for the Project are based on national laws: The Land Acquisition Act, 1894 (LAA, amended in 1984), and the National Resettlement and Rehabilitation Policy, 2007 (NRRP); and ADB's Safeguard Policy Statement, 2009 (SPS). The project will neither result in any physical displacement nor economic displacement except for temporary impacts on crops which are foreseen during the construction period. Adequate compensation will be provided as per the entitlement matrix which will be based on current market values. Additionally, in the event of direct affectation to vulnerable households[3], these will be paid an additional assistance equivalent to three months of minimum wage.

[1] The scope of the resettlement plan includes the temporary impact of the transmission lines on crops and trees. The project will not entail any land acquisition and hence there is no permanent physical or economic displacement.

[2] Resettlement is insignificant when less than 200 people experience major "impacts" defined as involving AP being physically displaced from housing and/or having 10% or more of their productive, income generating assets lost. Resettlement having insignificant impact is categorized as B which requires a - resettlement plan.

[3] Vulnerable Households include those affected households who belong to Scheduled Tribe, Women Headed, Physically Disabled and Below Poverty Line

v. The RRVPNL will be the Executing Agency (EA) as well as the Implementing Agency (lA) for the project. RRVPNL will constitute a Project Management Unit (PMU) for implementing the ADB loan at the corporate level which is Jaipur and field office of RRVPNL at the sub-project level which is Jodhpur in this case for tranche-1 component. The PMU shall be headed by the Chief Engineer (T&C) and the Superintending Engineer (Planning) shall be responsible for coordinating all external functions with ADB. GOI, DEA, GOR as well as the internal functions such as Environment and Social/R&R reporting, Legal, Finance and Accounts, Field Project offices, Procurement and Contracts etc. and other functions from within RRVPNL. One Environment and Social Cell (ESC) shall be designated and headed by one Executive Engineer who shall be designated for monitoring ADB funded projects in areas such as Environment, R&R and Social safeguards. To assist ESC in these specialist functions, RRVPNL may hire appropriate consultants for monitoring purposes.

vi. . All land acquisition (government land in this case) of substations will be completed prior to the start of civil works. Payment of compensation and assistance to APs for temporary impacts caused on crops will be completed in a phased manner before the start of civil work in that specific section. In addition, the EA will make every effort to have the construction activities during off-season where possible. All land required will be provided free of encumbrances to the contractor prior to handing over of project sites and the start of civil works. The resettlement cost estimate for this subproject includes eligible compensation for loss of crop, and support cost for RP implementation. These are part of the overall project cost. A contingency of 5% additional costs has been kept as a provision to meet any variation in the cost during the implementation. A tentative budget has been calculated for the project which amounts to INR 97.23 million. RP implementation will be closely monitored to provide RRVPNL with an effective basis for assessing resettlement progress and identifying potential difficulties and problems. Semi annual monitoring reports will be submitted by RRVPNL to ADB.

I. INTRODUCTION AND PROJECT DESCRIPTION

1. The Government of Rajasthan (GoR) through the Government of India (GoI) has requested Asian Development Bank (ADB) to provide a Multi-Tranche Financing Facility (MFF) to partly fund the Rajasthan Renewable Energy Transmission Program (RRETIP) in the State of Rajasthan. The investment program covers investments for transmission of clean energy to National Grid of India by construction of pooling substations and Extra High Voltage (EHV) transmission lines. This Resettlement Plan (RP)[4] is based on engineering design. The resettlement impact is insignificant and the Project has been Categorized as "B"[5] for Involuntary Resettlement (IR) and "C" for Indigenous Peoples as per the ADB's Safeguard Policy Statement, 2009 (SPS).

2. In May 2010, ADB announced its Asia Solar Energy Initiative (ASEI) to catalyze 3,000 megawatts (MW) of solar power generation projects from 2010 to 2013 with the broad objectives to (i) keep the region abreast with technological developments in solar energy, (ii) identify and develop large capacity solar projects, and (iii) design incentive mechanisms and innovative financing mechanisms for rapid diffusion of solar technology, both grid connected systems as well as distributed stand-alone power generation. Out of the 3,000 megawatts (MW), at least 500 MW is expected to be developed by India with ADB's support.

3. India is blessed with abundant Solar Energy and if harnessed efficiently, the country is capable of producing trillion-kilowatts of electricity. Solar energy is extremely beneficial as it is non-polluting and its generation can be decentralized. There is need to come together and take initiatives to create technologies for a greater use of these sources to combat climate change by reducing the emission of green house gases.

4. Rajasthan, the largest state in the country, covers a tenth of the area and five percent of the country's population, and has access to only one percent of the country's water resources, and Rajasthan is bestowed with significant amount of solar energy potential and an overwhelming response from Developers / Independent Power Producers (IPPs) has already been received for establishing solar power projects. Rajasthan Government is fully committed to the promotion of solar energy. Conducive Government of India Policy will yield astonishing achievements in energy generation in next 5-10 years.

5. Achieving the ambitious Jawaharlal Nehru National Solar Mission (JNNSM) target for 2022 of 20,000 MW will be dependent on the "learning" of the first two phases, which if successful, could lead to conditions of grid-competitive solar power. The transition could be appropriately up- scaled through capacity development of all the stakeholders related to issues of technology, finance, and policy development. In this regard, JNNSM envisages the promotion and establishment of solar parks with dedicated infrastructure through state governments that will streamline the project development timeline by letting government agencies directly handle land acquisition and all necessary permits, and provide dedicated common infrastructure (site preparation, levelling, power evacuation arrangements, water pipelines, access roads, common security, smart grid facilities etc.). This approach will facilitate the accelerated installation of solar power generation capacity by addressing issues

[4] The scope of the resettlement plan includes the temporary impact of the transmission lines on crops and trees. The project will not entail any land acquisition and hence there is no permanent physical or economic displacement.

[5] Resettlement is insignificant when less than 200 people experience major "impacts" defined as involving AP being physically displaced from housing and/or having 10% or more of their productive, income generating assets lost. Resettlement having insignificant impact is categorized as B which requires a - resettlement plan.

faced by decentralized projects.

6. Government of Rajasthan (GOR) has identified the Bhadla solar park with over 10,000 hectare in Phalodi tehsil of Jodhpur district, Rajasthan (to be developed in phases) to accommodate both solar photovoltaic (PV) power plants and concentrated solar power (CSP) plants. With ADB support, a master plan is being developed to ascertain the feasibility of the chosen location at Bhadla followed by the preparation of a detailed project report that includes laying out of plots, planning for common infrastructure facilities, developing cost estimates and financing plans. Additionally, a social due diligence study has been prepared for the proposed Bhadla solar park and especially for the phase-1 of the park. The due diligence report is provided in **Annexure-1**

7. Development of infrastructure to evacuate and transmit such a large quantum of renewable energy through power evacuation system has its challenges including (i) the development of a solar park of nearly 250 MW and overall renewable energy evacuation at a gigawatt scale, (ii) cost recovery from consumers in Rajasthan or other Indian states given significantly low load factors for infrastructure transmitting renewable energy compared to conventional fossil fuels, and (iii) technical challenges related to evacuation of such a large quantum of intermittent power in a stable and reliable manner that requires the use of innovative stabilizing equipment.

8. The Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL), setup in 2000, has been declared as the state transmission utility (STU) of Rajasthan. RRVPNL is responsible for the planning, development, operation and maintenance of the transmission facilities at 132 kV and above in Rajasthan. RRVPNL has developed a detailed project report to evacuate over 4,200 MW of solar and wind energy from a high renewable energy potential zone identified in Western Rajasthan. While some of the power is to be consumed in the state by the distribution companies, a large part of this power would be wheeled to other states to support them to meet their renewable power procurement obligations.

9. The Tranche 1 project consists of various components which to be funded both by ADB and RRVPNL include both physical and nonphysical investments. Physical investments the construction of the transmission system, including two grid substations (400/220/132kV) and associated facilities at Bhadla and Ramgarh; two substations (220/132 kV) and associated facilities at Bap and Kanasar; and associated automation and control infrastructure. The investments also include the augmentation of two 400 kV grid substations at Akal and Bikaner, the upgradation of 3 substations to 132 kV in Bhadla, and the construction of nearly 600 km. of 400 kV, 220 kV, 132 kV transmission lines in Bhadla and Ramgarh. The non-physical outputs include project management, training and community outreach work.

Summary details on the tranche-1 subprojects are given Table-1 and detailed descriptions on tranche-1 subprojects are given in **Annexure-2**. **Figure 1** provides the location of Bhadla Solar Park and ADB's funded tranche 1 transmission sub-projects. **Figure 2** provides the detail Power Map of Rajasthan. **Figure 3** provides details on satellite map of the Solar Park and **Figure-4** provides Location map of transmission lines under tranche 1 Subprojects in Jodhpur and Jaisalmer District

Table 1: Subproject Details in Tranche-1

S No	Subproject Details

S No	Subproject Details
Component- A: New Transmission Lines – 400/220/132 kV lines	
i	400 kV double circuit 160 km long Transmission Line from 400/220/132/33 kV Station Bhadla to LILO point at 400 kV S/C Jodhpur-Merta line.
ii	400 kV double circuit 180 km long Transmission Line from 400/220/132/33 kV Ramgarh Gird Substation to 400/220/132/33 kV Bhadla Substation.
iii	400 kV double circuit 100 km long Transmission Line from 400/220/132 kV Akal Grid substation to 400/220/132/33 kV Ramgarh Grid Sub-station.
Component-B: New Grid substations - 400/220/132 kV.	
i	New 400/220/132 kV Grid Sub-Station at Bhadla
ii	New 400/220/132 kV Grid Sub-station Ramgarh
iii	Existing and under construction 220kV GSS at Bap (District Jodhpur) and associated 220kV and 132kV lines
iv	220kV GSS at Kanasar (District Jodhpur) and associated 220kV and 132kV lines
Component-C: Augmentation of Grid Substations – 400 kV/220/132/33 kV.	
i	Augmentation of 400/220/132 kV Akal Grid Substation
ii	Augmentation at 400kV GSS Bikaner
Component-D: Transformer Package – 400/220/132 kV at Grid Substations	
i	Transformer Package for Ramgarh, Bhadla and Akal GSS
Component-E: Shunt Reactor Packages – 400/220/132 kV Grid Substations	
i	Shunt Reactors Package for Ramgarh, Bhadla, Bikaner and Akal GSS
Component-F: New conductors for new Transmission lines	
i	400kV Conductor for 400kV new transmission lines
Component-G: Up-gradation of 132 kV Grid Substations	
i	Up-gradation of PS_No. 2 to 132kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers with associated 132kV line.
ii	Up-gradation of PS_No. 3 to 132kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers.
Component- H: Charging of 132kV lines at existing substations.	
i	Charging of 132 kV line from PS_No.5 to PS_No.1 on 132 kV voltage level via 132 kV PS_No.2 GSS, 132 kV PS_No.3 GSS and 132kV PS_No.4 GSS.

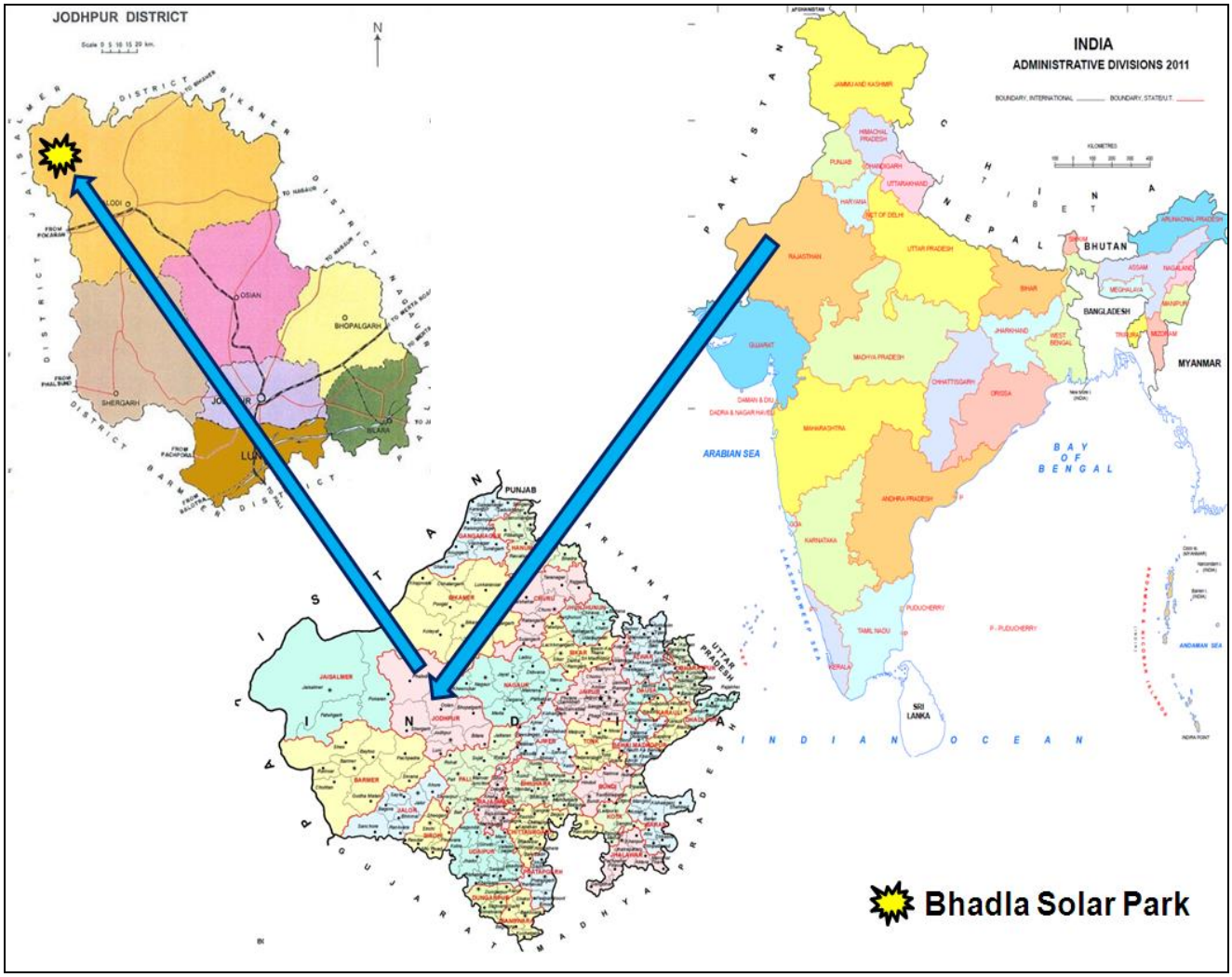


Figure 1: Location of Bhadla Solar Park

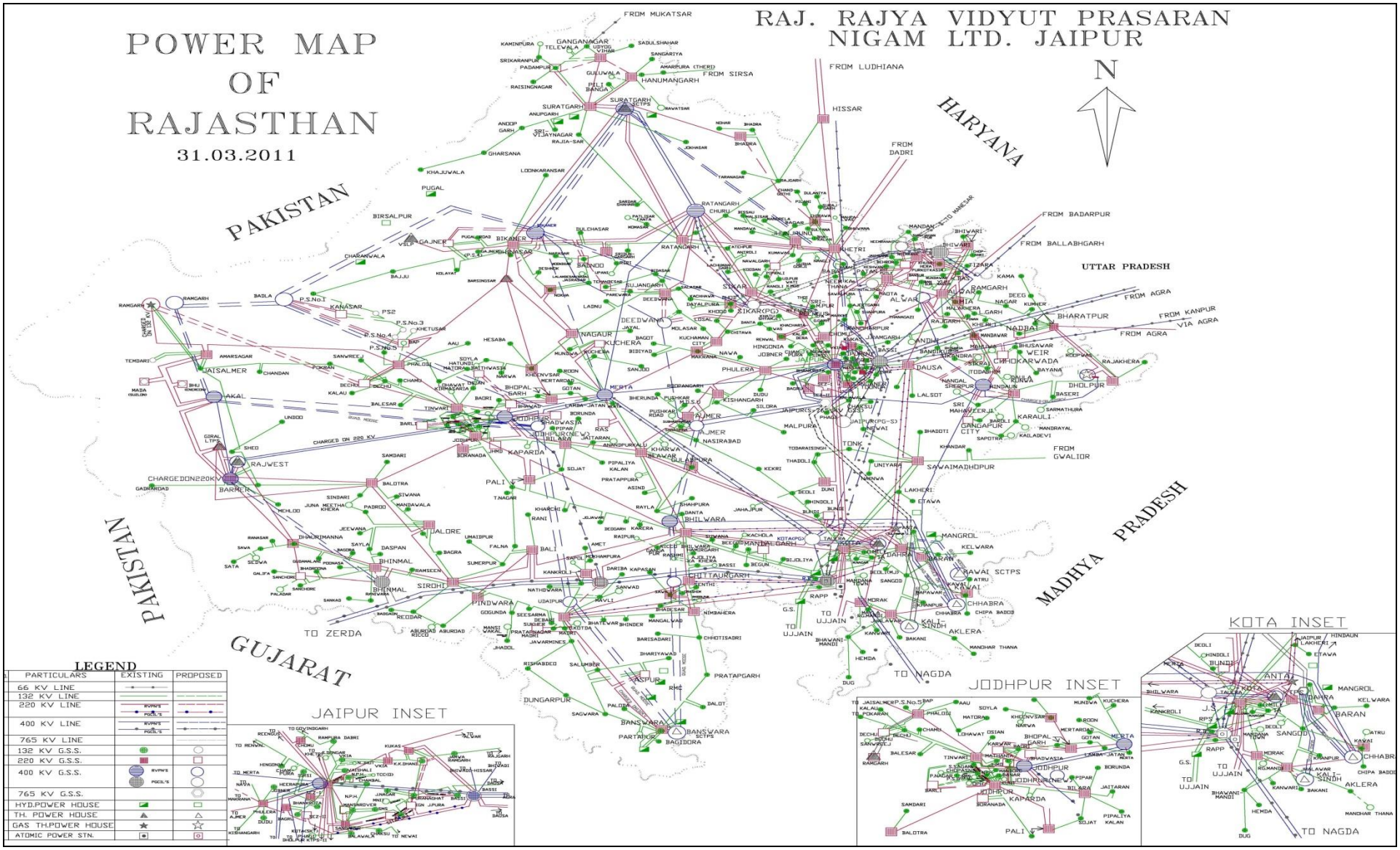


Figure 2: Power Map of Rajasthan

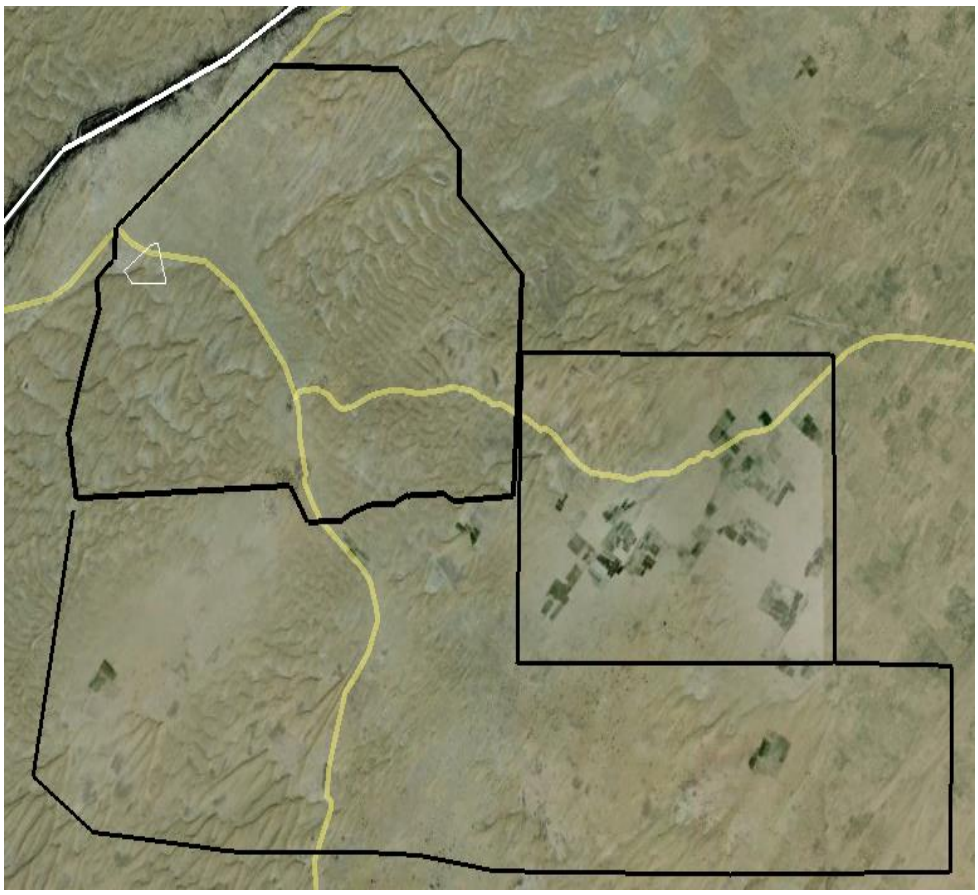


Figure 3: Satellite Map of the Solar Park

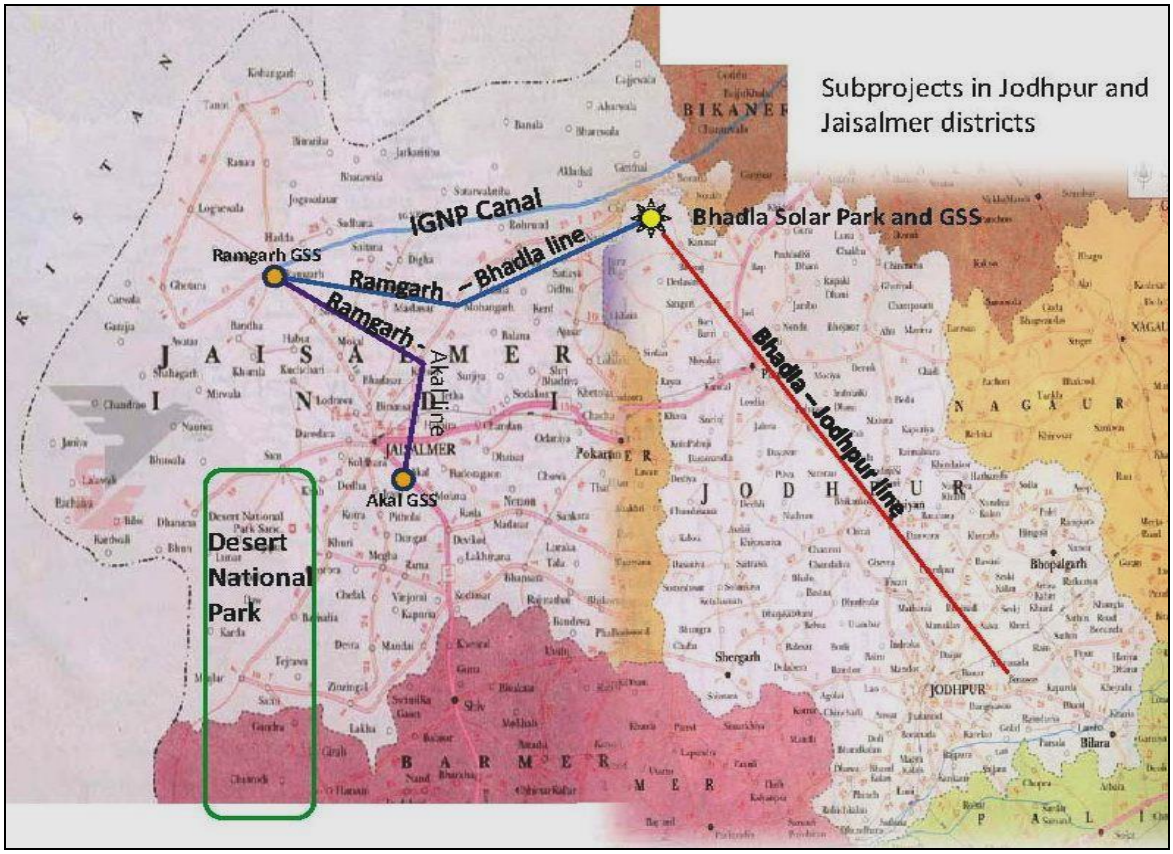


Figure 4: Location of Tranche 1 Subprojects in Jodhpur and Jaisalmer District

II. SCOPE OF LAND ACQUISITION AND RESETTLEMENT

10. The project will not entail private land acquisition[6]. An assessment of land acquisition and resettlement has been carried out for the subprojects and its components. A survey team was fielded. Walk over surveys were carried out along the entire length of the transmission lines to check and verify if there is any potential impact on habitats or buildings/structures. Additionally, a base line socio-economic survey was carried out in sample villages to gather the socio-economic data of the project area. There is no physical displacement or permanent impacts or loss of livelihoods. Construction of grid substations usually requires land acquisition. However, all the grid substations (Bhadla, ramgarh, and Bap) under the project will be built on vacant government waste land. Temporary impacts are foreseen on crops during the construction period. The lines are passing mostly through the desert and barren land and the area is sparsely populated. The approximate area of land to be considered for one time crop compensation is 1405 hectares[7] of private agricultural land, which will be temporarily affected due to the loss of one season of crops during the construction phase. This covers the construction of transmission poles/pillars which does not require additional compensation or land acquisition as per the Indian Telegraph Act[8], (1885).

[6] Construction of the solar park will require 10,000 hectares of land which is government waste land. Solar Park will not be the part of ADB funding. Land acquisition (government land) will be the responsibility of Rajasthan Renewable Energy Corporation Ltd (RRECL) and RRECL will be the executing and implementing agency for the development of solar park through private sector involvement under a special purpose vehicle schemes. Though, there is no private land acquisition required for the solar park, however, the developers will take necessary actions to avoid any adverse social impact on the surrounding villages/hamlets of the solar park.

[7] This is a tentative assessment based on certain assumptions which is the length of the transmission lines and the Right of Way needed for each transmission line (RoW for transmission line is approximately 50 meters. The length of the transmission lines (440 kms of 400 kv lines+ 140 kms of 220 kv lines+ 22 kms of 132 kv lines) is multiplied in to the width of RoW. Approximately 50% of the land in the project area has been considered as agricultural. The total land is again multiplied in to the percentage of agricultural land of the district. However, this assessment on the temporary impacts will be further be minimized during the construction and during the actual detailed design. Crop compensation will be paid only for the actual loss (not necessarily the entire RoW) which will be lesser than this assumed quantity. This assumption is to calculate a tentative budget so that RVPN makes necessary provision in advance in its annual budget. Actual quantity and loss will be known during the pre construction phase by the contractor.

[8] The Indian Telegraph Act, 1885 is usually followed for transmission projects which does not have any provision of land acquisition for construction of transmission pillars and lines. The act exercises the power to remove any trees interrupting the transmission lines, however, subsection of section 18 of the Act provides the opportunity for compensation for cutting the trees if the tree is in existence before the telegraph line was placed. The telegraph authority may, from time to time place and maintain a telegraphic line under, over, along or across, and post in or upon, any immovable property provided that telegraph authority shall not exercise the powers conferred by this section except for the purpose of a telegraph established or maintained by the Central Government, or to be so established or maintained. The Central Government shall not acquire any right other than that of user only in the property under, over, along, across, in or upon which the telegraph authority places any telegraph line or posts. The telegraph authority shall not exercise those powers in respect of any property vested in or under the control or management of any local authority, without the permission of that authority. The telegraph authority shall do as little damage as possible, and, when it has exercised those powers in respect of any property other than that referred to, shall pay full compensation to all persons interested for any damage sustained by them by reason of the exercise of those powers. In case of property and dispute other than that of a local authority where the power is to be exercised, the District Magistrate may, in his discretion, order that the telegraph authority shall be permitted to exercise them.

Affected Persons (APs) will be compensated in cash prior to the start of construction. A summary of the temporary resettlement impacts is given in **Table 2** below**.** A detailed inventory of impacts based on transect/walkover survey along the transmission lines are provided in **Annexure -**3

Table 2: Impact on Land Acquisition and Resettlement

Sl Nº	Project Components	Details	Permanent Impact on Land Acquisition and IR	Temporary Impact on Crops	Remarks
A. New Transmission Lines – 400/220/132 kV lines					
a-1	400 kV double circuit 160 km long Transmission Line from 400/220/132/33 kV Pooling Station Bhadla to LILO point at 400 kV S/C Jodhpur-Merta line.	160 km, 400 kV, double circuit, twin moose conductor transmission line, from Bhadla Pooling station to LILO point at Jodhpur Merta line passing through Phalodi, Osian and Jodhpur tehsil of Jodhpur district.	Nil	Yes	Line has no land issue and no land acquisition is required. The impacts are temporary which will be confined to loss of minimum crop damage during construction. Line will pass mostly through barren desert land
a-2	400 kV double circuit 180 km long Transmission Line from 400/220/132/33 kV Ramgarh Gird Substation to 400/220/132/ 33 kV Bhadla Substation.	180 km, 400 kV, double circuit, twin moose conductor transmission line, from Bhadla Pooling station to Ramgarh Pooling Grid substation passing through Phalodi, Pokhran and Jaisalmer tehsil of Jaisalmer district.	Nil	Yes	Line has no land issue and no land acquisition is required. The impacts are temporary which will be confined to loss of minimum crop damage during construction. Line will pass mostly through barren desert land
a-3	400 kV double circuit 100 km long Transmission Line from 400/220/132 kV Akal Grid substation to 400/220/132/33 kV Ramgarh Grid Sub-station.	100 km, 400 kV, double circuit, twin moose conductor transmission line, from Ramgarh Pooling Grid substation to Akal Grid substation from Jaisalmer tehsil of Jaisalmer district.	Nil	Yes	Line has no land issue and no land acquisition is required. The impacts are temporary which will be confined to loss of minimum crop damage during construction. Line will pass mostly through barren desert land
B. New Grid substations - 400/220/132 kV					
b-1	New 400/220/132 kV Grid Sub-Station at Bhadla.	400/220 kV, 2 X 315 MVA Pooling Sub - Station GSS at Bhadla (Jodhpur district) along with 400 kV, 1x125 MVAR Shunt Reactor (Bus type) and 4x50 MVAR, 400 kV Shunt Reactors (Line type) for Bhadla ends of 400kV D/C Bhadla - Bikaner line, 400 kV	Nil	Nil	The land is a government waste land. The substation is proposed to be constructed on 25.89 hectare of land which has already been allotted to RRVPNL by state government inside the Bhadla solar park.

Sl Nº	Project Components	Details	Permanent Impact on Land Acquisition and IR	Temporary Impact on Crops	Remarks
		LILO Jodhpur - Merta at Bhadla line and 400 kV D/C Ramgarh – Bhadla line.			
b-2	New 400/220/132 kV Grid Sub-station Ramgarh	400/220 kV, 2 X 500 MVA Pooling Sub-Station GSS at Ramgarh (Jaisalmer district) along with 400kV, 1x125 MVAR, 400 kV Shunt Reactor (Bus type) and 2x50 MVAR Shunt Reactor (line type) for 400 kV D/C Ramgarh - Bhadla line.	Nil	Nil	This bay will be constructed in adjacent to existing substation. The substation is proposed to be constructed on 23.46 hectare of land which has already been given on lease to RRVPNL by state government
b-3	Existing and under construction 220kV GSS at Bap (District Jodhpur) and associated 220kV & 132kV lines	220/132/33 kV GSS (2x160 MVA & 132/33kV, 2x40/50 MVA Transformer, etc.) LILO of 220 kV Barsingsar LTPS-Phalodi 25 km long line at 220/132/33 kV Bap GSS. 220kV double circuit Transmission Line 90 km long from 400/220/132 kV Bhadla GSS to 220/132/33 kV Bap GSS.	Nil	Nil	The GSS is under construction. No land acquisition is required. Line Corridor for proposed 400 kV Bhadla – Merta (Jodhpur) Line is used for the LILO and 220 kV line. Line has no land issue. However, the impacts are temporary which will be confined to loss of minimum crop damage during construction. Line will pass mostly through barren desert land
b-4	220kV GSS at Kanasar District Jodhpur and associated 220kV & 132kV lines	220/132/33 kV GSS (2x160 MVA & 132/33kV, 2x40/50 MVA Transformer, etc.) LILO of 132kV PS1-PS2 12 km long line at 220/132/33 kV GSS at Kanasar. LILO of 132kV PS2-PS3 10 km long line at 220/132/33 kV GSS at Kanasar. 220 kV double circuit Transmission	Nil	Nil	Government land is used for GSS land and no land acquisition is required. Line Corridor for proposed 400 kV Bhadla – Merta (Jodhpur) Line is used for these LILO and 220 kV line. Line has no land issue. However, the impacts are temporary which will be confined to loss of minimum crop damage during construction. Line will pass mostly through barren desert land

Sl Nº	Project Components	Details	Permanent Impact on Land Acquisition and IR	Temporary Impact on Crops	Remarks
		Line 25 km long 400/220/132 Bhadla GSS to 220/132 Kanasar GSS			
C. Augmentation of Pooling Grid Substations – 400 kV/220/132/33 kV					
c-1	Augmentation of 400/220/132 kV Akal Grid Substation	Augmentation of 400kV GSS Akal by installation of 400/220 kV, 1 X500 MVA Transformer along with 400kV, 1x125 MVAR Bus Reactor and 400kV, 2x50 MVAR Shunt Reactor.	Nil	Nil	Civil work is to be done within the existing Akal Grid Substation. No associated IR and social impacts are foreseen. Augmentation work does not require any additional land acquisition as all the activities will be confined to the existing substation premise. Hence, land acquisition and resettlement is not is not applicable here
c-2	Augmentation at 400 kV GSS Bikaner	Augmentation at 400kV GSS Bikaner along with 1x125 MVAR, 400kV Bus Reactor at 400kV GSS Bikaner and 400kV Bays for 400kV D/C Bhadla-Bikaner line and 400kV D/C Bikaner-Sikar (PGCIL) line at Bikaner end of the lines.			Civil work is to be done within existing Bikaner Grid Substation. No associated IR and social impacts. Augmentation work does not require any additional land acquisition as all the activities will be confined to the existing substation premise. Hence, land acquisition and resettlement is not is not applicable here
D. Transformer Package – 400/220/132 kV at Grid Substation					
d-1	Transformers	Transformer Package for Ramgarh, Bhadla and Aka GSS.			No associated social and IR impacts are foreseen as no civil work is required.
E. Shunt Reactor Packages – 400/220/132 kV at Grid Substation					
e-1	Shunt Reactors	Shunt Reactors Package for Ramgarh, Bhadla, Bikaner and Akal.			No associated social and IR impacts are foreseen as no civil work is required.
F. New conductors for new Transmission lines					
f-1	400 kV conductor	400kV Conductor for 400kV lines mentioned at below Sr. No. I, II and III.			No associated social and IR impacts are foreseen as no civil work is required.
G. Up-gradation of 132 kV Grid Substations					
g-1	Upgradation to 132 kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers with associated 132kV line	Up-gradation of PS No. 2 to 132kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers with associated 132kV line.			No associated social and IR impacts are foreseen as no civil work is required.

Sl Nº	Project Components	Details	Permanent Impact on Land Acquisition and IR	Temporary Impact on Crops	Remarks
		Up-gradation of PS No. 3 to 132kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers.			
H. Charging of 132kV lines at existing substations					
h-1	Charging of 132 kV transmission lines	Charging of 132 kV line from PS_No.5 to PS_No.1 on 132 kV voltage level via 132 kV PS_No.2 GSS , 132 kV PS_No.3 GSS and 132kV PS_No.4 GSS			No associated social and IR impacts are foreseen as no civil work is required.

III. SOCIOECONOMIC INFORMATION/PROFILE

11. According to the provisional result of census of India, 2011, Rajasthan has a total population of 68.62 million where as the project area districts such as Jodhpur has 3.69 million people and Jaisalmer has a total population of 0.67 million. Jodhpur district comprises of 5.37% of total Rajasthan population where as Jaisalmer district comprises of only 0.98% of the total state population which shows that the density of population in the project districts is very low. The overall sex ratio in Rajasthan as a whole is 921 and the sex ratio in Jodhpur is 907 and in Jaisalmer, it is 821.

12. A socio economic survey was carried out in the project area especially near the proposed solar park area and along the transmission lines. A social Impact Assessment (SIA) was prepared for the project especially in the solar park area and the detailed findings are provided in **Annexure-4**. According to the survey, the average family size of the sampled household is found to be 4.66. The sex ratio of the households is 785 females for 1000 males which is also very low. Literacy rate in the project area is very low in comparison to project districts and Rajasthan as a state. The literacy rate is only 29 %. Poor quality of education is very much prevailing in the project area; complete absence of early education for the children is also seen as only 31 % of the children in the age group of 4 to 5 years are found to be enrolled. Among the children in the age group of 6 to 15 years nearly half of them are illiterate. Similarly among the adolescents and youth about 63 % are illiterates and among the literates in this age group very few were found to be graduates. in the age group of 6 to 17 years about 46 % are found to be never enrolled in any school and this is about 51 % for the females.

13. Farming and agricultural labourers found to be major occupation trend for the adult members in the project area. Animal husbandry is a major occupation for the households, but most of them unable to perceive this as a profession. Only 3 % of the households reported to be engaged in animal husbandry in the age group of 18 years and above but latter on it was found that about 82 % of the households have live stocks in their respective families. White collar Jobs is very restricted in the project area as only 2 % males are engaged in this sector. A single wage earner was found in 75 % of the households. From the group discussion it was found that most of the women in the households are engaged in animal husbandry, but from the socio-economic survey it was found that in only 3 % of

households a woman is earning.

14. In household assets besides a phone / mobile phone, Electric fan, radio and bicycle, none of the other durable goods are possessed by any of the households and a little more than one third (35 %) reported of possessing agricultural land. The average possession of agricultural land is 7.78 acres. All the lands are cultivable but non-irrigated. Bajra and Jawar are grown mostly by the households covered. Among the households those have agricultural land 60 % cultivates Bajra and 97 % cultivates Jawar. The average yield of Bajra is about 5.73 quintals per acre and Jawar 4.3 quintals. About 82 % of the households reported having live stocks at their respective households. Among these households about 86 % are having goat, 38 % possess cow and nearly 20 % possess sheep. Among the live stocks sheep average possession is more followed by goats at the household level.

15. The total average annual income from all the sources is rupees 51,638/-. In the surveyed project area it was found that the major earning was from labour (daily wages and seasonal) followed by agriculture as farmers. Besides these two sources, about 33 % of the households also earned from animal husbandry. Income from jobs is very rare in the project area. The total average annual income from all the sources is rupees 51,638/-. Income from daily wage labour contributes to the maximum earnings and is followed by farming and cultivation.

16. Among the households about 64.43 % of the expenditures are incurred on food which is relatively high. The next highest average expenditure is on social function and which is about 13 %. The expenditure on education is less than 1 % which also corroborates with the low education among the households in the project area. Loan and migration is very rare in the project area. The findings suggest that the majority of the households are from lower economic background having limited access to skilled based jobs. Majority are employed as daily wage agricultural labourer which is always seasonal.

17. It is evident from the findings that the access to basic services is very poor in the project area. Among the households about 87 % belong to Muslim. Majority of the households about 86 % are from other back ward castes and nearly two-third families are nuclear. From the types of houses it can be inferred that the people of the project area belong to poor socio-economic condition as only 4 % of the households are Pucca. Moreover only 30 % of the households are having a separate room used as a kitchen. Availability of water at the doorstep is not seen in the project area. For drinking water most of the households are dependent on public well and canal for drinking water. Almost all the households i.e. 100 % fetch water from outside every day in a week and the average time taken to collect water from outside sources is 29 minutes. Similarly it is important to note that about 93 % of the household are having no toilet facilities and use open space for defecation. Only about 23 % reported having electricity but 99 % of the household use battery and 96 % use kerosene for the purpose of lighting in the households. For cooking almost all the households about 98 % use woods as cooking fuel.

18. Majority about 94 % of the households reported that they visit a government health facility or a government doctor for treatment. They prefer the health facility because of the distance. The villages in the project area are very remotely located. Many of the villages do not have primary health care service providers near to the villages. About 55 % of the households reported of accessing the government hospitals which are nearest to their respective villages. 64 % of the household a health facility is available outside of their respective villages. The average distance of the health centre is from the villages covered is 24 kilometres, which is very far for the resident population in the project area. About 76 % of the households use private transport facility for accessing the health facilities. About 54 % admitted of having a contact with a health worker during the last 6 months preceding the survey. The health contacts are mostly for polio immunization and other child immunization. Among the sampled households about 46 % of the respondents didn’t received any health

messages during the last 6 months. Half of them those received health messages admitted of receiving message on Dengue and Malaria and polio immunisation. Almost all the respondents admitted health workers are the best sources of getting messages on health in the project area. It is important to note that in the project area about 96 % of the deliveries are happening at home. Only 11 % of the home deliveries are assisted by trained professionals.

19. At the family level the participation of women in the decision making process is very positive as evident from both socio-economic survey and the FGDs. All the women admitted that irrespective of the women either earning or not earning, the women have an equal say in the household decision making process. However at the village level or community the role of the women is very low. There is no women group which is working on the empowerment of the women in the project area. None of the women are found to be members of any self help group of any civil society. Most of the women are from Muslim community, thus but the Burkha (veil) system is not so prevalent. In the project area women's participation in different household decision making is very stronger. In none of the villages women are found be politically active. There is involvement of the women in the village Panchayat but they are not active in decision making process. The male counterparts represent the women in the political forum on behalf of the elected women.

20. All the women stated that they are responsible in collecting water, cooking, washing utensils, taking care of the children, cleaning, etc as household activities. Animal husbandry is one of the major activities in the project area. From the socio-economic survey it follows that about 82 % of the households have possessed live stocks at their families. Cow, goats and sheep are the important cattle possessed by these households. Most of the women admitted that they are also responsible to feed the animals, collect fodders and even some of the women folk are responsible to take these cattle to grazing fields. Among the genders there are discrepancies in the wages for the males and the females.

21. There is no opportunity for the women to spend time in leisure activities. Most of the time is spend in household activities. However some of the women admitted that gossiping with their peers in the neighbourhood is a major leisure activity for them. Literacy rate among the women is very low. None of the women admitted of any vocation learning system functioning in the project area. However some of the groups showed interest to learn tailoring and embroidery and feel that this skill will help them in earning to some extent.

22. On health ailments affecting the women none of the group could assertively state the problems affecting them. Many women in the group stated that lack of public transport often hampers them to visit any health centres for treatment of ailments. It is important to note that almost all the deliveries are happening at home and very rarely attended by any trained birth attendants. However from the observations made most of them are anaemic.

23. In the project the safety issue during day and night time for the women and children differ to great extend. Most of the households about 98 % feel safe during day time where as about 47 % feel safe during the night time. On mobility for marketing, going outside for work, accessing educational institute, etc about 97 % feel safe on the mobility during the day time for the women and children. In the project area almost all the households go outside every day to fetch water. About 46 % of the households feel that they don't have easy access to go outside during the evening time

24. Women are largely responsible for household energy management, such as collecting, chopping and storing firewood. Therefore access to energy has a specific gender dimension. Renewable energy projects in India have demonstrated that renewable energy can directly contribute to poverty alleviation and gender benefits. Installing solar lights in homes enables children to study in the evenings and improve school performance. Solar lanterns have made the business of many women entrepreneurs profitable. Solar driers are

a boon in remote areas for drying of fruit and vegetables. Even garment workers have been using solar energy to save electricity costs while running their sewing machines. Vocational trades involving the NGOs may be initiated for women to empower them by providing skills on tailoring, embroidery, food products etc. as cattle rearing is one of the major occupation of the people therefore some milk processing units and small scale industries to produce ghee, and other milk products can also be initiated with the provision of market linkages. However, all these activities do have a direct link with the availability of energy.

25. In most of the villages, a primary school is available but the teachers are not regular and the quality of education is very poor. This is the reason as many children are found to be never enrolled in schools. Beyond primary there is no upper primary or high school located in the nearby areas which hampers better education for the children both for the boys and the girls. As transport facilities are not available it is difficult to send girl child to far off places for getting upper primary and secondary education. Among the resident population most of them studies till primary level and very few could achieve upper primary level of education. The accessibility to primary health centre is also another problem for most of the villagers. Home deliveries without the support of the trained professionals are widely prevalent in the project area. The youth employability is mostly on agriculture as daily wage labourer. Skill based training is not there for the youths staying in the villages. The women engagement in the productive jobs is very limited.

26. According to the Census of India 2001, 8.2 percent of the Indian population is classified as ST. In comparison to the national figure, Rajasthan has 12.6% percent of its state populations classified as ST. Major tribes of Rajasthan are (1) Bhil, Bhil Garasia, Dholi Bhil, Dungri Bhil, Dungri Garasia, Mewasi Bhil, Rawal Bhil, Tadvi Bhil, Bhagalia, Bhilala, Pawra, Vasava, Vasave, (2) 2. Bhil Mina, (3) Damor, Damaria, (4) Dhanka, Tadvi, Tetaria, Valvi, (5) 5. Garasia (Excluding Rajput Garasia.), (6) 6. Kathodi, Katkari, Dhor Kathodi, Dhor Katkari, Son Kathodi, Son Katkari, (7) Kokna, Kokni, Kukna, (8) Koli Dhor, Tokre Koli, Kolcha, Kolgha, (9) Mina, (10) Naikda, Nayaka, Cholivala Nayaka, Kapadia Nayaka, Mota Nayaka, Nana Nayaka, (11) Patelia and (12) Seharia, Sehria, Sahariya. As per the 2001 census, the Scheduled Tribe (ST) population of Rajasthan State is 7,097,706 constituting 8.4 percent of the total ST population of India. The Scheduled Tribes of the State constitute 12.6 percent of the total population (56,507,188) of the State. It holds 12th position among all States and UTs in respect of the percentage share of ST population to total population

27. The STs in Rajasthan are not distinct tribal groups. Since the constitutions identification of scheduled tribes, there has been continuous movement of populations and tribal communities have been a part of this historical process. Tribal and non-tribal communities have lived side-by-side leading to acculturation and assimilation to mainstream societies. Many STs no longer keep their traditions/cultures and individuals and groups of STs have settled amongst non-tribal populations.

28. Agriculture is the main economic activity of the tribes of Rajasthan. While 69 per cent of total workers are 'Cultivators' which is significantly higher than the national average of 44.7 per cent, 'Agricultural Labourers' constitute only 14 per cent which is less than half of that recorded by of total STs at the national level (36.9 per cent). 'Other Workers' constitute 16.3 per cent and workers in 'Household Industry' account for only 0.7 per cent. The Scheduled Tribes of the state have a literacy rate of 44.7 per cent which is lower than the national average (47.1 per cent) in respect of all STs. There has been a significant improvement in the rate of literacy during the decade 1991-2001. The over all literacy rates which was merely 19.4 per cent at 1991census has increased to 44.7 per cent at 2001, higher by 25.3 percentage points. Male literacy has gone up from 33.3 per cent in 1991 to 62.1 per cent which is higher than that of national average of 59.2 per cent. On the other hand, though the female literacy has increased six times from meagre 4.4 per cent at 1991 to 26.2 per cent at 2001, it is still lower than the national average of 34.8 per cent recorded

by all tribal females. The Scheduled Tribes professing Hinduism form 99.5 per cent, whereas those professing Islam and Christianity constitute a meagre 0.1 per cent and 0.3 per cent respectively

29. Potential impact on IPs of the Investment Program's Tranche 1 sub-projects was evaluated and was found that the Investment Program will not have any potential impacts on IPs. This is due to the fact the proposed transmission system which includes construction and augmentation of substations and construction of transmission lines will mostly be situated in barren desert land and are away from the human habitat. Due diligence on the Tranche-1 subprojects have been carried out. No permanent land acquisition is required as the proposed substations are on government land and no physical displacement is foreseen. Temporary impacts are foreseen on crop damage during the implementation and construction of the project activities which will be compensated in cash during the time of implementation and prior to start of the construction. Also, due diligence on the impact on IP has been carried out in the project area which found that no IPs are to be impacted.

IV. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

a. Consultations

30. Public consultation and information disclosure is an integral part of the environmental and social assessment process. During the project formulation stage, RRVPNL carried out detailed physical surveys and analysis of the existing system. Considerable dialogue was held between RRVPNL and other line agencies of the State Government during this stage and this will continue throughout the construction and implementation process. Informal discussions were also carried out with the local people. No major social issues were raised during the consultation process. People are supportive of the project and recognize that it will bring job opportunities to the area; improve roads and infrastructure; and their living conditions overall. Consultations were carried out with various stakeholders such as RRVPNL officials, RRECL officials, GOR officials, concerned land departments, the block development officer of the project area and APs. Approximately 400 households were surveyed during the social impact assessment process in November, 2011 till January 2012. Heads of households were interviewed to collect the necessary data. Additionally, public consultations were carried out by the social survey team through focused group discussions (FGDs) near the Bhadla solar park area and in areas along the transmission lines where consultations were carried out in approximately 30 villages. Summary details on the consultations including the list of participants are provided in **Annexure-5.**

b. Disclosure

31. Project information will be disseminated through the disclosure of resettlement plan and resettlement framework. The summary of the RP and the entitlement matrix will be translated into the local language (Hindi) and will be disclosed to APs at the local revenue offices and RRVPNL offices. A full copy of the RP will be disclosed on the RRVPNL and ADB websites.

c. Continued Consultation and Participation

32. The consultation process will be on going as necessary. The following public consultation measures are envisaged for the project:

- RRVPNL will disclose the construction schedule before the commencement of construction works to ensure that local villages are notified and informed of said activities.
- RRVPNL will inform the communities about progress made in the implementation of resettlement, social and environmental activities.
- RRVPNL will inform the APs on compensation and assistance to be paid for the temporary loss of crops and trees.
- All monitoring reports will be disclosed in the same manner as the RP.
- RRVPNL will disclose information and consult with APs at the project area, with the object of availing no objection from the community where the new sub stations are being proposed.
- Attempts will be made to ensure that vulnerable groups understand the process and that their specific needs are taken into account.

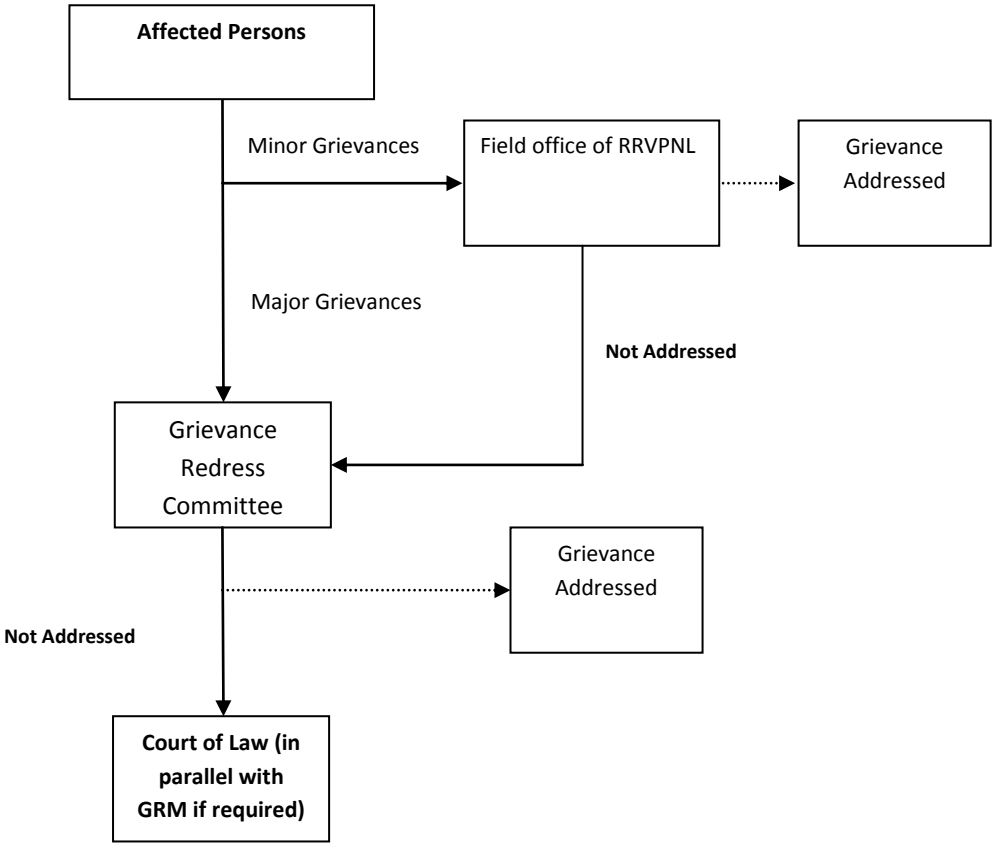
V. GRIEVANCE REDRESS MECHANISM

33. There is a need for an efficient grievance redress mechanism, which will assist the APs in resolving queries and complaints. RRVPNL does not have any specific Environment or Social Safeguards Policy currently. ADB procedures require RRVPNL to establish a Grievance Redressal Mechanism (GRM) having suitable grievance redress procedure for the project affected persons. The EA will establish a mechanism to receive and facilitate the resolution of affected persons' concerns and grievances about physical and economic displacement and other project impacts, paying particular attention to the impacts on vulnerable groups. The grievance redress mechanism will address affected persons' concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to the affected persons at no costs and without retribution. A Grievance Redress Committee (GRC) will be formed to ensure APs grievances are addressed and facilitate timely project implementation. This GRM consists of a Grievance Redress Committee (GRC) headed by the Project head. The GRC will consist of various representative such as (I) Project Head / CE (ADB Projects), (ii) Sub District Magistrate or nominee of SDM, (iii) Land acquisition officer / Secretary RRVPNL, (iv) Head of Finance wing at the project level, (v) Representative of APs/local Panchayat/ NGO, (vi) Representative of contractor and Executive Engineer -Environment and Social Cell

34. This Grievance Redress Mechanism (GRM) would provide an effective approach for resolution of complaints and issues of the affected person/community. Project Management Unit (PMU) shall formulate procedures for implementing the GRM. The field office of RRVPNL shall undertake GRM's initiatives that include procedures of taking/recording complaints, handling of on-the-spot resolution of minor problems, taking care of complainants and provisions of responses to distressed stakeholders etc. paying particular attention to the impacts on vulnerable groups.

35. Grievances of APs will first be brought to the attention of the Project head of the Project Implementing Unit. Grievances not redressed by the field office of RRVPNL will be brought to the Grievance Redress Committee set up to monitor project Implementation for each project area. The GRC will determine the merit of each grievance, and resolve grievances within three months of receiving the complaints. Additionally, the APs can access the country's legal system which can run parallel to accessing the GRM. The main responsibilities of the GRC are to: (i) provide support to APs on problems arising from land/property acquisition; (ii) record AP grievances, categorize, and prioritize grievances and resolve them; (iii) immediately inform the PMU of serious cases; and (iv) report to APs on developments regarding their grievances and decisions of the GRC and the PMU. Other than disputes relating to ownership rights under the court of law, GRC will review grievances involving all resettlement benefits, compensation, relocation, replacement cost and other assistance. The field office of RRVPNL will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The GRCs will continue to function during the life of the Project including the defects liability period. The GRC will be formed with the help of higher authority having authority to designate the representatives to the GRC. The Flow chart showing Grievance Redress Mechanism is presented **in Figure 5**.

Figure 5: Grievance Redress Mechanism



VI. POLICY AND LEGAL FRAMEWORK

36. The policy framework and entitlements for the Program are based on national laws: The Land Acquisition Act, 1894 (LAA, amended in 1984) when private land acquisition is required; The National Rehabilitation and Resettlement Policy, 2007 (NRRP); ADB's Safeguards Policy Statement 2009 and the Resettlement Framework (RF) prepared for the MFF program. A brief summary of the policies are described below and detailed policy review and comparison is provided in the RF.

1. The National Resettlement and Rehabilitation Policy (NRRP), 2007

37. The NRRP 2007 was adopted by the Government of India on 31 October 2007 to address development-induced resettlement issues. The NRRP stipulates the minimum facilities to be ensured for persons displaced due to the acquisition of land for public purposes and to provide for the basic minimum requirements. All projects leading to involuntary displacement of people must address the rehabilitation and resettlement issues comprehensively. The State Government's Public Sector Undertakings or other agencies are at liberty to go above and beyond the benefit levels prescribed in the NRRP. The principles of this policy may also apply to the rehabilitation and resettlement of persons involuntarily displaced permanently due to any other reason. The objectives of the Policy are:

(i) to minimize displacement and to promote, as far as possible, non-displacing or least-displacing alternatives;
(ii) to ensure the provision of an appropriate rehabilitation package and the expeditious implementation of the rehabilitation process with the active participation of the affected families;
(iii) to ensure that special care is. taken to protect the rights of more vulnerable and disadvantaged sections of society, particularly members of Scheduled Castes and Tribes, and to place upon the State the obligation to ensure they are treated in a culturally respectful and sensitive manner,
(iv) to provide a better standard of living, making concerted efforts for providing sustainable income to the affected families;
(v) to integrate rehabilitation concerns into the development planning and implementation process; and
(vi) where displacement is a result of land acquisition, to facilitate harmonious relationships between the responsible party and the affected families through mutual cooperation.

38. The NRRP is applicable to projects where more than 400 families (in the plains) or 200 families (in hilly or tribal or Desert Development Program (DDP) areas) are displaced. However, the basic principles can be applied to resettlement and rehabilitation processes regardless of the number of affected peoples. NRRP's provisions are intended to mitigate adverse impacts on Project Affected Families (PAFs). The NRRP comprehensively considers affected peoples and meets most of the ADB's Policy on Involuntary Resettlement (1995) requirements. The NRRP provides vulnerable families with adequate entitlements and includes special provisions for Scheduled Castes (SC) and Scheduled Tribes (ST) Families. The NRRP takes into account transparency as far as consultation, dissemination of information, disclosure and grievances are concerned. However, the law relating to the acquisition of privately owned immoveable property is the Land Acquisition Act of 1894 (LAA, amended 1984) which is discussed in the following section.

2. Land Acquisition Act, 1894 amended 1984

39. The LAA provides a framework for facilitating land acquisition in India. LAA enables the State Government to acquire private land for public purposes. LAA ensures that no person is deprived of land except under LAA and entitles APs to a hearing before acquisition. The main elements of LAA are:

(i) Land identified for the purpose of a project is placed under Section 4 of the LAA. This constitutes notification. Objections must be made within 50 days to the District Collector (DC, the highest administrative officer of the concerned District).
(ii) The land is then placed under Section 6 of the LAA. This is a declaration that the Government intends to acquire the land. The DC is directed to take steps for the acquisition, and the land is placed under Section 9. Interested parties are then invited to state their interest in the land and the price. Under Section 11, the DC will make an award within one year of the date of publication of the declarations. Otherwise, the acquisition proceedings shall lapse.
(iii) In case of disagreement on the price awarded, within 6 weeks of the award, the parties (under Section 18) can request the District Collector (DC) to refer the matter to the Courts to make a final ruling on the amount of compensation.
(iv) Once the land has been placed under Section 4, no further sale or transfer is allowed.
(v) Compensation for land and improvements (such as houses, wells, trees, etc.) is paid in cash by the project authorities to the State Government, which in turn compensates landowners.
(vi) The price to be paid for the acquisition of agricultural land is based on sale prices recorded in the District Registrar's office averaged over the three years preceding notification under Section 4. The compensation is paid after the area is acquired, with actual payment by the State taking about two or three years. An additional 30 percent is added to the award as well as an escalation of 12 percent per year from the date of notification to the final placement under Section 9. For delayed payments, after placement under Section 9, an additional 9 percent per annum is paid for the first year and 15 percent for subsequent years.

3. ADB'S Safeguard Policy Statement, 2009 (SPS)

40. ADB has adopted Safeguard Policy Statement (SPS) in 2009 including safeguard requirements for environment, involuntary resettlement and indigenous people. The objectives of the Involuntary Resettlement Safeguard policy is to avoid involuntary resettlement wherever possible; to minimize involuntary resettlement by exploring project and design alternatives; to enhance, or at least restore, the livelihoods of all displaced persons in real terms relative to pre-project levels; and to improve the standards of living of the displaced poor and other vulnerable groups.

41. The involuntary resettlement safeguards covers physical displacement (relocation, loss of residential land, or loss of shelter) and economic displacement (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas. It covers them whether such losses and involuntary restrictions are full or partial, permanent or temporary. The main policy principles of the Involuntary Resettlement Safeguard are:

(i) Screen the project early on to identify past, present, and future involuntary resettlement impacts and risks. Determine the scope of resettlement planning through a survey and/or census of displaced persons, including a gender analysis, specifically related to resettlement impacts and risks.

(ii) Carry out meaningful consultations with affected persons, host communities, and concerned non-government organizations. Inform all displaced persons of their entitlements and resettlement options. Ensure their participation in planning, implementation, and monitoring and evaluation of resettlement programs. Pay particular attention to the needs of vulnerable groups, especially those below the poverty line, the landless, the elderly, women and children, and Indigenous Peoples, and those without legal title to land, and ensure their participation in consultations. Establish a grievance redress mechanism to receive and facilitate resolution of the affected persons' concerns. Support the social and cultural institutions of displaced persons and their host population. Where involuntary resettlement impacts and risks are highly complex and sensitive, compensation and resettlement decisions should be preceded by a social preparation phase.

(iii) Improve, or at least restore, the livelihoods of all displaced persons through (i) land-based resettlement strategies when affected livelihoods are land based where possible or cash compensation at replacement value for land when the loss of land does not undermine livelihoods, (ii) prompt replacement of assets with access to assets of equal or higher value, (iii) prompt compensation at full replacement cost for assets that cannot be restored, and (iv) additional revenues and services through benefit sharing schemes where possible.

(iv) Provide physically and economically displaced persons with needed assistance, including the following: (i) if there is relocation, secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, integration of resettled persons economically and socially into their host communities, and extension of project benefits to host communities; (ii) transitional support and development assistance, such as land development, credit facilities, training, or employment opportunities; and (iii) civic infrastructure and community services, as required.

(v) Improve the standards of living of the displaced poor and other vulnerable groups, including women, to at least national minimum standards. In rural areas provide them with legal and affordable access to land and resources, and in urban areas provide them with appropriate income sources and legal and affordable access to adequate housing.

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

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

(viii) Prepare a resettlement plan elaborating on displaced persons' entitlements, the income and livelihood restoration strategy, institutional arrangements, monitoring and reporting framework, budget, and time-bound implementation schedule.

(ix) Disclose a draft resettlement plan, including documentation of the consultation process in a timely manner, before project appraisal, in an accessible place and a form and language(s) understandable to affected persons and other stakeholders. Disclose the final resettlement plan and its updates to affected persons and other stakeholders.

(x) Conceive and execute involuntary resettlement as part of a development project or program. Include the full costs of resettlement in the presentation of

project's costs and benefits. For a project with significant involuntary resettlement impacts, consider implementing the involuntary resettlement component of the project as a stand-alone operation.

(xi) Pay compensation and provide other resettlement entitlements before physical or economic displacement. Implement the resettlement plan under close supervision throughout project implementation.

(xii) Monitor and assess resettlement outcomes, their impacts on the standards of living of displaced persons, and whether the objectives of the resettlement plan have been achieved by taking into account the baseline conditions and the results of resettlement monitoring. Disclose monitoring reports.

42. Based on the above analysis of applicable legal and policy frameworks of government and in consistent with ADB's policy requirements, broad resettlement principle for the project shall be the following:

- Involuntary resettlement would be avoided wherever possible or minimized as much as possible by exploring project and design alternatives.

- Subprojects under the program will be screened to identify past, present, and future involuntary resettlement impacts and risks. The scope of resettlement planning will be determined through a survey and/or census of displaced persons, including a gender analysis, specifically related to resettlement impacts and risks.

- Meaningful consultations with affected persons, host communities, and concerned non-government organizations will be carried out and all displaced persons will be informed of their entitlements and resettlement options. AP's participation in planning, implementation, and monitoring and evaluation of resettlement programs will be ensured.

- Particular attention will be paid to the needs of vulnerable groups, especially those below the poverty line, the landless, the women headed households, and Indigenous Peoples (IP), and those without legal title to land, and ensure their participation in consultations.

- An effective grievance redress mechanism will be established to receive and facilitate resolution of the affected persons' concerns. The social and cultural institutions of displaced persons and their host population will be supported through proper planning. Where involuntary resettlement impacts and risks are highly complex and sensitive, compensation and resettlement decisions should be preceded by a social preparation phase.

- Livelihoods of all displaced persons will be improved or at least restored through (i) land-based resettlement strategies when affected livelihoods are land based where possible or cash compensation at replacement value for land when the loss of land does not undermine livelihoods, (ii) prompt replacement of assets with access to assets of equal or higher value, (iii) prompt compensation at full replacement cost for assets that cannot be restored, and (iv) additional revenues and services through benefit sharing schemes where possible.

- Physically and economically displaced persons will be provided with needed assistance, including (i) if there is relocation, secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, integration of resettled persons economically and

socially into their host communities, and extension of project benefits to host communities; (ii) transitional support and development assistance, such as land development, credit facilities, training, or employment opportunities; and (iii) civic infrastructure and community services, as required.

- Standards of living of displaced poor and other vulnerable groups, including women, will be improved to at least national minimum standards. In rural areas legal and affordable access to land and resources will be provided, and in urban areas appropriate income sources and legal and affordable access to adequate housing will be provided to the displaced poor.

- If land acquisition is through negotiated settlement, procedures will be developed in a transparent, consistent, and equitable manner to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status. If, however, the negotiated settlement fails, the normal procedure of land acquisition will be followed.

- Displaced persons without titles to land or any recognizable legal rights to land will be ensured that they are eligible for resettlement assistance and compensation for loss of non-land assets.

- A resettlement plan will be prepared elaborating on displaced persons' entitlements, the income and livelihood restoration strategy, institutional arrangements, monitoring and reporting framework, budget, and time-bound implementation schedule.

- The draft resettlement plan, including documentation of the consultation process will be disclosed in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected persons and other stakeholders. The final resettlement plan and its updates will also be disclosed to affected persons and other stakeholders.

- Involuntary resettlement will be conceived and executed as part of a development project or program. Full costs of resettlement will be included in the presentation of project's costs and benefits. For a project with significant involuntary resettlement impacts, consider implementing the involuntary resettlement component of the project as a stand-alone operation.

- All compensation will be paid and other resettlement entitlements will be provided before physical or economic displacement. The resettlement plan will be implemented under close supervision throughout project implementation.

- Resettlement outcomes, their impacts on the standards of living of displaced persons will be monitored; it will be accessed whether the objectives of the resettlement plan have been achieved by taking into account the baseline conditions and the results of resettlement monitoring. Monitoring reports will be disclosed to APs.

- Land acquisition for the project would be done as per LAA,1894 in case of compulsory acquisition or the land can also be purchased through mutual negotiation where possible.

- The uneconomic residual land remaining after land acquisition will be acquired as per the provisions of LAA, if the owner is willing to sell . The owner of such

land/property will have the right to seek acquisition of his entire contiguous holding/ property provided the residual land remains unviable.

- People moving in the project area after the cut-off date will not be entitled to any assistance. In case of land acquisition, the date of publication of preliminary notification for acquisition under section 4.1 of the LAA, 1894 will be treated as the cut-off date. For non-titleholders the date of project census survey or a similar designated date declared by the executing agency will be considered as cut-off date.

- All common property resources (CPR) lost due to the project will be replaced or compensated by the project.

43. The project will recognize three types of displaced persons like (i) persons with formal legal rights to land lost in its entirety or in part; (ii) persons who lost the land they occupy in its entirety or in part who have no formal legal rights to such land, but who have claims to such lands that are recognized or recognizable under national laws; and (iii) persons who lost the land they occupy in its entirety or in part who have neither formal legal rights nor recognized or recognizable claims to such land[9]. The involuntary resettlement requirements apply to all three types of displaced persons.

VII. ENTITLEMENTS, ASSISTANCE AND BENEFITS

44. Compensation for the lost assets to all affected persons (APs) will be paid on the basis of replacement value. Resettlement assistance for lost income and livelihoods will be provided to both title holders and non-title holders. Special resettlement and rehabilitation measures will be made available to vulnerable group comprises of APs living below poverty line (BPL), scheduled tribe (ST), women headed households (WHH), physically handicapped (PH) households and severely affected households (losing more than 10% of the productive asset). An Entitlement Matrix is given in **Table-3** which recognizes various types of losses resulting out of the project and specific compensation and resettlement packages

Table 3: Entitlement Matrix

Type of Losses	Definition of APs	Entitlement	Details
Government land and Property			
Government Property (Loss of Land)	Relevant Government Department	• Departmental land transfer	• Compensation for required land as per the provision of GoR • Transfer of land through inter government department • Payment of land value by RRVPNL to the concerned government and departmental transfer of ownership.
Trees and Crops			
Loss of Trees	• Land holders • Share- croppers • Lease holders	• Compensation at Market value to be computed with assistance of	• Advance notice to APs to harvest fruits and remove trees • For fruit bearing trees compensation at average fruit production for next

[9] Such cases (APs having neither formal or nor recognized or recognizable claims having permanent and temporary impact) shall only be entertained for compensation due to loss of land, crops, properties etc. provided it is certified by district revenue authority

Type of Losses	Definition of APs	Entitlement	Details
		horticulture department	productive years to be computed at current market value • For timber trees compensation at market cost based on type of trees
Loss of Crops	• Land holders • Share- croppers • Lease holders	• Compensation at Market value to be computed with assistance of agriculture department	• Advance notice to APs to harvest crops • In case of standing crops, cash compensation at current market cost to be calculated of mature crops based on average production.
Temporary Loss			
Temporary loss of land and temporary damage on loss of crops during construction	• All APs losing land and crops on temporary basis during the construction period of the lines • Farming households • Sharecroppers • Tenants • non-titled households[10]	• Notice to harvest standing crops • Compensation at market value for one season • Restoration	• Provision of rent for period of occupation for legal titleholders. • Compensation for assets lost at replacement value. • Restoration of land to previous or better quality • Additionally, Cash Compensation will be paid for the temporary damage of crop under the RoW during the maintenance and repair after the construction. In case there is a need for repair or maintenance of the transmission lines in the future, the project authorities would consult with land owners land owners for access to the land for maintenance and repairs, when necessary, and that the land owners would continue to use the land for farming activities.
Vulnerable Households			
Impacts on vulnerable APs	All impacts	Vulnerable APs	• Additional assistance based on three months of minimum wage • Vulnerable households will be given priority in project construction employment.
Unanticipated Impacts			
Other Impacts Not Identified	Affected households or individuals	• Compensation and assistance	• Unforeseen impacts will be documented and mitigated based on the principles agreed upon in the resettlement framework

VIII. RELOCATION AND INCOME RESTORATION

45. The subproject will not require physical displacement. Impacts are limited to the temporary loss / damage to crops during the construction phase of development for which adequate compensation will be provided as per the entitlement matrix which will be as per the current market value. Additionally, vulnerable households will be paid an additional assistance equivalent to three months of minimum wage. RRVPNL will ensure that advance notice is issued to the APs prior to the start of construction works and that compensation is also completed before then. In case of future maintenance work, RRVPNL will pay APs for loss of crop due to work activities. Should construction activities result in unavoidable

[10] Subject to verification from district revenue authority

livelihood disruption, compensation for lost income for the period of disruption will be provided. Vulnerable APs will be given priority in project construction employment. Compensation and assistance to affected persons must be made prior to the possession of land/assets and prior to the award of civil works contracts.

IX. RESETTLEMENT BUDGET AND FINANCING PLAN

46. The resettlement cost estimate for this subproject includes eligible compensation, resettlement assistance and support cost for RP implementation. These are part of the overall project cost. This is a tentative budget which may change during the original course of implementation. The unit cost for the loss of crop has been derived from the through rapid field appraisal, consultation with affected households, consultation with relevant government authorities especially RRVPNL and its old practice. Contingency provision equivalent to 5% of the total cost has also been made to accommodate any variations from this estimate. The components of the resettlement cost include various features such as, compensation for crops and other support cost which includes cost for implementation of RP and monitoring of RP implementation. The support cost also includes cost for conducting future consultations and cost for grievance redressal. The total land acquisition and resettlement cost for the Tranche 1 subproject is estimated to be INR 97.23 million. Land acquisition and resettlement costs will be considered as an integral component of sub-project costs. RRVPNL will make the funds available in its annual budget for the disbursement of compensation and assistance. Detail cost estimate is given in Table 4.

Table -4: Resettlement Cost

Item	Unit Cost (INR)	Quantity	Amount (INR)
A. Compensation			
Loss of crop (per kilometer/lump sum)	150000	562	8,43,00,000
Sub Total- A			**8,43,00,000**
B: Resettlement Support Cost			
Resettlement Specialist			48,00,000
Grievance redress cost	lump sum		10,00,000
Administrative Cost	lump sum		15,00,000
Monitoring Cost	lump sum		10,00,000
Sub Total- B			**83,00,000**
Total			**9,26,00,000**
Contingency (5%)			**46,30,000**
Grand Total (INR)			**9,72,30,000**
Grand Total (Million INR)			**97.23**

X. INSTITUTIONAL ARRANGEMENTS

47. The RRVPNL will be the Executing Agency (EA) as well as the Implementing Agency (IA) for the project. RRVPNL will constitute a Project Management Unit (PMU) for implementing the ADB loan at the corporate level which is Jaipur and field office of RRVPNL at the sub-project level which is Jodhpur in this case for tranche-1 component. The PMU shall be headed by the Chief Engineer (T&C) and the Superintending Engineer (Planning) shall be responsible for coordinating all external functions with ADB. GOI, DEA, GOR as well as the internal functions such as Environment and Social/R&R reporting, Legal, Finance and Accounts, Field Project offices, Procurement and Contracts etc. and other functions from

within RRVPNL. One Environment and Social Cell (ESC) shall be designated and headed by one Executive Engineer who shall be designated for monitoring ADB funded projects in areas such as Environment, R&R and Social safeguards. To assist ESC in these specialist functions, RRVPNL may hire appropriate consultants for monitoring purposes.

48. Under PMU, there will be field offices of RRVPNL which will assume primary responsibility for the planning, preparation and implementation of RPs. The Project Head will be assisted by the PMU's Environmental and Social cell (ESC) for social and environmental designing, implementation and monitoring. The field office of RRVPNL will assume primary responsibility for the safeguards assessment on the site as well as implementation of RPs for their respective components in consultation with ESC. Keeping in view the minimal capacity of RRVPNL, it is proposed that this Cell must coordinate with each project divisions to address environmental and social issues.

49. The duties of the ESC Specialists (in-charge of environment and social) will include at a minimum: (i) oversight of field office of RRVPNL for implementing the RPs with timely payment of compensation and assistance to the APs (ii) liaising with the field office of RRVPNL and seeking their help to solve any grievance and related issues of project implementation; and (iii) preparation of monitoring reports every 6 months (as required by ADB).

50. For each sub-project RPs, RRVPNL will do the overall coordination, preparation, planning, implementation, and financing of all activities. Additional third-party services may be employed by the RRVPNL as necessary. The EA (RRVPNL) through its PMU will ensure that key institutions including local governments are involved in RP preparation, updation and implementation. Further details on agencies responsible for RP activities are in **Table 5** and the proposed institutional structure is shown in **Figure 6.**

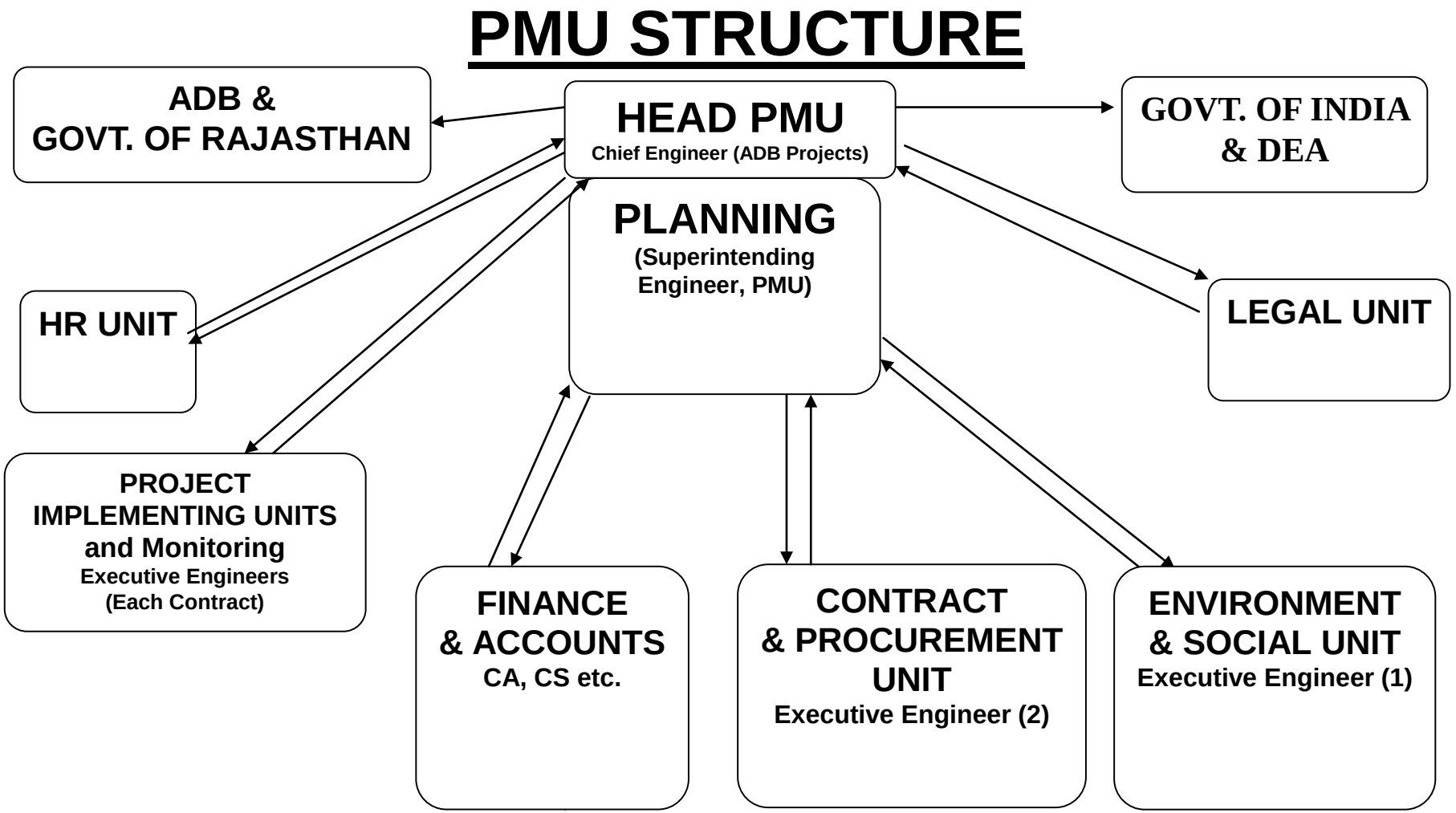
Table 5: Institutional Roles and Responsibilities for Resettlement activities

Activity	Responsible Agency
Sub-project Initiation Stage	
Establishing PMU/identifying field office of RRVPNL	EA (RRVPNL)
Establishing ESC in PMU	EA (RRVPNL)
Designating safeguard Specialist in PMU/ESC	EA (RRVPNL)
Finalization of sites for sub-projects	EA (RRVPNL)/PMU/field office
Disclosure of proposed land acquisition and sub-project details by issuing Public Notice	EA (RRVPNL)/PMU/field office
Meetings at community/household level with APs	PMU/field office
RP Preparation and Updating Stage	
Conducting Census of all APs	PMU/ field office /ESC
Conducting consultation/FGDs/meetings	PMU/ field office /ESC
Computation of replacement values of land/properties	PMU/ field office /ESC/Relevant Authority
Finalizing compensation packages and entitlements	PMU/ field office /ESC/ Relevant Authority
Disclosure of final entitlements and rehabilitation packages	PMU/ field office /ESC
Approval of RP	EA/ADB
Sale deed execution and payment	EA/PMU/ field office /LAO/Appropriate Government Department
Taking possession of land	EA/PMU
RP Implementation Stage	
Sale deed execution and payment	EA/PMU/ field office /Appropriate

Activity	Responsible Agency
	Government Department
Taking possession of land	EA/PMU/ field office
Implementation of proposed rehabilitation measures	PMU/ field office /ESC
Consultations with APs during rehabilitation activities	PMU/ field office /ESC
Grievances redress	PMU/ field office /GRC
Monitoring	PMU/ field office /ESC

ADB-Asian Development Bank, AP-affected person, EA-Executing Agency, ESC- Environment Social Cell, FGD-focus group discussion, GRC-Grievance Redress Committee, PMU- Project Management Unit, RP-Resettlement Plan and RRVPNL-Rajasthan Vidyut Prasaran Nigan Limited,

Figure 6: PMU structure of RRVPNL



XI. IMPLEMENTATION SCHEDULE

51. All land acquisition (government land in this case), resettlement, and compensation (temporary impacts on crops) will be completed before the start of civil works. All land required will be provided free of encumbrances to the contractor prior to handing over of project sites and the start of civil works. However, public consultation and monitoring will be continued in an intermittent basis as needed during the entire duration of the project. Therefore, all compensation and assistance will be completed prior to the start of civil work activities at each specific stretch. Disbursement of compensation and assistance of APs cannot commence until the RP has been cleared by ADB. All entitlements are to be paid prior to the start of civil works. Written confirmation is required by RRVPNL to ADB stating that all compensation has been paid to APs. Only then can construction begin on sections where compensation has been paid. A tentative implementation schedule is given in **Table 6**.

Table 6: Implementation Schedule

Subproject R&R Component/Activities	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Identification of sub project and notification	★											
Community Consultation	★	★	★	★	★	★	★	★	★	★	★	★
Field Survey				★	★							
Submission of RP for ADB Approval						★						
Disclosure of RP							★					
Compensation of APs								★	★	★	★	
Payment of all eligible assistance								★	★	★	★	
Initiation of Rehabilitation Measures										★	★	
Monitoring by PMU and field office						★	★	★	★	★	★	
Grievance Redress						★	★	★	★	★	★	
Start of Civil Work												★

XII. MONITORING AND REPORTING

52. Monitoring will be the responsibility of the EA (RRVPNL). The implementation of RP will be closely monitored. Regular monitoring activities will be carried out internally by PMU/ field office/ESC. Resettlement plan implementation will be closely monitored by the EA through its PMU and field office to provide ADB with an effective basis for assessing resettlement progress and identifying potential difficulties and problems. The extent of monitoring activities, including their scope and periodicity, will be commensurate with the project's risks and impacts. Monitoring will involve (i) administrative monitoring to ensure that implementation is on schedule and problems are dealt with on a timely basis; (ii) socio-economic monitoring during and after any resettlement impact utilizing baseline information established through the socio-economic survey undertaken during project sub-preparation; and (iii) overall monitoring to assess status of affected persons. The EA (RRVPNL) is required to implement safeguard measures and relevant safeguard plans, as provided in the legal agreements, and to submit semiannual monitoring reports on their implementation performance. RRVPNL will (i) monitor the progress of implementation of safeguard plans, (ii) verify the compliance with safeguard measures and their progress toward intended outcomes, (iii) document and disclose monitoring results and identify necessary corrective and preventive actions in the periodic monitoring reports, (iv) follow up on these actions to ensure progress toward the desired outcomes, and (v) submit semiannual monitoring reports on safeguard measures as agreed with ADB.

53. Monitoring will include daily planning, implementation, feedback and trouble shooting, individual affected person file maintenance, community relationships, dates for consultations, number of appeals placed and progress reports. RRVPNL through its PMU will be

responsible for managing and maintaining affected person databases, documenting the results of the affected person census. Semiannual monitoring reports documenting progress on resettlement implementation and resettlement plan completion reports will be provided by RRVPNL through its PMU to ADB for review. A sample monitoring checklist is given in Annexure-6 which may further be modified as per the need of the project.

Annexure-1: Social Due-Diligence Report for Bhadla Solar Park

A. INTRODUCTION AND OBJECTIVE

1. The Government of Rajasthan (GoR) through the Government of India (GoI) has requested Asian Development Bank (ADB) to provide a Multi-Tranche Financing Facility (MFF) to partly fund the Rajasthan Renewable Energy Transmission Investment Program (RRETIP) in the State of Rajasthan. The investment program covers investments for transmission of clean energy to National Grid of India by construction of pooling substations and Extra High Voltage (EHV) transmission lines. This is a social Due Diligence Report prepared for the solar park (not to be financed under ADB's loan) which is considered as associated facility. ADB's Safeguard Policy Statement, 2009 requires assessment of social and safeguards issues for such associated facilities and to highlight if any potential negative impacts are foreseen and how the same will be addressed so that the implementation of direct investment program will not be hindered. The objective of the due diligence is to assess the likely social impact and impact on social safeguards (land acquisition, resettlement and indigenous peoples). Additionally, the findings of the due diligence will aim at finding out future plan of intervention such as further technical assistance on social and gender in the solar park area to be implemented in the project area of influence of the solar park and that it will contribute to meeting basic needs, local economic development of in target areas, gender mainstreaming, and poverty alleviation and reduction - through the improvement of peoples' quality of life and well being. The due diligence report is prepared based on the review of existing documents such as engineering report prepared for the solar park, social surveys and discussions with RRECL officials including the local revenue officials.

B. PROJECT DESCRIPTION

2. RRECL is aiming at developing a Solar Park in village Bhadla , Tehasil Phalodi, Jodhpur district, Rajasthan with the support of Clinton foundation and Asian Development Bank. The sites will be enabled by the provision of necessary infrastructure build-out in the form of transmission, water access, gas availability and access infrastructure, which will be provided to individual developers through a lease arrangement. The state and national governments will conduct the necessary evaluation and pre-permitting of the environmental and social impacts of utility-scale solar deployment to prospective developers, allowing developers to save time and money often spent on development work for multiple, individual plants in different locations. The State will extend all facilities and fiscal incentives provided by Central Government/ National Solar Mission to manufacturers and Solar Power Producers in Solar Parks. RREC will act as a Nodal Agency for development of Solar Parks in Rajasthan. A special purpose vehicle (SPV) in form of a subsidiary company of RREC has been established for development of infrastructure and management of Solar Park. Coupled with this a Solar Park aims at being bankable, which means that both for lenders as well as developers risk of the projects is mitigated, allowing for financing costs to be lower and for non-recourse lending to become a reality.

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3. RRECL is developing its first Solar Park in village Bhadla, district Jodhpur. About 10,000 hectare Govt. land has been identified at village Bhadla, Tehasil Phalodi, Distt, Jodhpur. The total land will be developed in different phases. Out of 10,000 hectare land at village: Bhadla in Jodhpur district, the topographical survey & geo-technical investigation for 3000 hectare land has already been got done in first phase. RREC is also in process to carry out the topographical survey & geo-technical investigation for balance land in next phases. The identified specific areas of land will allow for the build-out in "convoy" of multiple plants over the next 10 years, eventually totalling 2 to 3 GW of generation capacity in different phases. Initially the focus will be on projects applying for the projects under phase-I and under open access of the Rajasthan Solar Energy Policy-2011. Further focus will be on

specific allocation from the Government of India and the JNNSM for large-scale projects within the Park, phase-II of Rajasthan Solar Energy Policy-2011 and on manufacturing and research and development facilities. The sites will be enabled by the provision of necessary infrastructure build-out in the form of transmission, water access, gas availability and access infrastructure etc. The following sets of coordinates (refer to Table-1) provide the detail of available land, which is estimated to be in a total of 10000 hectares.

Table 1: Locations and Area of the Solar park

Phase	Latitude	Longitude	Area (hectare)
1st phase	27.561436° 27.561003° 27.536027° 27.509074° 27.505844° 27.508915° 27.541685°	71.929246° 71.949858° 71.970592° 71.969121° 71.934704° 71.896030° 71.902458°	3000
2nd phase	27.469911° 27.463404° 27.464040° 27.488111° 27.488480° 27.509074° 27.508915°	71.891085° 71.967841° 72.038529° 72.041165° 71.967818° 71.969121° 71.896030°	5000
3rd phase	27.525330° 27.488111° 27.488849° 27.488480° 27.536027°	72.023196° 72.041165° 72.023203° 71.967818° 71.970592°	2000

4. The centre location of the park is at 27,293851 N 71,582430 E in village Bhadla, district, Jodhpur in the state of Rajasthan. The site is accessed by road. The nearest important town is tehsil Phalodi at a distance of 83 km. The nearest Railway Station is Phalodi. Nearest Airport is at Jodhpur at a distance of 227 km. Nearest port is Kandala at a distance 520 km. Details on the plots and land are given in Table 2.

Table 2: Land Detail of Solar Park at Badhla

Sr. No.	Khasra No.	Area in Bigha	Area in Hectare	Type of Land
1	8	1486	240.84	Government
2	39	4574.17	741.33	Government
3	37	5689	922.04	Government
4	13	3843.10	622.85	Government
5	14	6415	1039.71	Government
6	78 (Part) of total 1447.13 ha	3179	515.25	Government
7	80	5671	917.98	Government
8	16	1544.06	250.24	Government
9	28	1207	195.00	Government
10	17	900	145.68	Government
11	19	3848	622.89	Government
12	26	2006.11	325.00	Government
13	20	3584	580.15	Government
14	78 (part) of total	2351	381.04	Government

	1446.50 Ha			
15	78 (part) of total 1446.50 Hect	3398.68	550.84	Government
16	84	1257.05	203.72	Government
17	130	1828	296.27	Government
18	124	3157	511.66	Government
19	47	836	135.49	Government
20	40	437	70.82	Government
21	60	1435	232.57	Government
22	66	259	41.97	Government
23	85	522	84.60	Government
24	95	446	72.28	Government
25	103	273	44.24	Government
26	31	1616	261.91	Government
TOTAL		**61762.17**	**10006.37**	**Government**

5. The Park will be developed in phased manner. Phase-1 consisting of 3000 hectares of land is the main focus of the report. Preliminary design and planning has been prepared for the phase-1 components. The remaining phases will be developed over the years and no survey and design have been done so far. The phase-1 design is also considered to be preliminary in nature as physical demarcation of various facilities is not yet marked on the ground. Therefore, possibility of change in the design may occur during the detailed and final design. As part of social due diligence study, both the park area and its surroundings have been considered as area of project influence. However, this may further be defined as direct area of influence and indirect project influence area. Direct project influence area is the village Bhadla in general and specifically few hamlets in the park area and in direct project influence area is considered the surrounding area. This is as par the social assessment which may change at the later stage. A brief identification of direct and indirect project area is described in Table 3 which is as per the social assessment where households' surveys were conducted.

Table-3: project Area of Influence

Name of Village	Approximate Distance from the Solar Park (Phase-1) in kilometre	District	Number of Households	Project Area of Influence
Gammno ki basti	5	Jodhpur	80	Direct
Choro ki basti	2	Jodhpur	120	Direct
Kalro ki basti	2	Jodhpur	200	Direct
Ajeri	14	Jodhpur	150	Indirect
Chinnu	15	jodhpur/jaishelmeer	1200	Indirect
Noorey ki bhurj	12	Jodhpur	200	Indirect
Rola	12	Jodhpur	250	Indirect
Bodana	20	Jodhpur	250	Indirect

C. SCOPE AND METHODOLOGY OF THE DUE DILIGENCE STUDY

6. The Due Diligence study was carried out through review of available documents prepared by RRECL (Feasibility and Detailed Project Report) and review of topographic sheets and Google maps. The scope of the assessment was mainly confined to the phase-1 of the solar park. In addition to the review of documents, site visits were made by the experts and team to collect necessary information from the stakeholders. Sample base line household surveys of 400 households were also conducted through structured socio-economic questionnaires in the direct and indirect project area of influence to assess the socio-economic profile of the project area and to assess the gender situation in the project area. Additionally, Consultations were carried out with various stakeholders such as officials of RRECL, revenue departments at project site. Consultations were carried out at project area and the villages in the form of focused group discussions among the men and women group to know about people's acceptance and concern to the solar park project.

D. SUMMARY OF BASELINE INFORMATION

7. According to the provisional result of census of India, 2011, Rajasthan has a total population of 68.62 million where as the project area districts such as Jodhpur has 3.69 million people and Jaisalmer has a total population of 0.67 million. Jodhpur district comprises of 5.37% of total Rajasthan population where as Jaisalmer district comprises of only 0.98% of the total state population which shows that the density of population in the project districts is very low. The overall sex ratio in Rajasthan as a whole is 921 and the sex ratio in Jodhpur is 907 and in Jaisalmer, it is 821. A socio economic survey was carried out in the project area especially near the proposed solar park area and along the transmission lines. The average family size of the sampled household is found to be 4.66. The sex ratio of the households is 785 females for 1000 males which is also very low. And the literacy rate in the project area is very low in comparison to project districts and Rajasthan as a state. The literacy rate is only 29 %. Only 31 % of the children in the age group of 4 to 5 years are found to be enrolled in the school. Among the children in the age group of 6 to 15 years, nearly half of them are illiterate. Similarly, among the adolescents and youth, about 63 % are illiterates. In the age group of 6 to 17 years, about 46 % are found to be never enrolled in any school and this is about 51 % for the females.

8. Farming and agricultural labourers found to be major occupation trend for the adult members in the project area. Animal husbandry is a major occupation for the households, but most of them unable to perceive this as a profession. Only 3 % of the households reported to be engaged in animal husbandry in the age group of 18 years and above as a profit making profession. However, it was found that about 82 % of the households have live stocks in their respective families. One third (35 %) households reported of possessing agricultural land. The average possession of agricultural land is 7.78 acres. All the lands are cultivable but non-irrigated. The total average annual income from all the sources is rupees 51,638/-. In the surveyed project area it was found that the major earning was from labour (daily wages and seasonal) followed by agriculture as farmers. Besides these two sources, about 33 % of the households also earned from animal husbandry. Among the households, about 64.43 % of the expenditures are incurred on food which is relatively high. The next highest average expenditure is on social function and which is about 13 %. The expenditure on education is less than 1 % which also corroborates with the low education among the households in the project area. The findings suggest that the majority of the households are from lower economic background having limited access to skilled based jobs. Majority are employed as daily wage agricultural labourer which is always seasonal.

9. The findings of the social analysis reveal that the access to basic services is very poor in the project area. Approximately, 96% of the structures/houses are made of mud and thatched where as only 4 % of the households are cemented. Moreover, only 30 % of the households are having a separate room used as a kitchen. Availability of water at the doorstep is not seen in the project area. Almost all the households i.e. 100 % fetch water

from outside every day in a week and the average time taken to collect water from outside sources is 29 minutes. Similarly it is important to note that about 93 % of the household are having no toilet facilities and use open space for defecation. Only about 23 % reported having electricity but 99 % of the household use battery and 96 % use kerosene for the purpose of lighting in the households. For cooking, about 98 % use woods as cooking fuel. The villages in the project area are very remotely located. Many of the villages do not have primary health care service providers near to the villages. In most of the villages, a primary school is available but the teachers are not regular and the quality of education is very poor. This is the reason as many children are found to be never enrolled in schools. The accessibility to primary health centre is also another problem for most of the villagers. Home deliveries without the support of the trained professionals are widely prevalent in the project area. The youth employability is mostly on agriculture as daily wage labourer. Skill based training is not there for the youths staying in the villages.

10. The women engagement in the productive jobs is very limited. Women constitute an important role in any community. However, the participation of the women in various activities varies from community to community. Women in all parts of India continue to face inequalities compared to men across a number of human development and socio-economic variables. The literacy rate for women in the project area is very low, it is only 25 %. The overall literacy is only 29 %, for the males it is about 33 % and among the females, literacy is about 25 %. Among the genders there are discrepancies in the wages for the males and the females. From the socio-economic survey it is found that only 23 % of the households are electrified. Among the electrified houses also television and radio is rarely possessed by any households. Watching any TV programs or listening to radio is a complete absence in the project area for the women. There is no opportunity for the women to spend time in leisure activities. All the women stated that they are responsible in collecting water, cooking, washing utensils, taking care of the children, cleaning, etc as household activities. Animal husbandry is one of the major activities in the project area. From the socio-economic survey it follows that about 82 % of the households have possessed live stocks at their families.

11. Women are largely responsible for household energy management, such as collecting, chopping and storing firewood. Therefore access to energy has a specific gender dimension. Renewable energy projects in India have demonstrated that renewable energy can directly contribute to poverty alleviation and gender benefits. Installing solar lights in homes enables children to study in the evenings and improve school performance. Solar lanterns have made the business of many women entrepreneurs profitable. Solar driers are a boon in remote areas for drying of fruit and vegetables. Even garment workers have been using solar energy to save electricity costs while running their sewing machines. Vocational trades involving the NGOs may be initiated for women to empower them by providing skills on tailoring, embroidery, food products etc. as cattle rearing is one of the major occupation of the people therefore some milk processing units and small scale industries to produce ghee, and other milk products can also be initiated with the provision of market linkages. However, all these activities do have a direct link with the availability of energy.

E. SCOPE ON SOCIAL SAFEGUARDS (LAND ACQUISITION, INVOLUNTARY RESETTLEMENT AND INDIGENOUS PEOPLES)

12. No private land acquisition is required for the solar park. The park has been indentified and earmarked in the available government land which is mostly desert land. It has been confirmed by RRECL that Phase-1 of the park will not have any private land acquisition. The proposed Bhadla solar park will be constructed on a phased manner. The first phase will comprise of 3000 hectares of land for which feasibility and preliminary Detailed Project Report (DPR) have been prepared. Our safeguard assessment was confined to the first phase only. Planning (technical and engineering) for the remaining phases of the solar park is yet to be started. The park is to be built on government land.

There may be small Dhanis and hamlets present in the park area. However, it is assured by the RRECL (nodal agency for developing the solar park through private developer/SPV) that none of these dhanis and hamlets will be displaced due to the construction of the solar park especially for the Phase-1 activities. It may be noted that the area for the solar park was broadly earmarked and as such, pegging or clear demarcation of land (on the ground) has not yet been done which will be done prior to the commencement of the work and once the developers are on board. As a matter of mitigation measures, RRECL will always take special steps during the design to avoid any impacts on physical displacement during the actual land planning as they have sufficient government/barren land available. There will be no impact on Indigenous Peoples in the park area. Also, there will be no private land acquisition and resettlement involved in the solar park.

F. FUTURE CONCERN, MITIGATION MEASURES

13. Considering the construction of such large scale solar park and its future phases, it is assumed that small Dhanis and Basties in the area and also farms may be affected in the future phases. The whole area has been considered for the solar park and proper planning is to be carried out. In the absence of final detailed design and land planning, these impacts are assumed. These Dhanis are mostly the small establishments people build during in the land during the time of cultivation. However, they have their original homes in the village too. The Dhanis are non titleholders and usually cultivate some of the government land illegally when it is feasible and especially when they get good rain. RRECL is aware about the fact and assured that necessary measures will be taken to avoid any negative impact on the people. However, these Dhanis/hamlets will not be displaced in the phase-1. During the course of due-diligence study, RRECL has been apprised and sensitized about the impact to take necessary steps to avoid any displacement and to create more benefits to the local people. Indirect social impacts (NOT displacement) are foreseen both in a positive and negative way. Negative impacts are mostly confined to the health safety, core labour standard etc for which Environment Management Plan plan has been prepared and the EA has been advised to keep special clauses in the tender documents for the developers to mitigate these negative impacts. As far as the positive impacts are concerned, there will be employment opportunities (both permanent and temporary), enhancement in the existing infrastructures, and possibility of having some grants for gender development in terms of vocational training etc.

14. In case of unavoidable impacts in the future, RRECL (or/through its developer) shall carry out a detailed impact assessment based on the final engineering design to assess the impact on Involuntary Resettlement and Indigenous Peoples. Accordingly, A resettlement Plan shall be prepared keeping in view Govern of India's Policy on R&R (National Rehabilitation and Resettlement Policy- NRRP, 2007), Land Acquisition Act, 1894, ADB's Safeguard Policy Statement (SPS), 2009. Any impact on IP will also be addressed in the form of Indigenous Peoples framework. Resettlement framework (RF) and Indigenous Peoples Planning Framework (IPPF) have been prepared as part of the proposed ADB funded Multi-Tranche Financing Facility (MFF) to partly fund the Rajasthan Renewable Energy Transmission Project (RRETIP) in the State of Rajasthan. The RF and IPPF is a broader guidelines to address the future impacts, if any and have been prepared keeping in consideration both national laws and policies and ADB's SPS, 2009. RRECL shall keep these frameworks as the base for the future plan of action. RRECL will ensure that all negative impacts will be mitigated and will ensure that the developer follows these policy guidelines.

G. Institutional Arrangements

15. RRECL will be the Executing Agency and nodal agency for development of solar park through developer. RRECL shall be responsible for fulfilling safeguards requirements or assure that the developers follow appropriate safeguards measures to comply with applicable national and state laws and policies including ADB's Safeguard Policy Statement. Appropriate budget shall be allotted in advance for the implementation of safeguard plans. All the compensation, assistance and implementation of safeguards plans will be completed prior to the start of civil work and prior to the possession of land by the developers.

H. Conclusions and Recommendations

16. The full scale and range of social risks and impacts can change and will only be determined at the time of detailed/ final design. This assessment is based on information available to date and based on social analysis. However, in case of any impact in the future, RRECL/developer shall take necessary steps to minimize and shall prepare plan in accordance with national, state laws/policies and preferably ADB's Safeguard Policy Statement and will implement the same. It is recommended that any unforeseen impact during the construction shall be mitigated. RRECL shall work in coordination with the construction contractor and developer to ensure that there is no loss of livelihood.

17. The proposed solar park will have opportunities for the socio-economic benefits of the local community in the vicinity. Efforts will be made by RRECL and the developers to integrate the approach towards inclusive growth including social and economic development of the communities/ stakeholders within the area of operation. It is proposed that RRECL shall adopt a Corporate Social Responsibility (CSR) Policy to integrate social and environment benefits and sustainability in to its operation for its stakeholders. The CSR shall broadly aim at enhance various aspects such as education, health, gender development, employment, associated basic infrastructure, livelihood enhancement through vocational training, health safety, and over all environment sustainability of the project area and its influence zone. Detailed CSR shall be prepared at the later stage which will clearly identify the area of operation with the objective that negative socio-economic and environment impact will be minimized from the design stage and to provide the best opportunities for socio economic development of the local people during the project construction and operation.

Annexure-2: Detailed Description on Tranche-1 subprojects

The Tranche 1 project consists of following components which are funded both by ADB and RRVPNLL:

A. New Transmission Lines - 400/220/132 kV lines.
B. New Grid Substations - 400/220/132 kV.
C. Augmentation of Grid Pooling Substations – 400 kV/220/132/33 kV.
D. Transformer Packages – 400/220/132 kV at Grid Substations.
E. Shunt Reactor Packages – 400/220/132 kV Grid Substations.
F. New conductors for new Transmission lines in A above.
G. Up-gradation of existing 132 kV Grid Substations.
H. Charging of 132kV lines at existing substations.

COMPONENT A: New Transmission Lines – 400/220/132 kV lines

I. <u>400 kV double circuit 160 km long Transmission Line from 400/220/132/33 kV Station Bhadla to LILO point at 400 kV S/C Jodhpur-Merta line.</u>

1. The new 400 kV Bhadla - Jodhpur Transmission Line on Twin Moose conductor will pool power from various upcoming wind and solar power projects in Bhap area in Jodhpur district to the National Grid. The total power proposed installed capacity of wind and solar power projects in the Jodhpur area is about 4,100 MW.
2. The Bhadla substation will be connected through National Grid System for pooling the solar generated power. The line will be constructed on self - supporting latticed type steel towers with ACSR Moose conductor in bundle of two conductors per phase.
3. Line has the following features:
    - Length of Line estimated 160 km.
    - No. of Railway Crossings 4 no.
    - No. of National/State Highway Crossings 10 crossings
    - No. of Existing HT Line Crossings 04 no.
    - No. of Forest trees to be cut 0 no
    - No of Fruit trees to be cut 0 no
    - No of Canal crossing 1 no

II. <u>400 kV double circuit 180 km long Transmission Line from 400/220/132/33 kV Ramgarh Gird Substation to 400/220/132/33 kV Bhadla Substation.</u>

1. The new 400 kV Ramgarh - Bhadla Transmission Line on Twin Moose conductor will pool in power from various upcoming wind and solar power projects in Jaisalmer/Barmer and Jodhpur/Bikaner Area of western Rajasthan.
2. The power transmission line will evacuate power from upcoming solar and wind power projects of various IPPs in the Jaisalmer and Jodhpur area. The total potential installed capacity of wind and solar power projects in the Jaisalmer and Jodhpur area is 1,700 MW and 4,100 MW respectively.
3. The Ramgarh and Bhadla substations will be connected to National Grid System for pooling the generated power. The line will be constructed on self-supporting latticed type steel towers with ACSR Moose conductor in bundle of two conductors per phase.
4. Line has the following features:
    - Length of Line estimated 180 km
    - No. of Railway Crossings 0 no.
    - No. of National Highway Crossings 0 crossing
    - No. of Existing HT Line Crossings 4 no
    - No. of Forest trees to be cut 0 no
    - No of Fruit trees to be cut 0 no

III. <u>400 kV double circuit 100 km long Transmission Line from 400/220/132 kV Akal Grid substation to 400/220/132/33 kV Ramgarh Grid Sub-station.</u>

1. The new 400 kV Akal – Ramgarh Transmission Line on Twin Moose conductor will pool in power from various upcoming wind and solar power projects in Jaisalmer / Barmer Area of western Rajasthan.

2. The power transmission line is being constructed to evacuate power from upcoming solar and wind power projects of various IPPs in the Jaisalmer and Barmer area, total potential installed capacity of wind and solar power projects in the area is 2,700 MW.
3. The Ramgarh Grid substation will be connected to National Grid System for pooling the generated power. The line will be constructed on self-supporting latticed type steel towers with ACSR Moose conductor in bundle of two conductors per phase. This line is being constructed to evacuate renewable energy generated in the Ramgarh and Akal area of Jaisalmer by various IPPs.
4. Line has the following features:
    - Length of Line estimated 100 km.
    - No. of Railway Crossings 1 no.
    - No. of National Highway Crossings 1 crossing
    - No. of Existing HT Line Crossings 5 no.
    - No. of Forest trees to be cut 0 no
    - No of Fruit trees to be cut 0 no

COMPONENT B: New Grid substations - 400/220/132 kV.

IV. <u>New 400/220/132 kV Grid Sub-Station at Bhadla.</u>

1. The new 400 kV Grid Substation (GSS) at Bhadla, district Jodhpur which will evacuate power from 10,000 hectare Bhadla solar park and other solar parks coming up in the Bhadla/Bhap area.
2. Nearest wildlife sanctuary - Desert National Park which is situated about 150 km from the substation location. The substation is proposed to be constructed on 25.89 Ha land already allotted to RRVPNL by state government.
3. The work involves construction of a new substation of voltage 400/220/132/33 kV at Bhadla in the Jodhpur district of Rajasthan. The substation is proposed to be constructed on 160 Bigha land already allotted to RRVPNL.

V. <u>New 400/220/132 kV Grid Sub-station Ramgarh.</u>

1. The new 400 kV pooling Grid Substation (GSS) at Ramgarh, district Jaisalmer involves construction of new substation at Ramgarh in the Jaisalmer district of Rajasthan. The substation is proposed to be constructed on 23.46 ha land already given on lease to RRVPNL by state government.
2. Nearest wildlife sanctuary to the substation site is the Desert National Park, which is situated at about 45 km from the substation location.

VI. <u>Existing and under construction 220kV GSS at Bap (District Jodhpur) and associated 220kV & 132kV lines</u>

This is RRVPNL funded subproject component which consists of:

1. 220/132 kV Grid substation – Transformers-220/132kV, 2x160 MVA & 132/33kV, 2x40/50 MVA, indoor & outdoor, switch-gear, power and control cables, auxiliary transformer, lightening arrestors, D.C. equipment, control and relay boards, steel structures, SCADA, Fire-fighting equipment.
2. LILO of 220 kV Barsingsar LTPS-Phalodi 25 km long line at 220/132/33 kV Bap GSS.
3. 220kV double circuit Transmission Line 90 km long from 400/220/132 kV Bhadla GSS to 220/132/33 kV Bap GSS.

VII. <u>220kV GSS at Kanasar (District Jodhpur) and associated 220kV & 132kV lines</u>

This is RRVPNL funded subproject component which consists of:

1. 220/132 kV Grid substation – Transformers-220/132kV, 2x160 MVA & 132/33kV, 2x40/50 MVA, indoor & outdoor, switch-gear, power and control cables, auxiliary transformer, lightening arrestors, D.C. equipment, control and relay boards, steel structures, SCADA, Fire-fighting equipment etc.
2. LILO of 132kV PS1-PS2 12 km long line at 220/132/33 kV GSS at Kanasar.
3. LILO of 132kV PS2-PS3 10 km long line at 220/132/33 kV GSS at Kanasar.

4. 220 kV double circuit Transmission Line 25 km long 400/220/132 Bhadla GSS to 220/132 Kanasar GSS.

COMPONENT C: Augmentation of Grid Substations – 400 kV/220/132/33 kV.

VIII. Augmentation of 400/220/132 kV Akal Grid Substation

1. The Akal Grid Substation is situated on National Highway 15 – Barmer Jaisalmer Highway at village Akal. It evacuates 1080 MW (135 MW x 8 turbines) from the Raj West Thermal power via Barmer 400 kV GSS.
2. This subproject includes equipment to be installed inside the existing GSS premises and there are no environmental implications.

Equipment funded for augmentation includes:

- 400/220 kV, 1 X500 MVA Transformer
- 400kV, 1x125 MVAR Bus Reactor
- 400kV, 2x50 MVAR Shunt Reactor.
- 400 kV Equipment (Breaker & Half Scheme)
- 400kV Bus-bar Protection scheme for the complete system
- Marshaling Kiosks for 400kV system
- SCADA system
- PLCC System

IX. Augmentation at 400kV GSS Bikaner

1. The Bikaner Grid substation is situated on Jaipur-Bikaner Road- 10 km from Raisar Village. It evacuates 1500 MW (250 MW x 6 turbines) from the Surathgarh Super Thermal Power Project.
2. 400 kV inter-connections between RRVPNL's 400 kV GSS Bikaner and PGCIL's 400 kV GSS Sikar would facilitate the exchange of solar power generation with the Regional Grid.
3. This subproject includes equipment to be installed inside the existing GSS premises and there are no environmental implications.

Equipment funded for augmentation includes:

- 1x125 MVAR, 400kV Bus Reactor
- 400kV Bays for 400kV D/C Bhadla-Bikaner line
- 400kV D/C Bikaner-Sikar (PGCIL) line at Bikaner end of the lines.
- 400 kV Equipment (Breaker & Half Scheme)
- 400kV Bus-bar Protection scheme for the complete system
- Marshaling Kiosks for 400kV system
- SCADA system
- PLCC System

COMPONENT D: Transformer Package – 400/220/132 kV at Grid Substations.

X. Transformer Package for Ramgarh, Bhadla and Akal GSS.

COMPONENT E: Shunt Reactor Packages – 400/220/132 kV Grid Substations.

XI. Shunt Reactors Package for Ramgarh, Bhadla, Bikaner and Akal GSS.

COMPONENT F: New conductors for new Transmission lines in COMPONENT I above.

XII. 400kV Conductor for 400kV lines mentioned at below Sr. No. I, II, and III.

COMPONENT G: Up-gradation of 132 kV Grid Substations.

XIII. These are RRVPNLL funded subproject component which consists of:

- Up-gradation of PS_No. 2 to 132 kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers with associated 132kV line.
- Up-gradation of PS_No. 3 to 132 kV Grid Substation with 132/33kV, 2x20/25 MVA Transformers.

COMPONENT H: Charging of 132kV lines at existing substations.

XIV. Charging of 132 kV line from PS_No.5 to PS_No.1 on 132 kV voltage level via 132 kV PS_No.2 GSS, 132 kV PS_No.3 GSS and 132kV PS_No.4 GSS.

These Components D, E, F, G, H includes equipment to be installed inside the existing GSS's and charging of 132 kV existing lines. There are no environmental implications involved in equipment installation and line charging activities as proposed by RRVPNL.

Annexure-3: Inventory of Transmission Lines (Tranche-1 subprojects)

Social and Environmental features along the 400 kV Bhadla Jodhpur Transmission line

Sr. No.	ANGLE POINT		Distance between two angle points (m)	Approximate Distance of transmission line from nearby village Habitation (Village name) (in m)	Name of District	No. of Towers	Area of tower (in M²)	Area under the ROW (in m)	Ownership of land (private, Govt. Forest)	Use of Land	Name of Crops	Number of trees under cutting/ trimming	No. of affected Household	No. of affected tribal households (if Any)	Other
	FROM	TO													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	AP0	AP1	10,584	400 m Jajiwal Gehlotan 550 m Jajiwal Bhatiyan 900 m Lordi 550 m Gharav 650 m Jhipasni	Jodhpur	TBD*	81	52 m	TBD*	Agriculture and Barren	TBD*	TBD*	TBD*	TBD*	3 Road Crossing (1 SH -58, 1 NH 65) 1 HT line Crossing
2	AP1	AP2	10,060	2.1 km Ujliya	Jodhpur		81	52 m		Agriculture and Barren					1 Road Crossing
3	AP2	AP3	10,863	200m Umed Nagar	Jodhpur		81	52 m		Agriculture					4 Road Crossing (SH - 61)
4	AP3	AP4	10,876	2.5 km Bhainser Kotwali 2.5 km Khudiyala	Jodhpur		81	52 m		Agriculture and Barren					2 Road crossing 1 Rly crossing
5	AP4	AP5	10,126	3.5 km Osian	Jodhpur		81	52 m		Barren					2 road Crossing
6	AP5	AP6	11,575	100 m Bhimkor	Jodhpur		81	52 m		Barren					2 road Crossing (2 SH - 61) 1 Rly Crossing
7	AP6	AP7	10,807	100 m Harali	Jodhpur		81	52 m		Agriculture and Barren					1 Road (SH -61)
8	AP7	AP8	4,320	3.4 km Dhelna	Jodhpur		81	52 m		Agriculture and Barren					

Sr. No.	ANGLE POINT		Distance between two angle points (m)	Approximate Distance of transmission line from nearby village Habitation (Village name) (in m)	Name of District	No. of Towers	Area of tower (in M²)	Area under the ROW (in m)	Ownership of land (private, Govt. Forest)	Use of Land	Name of Crops	Number of trees under cutting/ trimming	No. of affected Household	No. of affected tribal households (if Any)	Other
	FROM	TO													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
9	AP8	AP9	7,656	1.8 km Lohawat	Jodhpur		81	52 m		Agriculture and Barren					3 Road Crossing
10	AP9	AP10	10,867	7.9 km Chhila	Jodhpur		81	52 m		Agriculture and Barren					3 Road Crossing
11	AP10	AP11	7,653	1.6 km Amla	Jodhpur		81	52 m		Agriculture and Barren					SH -19 crossing
12	AP11	AP12	8,983	100 m Godarli	Jodhpur		81	52 m		Agriculture and Barren					
13	AP12	AP13	14,882	1,7 km Malhar 3 km Hidal Gol 6 km Kichan	Jodhpur		81	52 m		Agriculture and Barren					NH -15 crossing; Rly crossing
14	AP13	AP14	12,128	500 m Khirwa	Jodhpur		81	52 m		Agriculture					1 Road, 1 Canal crossing
15	AP14	AP15	14,091		Jodhpur		81	52 m		Agriculture					
16	AP15	AP16	11,078	300 m Kanasar	Jodhpur		81	52 m		Barren					Sand dunes
17	AP16	Bhadla GSS	10,777	100 m Bhadla	Jodhpur		81	52 m		Barren					Sand dunes

TBD* - To be determine after detailed Survey by contractor

Note - The Angle point / Section length may vary slightly depending upon the site conditions.

Social and Environmental features along the 400 kV Bhadla - Ramgarh Transmission line

Sr. No.	ANGLE POINT		Distance between two angle points	Approximate Distance of transmission line from nearby village Habitation (Village name) (in m)	Name of District	No. of Towers	Area of tower (in m^2)	Area under the ROW (in M)	Ownership of land (private, Govt. Forest)	Use of Land	Name of Crops	Number of trees under cutting/ trimming	No. of affected Household	No. of affected tribal households (if any)	Other
	FROM	TO													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Bhadla GSS	AP1	4,591	1.3 km Bhadla	Jodhpur	TBD *	81	52 m	TBD	Barren	TBD	TBD	TBD *	TBD*	HT line Crossing, Sand dunes
2	AP1	AP2	10,372	1.3 km Rola	Jodhpur		81	52 m		Barren					HT line Crossing, 1 Canal Crossing
3	AP2	AP3	14,250	3.1 km Askandra	Jaisalmer		81	52 m		Barren					1 Road Crossing
4	AP3	AP4	15,800	4.5 Didu 5.9 Satyaya	Jaisalmer		81	52 m		Barren					3 Road Crossing
5	AP4	AP5	18,941	1.3 km Tadana	Jaisalmer		81	52 m		Barren					Sandy
6	AP5	AP6	10,863	1.9 km Balana	Jaisalmer		81	52 m		Barren					Sandy
7	AP6	AP7	10,634	2.3 km Shri Mohangarh	Jaisalmer		81	52 m		Agriculture and Barren					1 Road 1 Canal Crossing
8	AP7	AP8	10,162		Jaisalmer		81	52 m		Agriculture					2 Road Crossing
9	AP8	AP9	8,975	5.8 km Nedhi	Jaisalmer		81	52 m		Agriculture and Barren					1 Canal Crossing
10	AP9	AP10	10,411	2.1 km Boa 4.4 Madhawa	Jaisalmer		81	52 m		Agriculture and Barren					1 Road Crossing Water Logged Area
11	AP10	AP11	9672	4.2 km Khiniya 1.5 km Khinasar	Jaisalmer		81	52 m		Agriculture and Barren					2 Road Crossing

Sr. No.	ANGLE POINT		Distance between two angle points	Approximate Distance of transmission line from nearby village Habitation (Village name) (in m)	Name of District	No. of Towers	Area of tower (in m²)	Area under the ROW (in M)	Ownership of land (private, Govt. Forest)	Use of Land	Name of Crops	Number of trees under cutting/ trimming	No. of affected Household	No. of affected tribal households (if any)	Other
	FROM	TO													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	AP11	AP12	11,997	3.2km Kabir Basti, 5.7 km Parewal	Jaisalmer		81	52 m		Barren and Agriculture					Rocky, Water Logged
13	AP12	AP13	10,977	2.9 km Joga	Jaisalmer		81	52 m		Barren					Rocky, Water Logged
14	AP13	Ramgarh GSS	1,490	6 km Ramgarh	Jaisalmer		81	52 m		Barren					Rocky, Water Logged 1 Road Crossing 2 HT Crossing

TBD* – To be determined during detailed survey by RRVPL or the contractor.

Note - The Angle point / Section length may vary slightly depending upon the site conditions.

Social and Environmental features along the 400kV Ramgarh Akal Transmission line

Sr. No.	ANGLE POINT		Distance between two angle points	Approximate Distance of transmission line from nearby village Habitation (Village name) (in m)	Name of District	No. of Towers	Area of tower (in m²)	Area under the ROW (in m²)	Ownership of land (private, Govt. Forest)	Use of Land	Name of Crops	Number of trees under cutting/ trimming	No. of affected Household	No. of affected tribal households (if Any)	Other
	FROM	TO													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Akal GSS	AP1	360	1 km Akal	Jaisalmer	TBD*	81	52 m	TBD*	Barren	TBD*	TBD*	TBD*	TBD*	
2	AP1	AP2	194	1.2 km Akal	Jaisalmer		81	52 m		Barren					NH 15 Crossing
3	AP2	AP3	2,420		Jaisalmer		81	52 m		Agriculture and Barren					
4	AP3	AP4	2,786		Jaisalmer		81	52 m		Barren and Agriculture					1 Road Crossing
5	AP4	AP5	6,090	800m Basanpir	Jaisalmer		81	52 m		Agriculture and Barren					NH 15, Crossing
6	AP5	AP6	7,880	1.4 km Thaiyat	Jaisalmer		81	52 m		Agriculture and Barren					1 Road, 1 Rly crossing 3 km Kharajor Protected forest
7	AP6	AP7	12,968	700m Hamira 200m Hadda	Jaisalmer		81	52 m		Barren					2 Road Crossing
8	AP7	AP8	9,257	5 km Chaudhriya	Jaisalmer		81	52 m		Agriculture and Barren					3 Road crossing
9	AP8	AP9	1,0273	400 m Asde 2.7 km Gugade	Jaisalmer		81	52 m		Agriculture and Barren					1 Road Crossing
10	AP9	AP10	7,730	4 km Khinasar	Jaisalmer		81	52 m		Agriculture and Barren					Rocky, Water logged
11	AP10	AP11	9,394	2 km Parewar	Jaisalmer		81	52 m		Barren					1 Road crossing
12	AP11	AP12	1,3392	1.6 km Joga	Jaisalmer		81	52 m		Barren					Water logged

Sr. No.	ANGLE POINT		Distance between two angle points	Approximate Distance of transmission line from nearby village Habitation (Village name) (in m)	Name of District	No. of Towers	Area of tower (in m²)	Area under the ROW (in m²)	Ownership of land (private, Govt. Forest)	Use of Land	Name of Crops	Number of trees under cutting/ trimming	No. of affected Household	No. of affected tribal households (if Any)	Other
	FROM	TO													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13	AP12	AP13	6,388		Jaisalmer		81	52 m		Barren					
14	AP13	Ramgarh GSS	1,321	6 km Ramgarh	Jaisalmer		81	52 m		Barren					1 Road crossing, 2 HT Crossing

TBD* – To be determined during detailed survey by RRVPL or the contractor.

Note - The Angle point / Section length may vary slightly depending upon the site conditions.

Annexure-4: Social Impact Assessment (SIA)

CHAPTER 1: INTRODUCTION

1.1 Overview

1. This is a Social Impact Assessment Report prepared under the Technical Assistance (TA) for the proposed ADB's funding on Rajasthan Renewable Energy Transmission Project (the Project/Program). Though, the proposed investment program will focus on the evacuation system to facilitate the Government Rajasthan (GoR) to evacuate the power from the proposed solar park. Solar park is considered as an associated facilities and the objective of this assessment is to assess the socio-economic profile of the project area especially the solar park area and to assess some of the gender benefits if could be integrated in to the overall project investment. Based on the socio-economic conditions and the base line information, further need assessment will be done and future action plan will be prepared accordingly in terms of terms of livelihood enhancement or gender mainstreaming and development or vocational training program etc. The SIA is based more on the periphery of solar park with an objective to assess the social condition. Rajasthan Renewable Energy Corporation (RREC) will be responsible for the implementing and developing the solar park through the private participation while Rajasthan Rajya Vidyut Prasaran Nigam (RRVPNL), will be responsible for implementing the ADB's proposed loan on transmission/evacuation system associated with the solar park.

2. India is blessed with abundant Solar Energy and if harnessed efficiently, the country is capable of producing trillion-kilowatts of electricity. Solar energy is extremely beneficial as it is non-polluting and its generation can be decentralized. There is need to come together and take initiatives to create technologies for a greater use of these sources to combat climate change by reducing the emission of green house gases. The solar park concept is similar to an economic zone dedicated to the generation of power through solar energy and also to the manufacturing of solar energy components. A Solar Park will hold a number of solar power plants and manufacturing outfits, each developed by separate or the same groups/promoters. The concept aims to accelerate the development of solar power generation projects, by providing to developers an area that is well characterized, properly infra-structured and where the risk of the projects can be minimized as well as facilitation of the permitting process.

3. Rajasthan, the largest state in the country, covers a tenth of the area and five percent of the country's population, and has access to only one percent of the country's water resources, and Rajasthan is bestowed with significant amount of solar energy potential and an overwhelming response from Developers / Independent Power Producers (IPPs) has already been received for establishing solar power projects. Rajasthan Government is fully committed to the promotion of solar energy. Conducive Government of India Policy will yield astonishing achievements in energy generation in next 5-10 years.

4. Achieving the ambitious Jawaharlal Nehru National Solar Mission (JNNSM) target for 2022 of 20,000 MW will be dependent on the "learning" of the first two phases, which if successful, could lead to conditions of grid-competitive solar power. The transition could be appropriately up- scaled through capacity development of all the stakeholders related to issues of technology, finance, and policy development.

5. In this regard, JNNSM envisages the promotion and establishment of solar parks with dedicated infrastructure through state governments that will streamline the project development timeline by letting government agencies directly handle land acquisition and all necessary permits, and provide dedicated common infrastructure (site preparation, levelling,

power evacuation arrangements, water pipelines, access roads, common security, smart grid facilities etc.). This approach will facilitate the accelerated installation of solar power generation capacity by addressing issues faced by decentralized projects. Government of India requested Asian Development Bank (ADB) to provide comprehensive support for the development of solar park and green grid development in the states of Gujarat, Maharashtra and Rajasthan. In this program, ADB has been requested to finance (i) solar power generation plants, (ii) associated facilities for solar parks including transmission evacuation and operation center, (iii) urban grid connected solar PV distribution, (iv) green grid (including smart HVDS) to stabilize power flows and enhance energy efficiency.

6. Rajasthan Renewable Energy Corporation (RREC) is aiming at developing a Solar Park in village Bhadla , Tehasil Phalodi, Jodhpur district, Rajasthan with the support of Clinton foundation and Asian Development Bank. Government of Rajasthan (GOR) has identified the Bhadla solar park with over 10,000 hectare in Phalodi subdivision of Jodhpur district, Rajasthan (to be developed in phases) to accommodate both solar photovoltaic (PV) power plants and concentrated solar power (CSP) plants. The sites will be enabled by the provision of necessary infrastructure build-out in the form of transmission, water access, gas availability and access infrastructure, which will be provided to individual developers through a lease arrangement. The State will extend all facilities and fiscal incentives provided by Central Government/ National Solar Mission to manufacturers and Solar Power Producers in Solar Parks. RREC will act as a Nodal Agency for development of Solar Parks in Rajasthan. A special purpose vehicle (SPV) in form of a subsidiary company of RREC has been established for development of infrastructure and management of Solar Park. Coupled with this a Solar Park aims at being bankable, which means that both for lenders as well as developers risk of the projects is mitigated, allowing for financing costs to be lower and for non-recourse lending to become a reality.

7. The centre location of the park is at 27,293851 N 71,582430 E in village Bhadla, district, Jodhpur in the state of Rajasthan. The site is accessed by road. The nearest important town is tehsil Phalodi at a distance of 83 km. The nearest Railway Station is Phalodi. Nearest Airport is at Jodhpur at a distance of 227 km. Nearest port is Kandala at a distance 520 km.

8.The development of this infrastructure to evacuate and transmit such a large quantum of renewable energy through power evacuation system has its challenges including (i) the development of a large solar park of nearly 500 MW that is unprecedented among ADB's developing member countries with associated technical and other challenges, (ii) cost recovery from consumers in Rajasthan or other Indian states given significantly low load factors for infrastructure transmitting renewable energy compared to conventional fossil fuels and (iii) technical challenges related to evacuation of such a large quantum of intermittent power in a stable and reliable manner that requires the use of innovative stabilizing equipment.

9. The Rajasthan Rajya Vidyut Prasaran Nigam (RRVPNL), setup in 2000, has been declared as the state transmission utility (STU) of Rajasthan. RRVPNL is responsible for the planning, development, operation and maintenance of the transmission facilities at 132 kV and above in Rajasthan. RRVPNL has developed a detailed project report to evacuate nearly 4,000 MW of solar and wind energy from a high renewable energy potential zone identified in Western Rajasthan. RRVPNL expects nearly 1,700 MW of solar power and 2,300 MW of wind power to be connected to its bulk power transmission system in this region. While some of the power is to be consumed in the state by the distribution companies, a large part of this power would be wheeled to other states to support them to meet their renewable power procurement obligations.

10. The main objective of RRVPNL is to provide reliable electric transmission service, as a public utility whose infrastructure serves as the link in transporting electricity to millions of electricity users, RRVPNL has following duties and responsibilities:

- Intra state transmission of electricity through Intra-State Transmission System
- Planning and co-ordination relating to intra-state transmission with all concerned agencies such as CTU, State Government generating companies, licensees, Regional Power Committees etc.
- Ensuring development of an efficient, coordinated and economical system of intra-state transmission of electricity from generating stations to Load Centers.
- Non-discriminatory Open Access to its transmission system on payment of transmission charges
- Complying with the directions of Regional Load Despatch Center (RLDC) and State Load Dispatch Center (SLDC), operating SLDC until any other authority is established by the State Governments.

11. The investment program to be supported by ADB will contribute to economic development in Rajasthan through expanded power supplies from clean energy sources, and support a sustainable state electricity sector in the state. RRETIP will produce the following outcomes: (i) increased availability of clean energy to State Grid at Electrical pooling stations for effective power evacuation in a financially sustainable manner, (ii) improved state finances and power sector financial viability from sales revenue earned from power exports, (iii) improved sector governance, (iv) improved capacity in Rajasthan Rajya Viduat Prasaran Nigam Limited (RRVPNL) for better planning, implementation and management of power evacuation infrastructure, and energy efficiency through a better power management program, and (v) Improvement in standards of environmental and social safeguards in the sector. With ADB support, the proposed program will sustain the energy sector reform agenda, and is expected to help to attract other long-term financiers to the state.

1.2 Scope and Objectives of the Study:

12. The broad scope and objectives of the study are as follows:

- Assessing general socioeconomic profile of the project area especially the solar park
- Preparing a Base line for the Solar Park Area
- Baseline Data generation including background/ Study Area/ details about socio-economic and demographic profiles of the villages, in terms of their population, caste composition, education, health, water, fodder, fuel, credit, employment, migration, agriculture, livestock, infrastructure, transport, communication etc.
- Assessment of the impact of the Project on the social and economic lives, including livelihoods of the people in the Project area and description of alternative considered.
- Suggestions and recommendations on gender mainstreaming

1.3 Methodology:

1.3.1 Quantitative:

13. A structured questionnaire was administered at the household level to elicit the socio-economic profile of the population living in the project area. The study area covered the solar park periphery which includes so many village such as Ajery, Bodana, Chinu, Choti Chinu, Churo ki Basti, Gamna ki Basti, Kaloran ki Basti, Noor ki Bhooj and Rola

1.3.2 Qualitative

14. In-depth interviews conducted with the women to know the gender role and participation in various household and community life. For this purpose about 6 focus group discussions are held with 6 groups belonging to different villages in the project area. The villages covered are Chinnu, Norey Ki Bhurz, Kalu Ki Dhani, Bhadla, Ajeri and Rola Gaon. In each FGD about 6 to 8 women participated.

1.4 Data Processing and Analysis

15. All the filled in questionnaires collected from the field was scrutinised in house by trained professionals. A data entry formatted was designed using MS excel and Data were analyzed using SPSS Version 15.

1.5 Organisation of the Report

16. This report summarizes the results from the survey and stake holders meetings. The report has been structured into the following Chapters:

CHAPTER 1: INTRODUCTION: Discuss the project objective, geographic location, scope and methodology of the study.

CHAPTER 2: BASIC HOUSEHOLD CHARACTERISTICS: This chapter specifically dealt on the household characteristics like socio-religious composition, household condition and access to basic amenities in the survey area.

CHAPTER 3: SOCIO-ECONOMIC PROFILE OF THE PROJECT AREA: This chapter provides a detailed account the demographic profile, of employment, number of earning members, possession of assets, agricultural land, pattern of agricultural practise, live stocks and sources of incomes and expenditure pattern.

CHAPTER 4: HEALTH: This chapter provides a detailed account the health facilities available and treatment seeking places, reasons for preferences, contact with health workers and the types of health messages usually received by the respondents.

CHAPTER 5: WOMEN'S PARTICIPATION: This chapter discuss about the women in the project area. The different economic and household activities performed by them, their participation in decision making, time spent on performing different household activities. The perception on their safety and mobility is also analysed.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS: This chapter deals with the conclusions and recommendations derived from the overall social assessment.

CHAPTER 2: BASIC HOUSEHOLD CHARACTERISTICS

17. chapter specifically dealt on the household characteristics like socio-religious composition, household condition and access to basic amenities in the survey area.

2.1 Religious Composition of the Households

18. Among the surveyed households majority about 87 % belong to Muslim religion and the rest 13 % are Hindus. For details refer Table 2.1.

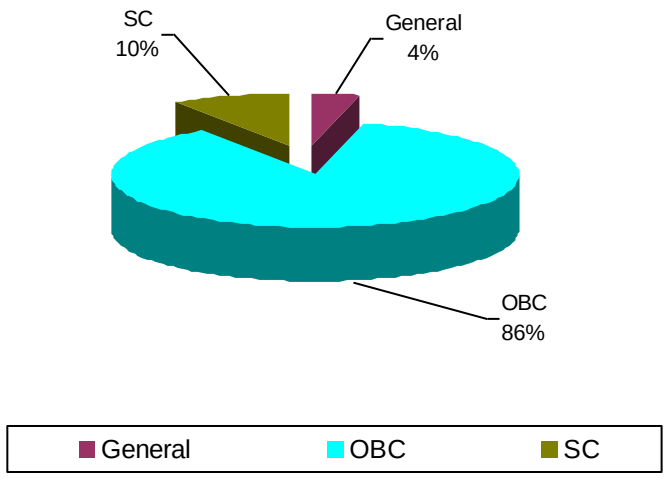
Table 2.1 Religion of the Households

Sl. No	Types of Religion	Number of Households	Percent
1	Hindu	53	13
2	Muslim	347	87
	Total	400	100

2.2 Social Composition of the Households

19. Majority of the households about 86 % are from other back ward castes. Only 10 % belong to Schedule caste. Only 4 % of the households covered are from general caste. The details are given in Figure 2.1.

Figure 2.1 Social Background



2.3 Types of Family

20. Among the surveyed household nearly two-third families are nuclear and the rest 35 % are joint families. For details refer Table 2.2.

Table 2.2 Type of Families

Sl. No	Types of Religion	Number of Households	Percent
1	Nuclear	261	65
2	Joint	139	35

	Total	400	100

2.4 Types of Houses:

21. From the types of houses it can be inferred that the people of the project area belong to poor socio-economic condition as only 4 % of the households are Pucca. About 31 % of the houses of the families are Kutcha / Jhugi and nearly two third of the houses are semi kutcha/ pucca houses. For details refer Table 2.3.

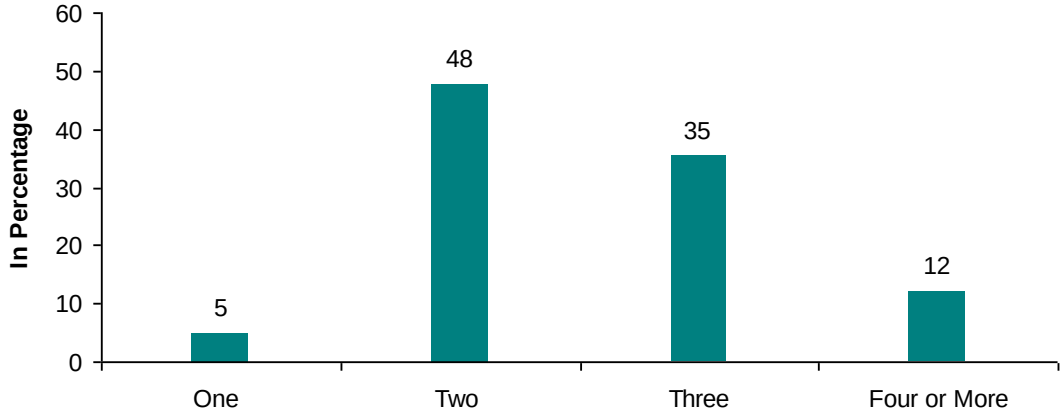
Table 2.3 Types of Houses

Sl. No	Type of Houses	Number of Households	Percent
1	Pucca	14	4
2	Kutch/ Jhugi	123	31
3	Semi Kutcha/ Pucca	263	66
	Total	400	100

2.5 Number of Living Rooms:

22. Among the surveyed households only 5 % are having one room. However about 48 % are having two rooms and a little more that one third (35 %) are having three rooms. However only about 30 % of the households are having a separate room used as a kitchen. For details refer Figure 2.2.

Figure 2.2 Possession of Number of Rooms (N=400)



2.6 Source of Drinking Water:

23. During the socio-economic survey the households were asked to report two main sources of drinking water. Most of the households in the project area are dependent on public well and canal for drinking water. About 60 % of the households are using water from public well and 30 % are using canal water for drinking purpose. Only about 9 % have access to piped water. Details are given in Table 2.4

Table 2.4 Source of drinking water for the Households

Sl. No	Sources	Number of Households	Percent
1	Piped into residence / yard / plot	2	1
2	Public tap	33	8
3	Hand pump in residence / yard plot	4	1
4	Public hand pump	4	1
5	Well in residence / yard / plot	1	0
6	Public well	241	60
7	Canal	119	30
8	Pond / lake	54	14
9	Total	400	100

2.7 Availability of Drinking Water:

24. Availability of water at the doorstep is not seen in the project area. This is obvious as the project area is a desert and most of the residents are depended on public well and canal for water. Almost all the households i.e. 100 % fetch water from outside every day in a week. Only 1 % admitted that they never go outside to collect water. For details refer Table 2.5.

Table 2.5 Percentage of Households Collects Water from Outside source in a week

Sl. No	Frequency	Frequency	Percent
1	Never	0	0
2	Every day	400	100
3	Total	400	100

25. As reported all the households reported collecting water from outside source. The average time taken to collect water from outside sources is 29 minutes. Among the households covered about one fifth of the households reported it takes up to 15 minutes to collect water from outside. Another 22 % of the households reported it takes 20 minutes, and for 40 % of the households it takes about 20 to 30 minutes to collect water from outside sources. However for 19 % of the households it takes more than 30 minutes to get water from outside sources. Details are given in Table 2.6

Table 2.6 Average time taken to collect water

Sl. No	Time in Minutes	Frequency	Percent
1	Up to 15 minutes	81	20
2	16 to 20 minutes	88	22
3	21 to 30 minutes	158	40
4	31 minutes to 1 Hr	62	16
5	More than 1 Hr	11	3
6	Total	400	100
7	Average time	29 minutes	

2.8 Toilet Facility:

26. The availability of toilets is very limited as only 2 % of the households are either accessing own or shared toilets. Only 6 % of the household reported accessing public toilet. However it is important to note that about 93 % of the household are having no toilet facilities and use open space for defecation. This situation need to be addressed as it leads numerous health and hygiene problems that affects the population especially the children. Details are shown in Table 2.7.

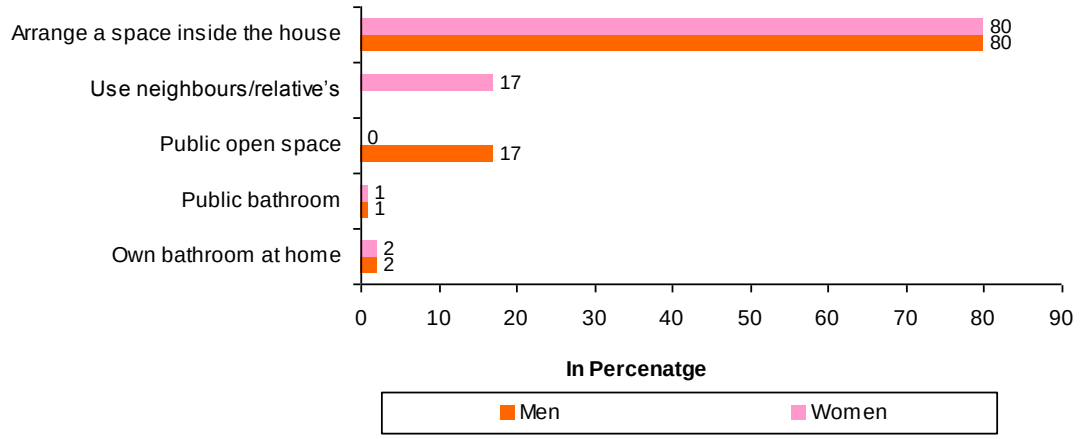
Table 2.7 Type of toilet facilities at the households

Sl. No	Types of Toilet	Frequency	Percent
1	Own toilet	2	1
2	Shared common toilet	4	1
3	Public toilet	22	6
4	No facility / bush / field	372	93
5	Total	400	100

2.9 Bathing Place:

27. The availability and access to bathrooms were asked for both male and female members separately. There was no major difference seen among the genders in terms of the bathrooms used except the use of open spaces by male members. Among the genders both male and female members use a space inside the house as a bathroom. Among the males about 17 % use public open spaces for bathing purpose and similarly among the female about 17 % use the bathroom of their relatives and neighbours for bathing. Details of access to bath rooms for males and females are given in Figure 2.3.

Figure 2.3 Bathing Place for Men & Women



2.10 Access to Energy:

2.10.1 Availability of Electricity

28. In the surveyed households only about 23 % reported having electricity. The details are given in Table 2.8.

Table 2.8 Availability of electricity at the households

Sl. No	Availability of electricity	Frequency	Percent
1	Yes	90	23
2	No	310	78
3	Total	400	100

2.10.2 Main Source of Household Lighting

29. All the households those reported having electricity admitted of using electricity for lighting their houses. The households were also asked about the two main sources of energy used for lighting. Majority about 91 % of the households use battery and 69 % use mainly kerosene as an alternate energy to light their houses. Similarly about 12 % of the households also use lantern / candles for lighting their houses. The details are given in Table 2.9.

Table 2.9 Main Source of Lighting

Sl. No	Source	Frequency	Percent
1	Electricity	90	23
2	Gas lamp	4	1
3	Kerosene /diesel oil lamp	275	69
4	Lantern /Candle	49	12
5	Battery	365	91
6	Total	400	100

2.10.3 Source of Power Supply:

30. Almost all the households get electricity from the government sources. The details are given in Table 2.10.

Table 2.10 Source of Power Supply

Sl.No.	Supply Source	No	%Age
1	Government	90	100
2	Community Based	0	0
3	Own Arrangement	0	0
	Total	90	100

2.10.4 Years of Electrification

31. The average years of electrification in the project area is only two years. About 67 % of the households are electrified during the last two years and 22 % of the houses electrified during the last one year. For details refer Table 2.11.

Table 2.11 Duration of Electrification

Sl. No	Duration in years	Frequency	Percentage

1	One Year	22	24
2	Two Years	60	67
3	Three & more years	8	9
4	Total	90	100
5	Average Years	2 Years	

32. However the availability of electricity is a problem in the project area. The average availability of electricity varies from 5 to 6 hours in all the surveyed villages of the project area.

2.10.5 Expenditure on Electricity

33. All the electrified houses reported of having electric meter. The average expenditure on electricity consumption is rupees 269 per month. About 37 % are paying rupees 250/- per month and 27 % are paying rupees 300 per month. Most importantly only 10 % of the respondents reported of electricity theft in the project area. For details refer Table 2.12.

Table 2.12: Monthly Expenditure on Electricity

Sl. No	Rupees	Frequency	Percent
1	Up to 200	15	17
2	250	37	41
3	300	27	30
4	350	11	12
5	Total	90	100
6	Average in Rupees	269	

2.10.6 Use of Non Electric Energy

34. All the households covered those reported not having electricity at their households were asked on the non electric energy they use for different purposes. Both battery and kerosene are used for lighting. About 99 % of the household use battery and 96 % use kerosene for the purpose of lighting the households. For cooking almost all the households use wood besides 2 households those use solar energy too. Similarly for heating 87 % of the households use wood. For details refer Table 2.13.

Table 2.13 Use of Non Electric Energy

Sl. No	Source	Lighting		Cooking		Heating	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Kerosene/ Diesel	297	96	0	0	0	0
2	Battery	308	99	0	0	0	0
3	Wood	0	0	309	100	269	87
4	Gas	0	0	0	0	0	0
5	Solar	2	1	2	1	0	0
6	Total	310	100	310	100	310	100

2.11 Cooking Fuel:

35. Often the households in rural areas used more than one type of fuel for cooking. On cooking fuel two responses were taken. Almost all the households about 98 % use woods as cooking fuel. Other fuels used are crop residues and dung cakes. None of the households

use LPG as cooking fuel. For details refer Table 2.14.

Table 2.14 Types of cooking fuel used by the households

Sl. No	Types of cooking fuel	Frequency	Percent
1	Kerosene Stove	1	0
2	Electricity	4	1
3	Wood	393	98
4	Dung cakes	83	21
5	Coal / coke / lignite	10	3
6	Crop residue	196	49
7	Total	400	100

2.12 Conclusion:

36. The findings of this chapter explain that the access to basic services is very poor in the project area. Among the surveyed households majority about 87 % belong to Muslim. Majority of the households about 86 % are from other back ward castes and nearly two-third families are nuclear. From the types of houses it can be inferred that the people of the project area belong to poor socio-economic condition as only 4 % of the households are Pucca. Moreover only 30 % of the households are having a separate room used as a kitchen. Availability of water at the doorstep is not seen in the project area. For drinking water most of the households are dependent on public well and canal for drinking water. Almost all the households i.e. 100 % fetch water from outside every day in a week and the average time taken to collect water from outside sources is 29 minutes. Similarly it is important to note that about 93 % of the household are having no toilet facilities and use open space for defecation. Only about 23 % reported having electricity but 99 % of the household use battery and 96 % use kerosene for the purpose of lighting in the households. For cooking almost all the households about 98 % use woods as cooking fuel.

CHAPTER 3: SOCIO-ECONOMIC PROFILE OF THE PROJECT AREA

Socio Economic Profile

37. This chapter provides a detailed account the demographic profile, of employment, number of earning members, possession of assets, agricultural land, pattern of agricultural practise, live stocks and sources of incomes and expenditure pattern.

3.1 Population Distribution:

38. The status of key demographic profile has been analysed on 1864 members (1044 males and 820 females) in 400 households covered during the survey. The analysis was made on the overall size of the population reported among the surveyed households. A summary table on key demographic indicators is as shown in Table 3.1. As evident from the table, the average family size of the sampled household is found to be 4.66. The sex ratio of the households is 785 females for 1000 males. Details are described in Table 3.1.

Table 3.1: Status of Key Demographic Indicators for the sampled households

Sl. No	Key Indicators	Findings	Jodhpur
1	Average Family Size	4.66	
2	Sex Ratio	785	915
3	Literacy	29 % (Male 33 %, Female 25 %)	67 % (Male 80.5 %, Female 52.5)
4	Population in Key Age groups		
	0-14 years age	37 % (Males=37 %; Females=37 %)	
	15 years to 59 years	58 % (Males = 57 %; Females = 59 %)	
	60 years +	5 % (Males=6 % ; females= 4 %)	

39. Out of the total 1864 household members, in the 400 households covered, 37 % are children in the age group of 0 to 14 years. Similarly, in the productive age group of 15 to 59 years, a higher concentration of about 58 % is reported. Among the household members only 5 % are in the age group of 60 years and above.

3.2 Gender Wise Education of the members of the Household

3.2.1 Gender wise Education (4 to 5 Years)

40. Among the children in the age group of 4 to 5 years, majority about 69 % are not enrolled in any school or Anganwadis. Only 31 % are in the primary level. For details refer Table 3.2.

Table 3.2 Educational Qualification (4 to 5 years)

Sl. No	Level of Education	Male		Female		Total	
		No	%	No	%	No	%
1	Not Enrolled	31	65	37	73	68	69
2	Primary	17	35	14	27	31	31
	Total	48	100	51	100	99	100

3.2.2 Gender wise Education (6 to 15 Years)

41. Among the children in 6 to 15 years nearly half of them are illiterates. About 38 % are in the primary level, and only 8 % are in the upper primary level. For details refer Table 3.3.

Table 3.3 Educational Qualification (6 to 15 years)

Sl. No	Level of Education	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	142	48	114	56	256	51
2	Literate but no formal education	2	1	2	1	4	1
3	Nursery	4	1	3	1	7	1
4	Primary	114	39	75	37	189	38
5	Upper Primary	31	11	10	5	41	8
6	Secondary	1	0	0	0	1	0
	Total	294	100	204	100	498	100

3.2.3 Gender wise Education (16 to 25 Years)

42. Among adolescents and the youth in the age group of 16 to 25 years, about 17 % achieved primary level of education, 11 % achieved upper primary level, and only 1 % secondary. Most importantly about 63 % are illiterate (59 % male and 69 % females). Education standard is very low as education after upper primary level in the project area is almost rare. For details refer Table 3.4.

Table 3.4 Educational Qualification (16 to 25 years)

Sl. No	Level of Education	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	160	59	143	69	303	63
2	Literate but no formal education	19	7	14	7	33	7
3	Primary	53	19	29	14	82	17
4	Upper Primary	34	12	18	9	52	11
5	Secondary	6	2	1	0	7	1
6	Senior secondary	1	0	0	0	1	0
7	Graduate & more	0	0	1	0	1	0
8	Diploma/ Technical /ITI	0	0	0	0	0	0
9	Professional degrees (Er./MBBS/MBA)	273	100	206	100	479	100
	Total	160	59	143	69	303	63

3.2.4 Gender wise Education (26 Years and above)

43. Among the higher age groups illiteracy is more reflected. About 91 % are illiterate, male 89 % and female 93 %. Only 5 % of the household members in this age group educated till primary level. For details refer Table 3.5.

Table 3.5 Educational Qualification (26 years and above)

Sl. No	Level of Education	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	310	89	274	93	584	91
2	Literate but no formal education	8	2	10	3	18	3
3	Primary	23	7	10	3	33	5
4	Upper Primary	5	1	0	0	5	1
5	Secondary	2	1	0	0	2	0
6	Senior secondary	0	0	0	0	0	0
7	Graduate & more	0	0	0	0	0	0
8	Diploma/ Technical /ITI	0	0	0	0	0	0
9	Professional degrees (Er./MBBS/MBA)	1	0		0	1	0
	Total	349	100	294	100	643	100

3.2.5 Literacy level (6 Years and above)

44. The overall literacy is only 29 %, for the males it is about 33 % and among the females literacy is about 25 %. For details refer Table 3.6.

Table 3.6 Educational Qualification of the Household members aged above 6 years

Sl. No	Level of Education	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	612	67	531	75	1143	71
2	Literate	304	33	173	25	477	29
	Total	916	100	704	100	1620	100

3.3 Gender Wise Primary Occupation of the members of the Household

3.3.1 Gender wise primary Occupation (6 to 17 Years)

45. Among the household members in the age group of 6 to 17 years, only about 37 % are students, 39 % males and 34 % females. About 6 % are either working as agricultural

labourer or engaged in households own animal husbandry. Most importantly about 46 % of the members are found to be never enrolled (42 % males and 51 % females) in any school and are at home. Similarly about 8 % are school drop outs. Details are described in Table 3.7.

Table 3.7 Primary Occupation (6 to 17 years)

Sl. No	Primary Occupation	Male		Female		Total	
		No	%	No	%	No	%
1	Farmer / Cultivator	2	1	0	0	2	0
2	Agricultural Labourer	11	3	3	1	14	2
3	Animal Husbandry	16	5	8	3	24	4
4	Un-employed	6	2	0	0	6	1
5	House wife	1	0	7	3	8	1
6	Student	130	39	82	34	212	37
8	Never Enrolled	138	42	125	51	263	46
9	School Drop out	26	8	19	8	45	8
10	Total	330	100	244	100	574	100

3.3.2 Gender wise primary Occupation (18 to 30 Years)

46. The baseline tried to gauge the economic status of the youth in the age group of 18 to 30 years. Among the household members in this age group, about 39 % are agricultural labourer. Gender wise among the males about 61 % and among the females only 11 % reported working as agricultural labourer. Employment opportunity to the youth is very limited in the project area as majority of them reported working as agricultural labourer which is very seasonal.

47. Among the youths non of them reported of doing any government jobs and only 1 % of the males are engaged in private jobs. Students are 7 % in this age group among the male 10 % and among the female only 3 %. However among the female about 34 % are housewives who are only engaged in household activities and taking care of the family. Details are described in Table 3.8.

Table 3.8 Primary Occupation (18 to 30 years)

Sl. No	Primary Occupation	Male		Female		Total	
		No	%	No	%	No	%
1	Farmer / Cultivator	36	12	2	1	38	7
2	Agricultural Labourer	188	61	24	11	212	39
3	skilled / semi skilled / other non agricultural labourer	3	1	1	0	4	1
4	Animal Husbandry	22	7	6	3	28	5
5	Private job	2	1	0	0	2	0
6	Un-employed	26	8	6	3	32	6
7	House wife	0	0	182	80	182	34
8	Student	32	10	7	3	39	7
	Total	309	100	228	100	537	100

3.3.3 Gender wise primary Occupation (18 Years & above)

48. The occupation of the Household members belonging to the age group of 18 years and above was analysed. It is important to note that out of the total 1864 household members 1038 (56 %) belong to this age group.

49. Majority about 31 % are agricultural labourers (50 % males and 6 % females). Farmers and cultivators comprises of 16 % (27 % males and 1 % females). Among the females majority about 88 % are home makers. White collar Jobs is very restricted in the project area as only 2 % males are engaged in this sector. Details are described in Table 3.9.

Table 3.9 Primary Occupation (18 Years and above)

Sl. No	Primary Occupation	Male		Female		Total	
		No	%	No	%	No	%
1	Farmer / Cultivator	160	27	5	1	165	16
2	Agricultural Labourer	294	50	29	6	323	31
3	Construction & related work	2	0	0	0	2	0
4	skilled / semi skilled / other non agricultural labourer	3	1	0	0	3	0
5	Animal Husbandry	29	5	5	1	34	3
6	Government job	4	1	0	0	4	0
7	Private job	3	1	0	0	3	0
8	Retired	21	4	2	0	23	2
9	Un-employed	33	6	6	1	39	4
10	House wife	0	0	397	88	397	38
11	Student	37	6	8	2	45	4
12	Total	586	100	452	100	1038	100

50. From the occupation trend it follows that skilled workers and self employment among the residence of the rural areas in the project area is very limited. Most of the male members are working as agricultural labourer and this is very seasonal.

3.4 Number of Earning Members

51. At the household level the number of earning members was recorded. Nearly three-fourth of household reported having a single earning member. Only in 15 % of the households there are two earning members. In 9 % of the households there are about three earning members. In 97 % of the households no female members reported as an earning member. Details are described in Table 3.10.

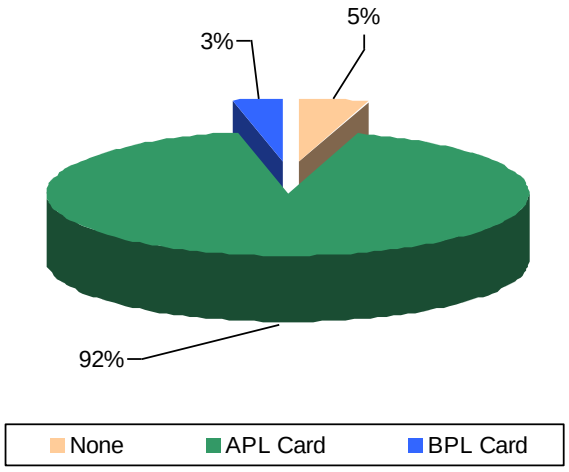
Table 3.10 Cluster wise number of earning members (Total)

Sl. No	Numbers	Male		Female		Total	
		No	%	No	%	No	%
1	Nil	0	0	387	97	0	0
2	One	308	77	11	3	299	75
3	Two	59	15	1	0	61	15
4	Three	30	8	0	0	36	9
5	More Than Three	3	1	1	0	4	1
	Total	400	100	400	100	400	100

3.5 Possession of Ration card

52. Out of the 400 households covered, about 92 % reported possessing an APL ration card. On the other hand only 3 %, reported of not having any ration card and the rest 5 % are having a BPL ration card. Details are shown in Figure 3.1

Figure 3.1 Possession of Types of Ration Cards



3.6 Possession of Household Assets

53. From the analysis of assets it follows that most of the households in the project area belong to lower income groups. Besides a phone / mobile phone, Electric fan, radio and bicycle, none of the other durable goods are possessed by any of the households.

54. For transportation bicycle was reported by only 12 % of the household and none of the households possess scooter / motorcycle. Luxury item like air conditioners, refrigerator, washing machine rarely possessed by any of the household. Details are described in Table 3.11.

Table 3.11 Possession of Household assets

Sl. No	Assets	Frequency	Percent
1	Television	2	1
2	Satellite dish/ cable	1	0
3	Radio/Tape	31	8
4	Bicycle	48	12
5	Motorcycle/scooter	0	0
6	Washing machine	1	0
7	Electric fan	59	15
8	Air-conditioner	1	0
9	Car / jeep	2	1
10	Refrigerator	0	0
11	Sewing machine	0	0
12	Pressure cooker	1	0
13	Telephone/mobile	271	68
14	LPG stove	0	0
15	Bullock cart	4	1

16	Tractor	2	1
	Total	400	100

3.7 Possession of Agricultural land

55. In the surveyed households a little more than one third (35 %) reported of possessing agricultural land. Details are shown in Table 3.12

Table 3.12 Percentage of households possessing agricultural land

Sl.No.	Response	Frequency	Percent
1	Yes	141	35
2	No	259	65
	Total	400	100

56. The total land possessed by 141 households is 1097 acres. Thus the average possession of agricultural land is 7.78 acres. All the lands are cultivable but non irrigated. For details refer Table No. 3.13

Table 3.13 Indicators on agricultural land

Sl.No.	Particulars	No of Households	% age	Total Area in Bigha	Average in Bigha	Average in Acre
1	Irrigated (cultivable)	0	0	0	0	0
2	Non-Irrigated (cultivable)	141	100	2743	19.5	7.78
3	Irrigated (Non Cultivable)	0	0	0	0	0
4	Non-Irrigated (Non Cultivable)	0	0	0	0	0
5	Irrigated (Total Land)	0	0	0	0	0
6	Non-Irrigated (Total Land)	141	100	2743	19.5	7.78
	Total Land	141	100	2743	19.5	7.78

3.8 Pattern of Cultivation

57. In the project area Bajra and Jawar are grown mostly by the households covered. Among the households those have agricultural land 60 % cultivates Bajra and 97 % cultivates Jawar. The average yield of Bajra is about 5.73 quintals per acre and Jawar 4.3 quintals. Details are given in Table 3.14.

Table 3.14 Cropping pattern and average yield

Sl.No.		No. of Households	Total area under cultivation	Total yield in quintals	Average Yield in quintals
1	Bajra	84 (60 %)	331.2 acres	1898 quintals	5.73 quintals

2	Jawar	137 (97 %)	702.4	3021 quintals	4.3 quintals

3.9 Live stock

58. Animal husbandry is a major occupation of the households living in the project area. About 82 % of the households reported having live stocks at their respective households. For details refer Table 3.15.

Table 3.15 Percentage of Household having live stocks

Sl.No.	Whether the household Possess livestock	Frequency	Percent
1	Yes	329	82
2	No	71	18
	Total	400	100

59. As evident form table 3.15, about 329 households reported having live stocks. Among these households about 86 % are having goat, 38 % possess cow and nearly 20 % possess sheep. Among the live stocks sheep average possession is more followed by goats at the household level. For details please refer table 3.16.

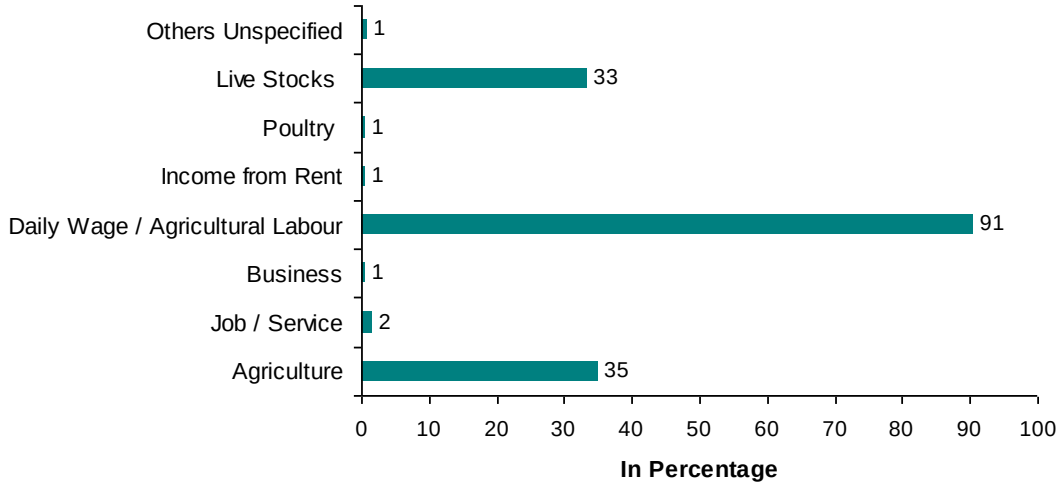
Table 3.16 Average Possession of live stocks

Sl.No.	Type of Live Stocks	Frequency	Percent	Total Numbers	Average possession
1	Bullock	2	0.6	2	1
2	Cow	126	38.3	218	1.73
3	Buffalo	4	1.2	16	4
4	Goat	283	86.0	1579	5.58
5	Sheep	64	19.5	854	13.34
6	Camel	9	2.7	11	1.22
7	Horse	2	0.6	2	1
8	Donkey	2	0.6	2	1
	Total	329	100.0	2684	8.16

3.10 Sources of Earnings

60. The households besides single sources also have different other sources of earnings. In the surveyed project area it was found that the major earning was from labour (daily wages and seasonal) followed by agriculture as farmers. Besides these two sources, about 33 % of the households also earned from animal husbandry. Income from jobs is very rare in the project area. Details are shown in Figure 3.2.

Figure 3.2 Sources of Household Income



3.11 Average earnings from different reported Sources

61. The total average annual income from all the sources is rupees 51,638/-. Income from daily wage labour contributes to the maximum earnings and is followed by farming and cultivation. However the average income from job / services is rupees 1,04,000/- is the highest among all the sources in the project area followed by income from business. For details refer Table 3.17.

Table 3.17 Average incomes from different sources

Sl.No.	Source of Income	No. of Households	%Age of HH	Total annual Income in INR	Average annual Income in INR
1	Agriculture	140	35	4429000	31636
2	Job / Service	6	1.5	624000	104000
3	Business	2	0.5	79000	39500
4	Labour (Daily wage/ seasonal, etc)	362	90.5	13649000	37704
5	Rent	2	0.5	68000	34000
6	Poultry	2	0.5	20000	10000
7	Animal Husbandry	133	33.25	1722000	12947
8	Others	3	0.75	64000	21333
9	Total HH Income	400	100	20655000	51638

3.12 Itemised annual average expenditure

62. The average annual expenditure of the households is INR 48,696. Among the households about 64.43 % of the expenditures are incurred on food which is relatively high. The next highest average expenditure is on social function and which is about 13 %. The expenditure on education is less than 1 % which also corroborates with the low education among the households in the project area. For details refer Table 3.18.

Table 3.18: Annual expenditure pattern

Sl.No.	Items	HH Reported	Average annual expenditure in INR	Total expenditure in INR	% age to the total expenditure
1	Cooking fuel	191	2614	499274	2.56
2	Electric bill	85	3191	271235	1.39
3	Communication (telephone/mobile)	301	2418	727818	3.74
4	Food	400	31376	12550400	64.43
5	Transport	389	2597	1010233	5.19
6	Entertainment	3	22800	68400	0.35
7	Education	105	1746	183330	0.94
8	Clothes/ shoes	397	4049	1607453	8.25
9	Social function (rituals, marriage, etc)	397	6449	2560253	13.14
	Total Expenditure	400	48696	19478396	100.00

3.13 Indebtedness

63. Out of 400 households only 1 % of the households reported have taken a loan from different sources. For details refer Table 3.19.

Table 3.19: Percentage of households taken loan

Sl.No.	Taken Loan	Frequency	Percent
1	Yes	4	1
2	No	396	99
	Total	400	100

3.14 Average loan amount

64. The average loan amount is rupees 72,500/-. For details refer Table 3.20.

Table 3.20 Average Loan Amount

Sl.No.	In Rupees	Frequency	Percent
1	5000	1	25
2	20000	1	25
3	75000	1	25
4	190000	1	25
5	Total	4	100
	Average Loan Amount in INR	72500	

3.15 Use of Loan Amount

65. Out of the 4 households those reported of taking a loan 50 % of them used for meeting medical expenses and buying food. One each of the household used the loan amount to start a business, used on social obligation or meet daily expenses. For details refer Table

3.21.

Table 3.21 Reported use of the burrowing

Sl.No.	Usages	Frequency	Percent
1	Meeting the medical expenses	2	50
2	To start/upgrade business	1	25
3	Social obligation (Marriage / rituals / funerals)	1	25
4	On food	2	50
5	To meet the daily Expenses	1	25
6	Total	4	100

66. Three of the households taken loan from private money lenders and only one taken from the government source. Among the loaner only one household admitted of able to repay ion time, and the other 3 household could repay sometimes. For details refer Table 3.22.

Table 3.22 Management of repayment of loan

Sl.No.	Do you manage to make your repayments on time	Frequency	Percent
1	Yes, always	1	25
2	Some times	3	75
3	No	0	0
	Total	4	100

3.16 Migration

67. Out migration in search of job and work is very rare in the project area. Only 6 families admitted of a family member migrated outside for work. For details refer Table 3.23.

Table 3.23 Migration of household members

Sl.No.	Response	Frequency	Percent
1	Yes	6	1.5
2	No	394	98.5
3	Total	400	100

3.17 Types of Migration

68. Among the 6 households those reported of migration, only a single member of the family have migrated. For details refer Table 3.24.

Table 3.24 Types of migration

Sl.No.	Migration types	Frequency	Percent
1	Individually	6	100
2	With Family	0	0

	Total	6	100

69. Two third of the households reported migration within the district. In one fothe families the individual migrated to other districts and one family reported that the family member has migrated to outside of the country. For details refer Table 3.25.

Table 3.25 Place of Migration

Sl.No.	Place	Frequency	Percent
1	Within the district	4	67
2	Other districts	1	17
3	Outside of the state	1	17
4	Total	6	100

3.18 Conclusions

70. The average family size of the sampled household is found to be 4.66. The sex ratio of the households is 785 females for 1000 males which is also very low. And the literacy rate in the project area is very low in comparison to Jodhpur district and Rajasthan as a sate. The literacy rate is only 29 %.

71. Poor quality of education is very much prevailing in the project area, complete absence of early education for the children is also seen as only 31 % of the children in the age group of 4 to 5 years are found to be enrolled. Among the children in the age group of 6 to 15 years nearly half of them are illiterate. Similarly among the adolescents and youth about 63 % are illiterates and among the literates in this age group very few were found to be graduates. in the age group of 6 to 17 years about 46 % are found to be never enrolled in any school and this is about 51 % for the females.

72. Farming and agricultural labourers found to be major occupation trend for the adult members in the project area. Animal husbandry is a major occupation for the households, but most of them unable to perceive this as a profession. Only 3 % of the households reported to be engaged in animal husbandry in the age group of 18 years and above but latter on it was found that about 82 % of the households have live stocks in their respective families. White collar Jobs is very restricted in the project area as only 2 % males are engaged in this sector. A single wage earner was found in 75 % of the households. From the group discussion it was found that most of the women in the households are engaged in animal husbandry, but from the socio-economic survey it was found that in only 3 % of households a woman is earning.

73. In household assets besides a phone / mobile phone, Electric fan, radio and bicycle, none of the other durable goods are possessed by any of the households and a little more than one third (35 %) reported of possessing agricultural land. The average possession of agricultural land is 7.78 acres. All the lands are cultivable but non-irrigated. In the project area Bajra and Jawar are grown mostly by the households covered. Among the households those have agricultural land 60 % cultivates Bajra and 97 % cultivates Jawar. The average yield of Bajra is about 5.73 quintals per acre and Jawar 4.3 quintals. About 82 % of the households reported having live stocks at their respective households. Among these households about 86 % are having goat, 38 % possess cow and nearly 20 % possess sheep. Among the live stocks sheep average possession is more followed by goats at the household level.

74. The total average annual income from all the sources is rupees 51,638/-. In the

surveyed project area it was found that the major earning was from labour (daily wages and seasonal) followed by agriculture as farmers. Besides these two sources, about 33 % of the households also earned from animal husbandry. Income from jobs is very rare in the project area. The total average annual income from all the sources is rupees 51,638/-. Income from daily wage labour contributes to the maximum earnings and is followed by farming and cultivation.

75. Among the households about 64.43 % of the expenditures are incurred on food which is relatively high. The next highest average expenditure is on social function and which is about 13 %. The expenditure on education is less than 1 % which also corroborates with the low education among the households in the project area. Loan and migration is very rare in the project area.

76. The findings suggest that the majority of the households are from lower economic background having limited access to skilled based jobs. Majority are employed as daily wage agricultural labourer which is always seasonal.

CHAPTER 4: HEALTH

77. This chapter provides a detailed account the health facilities available and treatment seeking places, reasons for preferences, contact with health workers and the types of health messages usually received by the respondents.

4.1 Treatment seeking Places

78. The respondents were asked on the places where they usually visit if some one falls ill in their families. Majority about 94 % of the households reported that they visit a government health facility or a government doctor. Only 6 % of the households visit a private health facility. Details are shown in Table 4.1

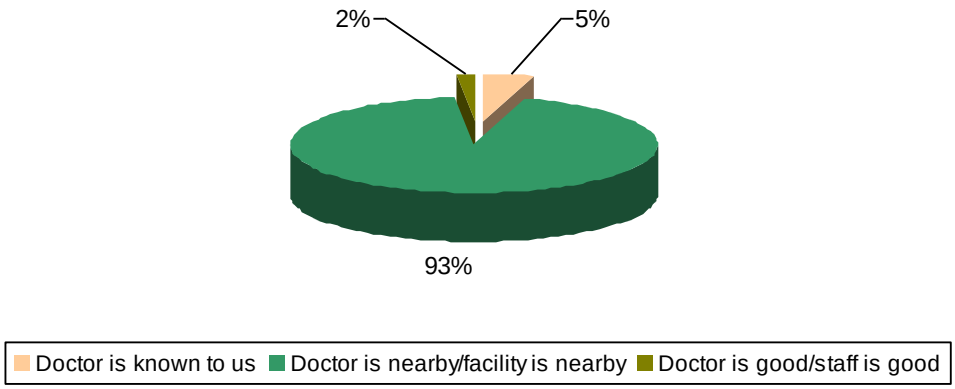
Table 4.1 Treatment seeking Place

Sl.No.	Places	Frequency	Percent
1	Private Doctor/Clinic	23	6
2	Government Doctors/Health Centres	377	94
3	Total	400	100

4.2 Reasons for Preferring the Health Facilities

79. Most of the households depend on the government health facilities for treatment. They prefer the health facility because of the distance. The availability of private facilities is very limited in the project area. Details are shown in Figure 4.1

Figure 4.1 Reasons for prefering the Facilities



4.3 Nearest Health Facilities

80. The villages in the project area are very remotely located. Many of the villages do not have primary health care service providers near to the villages. About 55 % of the households reported of accessing the government hospitals which are nearest to their respective villages. About 9 % access sub centres and nearly one third access health services from either a primary health centre or a community health centre. For details refer Table 4.2.

Table 4.2 Nearest health facility to the village

Sl.No.	Types of facilities	Frequency	Percent
1	Sub centre	35	9
2	PHC/CHC	141	35
3	Govt. Hospital	221	55
4	Facility by NGO	1	0
5	RMP	1	0
6	Total	400	100

4.4 Location and Distance of the Health Facility

81. About 36 % of the households reported the presence of a health facility within the village. For the rest 64 % of the household a health facility is available outside of their respective villages. For details refer Table 4.3.

Table 4.3 Location of the Health Facilities

Sl.No.	Location	Frequency	Percent
1	Within the Village	143	36
2	Outside the Village	257	64
	Total	400	100

82. The average distance of the health centre is from the villages covered is 24 kilometres, which is very far for the resident population in the project area. For nearly one third of the household a nearest health centre is available within 5 kilometres. For one fifth of the household the health facility is 6 to 10 kilometres away from the village. For 42 % of the households the nearest health facility is more than 30 kilometres. For details refer Table 4.4.

Table 4.4 Distances of the Health Facilities

Sl.No.	Distance in KMs	Frequency	Percent
1	Up to 5 Kms	83	32
2	6 to 10 Kms	52	20
3	11 to 20 Kms	1	0
4	21 to 30 Kms	13	5
5	31 to 40 Kms	52	20
6	Above 40 Kms	56	22
7	Total	257	100
8	Average Distance	24 Kms	

4.5 Modes of Transport

83. The availability of public transport system is very limited in the project area. About 76 % of the households use private transport facility for accessing the health facilities. Only 17 % of the households prefer public transport. For details refer Table 4.5.

Table 4.5 Modes of transport available to reach the facility

Sl.No.	Transport	Frequency	Percent
1	Public transport	43	17
2	Vehicle from health facility	4	2
3	Pvt. Transport	196	76
4	Bullock cart	5	2
5	Others	9	4
6	Total	257	100

4.6 Health Workers

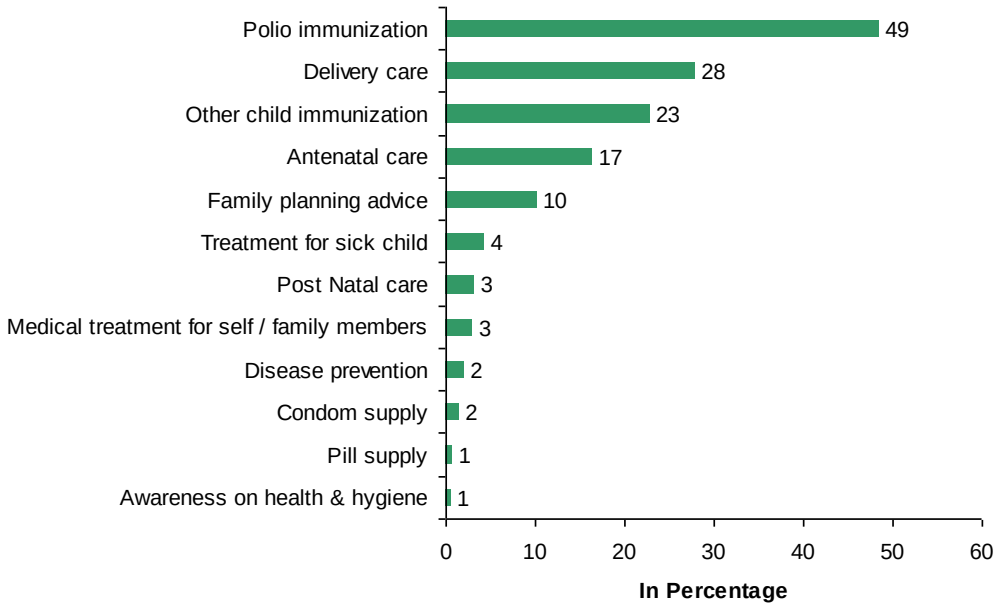
84. The respondents were asked whether any health workers ever contacted them during the last six months preceding the survey. About 54 % admitted of having a contact. For details refer Table 4.6.

Table 4.6 Contact with Health workers during the last 6 months

Sl.No.	Response	Frequency	Percent
1	Yes	215	54
2	No	185	46
	Total	400	100

85. A further probing was made on the types of services rendered by the health workers. The health contacts are mostly for polio immunization and other child immunization. Nearly 49 % admitted of getting the services of polio immunization and 28 % of the respondents received knowledge on delivery care. Some of the respondents also received message on ante natal and family planning advices. For details refer Figure 4.2.

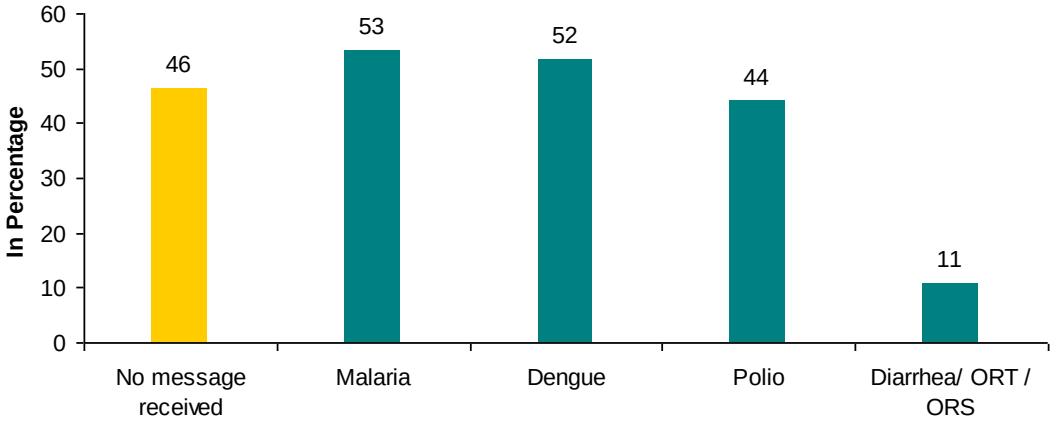
Figure 4.2 Services received from the health workers



4.7 Health Messages

86. Among the sampled households about 46 % of the respondents didn't received any health messages during the last 6 months. However among those received any health messages about half of them admitted of receiving message on Dengue and Malaria. Similarly about 44 % of the household admitted of receiving messages on polio immunisation. Only 11 % of the households received messages on Diarrhoea / Oral rehydration. Details are shown in Figure 4.3.

Figure 4.3 Types of health messages received



4.8 Sources of Health Messages

87. Almost all the respondents admitted health workers are the best sources of getting messages on health in the project area. For details refer Table 4.7.

Table 4.7 Source of Health Messages

Sl.No.	Source of Health Messages	Frequency	Percent
1	Newspaper	1	0.5
2	Radio	3	1
3	Street play	3	1
4	Banners /Bill boards	2	1
5	Govt. Health Workers	212	99
6	NGO Health workers	1	0.5
7	Total	215	100

4.9 Child Birth

88. About 7 % of the household reported that a child is born at their household during the last one year. For details refer Table 4.8.

Table 4.8 Delivery of a child at the Household

Sl.No.	Whether a child delivered	Frequency	Percent
1	Yes	27	7
2	No	373	93
	Total	400	100

4.10 Place of Delivery

89. It is important to note that in the project area about 96 % of the deliveries are happening at home. This is due to long distance of the health facilities and lack of public transport system. For details refer Table 4.9.

Table 4.9 Place of Delivery

Sl.No.	Places	Frequency	Percent
1	At home	26	96
2	At govt. health facility	1	4
	Total	27	100

4.11 Person Assisted in Home Delivery

90. About 89 % of the home deliveries are assisted by local quacks. The other 3 deliveries are assisted by trained professionals. For details refer Table 4.10.

Table 4.10 Place of Antenatal Check ups

Sl.No.	Places	Frequency	Percent
1	Doctor	1	4
2	ANM / LHV	2	7
3	Local quacks	24	89
	Total	27	100

4.12 Conclusions

91. Majority about 94 % of the households reported that they visit a government health facility or a government doctor for treatment. They prefer the health facility because of the distance. The villages in the project area are very remotely located. Many of the villages do not have primary health care service providers near to the villages. About 55 % of the households reported of accessing the government hospitals which are nearest to their respective villages. 64 % of the household a health facility is available outside of their respective villages. The average distance of the health centre is from the villages covered is 24 kilometres, which is very far for the resident population in the project area. About 76 % of the households use private transport facility for accessing the health facilities. About 54 % admitted of having a contact with a health worker during the last 6 months preceding the survey. The health contacts are mostly for polio immunization and other child immunization. Among the sampled households about 46 % of the respondents didn't received any health messages during the last 6 months. Half of them those received health messages admitted of receiving message on Dengue and Malaria and polio immunisation. Almost all the respondents admitted health workers are the best sources of getting messages on health in the project area. It is important to note that in the project area about 96 % of the deliveries are happening at home. Only 11 % of the home deliveries are assisted by trained professionals.

CHAPTER - 5: Women Participation

92. This chapter discuss about the women in the project area. Besides analysing the socio-economic survey data for understanding the gender role in the project area about 6 focus group discussions are held with 6 groups belonging to different villages in the project area. In each FGDs about 6 to 8 women participated. This chapter discuss about their economic participation, their participation in decision making at the household and community level, and health status. The perception on their safety and mobility is also analysed.

5.1 Women's Participation household Decision Making & Political Participation:

93. At the family level the participation of women in the decision making process is very positive as evident from both socio-economic survey and the FGDs. All the women admitted that irrespective of the women either earning or not earning, the women have an equal say in the household decision making process. However at the village level or community the role of the women is very low. There is no women group which is working on the empowerment of the women in the project area. None of the women are found to be members of any self help group of any civil society. Most of the women are from Muslim community, thus but the Burkha (veil) system is not so prevalent.

94. In the project area women's participation in different household decision making is very stronger. Almost all the households reported that the women have an equal share in all the households' decision making. The details are given in Table 5.1.

Table 5.1 Women's Participation in Household's Decision Making

Sl.No.	Types of Participations	Frequency	Percent
1	Financial matters	392	98
2	Education of child	396	99
3	Health care of child	395	99
4	Purchase of assets	395	99
5	Day to day activities	393	98
6	On social functions and marriages	395	99
	Total	400	100

95. In none of the villages women are found be politically active. There is involvement of the women in the village Panchayat but they are not active in decision making process. The male counterparts represent the women in the political forum on behalf of the elected women.

5.2 Women's Participation in Economic Activities:

96. From the FGDs it follows that the role of the women is not restricted to the daily household's activities in the project area. All the women stated that they are responsible in collecting water, cooking, washing utensils, taking care of the children, cleaning, etc as household activities. Animal husbandry is one of the major activities in the project area. From the socio-economic survey it follows that about 82 % of the households have possessed live stocks at their families. Cow, goats and sheep are the important cattle possessed by these households. Most of the women admitted that they are also responsible to feed the animals, collect fodders and even some of the women folk are responsible to take these cattle to grazing fields. Very few women admitted of doing Labour work mostly in

agriculture field and this is mainly seasonal.

97. However the women desire to receive vocational training on tailoring and embroidery. Some of the groups admitted that some NGOs had a discussion with the women to initiate some training on making papads, candle, and other value added food products. The women showed interest to participate but the initiatives promised were never undertaken.

98. During the implementation of the project vocational trades involving the NGOs may be initiated for women to empower them by providing skills on tailoring, embroidery, food products etc. as cattle rearing is one of the major occupation of the people therefore some milk processing units and small scale industries to produce ghee, and other milk products can also be initiated with the provision of market linkages.

99. Among the genders there are discrepancies in the wages for the males and the females. According to the prevailing government rate Rs. 114 /- is fixed for both the genders. However for the same work and same duration if the men are paid Rs. 200/- then the women are paid Rs. 150/-. Among the men the wages varies form Rs. 200/- to Rs. 500/- or more according to their skills and competencies but for the women this is not beyond RS.150/- in any case.

5.3 Leisure Activities:

100. There is no opportunity for the women to spend time in leisure activities. Most of the time is spend in household activities. From the socio-economic survey it is found that only 23 % of the households are electrified. Among the electrified houses also television and radio is rarely possessed by any households. Watching any TV programs or listening to radio is a complete absence in the project area for the women. As the villages are far off from the urban towns, thus visiting these places for shopping or watching a cinema is a rare. From the FGDs it is found that most of the women stated that almost all the time are spent on household activities and animal husbandry. However some of the women admitted that gossiping with their peers in the neighbourhood is a major leisure activity for them. Besides this if time permits then occasionally they take a nap during the day time after lunch.

5.4 Perception on Education:

101. All the women covered during the FGDs admitted that education has a greater role for the empowerment of the women and the entire population. They feel that education of the women can ensure them in taking important role in decision making, whether in the family or community matters. They feel that for an educated girl it is easier to get a boy for marriage than for an uneducated girl. Now a days every one are looking for an educated girl for marriage. Education is important for there are lot of problems in seeking education. In most of the villages, a primary school is available but the teachers are not regular and the quality of education is very poor. Beyond primary there is no upper primary or high school located in the near by area which hampers better education for the children both for the boys and the girls. As transport facilities are not available it is difficult to send girl child to far off places for getting upper primary and secondary education. Among the resident population most of them studies till primary level and very few could achieve upper primary level of education. The women feel that high schools should be available in nearby places and easy public transport system should be available. Otherwise higher education beyond primary level will always remain as a problem. The women cited that non availability of high school in the near by area and the poor public transportation is a major obstacle in the school dropouts of both boys and girls after primary level. In some of the families the girl child is mostly illiterate as there is no quality education at the village level and the girls therefore helps in the conduct of

the household activities.

102. It is thus very important that interventions need to be designed so as to initiate upper primary and secondary level of education in the villages. The population among both the genders may be provided with educational support after the primary level in terms of coaching classes and may be linked with National Open School System (NIOS) to complete their education till the secondary level.

5.5 Vocational Education:

103. During the FGDs it was probed for any vocational skills education imparted by either government or NGO sector. None of the women admitted of any vocation learning system functioning in the project area. However some of the groups showed interest to learn tailoring and embroidery and feel that this skill will help them in earning to some extent.

5.6 Health Issues:

104. All the women of the surveyed villages covered admitted of visiting a government health facility for treatments. On health ailments affecting the women none of the group could assertively state the problems affecting them. Many women in the group stated that lack of public transport often hampers them to visit any health centres for treatment of ailments. Most of the health centres are far from their respective villages. It is important to note that almost all the deliveries are happening at home and very rarely attended by any trained birth attendants. However from the observations made most of them are anaemic. A blood screening will further explain the incidence of anaemia. The awareness on how to control anaemia among the women and young adolescent girls is limited among the women covered. The health contacts by any health worker in the project area are rare episode. The pregnant women also suffers as she could not able to get proper ante natal care as most of the health facilities are far from the respective villages.

5.7 Perception on Safety during Day & Night Time:

105. In the project the safety issue during day and night time for the women and children differ to great extend. Most of the households about 98 % feel safe during day time where as about 47 % feel safe during the night time. About 51 % of the households do not feel safe during the night for the women and children during the night time in the project area. The most obvious reason is absence of street lighting. The details are given in Table 5.2.

Table 5.2 Perception on the safety of women and children

Sl.No.	Perception	Day Time		Night Time	
		Frequency	Percent	Frequency	Percent
1	Yes	390	98	186	47
2	To some extent	5	1	12	3
3	No	5	1	202	51
	Total	400	100	400	100

5.8 Perception on their Mobility:

54. On mobility for marketing, going outside for work, accessing educational institute, etc about 97 % feel safe on the mobility during the day time for the women and children. The details are given in Table 5.3.

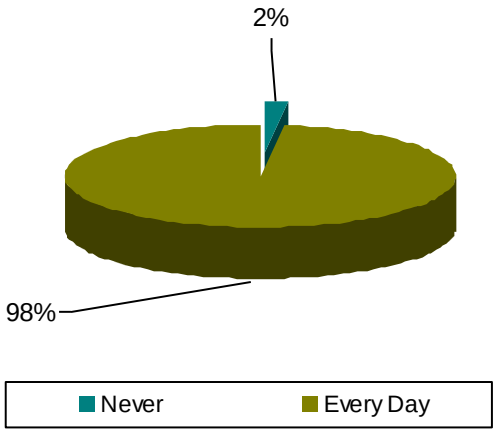
Table 5.3 Perception on their Mobility

Sl.No.	Perception	No	%Age
1	Can move freely	3	1
2	Only during the day time	388	97
3	No cannot move freely	9	2
4	**Total**	400	100

5.9 Incidence of Women Going Outside to Fetch Water:

106. In the project area almost all the households go outside every day to fetch water. It is found that this responsibility is on the women of the households. About 98 % households reported that the women fetch water from outside sources. For details refer Figure 5.1.

Figure 5.1 Incidence of Women going outside to fectch water (N=400)



5.10 Access to Water from outside:

107. About 63 % of the households admitted that the women of their households have easy access to water from outside sources. The details are given in Table 5.4.

Table 5.4 Percentage of women reported easy access to water

Sl.No.	Easy Access to water	No	%Age
1	Yes	253	63
2	No	147	37
	Total	400	100

5.11 Access to Toilets and Bathing Place in the Evening Time:

108. As discussed almost all the households don't have toilets, therefore most of the households visit outside for defecating and bathing. About 46 % of the households feel that they don't have easy access to go outside during the evening time. For details refer Table 5.5.

Table 5.5: Access to Public Toilets / Outside Places during Evening time

Sl.No.	Can Easily Access	No	%Age
1	Yes	184	46
2	No	216	54
3	Total	400	100

5.12 Conclusions

109. At the family level the participation of women in the decision making process is very positive as evident from both socio-economic survey and the FGDs. All the women admitted that irrespective of the women either earning or not earning, the women have an equal say in the household decision making process. However at the village level or community the role of the women is very low. There is no women group which is working on the empowerment of the women in the project area. None of the women are found to be members of any self help group of any civil society. Most of the women are from Muslim community, thus but the Burkha (veil) system is not so prevalent. In the project area women's participation in different household decision making is very stronger. In none of the villages women are found be politically active. There is involvement of the women in the village Panchayat but they are not active in decision making process. The male counterparts represent the women in the political forum on behalf of the elected women.

55. All the women stated that they are responsible in collecting water, cooking, washing utensils, taking care of the children, cleaning, etc as household activities. Animal husbandry is one of the major activities in the project area. From the socio-economic survey it follows that about 82 % of the households have possessed live stocks at their families. Cow, goats and sheep are the important cattle possessed by these households. Most of the women admitted that they are also responsible to feed the animals, collect fodders and even some of the women folk are responsible to take these cattle to grazing fields. Among the genders there are discrepancies in the wages for the males and the females.

110. There is no opportunity for the women to spend time in leisure activities. Most of the time is spend in household activities. However some of the women admitted that gossiping with their peers in the neighbourhood is a major leisure activity for them. Literacy rate among the women is very low.

111. None of the women admitted of any vocation learning system functioning in the project area. However some of the groups showed interest to learn tailoring and embroidery and feel that this skill will help them in earning to some extent.

112. On health ailments affecting the women none of the group could assertively state the

problems affecting them. Many women in the group stated that lack of public transport often hampers them to visit any health centres for treatment of ailments. It is important to note that almost all the deliveries are happening at home and very rarely attended by any trained birth attendants. However from the observations made most of them are anaemic.

113. In the project the safety issue during day and night time for the women and children differ to great extend. Most of the households about 98 % feel safe during day time where as about 47 % feel safe during the night time. On mobility for marketing, going outside for work, accessing educational institute, etc about 97 % feel safe on the mobility during the day time for the women and children. In the project area almost all the households go outside every day to fetch water. About 46 % of the households feel that they don't have easy access to go outside during the evening time

CHAPTER-6: CONCLUSIONS AND RECOMMENDATIONS

Key Findings:

6.1 General

114. Among the surveyed households majority about 87 % belong to Muslim community. Similarly majority of the households about 86 % are from other back ward castes and nearly two-third families are nuclear. From the types of houses it can be inferred that the people of the project area belong to poor socio-economic condition as only 4 % of the households are Pucca. Moreover only 30 % of the households are having a separate room used as a kitchen..

115. The average family size of the sampled household is found to be 4.66. The sex ratio of the households is 785 females for 1000 males which is also very low. And the literacy rate in the project area is very low in comparison to Jodhpur district and Rajasthan as a sate. The literacy rate is only 29 %.

6.2 Basic Infrastructure

116. Availability of water at the doorstep is not seen in the project area. For drinking water most of the households are dependent on public well and canal for drinking water. Almost all the households i.e. 100 % fetch water from outside every day in a week and the average time taken to collect water from outside sources is 29 minutes. Similarly it is important to note that about 93 % of the household are having no toilet facilities and use open space for defecation. Only about 23 % reported having electricity but 99 % of the household use battery and 96 % use kerosene for the purpose of lighting in the households. For cooking almost all the households about 98 % use woods as cooking fuel

6.3 Household Economy

117. Farming and agricultural labourers found to be major occupation trend for the adult members in the project area. Animal husbandry is a major occupation for the households, but most of them unable to perceive this as a profession. Only 3 % of the households reported to be engaged in animal husbandry in the age group of 18 years and above but latter on it was found that about 82 % of the households have live stocks in their respective families. White collar Jobs is very restricted in the project area as only 2 % males are engaged in this sector. A single wage earner was found in 75 % of the households. From the group discussion it was found that most of the women in the households are engaged in animal husbandry, but from the socio-economic survey it was found that in only 3 % of households a woman is earning.

118. In household assets besides a phone / mobile phone, Electric fan, radio and bicycle, none of the other durable goods are possessed by any of the households and a little more than one third (35 %) reported of possessing agricultural land. The average possession of agricultural land is 7.78 acres. All the lands are cultivable but non-irrigated. In the project area Bajra and Jawar are grown mostly by the households covered. Among the households those have agricultural land 60 % cultivates Bajra and 97 % cultivates Jawar. The average yield of Bajra is about 5.73 quintals per acre and Jawar 4.3 quintals. About 82 % of the households reported having live stocks at their respective households. Among these households about 86 % are having goat, 38 % possess cow and nearly 20 % possess sheep. Among the live stocks sheep average possession is more followed by goats at the

household level.

119. The total average annual income from all the sources is rupees 51,638/-. In the surveyed project area it was found that the major earning was from labour (daily wages and seasonal) followed by agriculture as farmers. Besides these two sources, about 33 % of the households also earned from animal husbandry. Income from jobs is very rare in the project area. The total average annual income from all the sources is rupees 51,638/-. Income from daily wage labour contributes to the maximum earnings and is followed by farming and cultivation.

120. Among the households about 64.43 % of the expenditures are incurred on food which is relatively high. The next highest average expenditure is on social function and which is about 13 %. The expenditure on education is less than 1 % which also corroborates with the low education among the households in the project area. Loan and migration is very rare in the project area.

121. The findings suggest that the majority of the households are from lower economic background having limited access to skilled based jobs. Majority are employed as daily wage agricultural labourer which is always seasonal.

6.4 Health

122. Majority about 94 % of the households reported that they visit a government health facility or a government doctor for treatment. They prefer the health facility because of the distance. The villages in the project area are very remotely located. Many of the villages do not have primary health care service providers near to the villages. About 55 % of the households reported of accessing the government hospitals which are nearest to their respective villages. 64 % of the household a health facility is available outside of their respective villages. The average distance of the health centre is from the villages covered is 24 kilometres, which is very far for the resident population in the project area. About 76 % of the households use private transport facility for accessing the health facilities. About 54 % admitted of having a contact with a health worker during the last 6 months preceding the survey. The health contacts are mostly for polio immunization and other child immunization. Among the sampled households about 46 % of the respondents didn't received any health messages during the last 6 months. Half of them those received health messages admitted of receiving message on Dengue and Malaria and polio immunisation. Almost all the respondents admitted health workers are the best sources of getting messages on health in the project area. It is important to note that in the project area about 96 % of the deliveries are happening at home. Only 11 % of the home deliveries are assisted by trained professionals.

6.5 Gender

123. At the family level the participation of women in the decision making process is very positive as evident from both socio-economic survey and the FGDs. All the women admitted that irrespective of the women either earning or not earning, the women have an equal say in the household decision making process. However at the village level or community the role of the women is very low. There is no women group which is working on the empowerment of the women in the project area. None of the women are found to be members of any self help group of any civil society. Most of the women are from Muslim community, thus but the Burkha (veil) system is not so prevalent. In the project area women's participation in different household decision making is very stronger. In none of the

villages women are found be politically active. There is involvement of the women in the village Panchayat but they are not active in decision making process. The male counterparts represent the women in the political forum on behalf of the elected women.

124. All the women stated that they are responsible in collecting water, cooking, washing utensils, taking care of the children, cleaning, etc as household activities. Animal husbandry is one of the major activities in the project area. From the socio-economic survey it follows that about 82 % of the households have possessed live stocks at their families. Cow, goats and sheep are the important cattle possessed by these households. Most of the women admitted that they are also responsible to feed the animals, collect fodders and even some of the women folk are responsible to take these cattle to grazing fields. Among the genders there are discrepancies in the wages for the males and the females.

125. There is no opportunity for the women to spend time in leisure activities. Most of the time is spend in household activities. However some of the women admitted that gossiping with their peers in the neighbourhood is a major leisure activity for them. Literacy rate among the women is very low.

126. None of the women admitted of any vocation learning system functioning in the project area. However some of the groups showed interest to learn tailoring and embroidery and feel that this skill will help them in earning to some extent.

56. On health ailments affecting the women none of the group could assertively state the problems affecting them. Many women in the group stated that lack of public transport often hampers them to visit any health centres for treatment of ailments. It is important to note that almost all the deliveries are happening at home and very rarely attended by any trained birth attendants. However from the observations made most of them are anaemic.

127. In the project the safety issue during day and night time for the women and children differ to great extend. Most of the households about 98 % feel safe during day time where as about 47 % feel safe during the night time. On mobility for marketing, going outside for work, accessing educational institute, etc about 97 % feel safe on the mobility during the day time for the women and children. In the project area almost all the households go outside every day to fetch water. About 46 % of the households feel that they don't have easy access to go outside during the evening time

6.6 Key challenges

128. In most of the villages, a primary school is available but the teachers are not regular and the quality of education is very poor. This is the reason as many children are found to be never enrolled in schools. Beyond primary there is no upper primary or high school located in the near by areas which hampers better education for the children both for the boys and the girls. As transport facilities are not available it is difficult to send girl child to far off places for getting upper primary and secondary education. Among the resident population most of them studies till primary level and very few could achieve upper primary level of education.

129. The accessibility to primary health centre is also another problem for most of the villagers. Home deliveries without the support of the trained professionals are widely prevalent in the project area. The youth employability is mostly on agriculture as daily wage labourer. Skill based training is not there for the youths staying in the villages. The women engagement in the productive jobs is very limited.

6.7 Key Strategies

130. Out of the detailed analysis, some of the strategies are proposed to be adopted as part of the recommendations. Following are the details.

6.7 Recommendations

6.7.1 Making use of progressive government initiatives

131. Apart from providing basic infrastructure on health and education, Government has a large number of schemes aimed at socially and economically disadvantaged people. In its efforts towards poverty reduction, the Department of Rural Development has developed several special initiatives with considerable interventions under its various schemes. The primary objective of these initiatives has been to develop income generating activities so that families living below the poverty line can earn livelihood in a sustainable manner. The special initiatives, with the support of high technical inputs aim at creating and developing these enterprises to the extent that they are at par with the best in the country, and not simply at the level of cottage industries. The common objectives underlying all the special initiatives have been to:

- Ensure maximum coverage of families living below the poverty line in an assured manner
- Provide the best possible technology that can be maintained and utilized by the poor with local resources
- Hand-hold the beneficiaries on a medium-term basis so that the initiatives are self-sustainable
- Provide forward and backward linkages for sustainability of the new enterprises; and
- Provide training, capacity-building and skill up-gradation to the youth and women identifying their interest and possible linkage with the market.

132. A wide spectrum of development programmes to effect change in the rural areas are implemented by the Department of Rural Development. These programmes are aimed at poverty reduction, employment generation, infrastructure development and social security. Over the years, the programmes have been modified and new programmes have been launched in order to better respond to the needs of the rural poor. Initiatives may be taken to establish linkages with these programmes and get maximum benefit for the local population.

6.7.2 Engaging with/and partnership with NGO

133. NGOs promote social development and are called voluntary organisations. For projects like this to execute and deliver their corporate social responsibilities, associating with them is an option. From the socio-economic baseline, village level consultations, it is clearly evident that education and health and services like public transportation are few of the major concerns that need to be addressed. In connection to these, few of the NGO's working on those issues has to be identified and a partnership with them needs to be developed. Besides education periodic health camps to screen the women and children health is a requirement. The identified patients may be referred to health facilities for their ailments. The strategic partnership with NGOs can serve the following purposes.

- Image building with local community, general public, government, international community (Managing community's perception)

- Sees values in pursuing sustainable development: Envisages a long term presence in the community and hence the issue around which community development is undertaken is directly linked to business activities.
- Promoting Diversity: In case of targeted community development and in some other cases, taking assistance of NGOs will promote equity for diverse population.

6.7.3 Community-Led Planning

134. Community-led planning is a step-by-step structured process of creating a holistic vision for a community or neighborhood. It is taken on by the community itself and is a process in which each and every citizen can participate in improving the quality of life within their locality. The vision covers social, economic, environmental and cultural well-being of the community and all those who live and work there. It is not just about land-use planning, and because it is led by local people, a wide range of issues are addressed in ways that are meaningful to the community itself. Dialogue within the community increases local people's understanding of the needs of all residents, particularly those disadvantaged by lack of mobility, lack of employment, or marginalized for other reasons. External facilitation and involvement of local authority officers, public service providers and elected members happens throughout the process, providing the bridge with wider community engagement strategies.

135. NGOs and Civil societies may be strengthened to act as an external facilitator and a community based program can be worked out with people's participation and by creating a core team within the community who will actively participate in planning and implementation of the scheme and ensuring participation of the entire community at every stage of the program. Community-led planning results in two types of outcome:

- Initiatives that local people and groups can do for themselves
- Actions that can be done by local groups, but which need some external resources

136. High schools should be available in nearby places and easy public transport system should be available. Otherwise higher education beyond primary level will always remain as a problem. The women cited that non availability of high school in the nearby area and the poor public transportation is a major obstacle in the school dropouts of both boys and girls after primary level. In some of the families the girl child is mostly illiterate as there is no quality education at the village level and the girls therefore helps in the conduct of the household activities.

137. It is thus very important that interventions need to be designed so as to initiate upper primary and secondary level of education in the villages. The population among both the genders may be provided with educational support after the primary level in terms of coaching classes and may be linked with National Open School System (NIOS) to complete their education till the secondary level.

Annexure-5: Summary Details on Consultations

Details of Public Consultations

General Perception about Project

1. People of the area are very positive towards this project which will give employment and development through income generation by selling of clean energy. The income generated by the project will insure better infrastructure development in the state and area.

2. Villagers of Bhadla also appreciated the engagement of local people in weather monitoring stations and solar plants (under construction) being developed by the different companies. The only matter of concern for the villagers was losing their encroached agriculture lands.

3. Similarly people staying in nearby area of proposed Solar park and substation site at Bhadla showed a positive response for the project as they felt that such projects will increase the importance of the area. However they wanted that priority in jobs should be given to local residents staying in nearby areas. They were also concerned regarding disturbance to public staying nearby area such as dust emissions during construction phase.

Support of local people for proposed project

4. All villages covered under the consultation were ready to support the project. According to the villagers, such type of projects leads to infrastructure improvement in all aspects and they are also ready to support such environmental friendly projects proposed by the government.

5. Villagers of the projected area near solar park assured full support to the solar park project as project will increase the employment potential and the area and it will also improve the quality of basic infrastructure facilities like road, education level, drinking water, electricity etc. The project will also increase the income generation activities by renting room, tractors, bullock carts etc.

Critical issue and concern by the local people for the project

6. The villagers demanded that the transmission line should avoid passing over through or nearby any habituated area and fertile lands. Villagers were concerned about the safety issues related to transmission line and requested proper education about probable harms of power transmission line to human and crops and required proper training to mitigate those harms. People also demanded for engaging local people during construction and operation phase.

7. For solar park, villagers did not raise any critical concern as the only issue of concern was losing encroached government owned agriculture land but this will generate employment opportunities within the village.

Precautions demanded by local people during project design, operation stage, and construction

8. Jodhpur and Jaisalmer districts of Rajasthan are very dry and agriculture which their primary source of income is totally dependent on rainfall and maximum land in the area is non-cultivable. People demanded that RRVPLN should avoid locating towers in agriculture land.

9. Villagers also demanded RRVPNL to avoid construction work during cropping season as the dust produced by construction may cause damage to crops.

Employment potential in the project

10. Almost all the villagers felt that the project will definitely increase the employment potential of the villages. Villagers showed interest in getting involved in small construction,

transportation, providing security and storage of material, and providing labour at the time of construction. Restaurants and shopkeepers near Bhap village informed that their business had increased 10 times after start of construction of solar park projects in nearby villages. The villagers felt that the increase in income from electricity generation to the state will also lead to development in area and additional employment opportunities.

Ethnic Minorities

11. No ethnic minorities or vulnerable people are residing in or nearby project area.

No of shops/commercial establishments

12. During consultation, it was noticed that at least one or two shops were present in all villages covered in the project area, which comprise of daily need shops, tea shops and flour mills. Large villages like Lohavat, Osian, Bhap, have their own markets comprising of all types of shops for daily need. For nearby area, major commercial establishment are situated in towns like Jodhpur, Osian, Phalodi, Nachana, Mohangarh and Ramgarh within 20 - 40 km area from all the villages.

Number of industrial units

13. Upcoming solar parks are situated in vicinity to the new industrial area in Jaisalmer and Jodhpur. Soapstone, Gypsum, limestone mines are abundant in the area with small part of area near Bhap also having saltpans and salt processing industries. Majority of villagers are involved in agriculture, animal husbandry and milk producing activities.

Socio economic standing: land use, cropping pattern

14. In most villages, the major occupation of the people was animal husbandry and agriculture. Most of the farmers have own lands and they are involved in works related to animal husbandry, and agriculture. Along with agriculture, few people have their small shops in village and some villagers are employed by government and in other industrial works like mining in other parts of state.

Sources of irrigation

15. Almost all the villagers are dependent upon rain water for agriculture. Some part of the Jodhpur and Jaisalmer districts are having direct irrigation by Indira Gandhi Canal. Many villagers are having tube wells as source of Irrigation but the quality of ground water is not very good for irrigation or drinking proposed due to high salt contents in water.

Access to Forest Land

16. There is no rich forest cover in nearby area. Dense plantations are seen only near Indira Gandhi Canal Area which has open access for villagers to collect wood and fodders for their daily uses.

Current rates for agricultural land

17. Buying and selling of land in the area has recently increased due to the increasing demand of land by solar power producers, the average cost of irrigated land in near about Rs. 70,000-1,00,000 per Bigha (1 Bigha=1,618 square meter of land) and for non-irrigated land it's about Rs 30,000 to 50,000 per Bigha.

Sources of power supply

18. All the areas covered during consultation were getting power from Jodhpur DISCOM. Some villagers also arranged small solar panel kits available in nearby markets as alternate source of electricity.

Source of drinking water

19. The sources of drinking water are very limited in the area. Only few villages in the area are connected by piped drinking water supply from Indira Gandhi Canal. Maximum

villages are getting water from own ground water sources or water coming from nearby villages for drinking and daily need at a common place in a village. Availability of water is often a problem during the summers and water quality is not good due to high salt contents in ground water.

Shortage of water

20. Availability of water is a problem in entire area except villages nearby Indira Gandhi Canal. Villagers made their own water harvesting tanks for storage of rain water which can be utilized throughout the year, some of these tanks are supported by government for Irrigation and other daily uses.

21. In the project area, agriculture is only seasonal and highly dependent on rains. Only few villages along the transmission lines area are covered by canal for irrigation proposes. Government is promoting drip and sprinkler system for irrigation over traditional flood irrigation system or better management of water resources in the area.

Protected areas

22. There are no protected areas within 10 km vicinity of sub-projects. The nearest wildlife sanctuary is Desert national Park which is around 35 km away from the nearest project transmission line and around 130 km away from solar park site. This sanctuary does not have any negative impact due to project activities.

Health status

23. General health status of villagers is good. There have been no chronic diseases or health disaster or outburst of any disease is reported in recent past. In most of the villages primary health centres are not present, but they are available within area of 5 to 25 km from village, the people usually travel towards nearby town to access medical services such as Chinnu, Nokh, Bhap, Phalodi, Osian, Nachana, Mohangarh, Ramgarh, and Jaisalmer. Villagers are aware of HIV/AIDS and about sexually transmitted diseases (STD).

Educational status

24. Literacy rate in most of the villages are around 70-80%. A primary school is present in the village or nearby village. For middle level and high school, the villagers mostly go outside. Some villages reported of having a high school. Villagers have to go to nearby urban area for their higher education. The education level of boys and girls is at par.

Employment status

25. Most villagers were engaged in animal husbandry, agricultural and agriculture related activities throughout the year. Among the youth, unemployment is about 50 - 60%, In Bhadla and nearby villages, some youth are working in middle-east countries as daily labours and security in oil producing industries. The villagers are very positive for employment generation by upcoming solar projects in the nearby areas.

Perceived benefits from project

26. Most of the villages perceive that the project will result in provision of employment, small construction works, transportation works and development of basic infrastructure like roads, small commercial establishment.

Village Committee

27. In all the villages, the decisions are taken by Gram Panchayat and Gram Sabha held on critical and community related issues. All the Panchayat members and Sarpanch actively participate to take decisions on any community related issues.

Other issues

28. Better roads and employment is a demand in some villages. Few villagers demanded

that crop and loss of agricultural land due to projected activities should be compensated or given employment.

Annexure – 9C

List of Participants in Public Consultation

Bhadla Solar Park

Sl. Nº	Name of the Participant	Occupation
Village Ajeri		
1	Mohamed Allahbax	Agriculture
2	Ikbal	Labour
3	Rehman	Labour
4	Saley Mohmad	Agriculture
5	Shah Mohamad	Agriculture
6	Samastdin	Retired
7	Mohmad Hanif	Labour
8	Mohmad Sareef	Agriculture
9	Ishnuldin	Agriculture
Village Bodana		
1	Phus Das	Agriculture
2	Ashu Singh	Agriculture
3	Ravent Singh	Agriculture
4	Karhar Ram	Labour
5	Khiv Singh	Agriculture
6	Parm Singh	Agriculture
7	Narayan Ram	Agriculture
8	Magh Ram	Agriculture
9	Hansa Ram	Agriculture
10	Ramchandra	Agriculture
11	Gaje Singh	Agriculture
Village Chinnu		
1	Lukman Khan	Labour
2	Umer Khan	Agriculture
3	Janu Khan	Labour
4	Nabu Khan	Agriculture
5	Gulam Khan	Agriculture
6	Ali Khan	Agriculture
7	Dawood Khan	Agriculture
8	Mohmad Khan	Labour
9	Allahbax Khan	Labour
10	Mehboob Khan	Labour
Village Bhadla (Gamno ki Basti)		
1	Kherdeen Khan	Labour
2	Saddam Hussien	Labour
3	Nydle Khan	Labour
4	Ahamed Khan	Labour
5	Basser Khan	Labour
6	Aladeen	Labour
7	Saradeen	Labour
8	Ameen Khan	Labour
9	Khamesha Khan	Labour
10	Chotey Khan	Labour
11	Peerane Khan	Labour
12	Deene Khan	Labour
13	Hale Khan	Labour

Sl. Nº	Name of the Participant	Occupation
14	Sadeek Khan	Labour
15	Sadhu Khan	Labour
Village Bhadla (Kalo ki basti)		
1	Yaar Mohamad	Agriculture
2	Husen Khan	Agriculture
3	Allahbax	Agriculture
4	Yasheen Khan	Agriculture
5	Sumer Khan	Agriculture
6	Ahmed	Agriculture
7	Bhagu Khan	Agriculture
8	Samsudin	Agriculture
9	Ismik Khan	Agriculture
Village: Nurey ki Bhuraj		
1	Harji Ram	Agriculture
2	Narayan	Agriculture
3	Haru Ram	Agriculture
4	Bhoja Ram	Agriculture
5	Bagwana Ram	Agriculture
6	Nekh Ram	Agriculture
7	Sukha Ram	Agriculture
8	Ajij	Agriculture
9	Yaar Mohmad	Agriculture
10	Samsudin	Agriculture
11	Saley Mohmad	Agriculture

400 kV Jodhpur-Merta line LILO – 400 kV Bhadla GSS Transmission Line

Sl. Nº	Name of the Participant	Occupation
Village Bhadla (Gamno ki Basti)		
1	Kherdeen Khan	Labour
2	Saddam Hussien	Labour
3	Nydle Khan	Labour
4	Ahamed Khan	Labour
5	Basser Khan	Labour
6	Aladeen	Labour
7	Saradeen	Labour
8	Ameen Khan	Labour
9	Khamesha Khan	Labour
10	Chotey Khan	Labour
11	Peerane Khan	Labour
12	Deene Khan	Labour
13	Hale Khan	Labour
14	Sadeek Khan	Labour
15	Sadhu Khan	Labour
Village Bhadla (Kalo ki Basti)		
1	Yaar Mohamad	Agriculture
2	Husen Khan	Agriculture
3	Allahbax	Agriculture
4	Yasheen Khan	Agriculture
5	Sumer Khan	Agriculture
6	Ahmed	Agriculture
7	Bhagu Khan	Agriculture

Sl. Nº	Name of the Participant	Occupation
8	Samsudin	Agriculture
9	Ismik Khan	Agriculture
Village: Nurey ki Bhuraj		
1	Harji Ram	Agriculture
2	Narayan	Agriculture
3	Haru Ram	Agriculture
4	Bhoja Ram	Agriculture
5	Bagwana Ram	Agriculture
6	Nekh Ram	Agriculture
7	Sukha Ram	Agriculture
8	Ajij	Agriculture
9	Yaar Mohmad	Agriculture
10	Samsudin	Agriculture
11	Saley Mohmad	Agriculture
Village Jheepasni		
1	Ashok Kumar	Agriculture
2	Premrattan	Agriculture
3	Ram dayal	Labour
4	Raghu Ram	Agriculture
5	Bhoma Singh	Labour
6	Narayan Singh	Labour
7	Birbal	Labour
8	Bhawar Singh	Agriculture
9	Jetha Ram	Labour
Village Hindal Gol		
1	Basheer Khan	Agriculture/Labour
2	Mohmmad Khan	Agriculture/Labour
3	Ali Khan	Agriculture/Labour
4	Kamrrudin	Agriculture/Labour
5	Haji Sadiqqui	Agriculture/Labour
6	Shami Khan	Agriculture/Labour
7	Molana Yusef	Agriculture/Labour
8	Jamaal Din	Agriculture/Labour
9	Mohmmad Saleh	Agriculture/Labour
10	Abdullah	Agriculture/Labour
11	Esmily	Agriculture/Labour
12	Taaj Mohmmad	Agriculture/Labour

400 kV Bhadla GSS – Ramgarh GSS Transmission Line

Sl. Nº	Name of the Participant	Occupation
Village Bhadla (Gamno ki Basti)		
1	Kherdeen Khan	Labour
2	Saddam Hussien	Labour
3	Nydle Khan	Labour
4	Ahamed Khan	Labour
5	Basser Khan	Labour
6	Aladeen	Labour
7	Saradeen	Labour
8	Ameen Khan	Labour
9	Khamesha Khan	Labour
10	Chotey Khan	Labour

Sl. Nº	Name of the Participant	Occupation
11	Peerane Khan	Labour
12	Deene Khan	Labour
13	Hale Khan	Labour
14	Sadeek Khan	Labour
15	Sadhu Khan	Labour
Village Bhadla (Kalo ki basti)		
1	Yaar Mohamad	Agriculture
2	Husen Khan	Agriculture
3	Allahbax	Agriculture
4	Yasheen Khan	Agriculture
5	Sumer Khan	Agriculture
6	Ahmed	Agriculture
7	Bhagu Khan	Agriculture
8	Samsudin	Agriculture
9	Ismik Khan	Agriculture
Village Sankhla Nehrai		
1	Tanyrav Singh	Agriculture
2	Narpat Singh	Unemployed
3	Bhur Singh	Agriculture
4	Amb Singh	Agriculture
5	Chun Singh	Agriculture
6	Khet Singh	Agriculture
7	Parag Singh	Agriculture
8	Bhawar Singh	Agriculture
9	Shankar Singh	Agriculture
10	Deen Singh	Agriculture
11	Ravat Singh	Agriculture
12	Durg Singh	Agriculture
13	Keser Singh	Agriculture
14	Raghunath Singh	Agriculture
15	Ashu Singh	Agriculture
16	Poonam Singh	Agriculture
17	Vijay Singh	Agriculture
18	Bhooj Raaj	Agriculture
Village Hameera		
1	Saitan Singh	Govt Job
2	Gopa Ram	Surpunch
3	Chotu Singh	Labour
4	Roop Singh	Agriculture
5	Madhav Singh	Labour
6	Sawroop Singh	Agriculture
7	Khangar Singh	Agriculture
8	Swai Singh	Labour
9	Deepa Ram	Labour
10	Panna Ram	Labour
Village Khardi, Mohan Garh		
1	Umed Ali	Agriculture/Animal Husbandry
2	Gaji Khan	Agriculture/Animal Husbandry
3	Deny Khan	Agriculture/Animal Husbandry
4	Mamdeh Khan	Agriculture/Animal Husbandry
5	Maley Khan	Agriculture/Animal Husbandry
6	Abdullah	Agriculture/Animal Husbandry

Sl. Nº	Name of the Participant	Occupation
7	Dost Ali	Agriculture/Animal Husbandry
8	Eden Khan	Agriculture/Animal Husbandry
9	Elav Khan	Agriculture/Animal Husbandry
10	Raydin Khan	Agriculture/Animal Husbandry
11	Allahjiya	Agriculture/Animal Husbandry
12	Shaban Khan	Agriculture/Animal Husbandry
13	Litty Khan	Agriculture/Animal Husbandry
14	Bali Khan	Agriculture/Animal Husbandry

400 kV Ramgarh GSS – Akal GSS Transmission line

Sl. Nº	Name of the Participant	Occupation
Village Asda		
1	Faisel Khan	Labour
2	Rahim Khan	Labour
3	Mugal Khan	Labour
4	Punma Ram	Teacher
5	Mir Khan	Labour
6	Rojey Khan	Labour
7	Samah Khan	Labour
8	Karun Khan	Labour
9	Habib Khan	Labour
10	Peru Khan	Labour
11	Sai Khan	Labour
12	Sheru Khan	Labour
13	Rahim Khan	Labour
14	Maley Khan	Labour
15	Kyam Khan	Labour
16	Noorey Khan	Labour
Village Hameera		
1	Saitan Singh	Govt Job
2	Gopa Ram	Surpunch
3	Chotu Singh	Labour
4	Roop Singh	Agriculture
5	Madhav Singh	Labour
6	Sawroop Singh	Agriculture
7	Khangar Singh	Agriculture
8	Swai Singh	Labour
9	Deepa Ram	Labour
10	Panna Ram	Labour

Annexure-6: Sample Monitoring Report

S. N.	R&R Activities	Progress	Remarks
Pre Construction Activities and R&R Activities			
1	Assessment of Resettlement impacts due to changes in project design (If required)		
2	Preparation/ updating of Resettlement Plan based on changes in project design		
3	Approval of updated Resettlement Plan from ADB		
4	Disclosure of updated Resettlement Plan		
5	Establishment of Grievance Redressal Committee		
6	Inclusion of safeguards official (designated) to PMU		
Resettlement Plan Implementation			
1	Payment of Compensation as per replacement value of land & assets to APs where applicable		
2	Disbursement of assistance to title holders		
3	Disbursement of assistance to non-title holders		
4	Disbursement of special assistance to Vulnerable groups		
5	Replacement/ shifting of community property resources		
6	Reinstallation of public utilities		
7	Records of Grievance Redressal		
8	Compensation for temporary loss of crop		
Social Measures during Construction as per Contract Provisions			
1	Prohibition of employment or use of children as labour		
2	Prohibition of Forced or Compulsory Labour		
3	Ensure equal pay for equal work to both men and women		
4	Implementation of all statutory provisions on labour like health, safety, welfare, sanitation, and working conditions		
5	Maintenance of employment records of workers		