RAP and LRP for RUMSL's 1500 MW Solar Park Project and associated infrastructure across Neemuch, Agar and Shajapur

Final Report-Volume II C Shajapur Solar Park (Units 6,7 &8)

03 May 2021

Project No.: 0528741

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Document details	This document is a volume to the Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) consolidated across RUMSL's 1500 MW solar park project in Madhya Pradesh, India. This document provides project-specific resettlement and livelihood restoration impact details for Shajapur Solar Park across Units 6 & 7 (Moman Badodiya Tehsil, Shajapur) and Unit 8 (Shajapur Tehsil).
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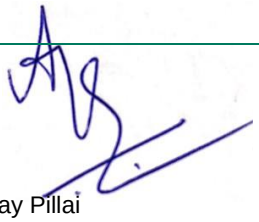

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Acronyms and Abbreviations

Name	Description
AGOL	ArcGIS Online
DC	District Collector
DEM	Draft Entitlement Matrix
DRO	District Revenue Officer
EMC	External Monitoring Consultant
ESF	Environmental and Social Framework, 2018 (of the World Bank)
ESIA	Environmental and Social Impact Assessment
ERM	ERM India Private Limited
ESMPF	Environmental and Social Management Policy Framework
GoMP	Government of Madhya Pradesh
Ha	Hectares
HoH	Head of Household
IFC	International Finance Corporation
ISTS	Inter-State Transmission System
L&A	Land and Asset
LRP	Livelihood Restoration Plan
MPLRC	Madhya Pradesh Land Revenue Code
MPNRED	Madhya Pradesh New and Renewable Energy Department
MW	Mega Watt
PAE	Project Affected Entity
PAH	Project Affected Household
PAP	Project Affected Persons
PGCIL	Power Grid Corporation of India Limited
PMC	Project Management Contract
PRC	Principal Revenue Commissioner
'PS	Performance Standards, 2012 (of the IFC)
PWD	Public Works Department
RAP	Resettlement Action Plan
RFCTLARR	Right to Fair Compensation and Transparency in Land Acquisition, Resettlement and Rehabilitation
RUMSL	Rewa Ultra Mega Solar Limited
SDO	Sub Divisional Officer
SGURR	SgurrEnergy India
SLR	Superintendent of Land Records
SPD	Solar Project Developers
WB	World Bank

EXECUTIVE SUMMARY: SHAJAPUR SOLAR PARK

Preamble

Rewa Ultra Mega Solar Limited (RUMSL) has been authorized by the Ministry of New and Renewable Energy Development (MNRED) to develop three solar parks (including internal power evacuation infrastructure and associated transmission lines) with an aggregate capacity of 1450 MW (hereafter referred to as the Project or the 1450 MW Project). This includes the 450 MW Shajapur Solar Park in Singoli Tehsil, Shajapur District of Madhya Pradesh (the Project).

The World Bank (WB) intends to finance the Project and/or its associated facilities whereas the International Finance Corporation (IFC) is providing transaction advisory to RUMSL to implement a competitive bidding and tender process to support the development of the Project.

In order to align the Project to the requirements of the WB and IFC; RUMSL appointed ERM India Private Limited (ERM) to undertake an Environmental and Social Impact Assessment (ESIA) of Shajapur Solar Park and its associated facilities. The scope of the ESIA includes two technical studies, i.e. the Resettlement Action Plan and Livelihood Restoration Plan (RAP&LRP) and the Development of the approach and strategy to undertake Free, Prior and Informed Consent (FPIC), which includes an Indigenous Peoples Development Plan (IPDP).

Volume I is the overarching RAP & LRP for the 1500 MW Project and its power evacuation infrastructure. This document (Volume II B) is a companion document to Volume I which summarises the consolidated outcome of the resettlement surveys undertaken for Shajapur Solar Park in order to provide an overview of the profile of affected communities and describe involuntary resettlement impacts. The transmission line for Shajapur Solar Park is covered as part of Volume II-D.

Project Overview

The following table summarises salient features of the Shajapur Solar Park. This is followed by an overview of the project layout, key project development timelines as of March 2021, the land footprint, and specific impact avoidance and mitigation that was undertaken to optimize the layout.

Table 0.1 Salient Features: Shajapur Solar Park: 450 MW

S. No.	Particulars	Description		
		Unit 6 (220 MW)	Unit 7 (105 MW)	Unit 8 (125 MW)
1.	Project Village Location	Moman Badodiya: Dehripal, Burlay, Jawadi, Parsula, Fawaka, Dhatrawada, Chauma and Bijnakhedi		South Shajapur: Hanoti, Surajpur, Lalpur and Upadi
2.	Capacity	160 MW	170 MW	170 MW
3.	Pooling State and Power Evacuation	The evacuation from the proposed Solar Park at Shajapur shall be carried out through the development of 33/220 kV substation at each unit. All Units shall further connect to the proposed 220/400 kV ISTS (Inter-state transmission system) substation of PGCIL (Power Grid Corporation of India Ltd.) at Agar.		
4.	Transmission Line	It is proposed to develop three single circuit 220 kV transmission lines for each Unit to connect to 220/440 ISTS substation of PGCIL at Agar.		

Figure 0-1 Overview of Shajapur Solar Park Layout (Unit 6&7)

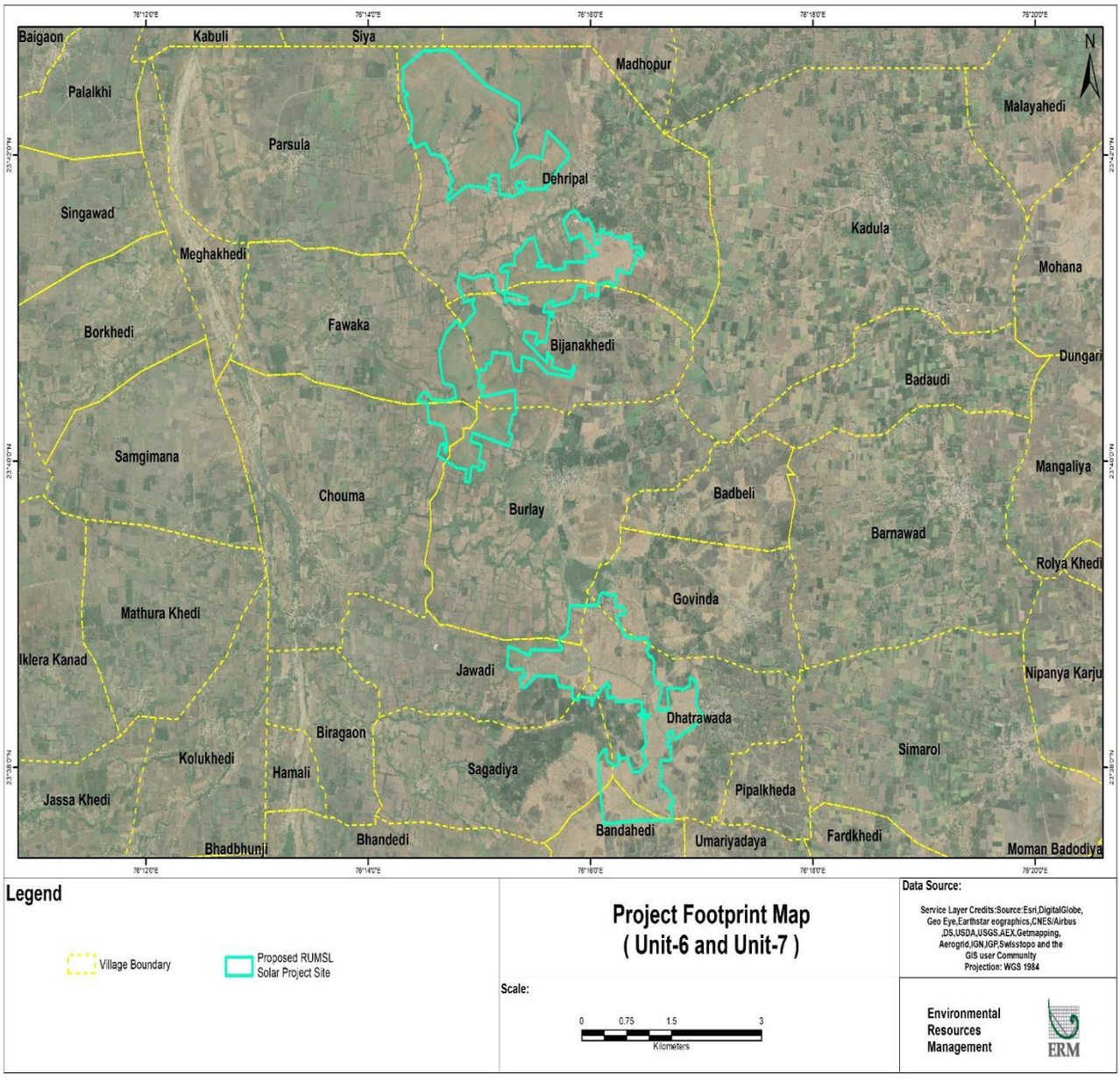
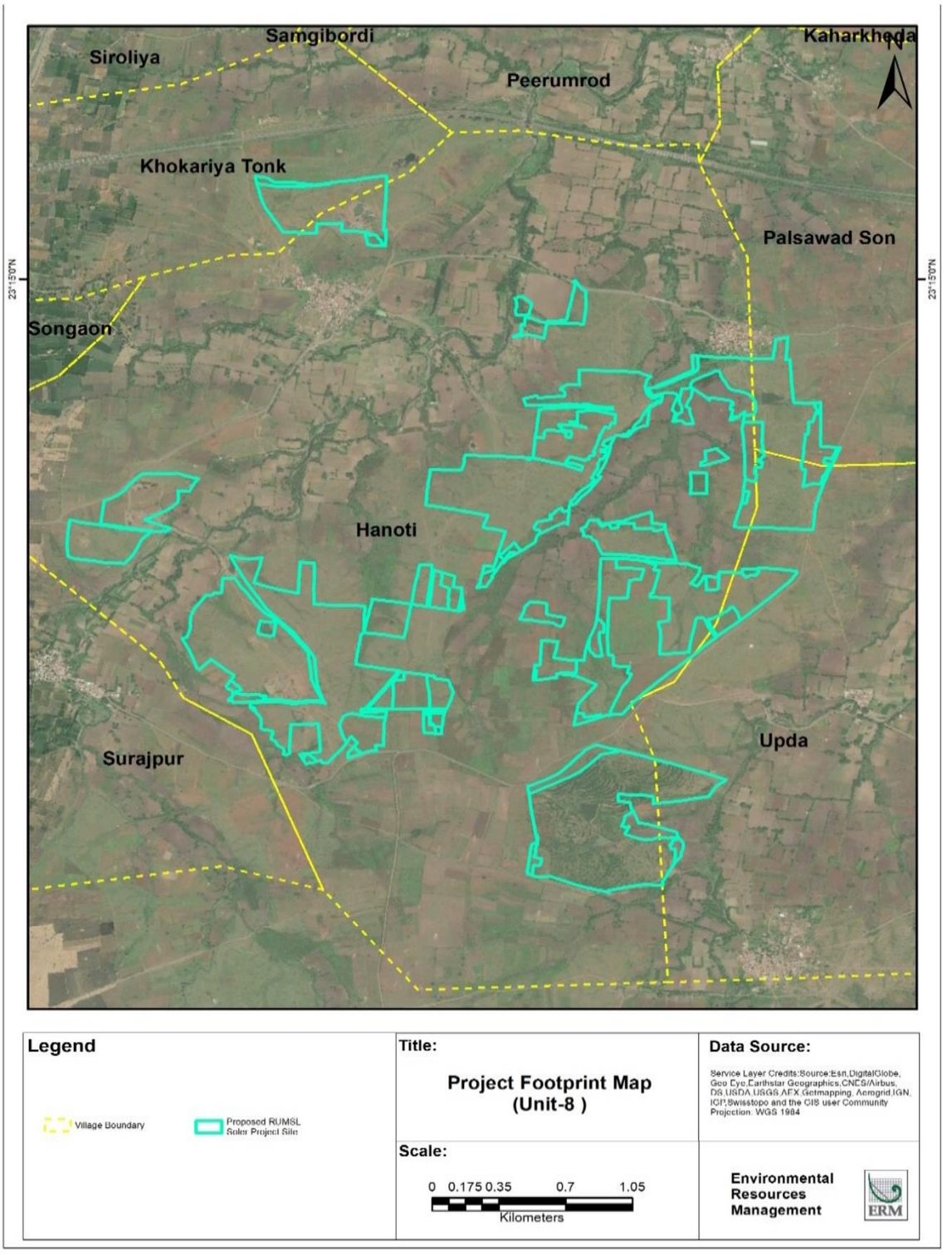


Figure 0-2 Overview of Shajapur Solar Park Layout (Unit 8)



Source: Project boundary data provided by RUMSL, June 2020

Key Project Development Timelines

As of March 2021, the following activities have been undertaken for the planning and development of Shajapur Solar Park:

- Site selection: RUMSL (through assistance from a third party entity) identified potential project areas based on location and contiguous availability of government land parcels in 2016-2017. These potential project areas were thereafter discussed and finalised through workshops between RUMSL, potential lenders and third party consultants; further to which the process of formal land allotment was initiated based on the MP Solar Policy, 2012 and taking into account the relevant procedural provisions of the MP Land Revenue Code, 1959.
- Baseline at Project Footprint Identification stage: A review was undertaken in May-June 2019 of the baseline report which was prepared in August 2017;
- Scoping: an E&S scoping visit for Shajapur Solar Park was undertaken in September 2018 to understand the site selection, environmental and social sensitivities and identify relevant stakeholders. As part of this visit, consultations were undertaken in some villages. Based on the scoping visit, an E&S scoping visit report was submitted which identified the environmental and social sensitivities in and around the Project site.
- Land allotment: the land allotment for Shajapur site started in May, 2017;
- DPR– the Draft Detailed Project Report was submitted in December 2019, as part of the implementation schedule. The final DPR, year 2017 provided technical information on the Solar Park, the review of which was undertake by ERM to undertake the ESIA study. The Final DPR was provided to ERM in September 2020
- Environmental and Social Impact Assessment (ESIA) – ERM undertook site visit during 27 January – 01 February, 2020 to understand the site setting, review the E&S sensitivities identified during the scoping stage and to identify the relevant local stakeholders. The activities undertaken included –
  - Identification of key social risks/receptors in the study area;
  - Understanding of prevailing community engagement processes;
  - Understanding aspects of community health and safety, if any, linked to the proposed Project;
  - Understanding land-based impacts, livelihood impacts, issues of vulnerable groups, cultural heritage issues;
  - Understanding significance of impacts on biodiversity and natural resource management; and
  - Consultations with the local communities and focus group discussions (FGD) in the vicinity to understand their views and concerns of the Project.
- Resettlement Planning – the information collected from the ESIA study was used for the planning of the resettlement activities based on identified land based impacts leading to potential economic and physical displacement of the stakeholders. The RAP related site visit was undertaken in July – August 2020, based on which this Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) has been developed have been developed.
- Boundary Demarcation Process: the boundary demarcation exercise was initiated by the revenue department in August-September 2020.
- Bid Process – To Be Completed

- Land Procurement and Land Access: The land allotment process of government for Shajapur Solar Park started in May 2017. The planning for the procurement of private land had begun in March 2020 and was resumed in September 2020 once the Covid-19 imposed lockdown was lifted;
- Early works and construction – To Be Decided (TBD) basis the completion of the bid process;; and
- Indicative CoD – To Be Decided

Land Footprint for Shajapur Solar Park

The following table summarises the total land footprint for Shajapur Solar Park across the eleven (11) affected villages as well as by type of land ownership:

Table 0.2 Village Wise Land Requirement for the Project (ha)

Sl No.	Village Name	Govt. land (NRED allotted)	Govt. Land Identified	Private Land	Patta Land	Total Land Area (ha) (Govt. Land + Pvt. Land)
1	Burlay*	23.67	0.0	6.4	0.0	30.1
2	Jawadi	32.45	0.0	1.98	0.0	34.43
3	Dhatrawada	170.19	0.0	10.10	0.0	180.29
Sub- Total (unit 6)		***226.32***	***0.0***	***18.49***	**0.0**	**244.81**
4	Parsula	116.2	0.0	0.0	5.15	121.36
5	Dehripal	140.14	0.0	12.39	0.0	152.53
6	Bijanakhedi	83.35	0.0	13.16	0.0	96.51
7	Fawaka	15.31	0.0	0.2	0.0	15.31
8	Chouma	42.97	0.0	7.4	0.0	50.41
9	Burlay*	41.7	0.0	0.0	0.0	41.7
Sub- Total (Unit 7)		**439.64**	**0**	**32.99**	**5.15**	**477.78**
10	Surajpur	22.7	0.7	18.2	0.0	41.6
11	Lalupura	53.14	0.8	0.0	0.0	53.94
12	Hanoti	131.97	12.5	18.53	0.0	163
Sub- Total (Unit 8)		**208.1**	**14.0**	**36.77**	**0.0**	**258.57**
Total (Unit 6, 7-8)		***874.06***	***14.0***	***88.25***	***5.15***	***981.16***
Categories of land in proportion to the total land allotted		***89.08 %***	***1.43 %***	***8.99%***	***0.52%***	***100%***

Source: RUMSL, June 2020

As indicated above, of the total land requirement of 987.2 ha; 93.4 ha or 9.5% is comprised of land under private and patta title (which convers Bhumiswami rights[1] to titleholders under the MP Land Revenue Code, 1954 as amended). The balance government land identified in the villages across Units 6,7 and 8 of the Solar Park comprise mostly of land classified as Charnoi, Charagah and Germumkin. These land categories are included in the Nistar Patrak[2] data of each village implying common property resources and collective dependence; primarily firewood collection as well as open grazing. As part of the allotment exercise, an attempt has been made to ensure that that a minimum of 2% of total agricultural land available in the village is available for grazing of cattle, as stipulated in the MP Land Revenue Code (1959, as amended). Of the villages, Dhatrawada (unit 6), Parsula (unit

[1] For the purposes of this project, the bhumiswami is considered as the titleholder with formal rights over private land and/or patta land in accordance with Section 158 of the Madhya Pradesh Land Revenue Code, 1954 as amended

[2] Nistar Patrak for every village embodying a scheme of management of all unoccupied land in the village. The Collector may divert unoccupied land, for exercise of Nistar rights for – pasture, grass, bir or fodder reserve (clause b) subject to a minimum of two (2) percent of the total agricultural land of that village.

7), Bijnakhedi (Unit 7) and Chouma (Unit 7), will have no grazing land left after allotment for the project.

While open grazing of livestock is permitted, two other types of informal use of government land are also apparent:

- Encroachment of government land by private/patta land owners in the immediate vicinity of their land parcels for agricultural use;
- Informal users or squatters who have occupied government land (including charnoi/charagah/kabil kast) for agricultural use or homestead area or creation of fodder lots who may or may not have private/patta land.

Further to the completion of the land allotment, private/patta land procurement and physical land access and the concurrent change of ownership; RUMSL will allot the required land to selected solar park developers (SPD) through a lease process. The private land procurement as per the provisions of the MP Consent-based Land Policy (2014) is yet to be initiated.

Avoidance and Impact Minimization

The following table documents impact avoidance and minimization undertaken for Shajapur Solar Park based on confirmed land footprint and therefore are excluded from resettlement impacts. This has led to an overall reduction of the land requirement by 46.23 ha:

Table 0.3 Impact avoidance undertaken by village

Village	Khasra Detail	Type of optimization/ Avoidance undertaken or suggested
Unit 6		
Jawadi	939 and 942	■ 15 households on government land (General caste, OBC-Prajapati and SC) ■ These households have lived here for 20 years due to lack of space to expand in the main habitation of Jawadi ■ Edge of the boundary with road access
Dhatrawada	278, 299, 300, 301 & 302	■ 20 households on abadi land (Harijan/SC and Pal Rajput communities); ■ Some households had been allotted a "praman patra" from the Gram Panchayat to construct a house by themselves and/or under the PM Awas Yojana; ■ This settlement dates back to 1992 onwards, but the pucca houses were recently constructed (2014 onwards) ■ Edge of the boundary with road access
Unit 7		
Parsula	939 and 942	■ 5 households on government land (Harijan/SC) ■ They settled next to their allotted patta land (5 pattas of ~0.6 ha each allotted in 2001-02) ■ Not near boundary and no road access
Dehripal	370 & 366	■ 10 households on government land (Banjara/OBC Settlement – they work on Patta land around cluster one on informal lease) ■ Edge of the boundary and no road access
	356, 358, 344	■ 25 households on government land including a school – Banjara Basti ■ Edge of the boundary and no road access
	650 & 651	■ Expansion of the main Dahripal Village which is north of this cluster (Up to 3 households) ■ Edge of the boundary and no road access
Dahripal and Bijanakhedi	560, 561 & 562 (in Dehripal)	■ 12 households around private agricultural land – nature of ownership is not verified

Village	Khasra Detail	Type of optimization/ Avoidance undertaken or suggested
	19 & 48 (Bijnakhedi)	■ Edge of the boundary and no road access
Khasras recommended for exclusion but not approved during avoidance exercise. These have been included in the assessment of resettlement impacts and are in RAP- subject to final confirmation of the boundary		
Unit 6		
Dhatrawada		■ The total area of deduction is ~5 hectare ■ 11 PAHs who have encroached/squatter on government land not be affected ■ Edge of the South-West project boundary
		■ The total area of deduction is ~ 1 hectares ■ 4 PAHs who have encroached/squatter on government land not be affected ■ Edge of the state highway 42
Unit 8		
Lalupura		■ The total area of deduction is ~3 hectare ■ 7 PAHs who have encroached/squatter on government land not be affected ■ Edge of the Eastern project boundary

Source: Based on site visits undertaken, review of drone imagery of land use, and land allotment details provided by RUMSL.

Overview of Project Affected Households

Project Affected Villages

The following table provides an overview of the eleven (11) project affected villages and the balance land that is available post land allotment and private/patta land procurement:

Table 0.4 Land Footprint by Ownership, in Project Villages

Sl No.	Village Name	Geographical Area of Village (ha)	Land required for Shajapur solar park (ha)				Land remaining (ha)	%Proportion of Remaining (%)
			Govt. Land (ha)	Private land (ha)	Patta land (ha)	Total		
1	Burlay*	948.35	23.67	6.4	0	30.1	918.25	96.83
2	Jawadi	304.65	32.45	1.98	0	34.43	270.22	88.70
3	Dhatrawada	660.97	170.19	10.1	0	180.29	480.68	72.72
Sub- Total (Unit 6)		***1913.97***	***266.32***	***18.49***	***0***	***244.81***	1669.16	87.21
4	Parsula	692.98	116.2	0	5.15	121.36	571.62	82.49
5	Dehripal	944.49	140.14	12.4	0	152.53	791.96	83.85
6	Bijanakhedi	385.56	83.35	13.16	0	96.51	289.05	74.97
7	Fawaka	587.59	15.31	0.2	0	15.31	572.28	97.39
8	Chouma	871.31	45.1	7.4	0	50.41	820.9	94.21
9	Burlay	948.35	41.7	0		41.7	906.65	95.60
Sub- Total (Unit 7)		***4430.28***	***439.64***	***32.99***	***5.15***	***477.78***	3952.5	89.22
9	Surajpur	300.83	23.4	18.2	0	41.6	259.23	86.17
10	Lalupura	308.61	53.94	0	0	53.94	254.67	82.52
11	Hanoti	698.25	144.47	18.5	0	163	535.25	76.66
Sub- Total (Unit 8)		***1307.69***	***222.1***	***36.77***	***0***	***258.57***	1049.12	80.23
Total (Unit 6, 7,8)		***7651.94***	***888.06***	***88.25***	***5.15***	***981.16***	6670.78	87.18

Source: Land data provided by RUMSL as on June 2020

Project Affected Land Parcels

The following table provides an overview of the government and private/patta land parcels which are affected across the villages as well as those that were surveyed:

Table 0.5 Land parcels required for the solar park

Units	Type	Number of land parcels	Land Area (ha)
Unit 6	Govt.	123	226.32
	Private	63	18.49
Sub- Total		***186***	***244.81***
Unit 7	Govt.	161	439.64
	Patta	11	5.15
	Private	81	32.99
Sub- Total		***253***	***477.78***
Unit 8	Govt.	76	208.1
	Private	33	36.77
Sub- Total		***109***	***258.57***
Grand Total		***548***	***981.16***

Source: Data provided by RUMSL, Dated Jan 2021

As part of the resettlement surveys, ERM undertook a Land and Asset Inventory of 102.8 hectares private land parcels, 4.2 hectares of patta land parcels as well as 211.63 hectares of government land parcels in order to identify assets, impacts on titleholders and non-titleholders as well as their intensity. For the remaining parcels that could not be surveyed, ERM undertook a spatial analysis of the land parcels as well as their land use in order to ascertain involuntary resettlement impacts.

Titleholders and Non-titleholders

The following table provides an overview of the titleholders and non-titleholders for Shajapur Solar Park, including the ones that could be identified and therefore including in either the land and asset inventory and/or household survey (see 0.3.4):

Unit	Village	Title Holders		Non-Title Holders	
		Private	*Patta*	*Encroachers*	*Informal users (includes Informal Patta holders)*
VI	Burlay*	3 (03)	0	4 (02)	22 (18)
	Jawadi	4 (04)	0	6 (06)	9 (06)
	Dhatrawada	7 (07)	0	12 (10)	33 (27)
VII	Parsula	0 (00)	10 (05)	19 (19)	4 (03)
	Dehripal	2 (02)	0	2 (02)	26 (23)
	Bijanakhedi	11 (07)	0	13 (10)	35 (27)
	Fawaka	0 (00)	0	0 (00)	4 (03)
	Chouma	6 (06)	0	7 (05)	14 (07)
VIII	Surajpur	18 (17)	0	2 (02)	8 (05)
	Lalupura	0 (00)	0	7 (06)	21 (18)

Unit	Village	Title Holders		Non-Title Holders	
	Hanoti	11 (09)	0	8 (03)	25 (19)
	Total	**62 (55)**	**10 (05)**	**80 (65)**	**201 (156)**

Source: Land data provided by RUMSL as on June 2020 (Figures in brackets indicates parcels either entirely or partially that were surveyed during the Land and Asset inventory)

Project Affected Households

Based on the above, Shajapur Solar Park will lead to involuntary resettlement of 364 Project Affected Households as summarised in the subsequent table:

Table 0.6 Status of Household surveys

Survey Coverage by category	Count (in numbers)	Proportion (%)
Total Number of PAHs (Surveyed +not Surveyed)	364	100
Total Physically Displaced PAHs (Surveyed+ not Surveyed)	18	4.94
Total Economically Displaced PAHs (Surveyed+ not Surveyed)	346	95.05
Number of Households Surveyed	358	
Number of PAH Households Surveyed	307	84.3
Number of Physically Displaced PAHs Surveyed	18	100
Economically Displaced PAHs	289	94.13
Women Headed PAHs surveyed	27	8.79
Vulnerable PAHs surveyed	55 (including WHH & excluding 170 Youths)	17.91
Number of Sample Households	51	14.24
Households that did not consent to the survey or are absentee households	57	15.65

Source: Land & Asset and household Surveys, 2020

Of these PAH, ERM covered 358 households through a household census survey in order to obtain a socio-economic, demographic, livelihood, vulnerability and access to infrastructure profile. The remaining 57 PAHs could not be surveyed due to reasons provided in Section 1.4.

Key Survey Milestones

The following resettlement survey milestones have been flagged for specific attention in order to influence implications for entitlements and RAP and LRP implementation:

- Village kick-off meetings: 10
- Survey completion meetings: 10
- Reiteration of grievance redressal mechanism: 10

The dates for the survey completion meeting can be considered as a cut-off date to identify nature of impacts and categories of impacts. As the project is not formally initiating land acquisition and in view of the parallel government allotment process; these survey completion dates cannot be considered as a formal cut-off date to recognise rights and titleholders/non-titleholders in view of the following:

- Land titles can still change due to any potential transactions and buying and selling up to commencement of the procurement process under the MP Mutual Consent-based Land Procurement Policy (2014);
- The survey process, may encourage opportunistic use of the government land.

In view of the above, for households that could not be covered as part of the resettlement surveys; RUMSL will have to put in place the following process elements during RAP and LRP implementation[3]:

- For private land owners : Households of land owners that could not be surveyed can be covered as part of the engagement process during land procurement;
- For informal users (encroachers and squatters): As part of physical land access, additional households of informal users can be identified and thereafter surveyed provided they can demonstrate that the occupation and use of government land predates the survey (this can be confirmed through drone imagery of December 2019-January 2020 available with RUMSL, records of the local patwaris linked to any fines or notices that may have been issued as well as through village leaders).

Profile of Project Affected Communities

Profile of Villages in the Project Footprint

[3] This scope is included in the ToR of the Resettlement Implementation Consultant provided as an appendix in Volume I.

Figure 0.3: Overview of Key Village-level Attributes: Moman Badodiya (Unit 6)

Demographics

- 3 Villages and 4 Gram Panchayat
- 98 PAH
- 587 PAPs
- 912 sex ratio
- 71% literacy
- 89.7% Hindu and 10.2% Muslims

Land and Livelihoods

- 60% Farm based and 40% non-farm based
- 6.4 ha avg agricultural holding
- Key crops: Soyabean, wheat, gram, garlic, onion
- INR 1, 97, 195 annual income
- INR 4.64, 457 avg annual expense
- 33.3% of population is unemployed

Infrastructure

- 10km avg distance from hospital
- 1-4km avg distance to school upto 8th std and 12th std.
- 4km avg distance to market
- 57% of HHs have functional toilets at HH level
- 98% HHs have electricity through govt. supply

Natural Resource

Dependence on CPRs for grazing, water for livestock, firewood collection

Cultural Resources

No listed cultural resources, that are nationally or state protected are affected by the project.

Figure 0.4: Overview of Key Village-level Attributes:Moman Badodiya (Unit 7)

Demographics

- 5 Villages and 4 Gram Panchayat
- 176 PAH
- 914 PAPs
- 865 sex ratio
- 57 literacy
- 96% Hindu and 4% Muslims

Land and Livelihoods

- 59.9% Farm based and 40.1% non-farm based
- 3.7 ha avg agricultural holding
- Key crops: Soyabean, wheat, gram, garlic, onion
- INR 1, 43, 362 annual income
- INR 2, 58, 794 avg annual expense
- 28% of population is unemployed

Infrastructure

- 4km avg distance from hospital
- 1-6km avg distance to school upto 8th std and 12th std.
- 5km avg distance to market
- 59% of HHs have functional toilets at HH level
- 5 HH made under Awaas Yojna
- 99% HHs have electricity through govt. supply

Natural Resource

Dependence on CPRs for grazing, water for livestock, firewood collection

Cultural Resources

No listed cultural resources, that are nationally or state protected are affected by the project.

Figure 0.5: Overview of Key Village-level Attributes: South Shajapur (Unit 8)

Demographics

- 3 Villages and 3 Gram Panchayat
- 92 PAH
- 505 PAPs
- 898 sex ratio
- 63.2% literacy
- 100% Hindu

Land and Livelihoods

- 60.1% Farm based and 39.9% non-farm based
- 8.8ha avg agricultural holding
- Key crops: Soyabean, wheat, gram, mustard, onion
- INR 2, 51, 038 annual income
- INR 4, 75, 592 avg annual expense
- 43% of population is unemployed

Infrastructure

- 5km avg distance from hospital
- 1-4km avg distance to school upto 8th std and 12th std.
- 4km avg distance to market
- 75% of HHs have functional toilets at HH level
- 100% HHs have electricity through govt. supply

Natural Resource

Dependence on CPRs for grazing, water for livestock, firewood collection

Cultural Resources

No listed cultural resources, that are nationally or state protected are affected by the project.

Profile of Project Affected Households

Based on the survey of 307 Project Affected Households (coverage of 73.1% of total PAH) as well as some sample households; the following table provides a qualitative overview:

Table 0.7 Profile of Households Surveyed

Parameter	Key Observations/ Findings –Shajapur Solar Park
Household Level Demographic	There are 364 households to be impacted by the project of which 307 impacted have been surveyed
	Most of the community (more than 90%) is Hindu, with 10% of the population in Unit 6 being reported as Muslims and 5% in Unit 7 being reported as Buddhist.
	The sex ratio within the population is 912 in Unit 6, 865 in Unit 7 and 898 in Unit 8
	The average family size of the surveyed households is reported to be 5.6 across three units
	The average literacy rate in Unit 6 is 71%, 57% in Unit 7 and 63.2% in Unit 8
Land Ownership and Use	Average land holding size in Unit 6 is 1.3 ha, in Unit 7 is 0.74 ha and in Unit 8 is 1.8 ha which is predominantly under agricultural use. Most of the agricultural land is under a multi-cropping system, with the key crops being soyabean, wheat, gram, mustard, onion
Livelihood	Farm-based activities are the main earning source of the families. Agriculture, followed by livestock and labour are the main economic activities. Non-farm based livelihood are limited to daily wage labour, rent collection, petty businesses, etc.
Key gender disaggregated data points	There are 29 women headed households that were surveyed. They have a smaller family size as compared to male headed households. Women in women-led households reported an average annual income of INR 190,942 approximately as compared to women in male- led households who report an annual average income of INR 184,120 approximately. The most common livelihood reported by women was agriculture and agricultural labours.
Income and Expenditure	The major source of income for the households are agriculture, livestock, wages and businesses. The avg. annual income levels is 1,97,195 INR per year in Unit 6, INR 1,43,362 in Unit 7 and INR 2,51,038 in Unit 8. In terms of expenditure, the average annual expenditure reported is 4,64, 457 INR in Unit 6, INR 2,58,794 in Unit 7 and INR 4,75, 592 in Unit 8. The reasons for higher expenses compared to income earning was due to higher expenditure on debt (repayment/new loan), which is a recurring liability for the households.
Standard of Living	House structure: ■ 52 percent of the housing is of kutcha type ■ 23 percent of the surveyed households have a pucca housing structure
	Asset ownership: ■ Majority of the surveyed households reported owning land less than 1ha. ■ Cows were reported to be the common livestock among all PAHs. ■ In terms of household appliances, the highest proportion of assets is of ceiling fans, mobile phones, television sets and cable connections.

Parameter	Key Observations/ Findings –Shajapur Solar Park
	■ In terms of vehicles, most of the PAHs reported ownership of two wheelers including bicycles and motor cycles. ■ Amongst the agricultural implements, PAHs reported ownership mostly of implements such as tractors and water pump sets.
	Participation in collectives: ■ 23 percent of the surveyed households reported membership to Samuh/Samitis in their village. ■ There are relatively few female SHGs in the area, while most of them are non-functional, the females SHGs in Fawaka, Lalupura and Surajpur were active. the female SHGs are primarily for provision of monetary support for setting up small businesses and to drive social, political and economic development. ■ Other kind of social groups reported are cooperative groups and village development groups. ■ Dehripal reported a dairy cooperative with 10-15 members and a and Jawadi has a village development group named as Gram Raksha Samiti.
Dependence on Natural Resources	Community dependence on natural resources is mainly for grazing and fodder, water for livestock and firewood and dung collection
Access to Physical and Social Infrastructure	The access to primary healthcare is limited within the project footprint, and resident typically have to travel 5-10 km for a hospital. There are no doctors or clinics within the villages. The average distance for schools upto class 12 is 4-6 km. on an average, 63.66% of the households have a functional toilet at and almost all households are connected to the government grid supply for electricity.

Source: RAP & LRP surveys 2020

Profile of Key Stakeholder Groups and Feedback

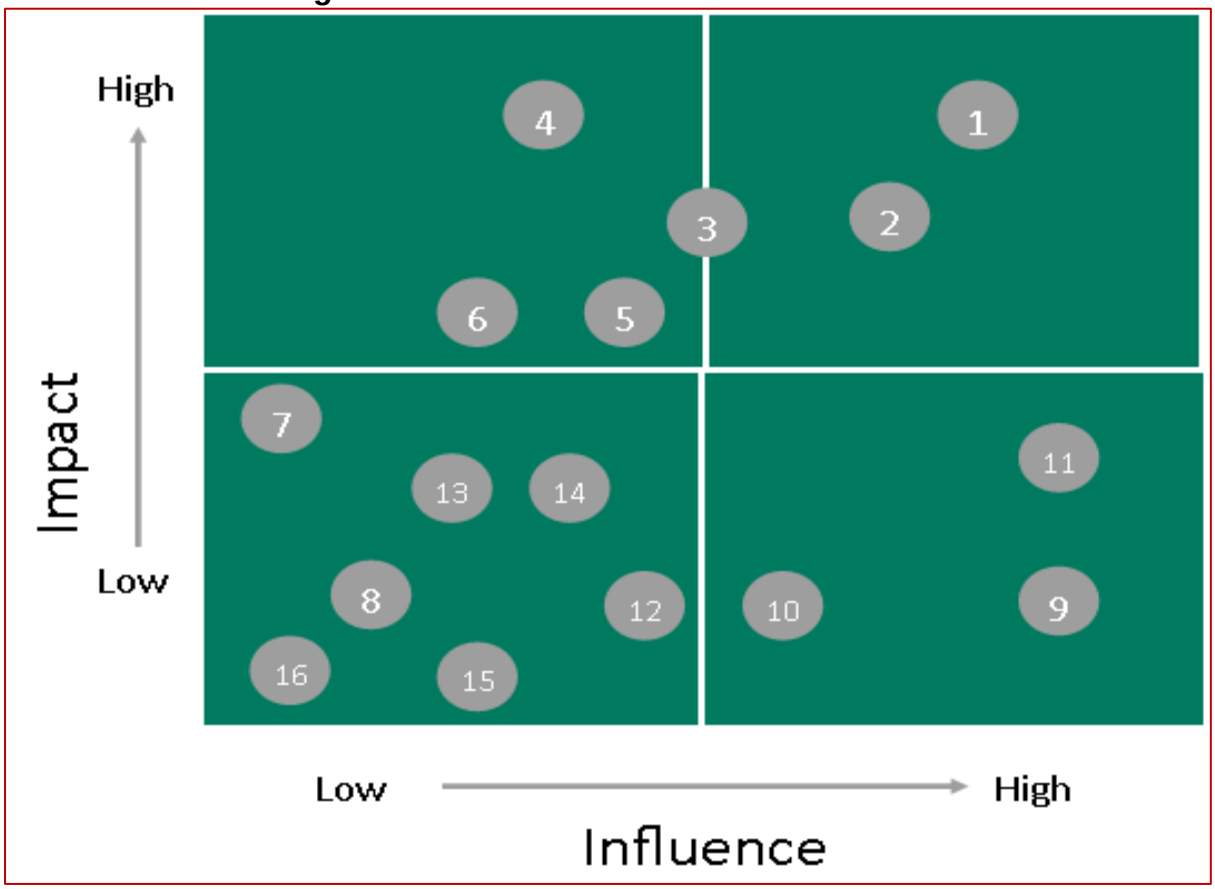
Stakeholder Identification and Analysis

Table 0.8: Stakeholder Group Categorization

Stakeholder Groups	Primary Stakeholders	Secondary Stakeholders
Affected Community within the Project Footprint	■ Private land owners and Patta land holders from the Project Area villages ■ Informal land Users (Encroachers/Squatters to be impacted) ■ Agricultural labourers ■ Grazers/Livestock holding households ■ Banjara households and Bhil households ■ Women groups ■ Vulnerable groups (Landless households, Below Poverty Line households, women headed households)	■ Fence Line Communities from other villages in the vicinity ■ Non-recognised 'patta owners' who have procured the patta based on a verbal agreement with the original (and registered) patta holder

Stakeholder Groups	Primary Stakeholders	Secondary Stakeholders
	■ Owners of land required for temporary occupation or use during construction phase	
Government Bodies and Institutional Stakeholders	■ Gram Panchayats of impacted villages ■ Tehsil level officials for concerned tehsils; ■ Patwaris; ■ EPC Contractor; ■ RUMSL	■ Local Political Groups ■ Civil Society/ Local NGOs ■ Agriculture and Livestock Department; Dairy Development Board ■ Industrial Training Institute (ITI)

Figure 0.6 Prioritisation of Stakeholders



As a part of the resettlement planning, engagement was undertaken at various stages with the stakeholders. RUMSL was responsible for overall coordination across various stakeholders including the district administration, and the administration at the tehsil level

- A District Renewable Energy Officer (DREO) has been appointed by RUMSL to undertake the initial meetings with the Tehsil office, and guide the land allotment process. The land allotment process was initiated in 2017 for the government land parcels
- Consultations were undertaken during this stage by ERM with the villages that were identified to be part of the project footprint (September 2018). During this stage, a site reconnaissance visit was undertaken based on the proposed project footprint

The resettlement surveys were undertaken during the period July – August 2020. An engagement process was set up at the start and end of surveys in each village. The kick-off meetings were used to understand the existing level of information about the project available with the community and incorporate any feedback received from the community on the concerns regarding involuntary impacts, and feedback for project planning. The close-out meeting was carried out at the end of the survey process to provide information about the further plan of action and the method to register any grievances if any to the community.

Table0.9 Feedback Received for Incorporation into Resettlement Planning

Feedback Received	Incorporation into Resettlement Planning
Potential impacts on religious structures and how that will be managed	As part of the RAP preparation, religious structures within the project footprint have been identified. the Volume I of the RAP provides the measures to be taken for these cultural resources.
Reduction/loss of grazing land (also since the 2% grazing land is not known to the community and is likely to be encroached upon) and subsequent reduction in livestock heads resulting in increase in 'Awara Gai' and reduction in income from livestock	During community consultations across all the villages people raised concerns regarding loss of grazing land and loss of accessibility/ increase accessibility time, to grazing land due to project boundaries. Currently, the grazing land used to collect fodder/firewood, and for open grazing – all these activities are equally shared by men and women. The women can allocate time to collect fodder since the land parcels are within 10 - 15 minutes of walking time. As part of Resettlement Planning, the loss of access to grazing land has been assessed and mitigation measures have been included in the Grazing Management Plan.
Project entities having apprehension regarding their standing crop getting affected and compensation	As part of the RAP entitlements have been identified for the impact on standing crops as discussed in Volume I
Potential reduction in access to common property resources such as area used for cooking fuel, manure, water for livestock etc.	As part of the RAP entitlements have been identified for the impact on common property resources as discussed in Volume I
Reduction in productivity in remaining land due to heat island effect	As part of the disclosure and engagement activities to be undertaken for the project, a focused effort will be made to inform the local community of the potential impacts from the project and the mitigation measures put in place to minimize the same
Impact on water infrastructure (water pipes laid underground) due to construction activities	As part of the engagement activities prior to the project construction phase, the project will try and identify the underground water infrastructure that may get impacted due to the project and work with the concerned local community to avoid or mitigate the same

Involuntary Resettlement Impacts

Overview of Project-Affected Land and Assets

Land Parcels

93.4 ha of private and patta land will be impacted due to project activities, of which private land is 88.25 ha and patta land is 5.15 ha. Moreover, total area under informal use for agriculture is 214.19 ha, which also includes area under fodder cultivation/ used for open grazing, area used for both agriculture and residence.

Table 0.10 Government Land area under informal land use

	Informal Patta Holder				Land owner encroachment on government land				Squatter on government land				Total
Villages	Agriculture	Fodder Lot	Agriculture & residential	Total	Agriculture	Agriculture & residential	Fodder & any other use	Total	Agriculture	Fodder Lot	Agriculture & residential	Total	
Bijnakhedi	0	0	0	0	8.93	3.06	0	11.99	17.08	0.36	3.88	21.32	33.31
Burlay	0	0	0	0	0.65	0	0	0.65	12.1	0	4.05	16.15	16.8
Burlay	0	0	0	0	0	0	0	0	0	0	0	0	0
Chauma	0	2.4	0.8	3.2	2.4	1.7	0	1.7	7.24	0	2.9	10.14	17.44
Dehripal	0	0	0	0	0	0	1.6	1.6	17.52	0.9	0	18.42	20.02
Dhatrawada	0	0	0	0	4.82	0.9	0	5.72	19.89	1.5	1.6	22.99	28.71
Fawaka	0	0	0	0	0	0	0	0	3.4	0	1.28	4.68	4.68
Jawadi	1.3	0	0	1.3	5.02	0	0	5.02	5.34	0	4.44	9.78	16.1
Parsula	0.25	0	0	0.25	8.2	0.35	0	8.55	4.34	0	0	4.34	13.14
Sub- Total Unit 6 & 7	***1.55***	***2.4***	***0.8***	***4.75***	***30.02***	***6.01***	***1.6***	***35.23***	***86.91***	***2.76***	***18.15***	***107.82***	***150.2***
Hanoti													
Lalpura	0	0	0	0	2.87	0	0	2.87	7.34	0	0	7.34	10.21
Surajpur	0	0	0	0	1.18	0	0	1.18	9.32	0	1.34	10.66	11.84
Sub Total Unit 8	***2.8***	***0***	***0***	***2.8***	***7.8***	***0***	***0***	***7.8***	***51.07***	***0.98***	***1.34***	***53.39***	***63.99***
Total	***4.35***	***2.4***	***0.8***	***7.55***	***37.82***	***6.01***	***1.6***	***43.03***	***137.98***	***3.74***	***19.49***	***161.21***	***214.19***

Source: Land Asset Survey, August 2020, ERM

Crops

The private and patta land parcels have shown a trend towards multi-cropping with the most crops being soyabean and wheat cultivation. Nearly 57% of the area under cultivation, including private, patta and government land has soyabean crop on them. While Soyabean is used as a cash crop, wheat is grown for household consumption.

Structures

Overview of the project affected assets highlight that nineteen (19) residential structures (06 were identified in Bijnakhedi village, 05 in Parsula, 03 in Surjapur, 02 in Dhatrawada and 01 each in Burlay, Chouma and Hanoti which will be impacted during land procurement. Moreover, the Project will result in an impact on one (01) commercial structure (grocery shop), one (01) stone quarry and crusher, 34 other non-residential structures. These structures include, agricultural sheds, cattle shed, greenhouse, and storage sheds unit used for commercial purposes located in the Project footprint area. In addition to non-residential structures, certain immovable assets were identified as being impacted:

Table 0.11 Count of immovable & fixed assets

Villages	Total Immovable Assets	Bore well	Livestock drinking water trough	Boundary wall	Open well	Pipe line	Stone crusher machine/ stone quarry
Unit 6 & 7							
Bijnakhedi	3	0	1	0	0	2	0
Burlay	0	0	0	0	0	0	0
Chauma	2	0	1	1	0	0	0
Dehripal	1	0	0	1	0	0	0
Dhatrawada	8	2	1	1	2	1	1
Fawaka	0	0	0	0	0	0	0
Parsula	2	0	1	0	1	0	0
Jawadi	2	0	0	1	1	0	0
Unit 8							
Lalpura	9	0	0	0	0	9	0
Hanoti	1	1	0	0	0	0	0
Surajpur	5	4	0	0	1	0	0
Total	**33**	**7**	**4**	**4**	**5**	**12**	**1**

Source: Land Asset Survey, August 2020, ERM

Trees

The LA survey assessed 1,512 trees (timber and fruit) across 96 land parcels in the project footprint. 1,512 timber trees, 1027 timber trees are spread across 35 private & patta land parcels have been identified in the project footprint. Of these, most of the trees are used for timber; i.e. the trees are mostly used for constructing residential structures, cattle sheds, storage sheds, making furniture or selling it for cash. Similarly, 379 fruit trees were assessed in the project footprint, of which 67 percent of the fruit trees are in the young productive (fruit bearing) years.

Affected Collective Assets

During the land & asset survey it was identified that there is (1) one chhatri/ memorial located on the government land in village Chouma, which was found to be under encroachment and used for agriculture. In the same village land & asset survey team identified one gau shala / cattle-shed built for "awaara gai"/ stray cows. The structure was identified to be built on government/ Panchayat Dept. land using RCC and concrete material having a total area of 482.885 sq. Meter. The government land on which cattle shed was built measured 1.70 ha approximately, the remaining area was used as a fodder lot and grazing land for cattle. 01 temple/ local deity in Dehripal village was identified as falling within the project footprint. The temple was reported to be more than 100 years old and is considered a major community asset in Dehripal and nearby villages. As per information provided, the temple is visited by every caste of people from 40 nearby villages. 01 local deity each was identified in Fawaka and Jawadi villages. The local deity was informed to be from the last 100 years in the village. The local deity was informed to be worshipped on a regular basis and hold a very deep religious connection with people of both the villages. One (1) hundred-year-old temple was identified to be located within project footprint in Bijnakhedi village. The land procurement for the project will lead to a direct impact over these temples and local deities falling within the project footprint or in-direct impact as loss of accessibility to those collective entities, which are not falling within the project footprint but are close by.

Intensity of Involuntary Resettlement Impacts

Table 0.12 Economic and Physical displacement of PAHs

Units	Villages	Economic Displacement	Physical & economic displacement	Physical displacement	Grand Total
Unit 6 & 7	Bijnakhedi	44	6	0	50
	Burlay	26	**1**	0	27
	Chauma	24	1	0	25
	Dehripal	27	0	0	27
	Dhatrawada	58	2	0	60
	Fawaka	3	0	0	3
	Jawadi	28	0	0	28
	Parsula	14	1	3	18
Unit 8	Hanoti	38	1	0	39
	Lalpura	35	0	0	35
	Surajpur	49	3	0	52
Grand Total		***346***	***15***	***3***	***364***

Source: HH survey 2020

Physical Displacement

As mentioned before, the land procurement will lead to physical displacement of eighteen households in the affected residential structures. These are associated with an impact on 19 structures. 18 PAHs will be impacted by the loss of residential structures across the three units. Out of these 18 households, 15 households will be both physically & economically displaced and rest 03 households be only physically displaced. The 03 households identified to be physically displaced and 01 physically & economically displaced in Parsula are Govt. allotted Awaas patta owners. Out of total 19 structures, 10 structures belong to Private land owners, 05 belong to Patta owners, 03 to squatters and 01 to encroacher. These structures are reported to be under permanent use, with the PAHs not having any other secondary houses.

Economic Displacement

Table 0.13: Impact on households owning private/patta land

Unit	Villages	Private land PAHs	Patta land PAHs	Total PAPs	Potential landless PAHs
Unit 6 & 7	Bijnakhedi	8	0	59	0
	Burlay	3	0	23	1
	Chauma	6	0	34	0
	Dehripal	2	0	23	1
	Dhatrawada	7	0	35	0
	Fawaka	0	0	0	NA
	Jawadi	4	0	16	0
	Parsula	1	5	50	0
Unit 8	Hanoti	11	0	76	1
	Lalpura	0	0	0	NA
	Surajpur	18	0	74	1
Grand Total		***60***	***5***	***390***	***4***

Source: LA survey & HH survey 2020

The major impact foreseen due to project activities is on the loss of livelihood of the households dependent on land for income. About 63 percent of private land owners have an annual earning of less than INR 1,00,000 per annum who are marginal land holders. The magnitude of impact is thus higher on the marginal land owners who will be impacted by loss of the nominal land rendering them landless as well as depriving them from the income generated from agriculture. Of the total 57 household, 23 "private landowner households" were identified to have invested for their land developments and 1 patta landowner household.

Community based livelihood impacts

The primary impact at the community level arises due to reduction in available land for open grazing, due to land allotment, i.e. loss of livelihood and sustenance linked to use of government land for open grazing of livestock. The reduction in common land for grazing will also lead to reduction in count of livestock head by households, due to reduction in land available per unit of livestock, especially for those in economically weaker groups, as input costs will increase (creation of stall-shed, feeding stalls etc.).. Although these households are not directly impacted by the land procurement for the project footprint, consultations with these communities reveal that they will be affected by the loss of land for open grazing.

Gendered livelihood impacts

It is estimated that there are 37 women headed households who are vulnerable due to their dependence on farm produce from their own land parcels. On the basis of the survey, 27 women headed households have been identified to depend on agricultural labour work, and supplementary income from livestock. Three (03) out of the total seven (07) households from which women were informed to migrate were currently engaged in agricultural work. These households are small land holders (less than 2 hectares), and derive an annual average income of INR 91,796 from agriculture for the household

The women headed households identified through the households survey will be economically displaced by the project and will be also be impacted due to lack of any other source of earning to supplement agricultural income. The women of the household are also involved in firewood collection from agricultural land parcels as well as government forest land. The loss of agricultural land will lead

to increased dependence on forest land, which is at relatively greater distance from the main village settlements.

Impact on Vulnerable groups

During the household survey a total of 55 vulnerable households were identified of which19 households were identified to fall below poverty line, 27 women headed households, 4 households with only elderlies, 4 landless and 1 artisan household. The impacts on these households are similar to the impacts discussed for the rest of PAHs, and uniform.

Project-specific Strategies for Implementation

1) Volume I of the RAP and LRP provides the overarching entitlement matrix, market valuation framework, livelihood restoration, approach to resettlement housing and the overarching implementation arrangements, roles and responsibilities as well as schedule. The following table summarises key aspects that need to be considered by RUMSL while implementing the RAP and LRP for Shajapur Solar Park.

Table 0.14 Park Specific Implementation Insights

Aspect	Description
Access to land presently under lease to the stone quarry	Prior to taking possession of the land, RUMSL shall coordinate with the revenue department to ensure that the land is free of encumbrances and claims.
Impact on Commercial Entities	For this purpose, RUMSL, through the Resettlement Implementation Consultant (RIC) shall undertake focused engagement activities with the impacted households to explain the entitlements identified in the RAP &LRP

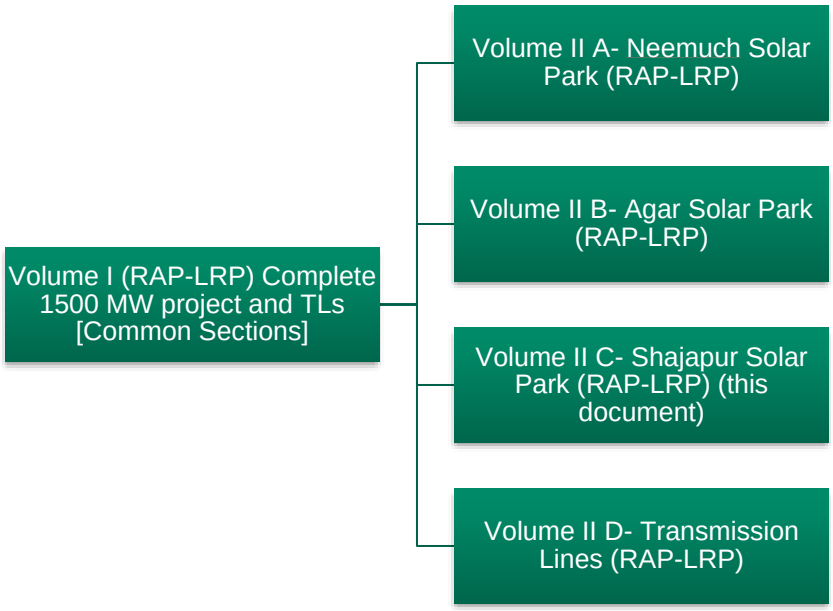
Grievance Management

As a part of the GRM it is suggested that regular engagement should be undertaken with all the villages in the project footprint, with specific focus on the villages who have refused to resettlement surveys. These range from Consultations with the Gram Panchayat to provide update on the land procurement process of private land in the villages to conducting workshops with specific stakeholder groups identified during the resettlement surveys to incorporate feedback and suggestions on resettlement planning.

1. INTRODUCTION TO VOLUME II C

Rewa Ultra Mega Solar Limited (RUMSL) has been authorized by the Ministry of New and Renewable Energy Development (MNRED) to develop three solar parks (including internal evaluation infrastructure and associated transmission lines) with an aggregate capacity of 1500 MW (hereafter referred to as the Project or the 1500 MW Project) across the districts of Neemuch, Agar and Shajapur in Madhya Pradesh, India. ERM India Pvt. Ltd. (ERM) has been engaged by Rewa Ultra Mega Solar Limited (RUMSL) to develop a Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) for the three solar parks (1500 MW) and their associated evacuation infrastructures in Neemuch, Agar and Shajapur Districts of Madhya Pradesh, India. This report is Volume II C: Shajapur Solar Park RAP and LRP for the Shajapur Solar Park of 450 MW capacity and located in two tehsil, i.e. Moman Badodiya tehsil (termed as Unit 6 of 220 MW & Unit 7 of 105 MW) and Shajapur tehsil (termed as Unit 8 of 125 MW). Both units are in Shajapur District. The related volumes of the RAP LRP are shown in the illustration below.

Figure 1.1 Structure of the RAP and LRP Deliverables for 1500 MW



1.1 Brief Project Description for Shajapur Solar Park

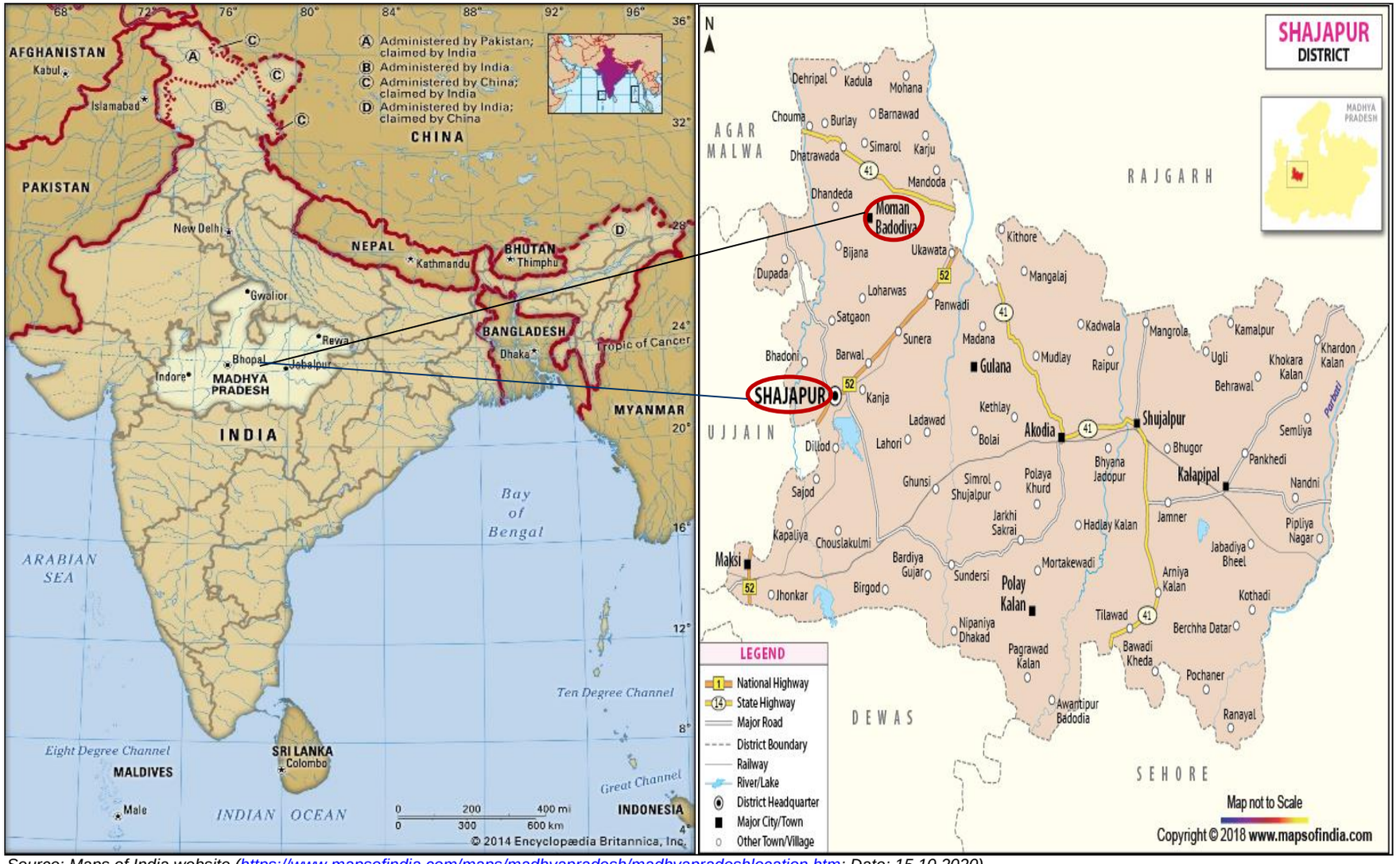
The proposed 450 MW Shajapur Solar Park will be located in two Tehsils i.e. Moman Badodiya tehsil (termed as Unit 6 & Unit 7 of 220 MW and 105 MW each) & Shajapur tehsil (termed as Unit 8 of 125 MW) of Shajapur District.

Table 1.1 Shajapur Solar Park project description

S. No.	Particulars	Description
1.	Project Village location	Unit 6 and 7 (Moman Badodiya): Dehripal, Burlay, Jawadi, Parsula, Fawaka, Dhatrawada, Chauma and Bijnakhedi; Unit 8 (South Shajapur): Hanoti, Surajpur, Lalpur and Upadi
2.	Tehsil	Moman Badodiya Tehsil and Shajapur Tehsil
3.	District Name/State	Shajapur, Madhya Pradesh
4.	Location Coordinates	z. Unit 6: 23°40'43.40"N and 76°15'18.53"E aa. Unit 7: 23°38'32.67"N and 76°16'14.81"E bb. Unit 8: 23°14'12.98"N and 76°13'20.31"E

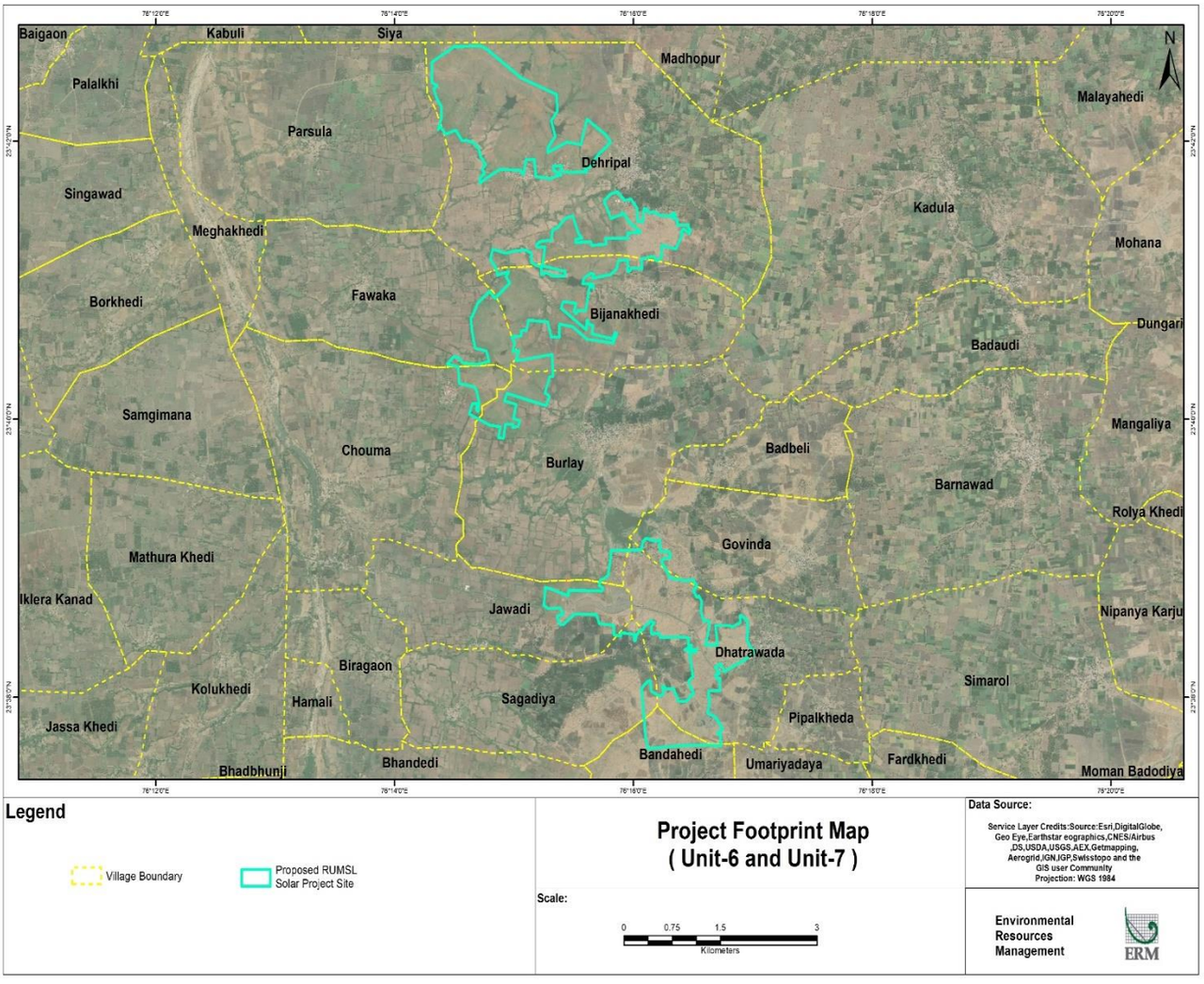
S. No.	Particulars	Description
5.	Capacity	■ Unit 6: 220 MW ■ Unit 7: 105 MW ■ Unit 8: 125 MW
6.	Power Evacuation	The evacuation from the proposed Solar Park at Shajapur shall be carried out through the development of 33/220 kV substation at each unit. All Units shall further connect to the proposed 220/400 kV ISTS (Inter-state transmission system) substation of PGCIL (Power Grid Corporation of India Ltd.) at Agar.
7.	Any other feature existing in Project Area	GAIL Tower and a ~ 400m long and 48 m wide pipeline corridor in Unit 6 (excluded from usable land for the Project); Existing stone crusher in Unit 6 (lease expiring in December 2020); Existing Transmission Line in all Units;
8.	Land Availability	987.2 Ha
9.	Transmission Line	It is proposed to develop three single circuit 220 kV transmission lines for each Unit to connect to 220/440 ISTS substation of PGCIL at Agar.

Figure 1.2 Project Location in Shajapur District



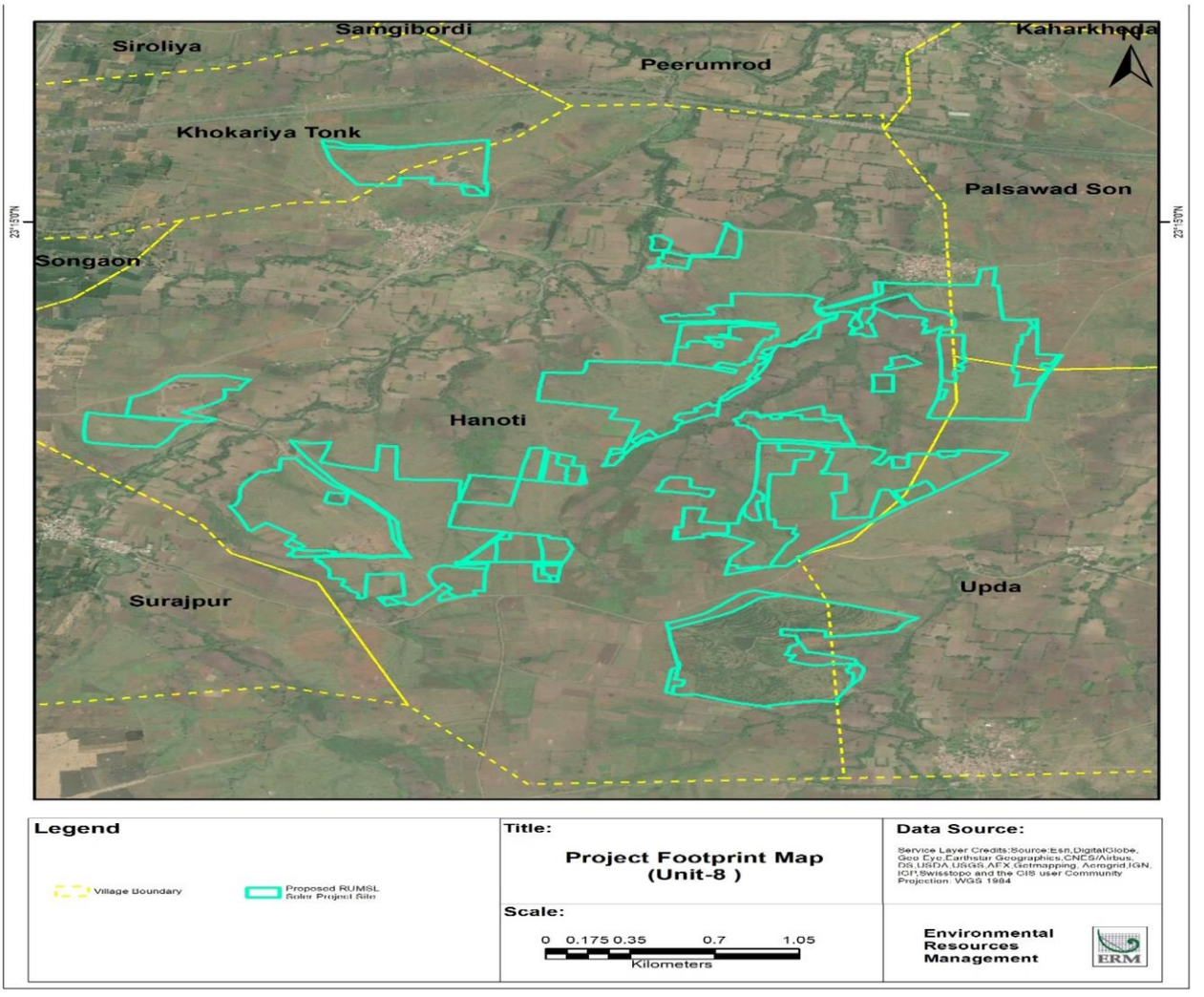
Source: Maps of India website (https://www.mapsofindia.com/maps/madhyapradesh/madhyapradeshlocation.htm; Date: 15.10.2020)

Figure 1.3 Project Footprint Map Moman Badodiya Unit 6 & 7



Source: Project boundary data provided by RUMSL, June 2020

Figure 1.4 Project Footprint Map Shajapur Unit 8



Source: Project boundary data provided by RUMSL, June 2020

1.2 Project Development Timelines

The overall project overview and project progress timeline has been described in **Section 2** of Volume I (C) of the RAP-LRP. The details provided here pertain to specific activities undertaken for Agar Solar Park, starting from site selection to resettlement surveys.

- Site selection: RUMSL (through assistance from a third party entity) identified potential project areas based on location and contiguous availability of government land parcels in 2016-2017. These potential project areas were thereafter discussed and finalised through workshops between RUMSL, potential lenders and third party consultants; further to which the process of formal land allotment was initiated based on the MP Solar Policy, 2012 and taking into account the relevant procedural provisions of the MP Land Revenue Code, 1959.
- Baseline at Project Footprint Identification stage: A review was undertaken in May-June 2019 of the baseline report which was prepared in August 2017;
- Scoping: an E&S scoping visit for Shajapur Solar Park was undertaken in September 2018 to understand the site selection, environmental and social sensitivities and identify relevant stakeholders. As part of this visit, consultations were undertaken in some villages. Based on the scoping visit, an E&S scoping visit report was submitted which identified the environmental and social sensitivities in and around the Project site.
- Land allotment: the land allotment for Shajapur site started in May, 2017;
- DPR– the Draft Detailed Project Report was submitted in December 2019, as part of the implementation schedule. The final DPR, year 2017 provided technical information on the Solar Park, the review of which was undertake by ERM to undertake the ESIA study. The Final DPR was provided to ERM in September 2020
- Environmental and Social Impact Assessment (ESIA) – ERM undertook site visit during 27 January – 01 February, 2020 to understand the site setting, review the E&S sensitivities identified during the scoping stage and to identify the relevant local stakeholders. The activities undertaken included –
  - Identification of key social risks/receptors in the study area;
  - Understanding of prevailing community engagement processes;
  - Understanding aspects of community health and safety, if any, linked to the proposed Project;
  - Understanding land-based impacts, livelihood impacts, issues of vulnerable groups, cultural heritage issues;
  - Understanding significance of impacts on biodiversity and natural resource management; and
  - Consultations with the local communities and focus group discussions (FGD) in the vicinity to understand their views and concerns of the Project.
- Resettlement Planning – the information collected from the ESIA study was used for the planning of the resettlement activities based on identified land based impacts leading to potential economic and physical displacement of the stakeholders. The RAP related site visit was undertaken in July – August 2020, based on which this Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) has been developed have been developed.
- Boundary Demarcation Process: the boundary demarcation exercise was initiated by the revenue department in August-September 2020.
- Bid Process – To Be Completed

- Land Procurement and Land Access: The land allotment process of government for Shajapur Solar Park started in May 2017. The planning for the procurement of private land had begun in March 2020 and was resumed in September 2020 once the Covid-19 imposed lockdown was lifted;
- Early works and construction – To Be Decided (TBD) basis the completion of the bid process;; and
- Indicative CoD – To Be Decided

1.3 Approach and Methodology

The overarching approach and methodology undertaken for resettlement planning has been discussed in Volume I Section 1 of the 1500 MW RAP and LRP. The specific methodology for the Shajapur Solar Park is outlined below:

1.3.1 Information Review

The initial step to the RAP and LRP exercise has been a detailed information review process of the following documents:

- The initial E&S sensitivities identified based on the site selection through the E&S Scoping Report
- Review of secondary data shared by RUMSL in the form of baseline study undertaken by Knight Frank, and submitted in a Baseline Report
- Project footprint information made available as of November 2019 and updated till June 2020 including deduction of land parcels, and addition of alternative parcels based on a site optimization exercise
- Government land allotment records – the land allotment process was undertaken between 2017 and 2019 for the entire project, based on the MP Land Revenue Code, Amendment Act 2018.
- Map IT information consolidation – review of land maps. Identifying and marking sensitive parcels;
- Project Boundary optimization exercise – review of optimized project boundary based on the E&S sensitivity analysis, drone imagery analysis, and land allotment details. The optimized project boundary formed the basis for the technical study undertaken in Resettlement Planning.

1.3.2 Resettlement Scoping during ESIA Consultations

Based on the screening assessment conducted by ERM in October (22 – 25) 2019, an ESIA and RAP-LRP study was proposed for the Solar Park. The ESIA visit was undertaken in January (22 – 30) 2020 to understand the site setting, environmental and social sensitivities and to identify the relevant local stakeholders. An initial impact assessment of potential impacts on the various environmental, ecological and social elements was identified during the ESIA study.

The detailed impact assessment was undertaken for the RAP study during July – August 2020 to assess the extent of land–based impacts, loss of livelihood and conduct specific consultations with the impacted stakeholder groups as identified and updated from the ESIA study. Data for the RAP study was collected through two field tools – household survey and the Land & Asset survey (see Section 1.3.6).

1.3.3 Review of the Government Allotment Process

The process of government land allotment started on 26th May 2017 and ended on 28th June 2019, where 931 ha of land was allotted (refer Table 2.2.). Further details/ documents pertaining to village wise Khasra details included in the project area, tarmeem process, avoidance of Khasras, habitations etc. were duly updated and shared with the ERM team by RUMSL.

1.3.4 GeoSpatial Assessment of Project Footprint and Optimization

In November 2019, a drone survey for the existing land use and land utilization was undertaken, to get updated information on the area. From a resettlement perspective, ERM analysed the drone imagery made available for Shajapur Solar Park, for identification of the following:

- Any improvements on the land parcels, including structures, boundary walls, tube wells etc.
- Water bodies
- Large tree clusters
- Any land parcels which appeared to be under agricultural land use;
- Any sensitivities identified during resettlement scoping as part of ESIA study, like, habitations, waterbodies, cultural heritage, etc.;

The results of this analysis for Shajapur was shared with RUMSL as part of a workshop for the entire 1500 MW project which was held in Bhopal on 25th February 2020 between RUMSL and ERM to discuss the findings of the drone survey, Tarmeem process and ERM's analysis of the E&S sensitivities. The purpose of this workshop was to enable for the project boundary optimization process to be conducted based on the information available. One of the key principles agreed upon for avoidance of impacts that emerged from drone survey and sensitivities identified through ESIA study, was the exclusion/ carving out of structure clusters from the proposed project footprint. Based on the feedback given, a process of project boundary optimization was undertaken during April 2020-June 2020. As part of this exercise, a certain portion of the proposed project boundary had to be carved out due to

- Incorporation of exclusion and/or avoidance measures;
- Technical feasibility criteria such as slope and contiguity.

1.3.5 Development of a Draft Entitlement Matrix for Discussion

Based on the review of the optimized project boundary, ERM developed a draft entitlement matrix (DEM) for RUMSL, IFC and WB's consideration on 5th July 2020. The DEM provided an understanding of the proposed project footprint and the associated socio-economic aspects, the land procurement process, the scope of the resettlement plan, principles for resettlement and the proposed entitlements. This was followed by a conceptual approach for the resettlement surveys. An online workshop was conducted with IFC and WB (RUMSL representatives were unable to attend) on 8th July 2020 to discuss the provisions of the DEM. The key feedback was received from the WB and IFC, which subsequently shaped the approach and methodology for the RAP surveys:

- For the purpose of the planning of the resettlement scope and surveys, the land procurement was to be considered as involuntary, as there is a possibility of land acquisition (expropriation) being triggered in some cases
- A census survey to be undertaken of all impacted households identified for the projects
- Land and asset survey to be undertaken for both formal and informal land users
- The details of structures, crops and associated assets to be recorded identified on each impacted land parcel;
- As part of the land and asset survey initial feedback be sought from the impacted households on their willingness to sell their land if purchased through the MP Mutual Consent-based Land Procurement policy 2014

1.3.6 Resettlement Surveys

The resettlement surveys started in Moman Badodiya (Unit 6 & 7) first and were conducted across Shajapur and Moman Badodiya tehsils concurrently, i.e. Unit 6, 7 & 8 between 28th July 2020 and 28th

August 2020 following the methodology described in Volume I RAP and LRP. Overall, the survey coverage was as follows:

- Eleven (11) village profiles using Village Profiling tool;
- 349 land and asset surveys using survey questionnaires (of these surveys for private land owners were conducted on recall basis[4]);
- 307surveys of impacted households[5];
- An additional 51 household surveys were carried out as part of a sample survey of landless households (households who do not possess any private land or squat upon any Govt. land for agricultural purposes) across all impacted villages to capture the impact of land procurement over free grazing areas located on government land and dependency of other community members (in addition to project affected entities) over it.
- 16 FGDs and 7 Key Informant Interviews (KIIs);

The household survey and the Land & Asset survey were initiated from Umariya village in Susner of Unit 5 of the Solar Park. The list of surveys and consultations held across the villages in Unit 6, 7 and Unit 8 are presented in the table below. While the aim of the survey process was to undertake a 100 percent survey of all affected assets and the associated households, due to non-availability of households (declining to participate in the survey and absenteeism), the 100 percent survey could not be undertaken. The reason for the difference in total PAH number and those surveyed is provided in Section 1.4. however, it should be noted that the impact assessment and consequent entitlements are provided for the 100 percent of the affected assets and households

Table 1.2 Field Survey Activities: Shajapur Solar Park

Unit	Village	Kick Off Meeting	Land and Asset Survey Dates	Household Survey Dates	Survey Completion Meeting	Total PAH number	Total PAHs Surveyed
Unit 6	Burlay*	20-08-2020	20-08-2020	20-08-2020 to 24-08-2020	24-08-2020	27	21
Unit 6	Dhatrawada	15-08-2020	18-08-2020 to 20-09-2020	19-08-2020 to 20-08-2020	22-08-2020	60	52
Unit 6	Jawadi	14-08-2020	11-08-2020	18-08-2020 to 19-08-2020	20-08-2020	28	27
Unit 7	Bijnakhedi	21-08-2020	20-08-2020 to 21-08-2020 & 24-08-2020	21-08-2020 to 24-08-2020	24-08-2020	50	38
Unit 7	Chauma	14-08-2020	17-08-2020 to 18-08-2020	18-08-2020 to 19-08-2020	20-08-2020	25	19
Unit 7	Dehripal	14-08-2020	14-08-2020 to 15-08-2020 & 24-08-2020	13-08-2020 to 15-08-2020	20-08-2020	27	24
Unit 7	Fawaka	12-08-2020	13-08-2020	13-08-2020	19-08-2020	3	2
Unit 7	Parsula	11-08-2020	11-08-2020 to 13-08-2020	11-08-2020 to 14-08-2020	19-08-2020	18	17
Unit 8	Hanoti	26-08-2020	25-08-2020 to 26-08-2020	26-08-2020 to 28-08-2020	27-08-2020	39	28

[4] i.e. information given about land, crop, assets on the basis of their recalling and reporting abilities about their used land as opposed to the actual on site measurement of the land and assets by the survey team. this was done in keeping with the understanding that the formal survey process for the private land will be undertaken in keeping with the mutual consent policy procedure and to avoid any conflicting assessments which may lead to grievances from the land owners

[5] The difference in number of LA surveys and HH surveys done is because there were households identified to be having ownership or informally using more than one land parcels. So, in such cases, land & asset survey was carried out for all the identified land parcels while household survey was carried only once.

Unit	Village	Kick Off Meeting	Land and Asset Survey Dates	Household Survey Dates	Survey Completion Meeting	Total PAH number	Total PAHs Surveyed
Unit 8	Lalpura	27-08-2020	25-08-2020 to 26-08-2020	27-08-2020 to 28-08-2020	28-08-2020	35	31
Unit 8	Surajpur	27-08-2020	27-08-2020 s	27-08-2020	27-08-2020	52	48
03 Units	Grand Total					364	307

Source: ERM
*Note: * The survey was conducted for both Unit 6 & 7*

In addition to household surveys, FGDs and KIIs were undertaken with key stakeholders, i.e. the community, project affected households, local administration and non-profit organizations working in the area. FGDs and KIIs aimed at capturing the qualitative data such as settlement profile, people's opinion and perception about the project as well as gaining feedback and inputs to inform resettlement planning. This information thus served to triangulate the quantitative information collected during the household survey. The following table provides a summary of the FGDs and KIIs undertaken for the RAP planning.

Table 1.3 Qualitative Consultations: Shajapur Solar Park

Date	Stakeholder	Number of Male Participants	Number of Female Participants
31-07-2020	Meeting with Tehsildar of Moman Badodiya,	1	
31-07-2020	Chowkidar of Hanoti	1	
12-08-2020	FGD with Grazier's group at Fawaka	7	0
14-08-2020	FGD with Grazier's at Jawdi	13	0
19-08-2020	Consultations with Graziers at Dhatrawada	43	0
19-08-2020	Consultation with women at Dhatrawada	0	10
19-08-2020	Consultation with women at Parsula	0	16
19-08-2020	Consultation with grazers in Parsula	17	0
20-08-2020	Consultation with women at Dehripal	0	9
20-08-2020	Consultation with graziers at Dehripal	13	9
21-08-2020	Meeting with Agriculture Department	1	0
21-08-2020	Consultation with Ujjain ITI	0	1
21-08-2020	Consultation with MGA Computers	0	1
21-08-2020	Meeting with Saanchi Dairy Representatives	2	0
21-08-2020	Meeting with Krishi Vigyan Kendra representatives	1	0
21-08-2020	Consultation with Krishi Supply shops	4	0
21-08-2020	Meeting with Livestock Department	2	0
21-08-2020	Meeting with Aatma Representatives	2	0
24-08-2020	FGD with local communit[6]y at Bijnakhedi	Refused attendance	Refused attendance
27-08-2020	FGD with local community at Hanoti	12	0
27-08-2020	FGD with women at Hanoti	0	5
27-08-2020	FGD with local community at Surajpur	22	0
27-08-2020	FGD with local community at Lalupura	17	0
Total		**158**	**51**

[6] The local community has been considered homogenous group for FGDs. Specific consultations were undertaken with Graziers and women to capture their specific opinions

1.4 Specific Limitations for the stakeholder consultations for Unit 6, 7,8

The details of specific limitations are:

- The "area under agriculture/ land use" of a private-owner has been collected entirely on their stated recall- without confirming on the land parcels;
- There may be a slight difference in the reporting of private land and encroached/ squatted land due to varying interpretations and understanding of the area under informal use;
- The response of private and patta landowners on their intention to consent to sale of land and assets as per the Madhya Pradesh Consent-based Land Purchase Policy, 2014", is indicative;
- The land & asset survey of four (04) encroached/ squatted land parcels in Lalupura village could not be done due to inclement weather conditions and heavy water logging in the field and all along the access route. The respective Khasra numbers along with their approximate encroachment are, 69 (0.1 ha encroachment), 19 (0.1 ha encroachment), 125 (0.05 ha encroachment) & 380 (0.05 ha encroachment);
- Burlay village profile could not be undertaken as the local community from the village refused to give any information in the absence of the Sarpanch. The Sarpanch did not agree to participate even after multiple attempts by ERM team due to apparent issues of availability;
- Of the total 346 land & asset surveys, 71 were done with a representative in the absence of a member of the project-affected household,;
- Of the total 346 land & asset surveys conducted, 31 households did not give consent to their households survey;
- No sample survey was done in Lalupura as there were no landless households[7];
- 57 private & patta landowners were absent and could not be surveyed.
- The GPS co-ordinates for 15 households consulted/ surveyed in Hanoti, 22 households in Lalupura and 6 households in Bijnakhedi could not be taken as they were apprehensive of any kind of photo documentation and refrained from giving permission for their photographs.
- Disclaimer: This report has been finalized on the basis of discussions with RUMSL and feedback from World Bank and the IFC. A recommended strategy for community-level disclosure of the RAP and LRP has been suggested to RUMSL and is being currently deliberated. In view of the COVID-19 pandemic related health and safety concerns and travel restrictions (as of 30 April 2021), this report has been finalised based on the understanding that RUMSL and the Resettlement Implementation Consultant will undertake the recommended disclosure. A Hindi translation of the Volume 1 Executive Summary will be provided to the local community. Any relevant feedback from the local community can be incorporated by the RIC as a part of RAP and LRP implementation

1.5 Layout of Volume II C

Section 1 (this section)	Introduction
Section 2	Project Footprint and Land Procurement Status
Section 3	Summary of Project Affected Households
Section 4	Socio-Economic Baseline Profile of Affected Communities

[7] *i.e. all the households in Lalupura village have private land or use nearby Govt. land as a squatter.*
06 sample survey was carried out with landless households in each impacted village. These households do not possess any private land or use nearby govt. land for agricultural purposes.

2. PROJECT FOOTPRINT AND PROCUREMENT STATUS

2.1 Project Footprint

Shajapur Solar Solar Park comprises three relatively proximate and non-contiguous locations as shown in ***Figure 3.1, Figure 3.2*** and ***Figure 3.3*** for all three units under Shajapur Solar Park. The solar park includes land from eleven (11) villages in Moman Badodiya & Shajapur Tehsil of Shajapur District for Unit 6, 7 & 8, with a total land area of 981.16 ha

Table 2.1 Village wise Project footprint

Sl No.	Village Name	Govt. land (NRED allotted)	Govt. Land Identified	Private Land	Patta Land	Total Land Area (ha) (Govt. Land + Pvt. Land)
1	Burlay*	23.67	0.0	6.4	0.0	30.1
2	Jawadi	32.45	0.0	1.98	0.0	34.43
3	Dhatrawada	170.19	0.0	10.10	0.0	180.29
Sub- Total (unit 6)		***226.32***	***0.0***	***18.49***	**0.0**	**244.81**
4	Parsula	116.2	0.0	0.0	5.15	121.36
5	Dehripal	140.14	0.0	12.39	0.0	152.53
6	Bijanakhedi	83.35	0.0	13.16	0.0	96.51
7	Fawaka	15.31	0.0	0.2	0.0	15.31
8	Chouma	42.97	0.0	7.4	0.0	50.41
9	Burlay*	41.7	0.0	0.0	0.0	41.7
Sub- Total (Unit 7)		**439.64**	**0**	**32.99**	**5.15**	**477.78**
10	Surajpur	22.7	0.7	18.2	0.0	41.6
11	Lalupura	53.14	0.8	0.0	0.0	53.94
12	Hanoti	131.97	12.5	18.53	0.0	163
Sub- Total (Unit 8)		**208.1**	**14.0**	**36.77**	**0.0**	**258.57**
Total (Unit 6, 7-8)		***874.06***	***14.0***	***88.25***	***5.15***	***981.16***
Categories of land in proportion to the total land allotted		***89.08 %***	***1.43 %***	***8.99%***	***0.52%***	***100%***

Source: Data provided by RUMSL, *Jan 2021Note: There are total 11 villages. Burlay village has been considered both in Unit 6 and 7*
All figures are in ha except where indicated

Review of the project boundary maps provided by RUMSL, after the land optimization exercise, confirms that priority has been given to allotment of government land for the project area, in order to minimize private and patta land requirement and associated impacts. Specific avoidance measures include:

- Land used for habitation and access for habitation has been avoided though a few residential structures are within the project footprint (19 residential structure);
- Land for religious structures or cremation land has been deducted from initially identified land parcels;

  Land for access to isolated structures has been avoided to the extent feasible.

2.1.1 Government Land Allotment

At the time of the RAP survey, out of the total 874.06 ha of government land required for the project, 931 ha (107 percent) of government land had already been allotted. In addition to this, 14 ha of additional government land (which is 1.43% of the total project land required) has been identified but the allotment of the same is yet to be initiated as of April 2021. The details of allotment letters are given below:

Table 2.2 Dates of Government Land Allotment for Shajapur Park

Allotment Date	Allotment Letter Number	Area Allotted in ha	Village
Moman Badodiya			
26/05/2017	03/A-19(3)/2016-17	9.14	Dehripal
26/05/2017	03/A-19(3)/2016-17	30.52	Burlay
26/05/2017	03/A-19(3)/2016-17	20.11	Jawadi
11/12/2017	26/A-19(3)/2016-17	112.61	Dehripal
11/12/2017	26/A-19(3)/2016-17	117.10	Parsula
11/12/2017	26/A-19(3)/2016-17	17.10	Fawaka
11/12/2017	26/A-19(3)/2016-17	13.86	Jawadi
11/12/2017	26/A-19(3)/2016-17	40.15	Burlay
11/12/2017	26/A-19(3)/2016-17	45.96	Chouma
11/12/2017	26/A-19(3)/2016-17	95.45	Bijnakhedi
11/12/2017	26/A-19(3)/2016-17	176.30	Dhatrawada
South Shajapur			
26/05/2017	02/A-19(3)/2016-17	164.61	Hanoti
28/06/2019	03/A-19(3)/2019-20	26.75	Surajpur
28/06/2019	03/A-19(3)/2019-20	61.34	Lalupura
	Total	***931.00***	

Source: RUMSL

The government land allotted on the given dates also comprises grazing land, i.e. Charnoi, Charagah. The allotment of government land and especially allotted grazing land will have an adverse impact on not only the project affected households but the broader community residing in the project villages; as it will reduce the area available for the open grazing of livestock. The impacts over project entities due to government land allotment has been detailed in ***1.1.1*** and ***1.1.1***

2.1.2 Use of Government Land

The current use of government land is characterized by open grazing, and squatting for seasonal agriculture.

The two types of informal use of government land are defined below:

- **Land owner encroachment on government land:** The private land owner who has occupied part of Government Land, adjoining the private/ patta lands into their agricultural land use area. There is no legal claim over those occupied government land parcels.
- **Squatter on government land:** Squatters are informal users, who have occupied government land (including charnoi/charagah/kabil kast) for agricultural use, while their private/patta land is at a different location in the village. Squatting can also be undertaken by landless households for agriculture and/or residence.

2.1.2.1 Encroachments

Encroachment of government land adjoining existing private/patta land to cultivate larger parcels has been noted in the proposed project footprint.

As per land & asset survey carried out with all the identified project entities, 45.43 ha of land was identified as encroached, associated with 71 private land owners.. The details have been given in ***Section 1.1.1***

2.1.2.2 Informal Use of Government Land by Squatters

As part of the land & asset survey, a total of 161.21 ha of land was identified as squatted on for agriculture or fodder lot development. There are 174 PAHs who reported squatting on government land.

The squatted land parcels were identified to be primarily used as agricultural land parcels by all the squatters, in addition to it the parcels were also used to cater the fodder requirements for their livestock. Out of total 171 squatters who use their land parcel for agricultural purposes, 03 households use their land for growing fodder only. The further details have been given below in ***Section 1.1.1***

2.1.3 Grazing

The government land in the villages and nearby areas are largely used for open grazing (shrubs, wild small plants/ saplings, grass etc.) of livestock. There are government designated land areas in every village, known as *Charnoi or Charagah* which is to be used specially for grazing by the village community. However, there are no physical identifiers for such land parcels, and typically, grazing is undertaken on any open government land parcel. The total designated grazing land available in the Project villages, and as a proportion of total government land in the village is as given below.

Table 2.3 Designated Govt. grazing land

Unit	Village	Charnoi & Kadim available after Project allotment (ha	Total government land after Project allotment (ha)	Share of Charnoi & Kadim to government land in the village after Project allotment	Total Agricullture land (Net Sown) in the Village as per Census 2011 data (in Hectare)	Share of Charnoi & Kadim to agricultural land in the village after Project allotment
6	Burlay	11.0202	918.3	6.59	551.01	2
	Jawadi	0.2232	270.5	7.86	220.16	0.101381
	Dhatrawada	0	479.1	0	322.85	0
7	Parsula	0	571.6	0	481.57	0
	Dehripal	12.0826	811.6	0.3	604.13	2
	Bijanakhedi	0	267.6	0	206.1	0
	Fawaka	8.9922	570.3	8.82	449.61	2
	Chouma	0	816.7	0	695.27	0
8	Hanoti -	NA	535.4	NA	308.41	NA
	Lalupura	3.6788	258	2.59	183.94	2
	Surajpur	4.3356	259.2	4.72	216.78	2
	Total	***40.3326***	***5758.3***	***61.82***	4239.83	0.951279

The above table shows the availability of designated grazing land, after the government land allotment for the Project. The reduction in available grazing land is highest in Dhatrawada (unit 6), Parsula (unit 7), Bijnakhedi (Unit 7) and Chouma (Unit 7), which will have no grazing land left after allotment for the project.

Consultations undertaken with the community also confirmed the findings from the above data – the available open grazing land (i.e the government land) is limited, and currently, the village residents

have ease of access to the same. The solar plant will lead to decrease in the availability of open grazing land and will increase the travel time (to the alternatively allotted land for grazing depending upon the finalised location).

2.1.4 Water Bodies

The project footprint also has some perennial & seasonal waterbodies covered under it. Table 2.4 below gives details of such waterbodies which are still within the project footprint and couldn't be carved out during project area optimizations.

Table 2.4 Details of waterbody areas

Villages	Sum of Surface waterbody Area (ha)
Burlay	3.71
Dhatrawada	1.32
Unit 6	***5.03***
Parsula	6.3
Unit 7	***6.3***
Surajpur	0.68
Lalpur	0.28
Hanoti	0.1
Unit 8	***1.06***
Grand Total	***12.39***

Source: RUMSL, Jan 2021

The table above indicates that Unit 6 has the highest waterbody area falling within the project footprint. Among all the villages having waterbodies, Parsula (6.3 ha) has the largest surface water-body area falling within project footprint followed by Burlay (3.71 ha) the impacts of the same are discussed in Section 1.1.1 below.

2.2 Private Land

Table 3.3, states that a total of 102.82 ha of private land has been covered under land & asset survey; this private land belongs to a total of 85 project entities. The private land falling within project footprint was identified to be used largely for agriculture (59 households).

In addition to above, 10 private landowners were identified during the land & asset survey to be using their land for both agriculture and residential purposes. The structures built on agricultural land parcels were for seasonal use from where they also keep a watch/ guard on their crops from wild animals etc.

2.3 Patta Land

Similar to the usage of private land identified, 5.2 ha of patta land was also identified to fall within the project footprint area during the land & asset survey. With reference to Table 3.3, the patta land is identified only in Parsula village. The identified Patta land belongs to 9 households.

4 of the 9 households owing patta land were identified to have been allotted "Awaas patta land" and the remaining 5 households were using the patta land for agriculture.

2.4 Impact Avoidance and Project Boundary Optimization

2.4.1 Comparison of Project Land Requirements

The land requirements across three units was 1391.849 ha which has been further reduced and the land currently allotted for the project is 987.2 ha. This reduction in project footprint has been made after several optimization processes where:

- Cluster of habitants located in villages like, Dahripal, Parsula etc. have been avoided;
- Several water bodies identified to be located within the project footprint have been avoided;
- Most of the Private land parcels have been carved out from the project boundary;
- Maximum Patta land have been avoided. Currently only 5.2 ha. of land in Parsula is falling within project footprint.

The exclusion of land parcels was undertaken based on a review of aerial imagery, site observations during E&S studies, and an avoidance exercise undertaken by RUMSL's consultants, based on the land allotment details provided. The considerations included details of the land parcels, status of land ownership and land use as per government records, the total area of each land parcel and the area allotted to the Project. In addition to this RUMSL made available the village wise land parcel maps through MAP IT[8] for the purpose of analysis. In parallel, the land allotment details were ground truthed to an extent by the district revenue administration to identify the correct ownership status on ground as well update of land records.

The details of total land identified across three units and current land allotted and identified (private & patta) have been given below in ***Table 2.5***. The table indicates that 410.64 ha of land have been optimized and carved out of project footprint including a large area from unit 8 (320.73 ha.).

Table 2.5 Details of land identified and allotted

Units	Land previously Identified	Land allotted/ identified after optimizations	Optimized/ avoided area
Unit 6	274.0	*244.81*	29.19
Unit 7	538.5	*477.78*	60.72
Unit 8	579.3	*258.57*	320.73
Total	***1391.8***	***981.16***	410.64

2.4.2 Optimizations carried out & suggested

The optimizations/ avoidances carried out within the project footprint aimed to reduce adverse impacts over project entities. The details of optimizations carried out till date and proposed optimizations along with their Khasra/ land details and households dependent on it have been given below in ***Table 2.*** also a map showing the details of khasras/ land parcels, structures etc. have been given in ***Figure 3.1, Figure 3.2*** and ***Figure 3.3***.

Table 2.6 Details of optimization/ avoidance undertaken or

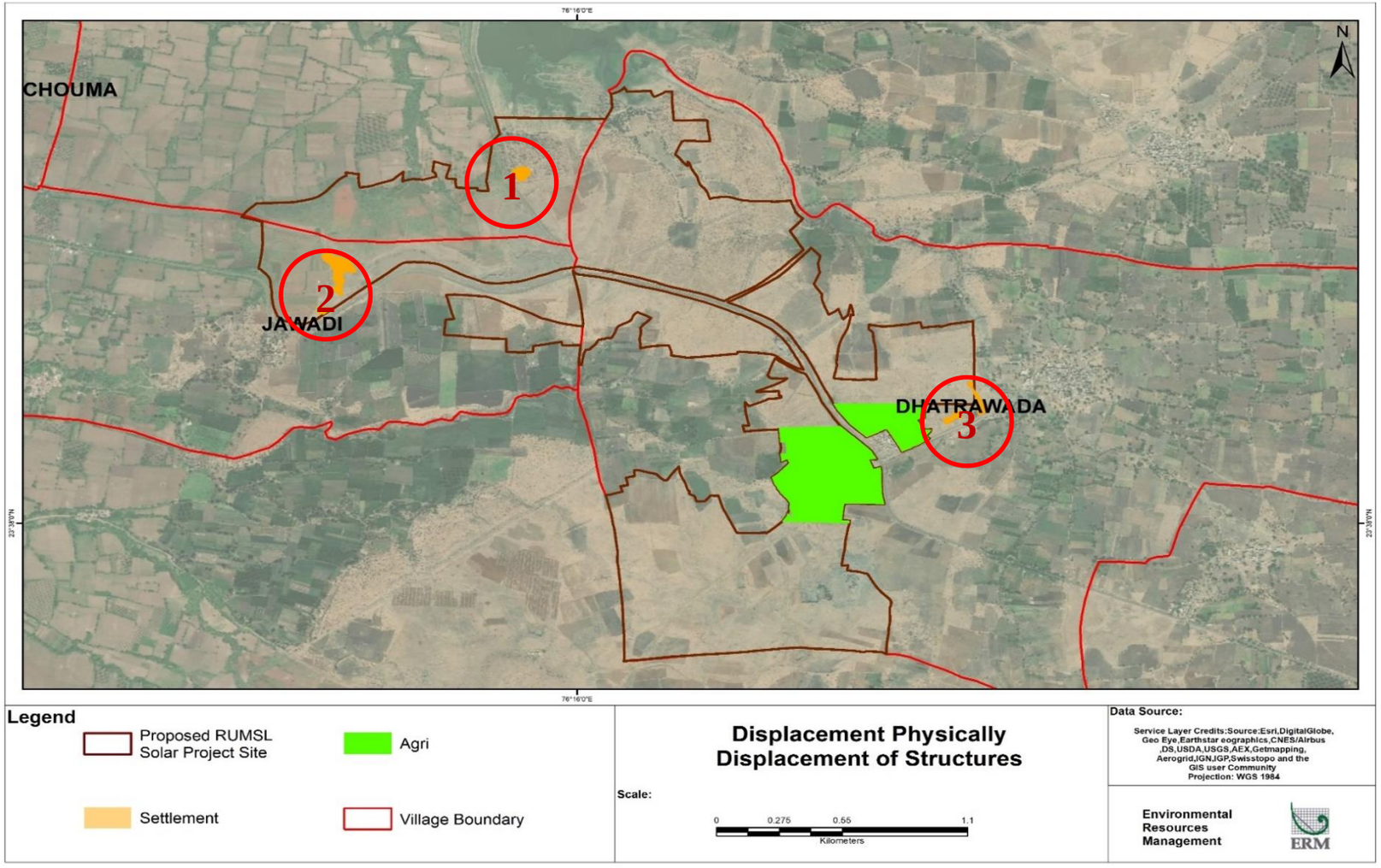
Village	Khasra Detail	Type of optimization/ Avoidance undertaken or suggested
Unit 6		
Jawadi	939 and 942	■ 15 households on government land (General caste, OBC-Prajapati and SC) ■ These households have lived here for 20 years due to lack of space to expand in the main habitation of Jawadi ■ Edge of the boundary with road access
Dhatrawada	278, 299, 300, 301 & 302	■ 20 households on abadi land (Harijan/SC and Pal Rajput communities); ■ Some households had been allotted a "praman patra" from the Gram Panchayat to construct a house by themselves and/or under the PM Awas Yojana; ■ This settlement dates back to 1992 onwards, but the pucca houses were recently constructed (2014 onwards) ■ Edge of the boundary with road access
Unit 7		
Parsula	939 and 942	■ 5 households on government land (Harijan/SC)

[8] Madhya Pradesh Agency for Promotion of Information Technology (Department of Science and Technology, GoMP)

Village	Khasra Detail	Type of optimization/ Avoidance undertaken or suggested
		■ They settled next to their allotted patta land (5 pattas of ~0.6 ha each allotted in 2001-02) ■ Not near boundary and no road access
Dehripal	370 & 366	■ 10 households on government land (Banjara/OBC Settlement – they work on Patta land around cluster one on informal lease) ■ Edge of the boundary and no road access
	356, 358, 344	■ 25 households on government land including a school – Banjara Basti ■ Edge of the boundary and no road access
	650 & 651	■ Expansion of the main Dahripal Village which is north of this cluster (Up to 3 households) ■ Edge of the boundary and no road access
Dahripal and Bijanakhedi	560, 561 & 562 (in Dehripal) 19 & 48 (Bijnakhedi)	■ 12 households around private agricultural land – nature of ownership is not verified ■ Edge of the boundary and no road access
Details of Area suggested for further Optimization/ Avoidance		
Unit 6		
Dhatrawada		■ The total area of deduction is ~5 hectare ■ 11 PAHs who have encroached/squatter on government land not be affected ■ Edge of the South-West project boundary
		■ The total area of deduction is ~ 1 hectares ■ 4 PAHs who have encroached/squatter on government land not be affected ■ Edge of the state highway 42
Unit 8		
Lalupura		■ The total area of deduction is ~3 hectare ■ 7 PAHs who have encroached/squatter on government land not be affected ■ Edge of the Eastern project boundary

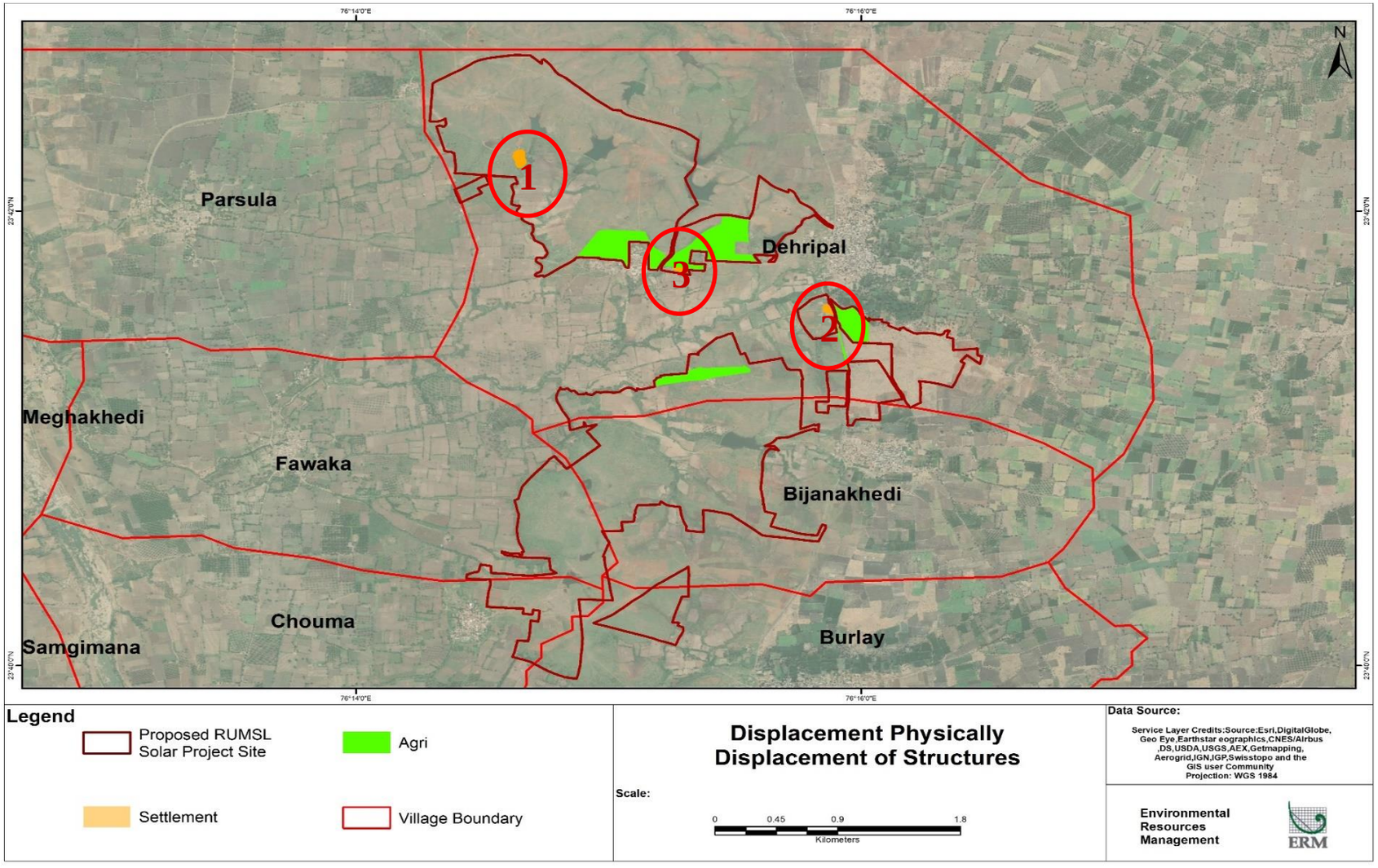
Land parcels/area with approximately 55 households (not inclusive of scattered residential structures in and around agricultural land) was avoided from Parsula and Dehripal village under Unit 7; while 35 households (not inclusive of scattered residential structures in and around agricultural land) were avoided from Jawadi and Dhatrawada villages. The details of structural habitats, waterbodies etc. avoided have been given below in ***Figure 2.1***, ***Figure 2.2*** and ***Figure 2.3.***

Figure 2.1 Map showing Khasras/ land parcels optimized in Unit 6



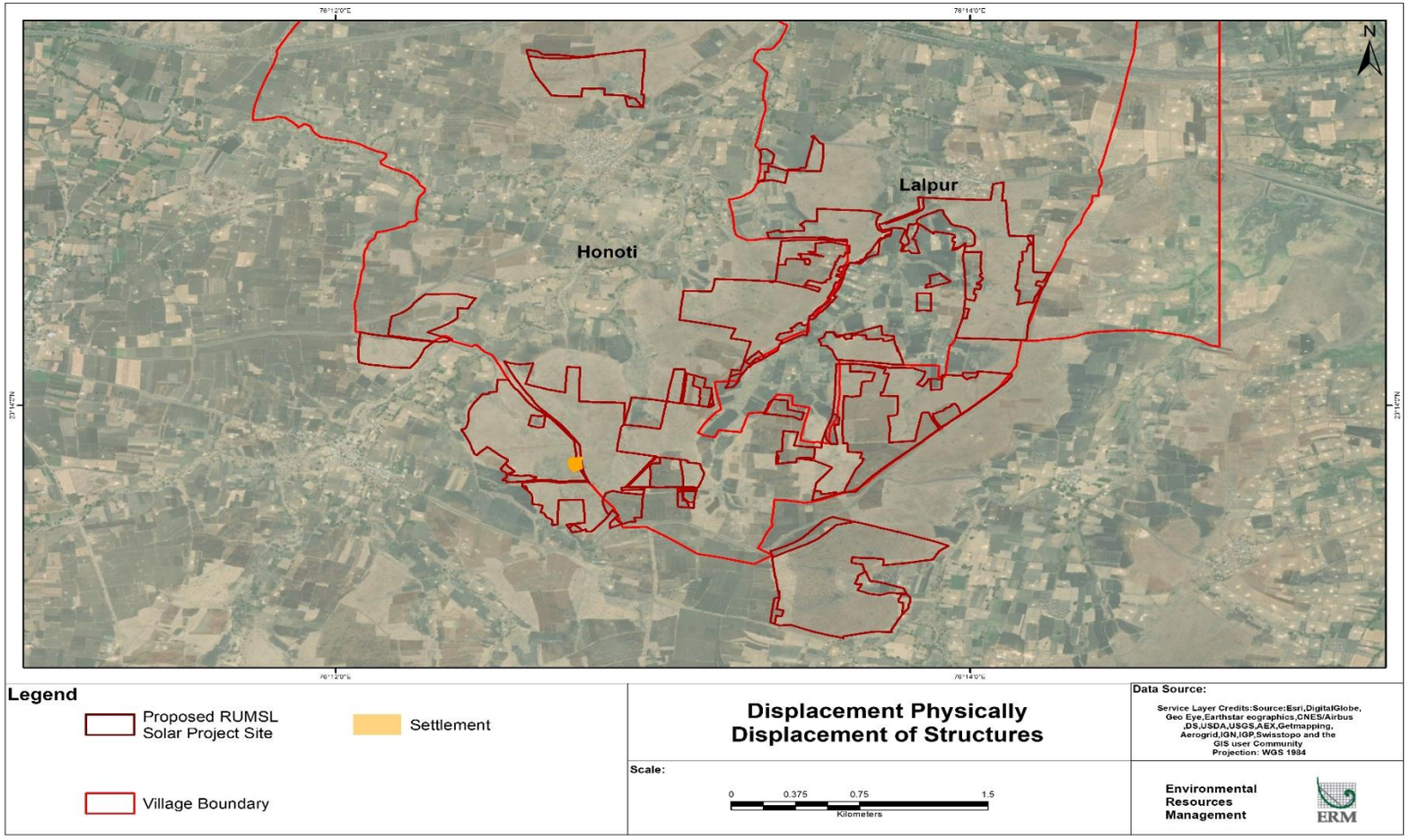
Source: Land Use sensitivity mapping by ERM

Figure 2.2 Map showing Khasras/ land parcels optimized in Unit 7



Source: Land Use sensitivity mapping by ERM

Figure 2.3 Map showing Khasras/ land parcels optimized in Unit 8[9]



Source: Land Use sensitivity mapping by ERM

[9] *The land parcels in Unit 8 are randomly scattered due to un-availability of contiguous land parcels; however these scattered parcels shall be connected by TL routes*

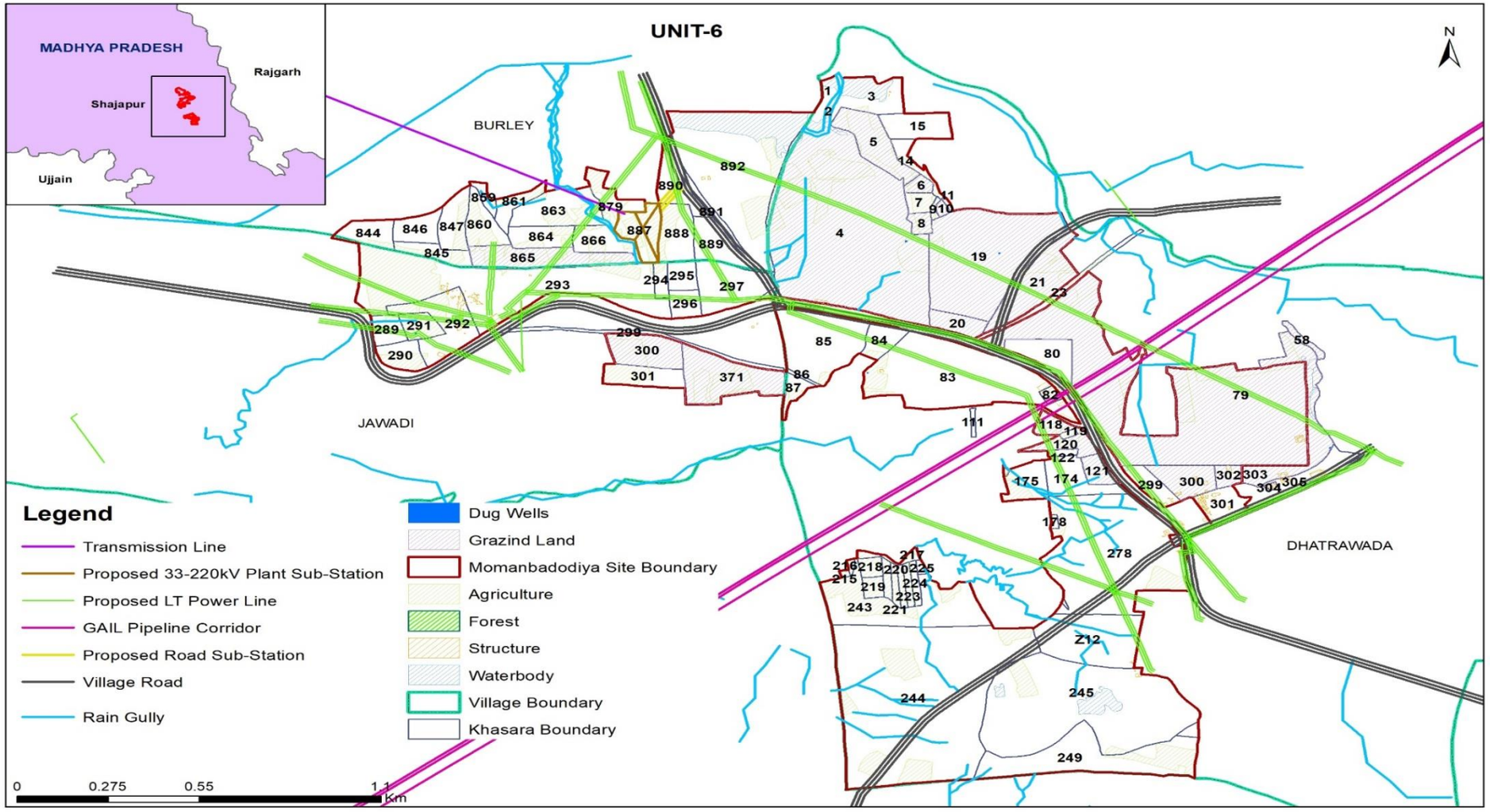
3. SUMMARY OF PROJECT AFFECTED ENTITIES

3.1 Land Use and other Sensitivities

The Figures below provide a spatial overlay of land use categories along with a tabular summary of project affected households across different types of impacts. The graphical representation below provides a snapshot of the land use within the project boundary.

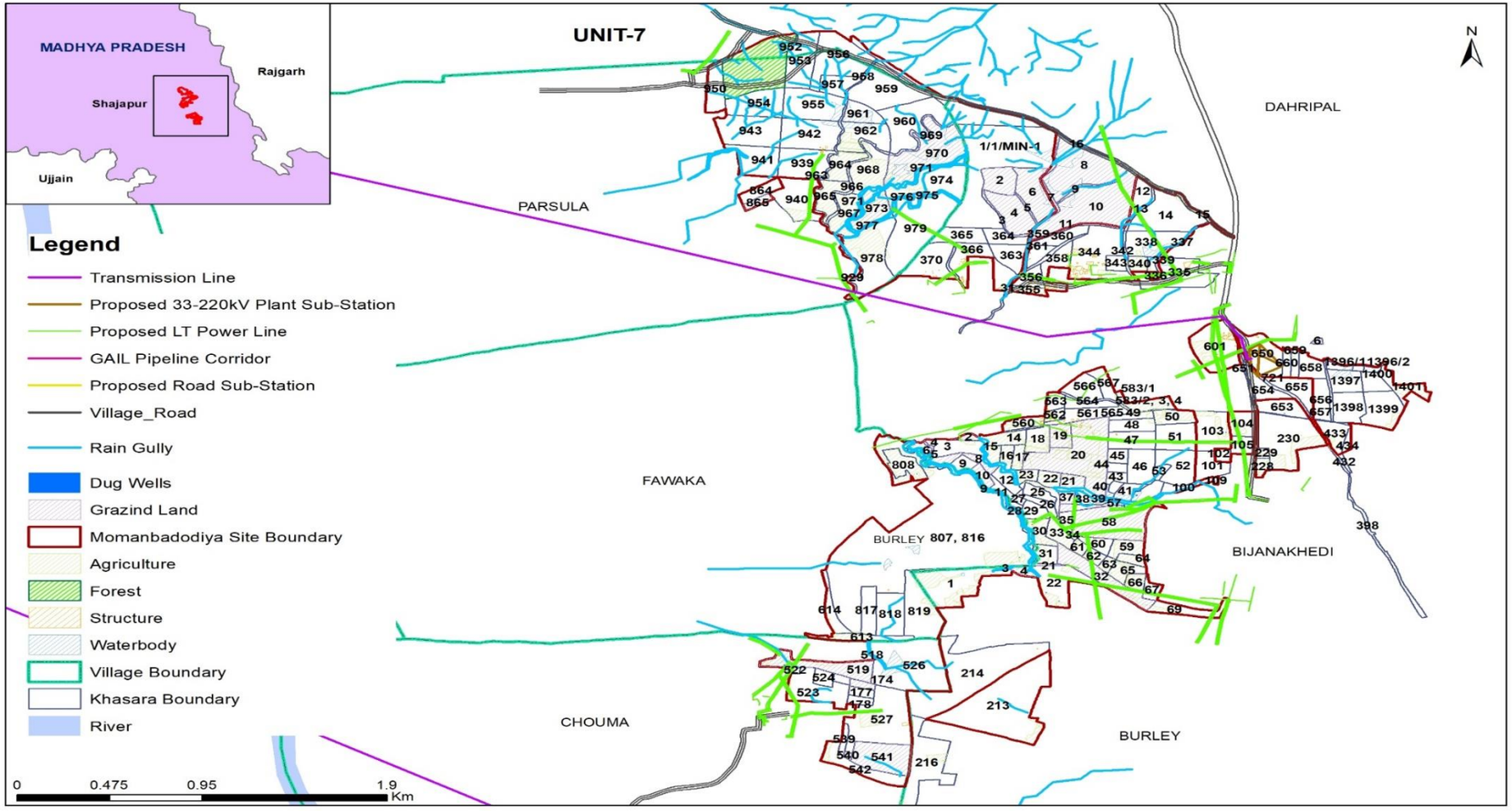
Of the total land area under cultivation within the Solar Park footprint, 93.4 (9.5 %) hectares is private/patta land, and 214.9 (24 percent) hectares is informal use of government land for agriculture and/or fodder cultivation. The agreed/proposed exclusions to mitigate/minimize economic and physical displacement has been provided in Table 2.4.

Figure 3.1 Land use map of Unit 6



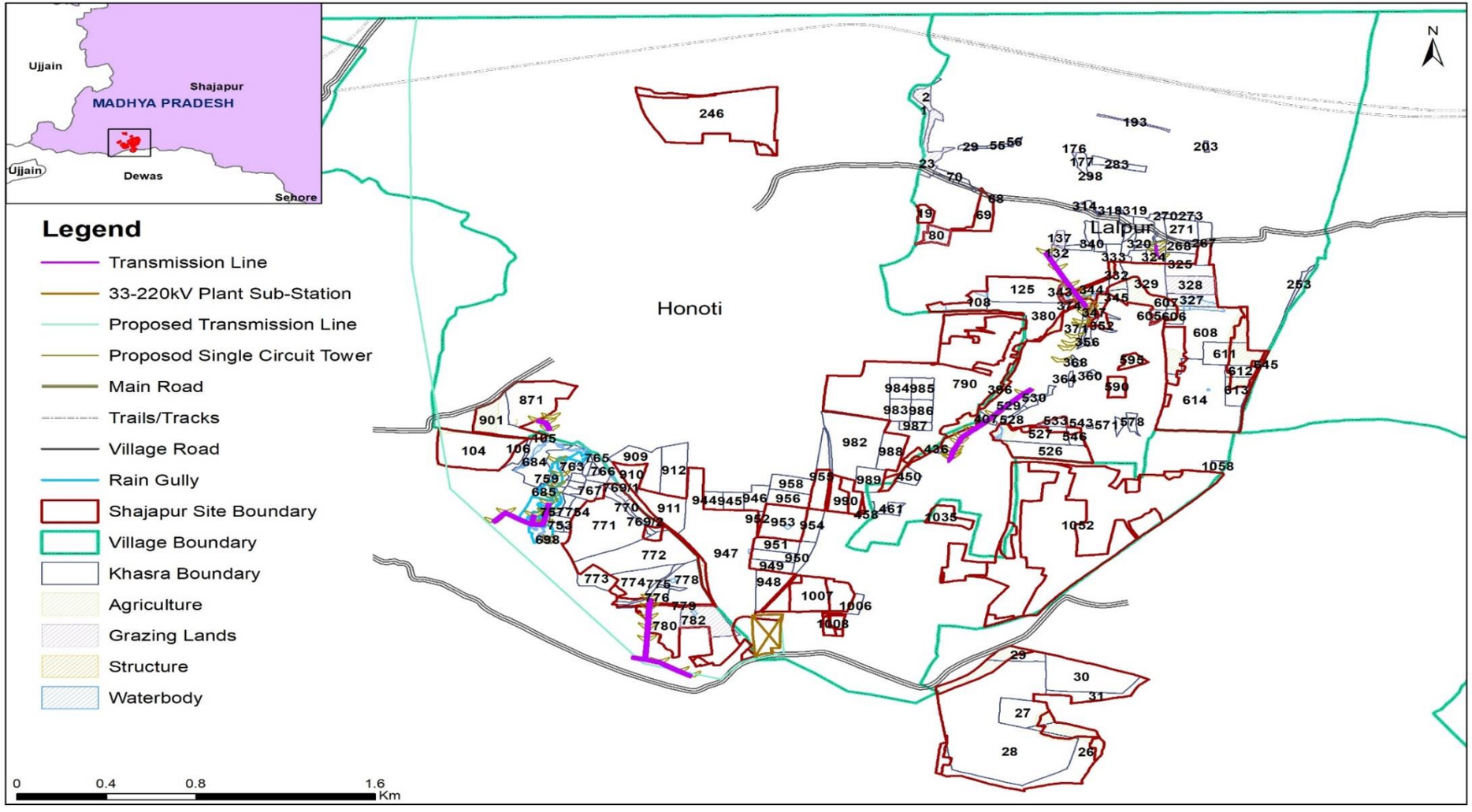
Source: Land Use sensitivity mapping by RUMSL

Figure 3.2 Land use map of Unit 7



Source: Land Use sensitivity mapping by RUMSL

Figure 3.3 Land use map of Unit 8



Source: Land Use sensitivity mapping by RUMSL

3.2 Directly Affected Villages

Based on the final project footprint, the following villages are affected. The ***Table 3.1*** indicates that 87.1% of the total geographical area of the villages will remain after land procurement for the project.

Table 3.1 Land requirement in Project Villages

Sl No.	Village Name	Geographical Area of Village (ha)	Land required for Shajapur solar park (ha)				Land remaining (ha)	%Proportion of Remaining (%)
			Govt. Land (ha)	Private land (ha)	Patta land (ha)	Total		
1	Burlay*	948.35	23.67	6.4	0	30.1	918.25	96.83
2	Jawadi	304.65	32.45	1.98	0	34.43	270.22	88.70
3	Dhatrawada	660.97	170.19	10.1	0	180.29	480.68	72.72
Sub- Total (Unit 6)		***1913.97***	***266.32***	***18.49***	***0***	***244.81***	1669.16	87.21
4	Parsula	692.98	116.2	0	5.15	121.36	571.62	82.49
5	Dehripal	944.49	140.14	12.4	0	152.53	791.96	83.85
6	Bijanakhedi	385.56	83.35	13.16	0	96.51	289.05	74.97
7	Fawaka	587.59	15.31	0.2	0	15.31	572.28	97.39
8	Chouma	871.31	45.1	7.4	0	50.41	820.9	94.21
9	Burlay	948.35	41.7	0		41.7	906.65	95.60
Sub- Total (Unit 7)		***4430.28***	***439.64***	***32.99***	***5.15***	***477.78***	3952.5	89.22
9	Surajpur	300.83	23.4	18.2	0	41.6	259.23	86.17
10	Lalupura	308.61	53.94	0	0	53.94	254.67	82.52
11	Hanoti	698.25	144.47	18.5	0	163	535.25	76.66
Sub- Total (Unit 8)		***1307.69***	***222.1***	***36.77***	***0***	***258.57***	1049.12	80.23
Total (Unit 6, 7,8)		***7651.94***	***888.06***	***88.25***	***5.15***	***981.16***	6670.78	87.18

Source: Data provided by RUMSL, 18th June, 2020
Note: Burlay* comprises land required across both the Units (6&7)

The table indicates that Bijnakhedi village will have the highest impact, in terms of proportion of land taken by the project comparatively to other villages falling in the project footprint. Bijnakhedi shall have 69.4% of total geographical land remaining after land is procured for the project.

Similarly, Dhatrawada (remaining land 72.5%) and Hanoti (remaining land 76.7%) shall be two other highly impacted villages, where remaining land area shall be less than 80%. There are other villages where more than 90% of the land area shall remain available after land procurement for the project, such villages are Fawaka (97.1%), Chouma (93.7%) and Burlay (92.4%).

3.3 Affected Land Parcels

The total number of land parcels affected by the land procurement for all the three Units have been presented below in ***Table 3.***; and the spatial representation of these parcels and their ownership is provided in ***Figure 3.1, Figure 3.2*** & ***Figure 3.3*** above.

Table 3.2 Land parcels required for the solar park

Units	Type	Number of land parcels	Land Area (ha)
Unit 6	Govt.	123	226.32
	Private	63	18.49
Sub- Total		***186***	***244.81***
Unit 7	Govt.	161	439.64

	Patta	11	5.15
	Private	81	32.99
Sub- Total		***253***	***477.78***
Unit 8	Govt.	76	208.1
	Private	33	36.77
Sub- Total		***109***	***258.57***
Grand Total		***548***	***981.16***

Source: Data provided by RUMSL, Dated Jan 2021

3.3.1 Project Affected Area and survey coverage

The Table 3.3, below gives details of the total land surveyed with regard to the total area already allotted (i.e. govt. land) and to be procured (i.e. private & patta land) in each village for the project. The data clearly shows that a total of 29.6% of the total land allotted for project has been covered under the land & asset survey. Table 3.1 above indicates that nearly 12.9% of the total land is allotted/ impacted under project and rest 87.1% land is still remaining across impacted villages after allotting the land for project.

The land area surveyed in any village is comparatively less than the total area allotted in the village, as the land area surveyed comprises of only those lands which was under any use by project entity, i.e. agriculture, structure, fodder lot etc. the further details pertaining land and its impact over project entities have been given in below sections.

Table 3.3 Survey coverage

Sl No.	Village Name	Govt. land (NRED allotted + Identified + Horticulture + Seasonal Pond) (ha)	Govt. land under agri use as per GIS (ha)	Govt. land under agriculture surveyed (ha)	% of Govt. Under agriculture surveyed	Private Land (ha)	Private land surveyed (ha)	% surveyed	Patta Land (ha)	Patta land surveyed (ha)	% surveyed
1	Burlay*	23.7	10.20	10.20	100	6.4	7.6	118.75*	0	0	NA
2	Jawadi	32.2	13.12	13.12	100	2	0.56	28	0	0	NA
3	Dhatrawada	172.2	29.69	29.69	100	9.7	7.7	79.38	0	0	NA
Sub- Total (Unit 6)		***228.1***	***58.41***	***58.41***	***100***	***18.1***	***15.86***	***87.62***	***0***	***0***	***NA***
4	Parsula	116.2	13.18	13.18	100	0	0	NA	5.2	4.2	80.77
5	Dehripal	120.5	20.02	20.02	100	12.4	0.6	4.84[10]	0	0	NA
6	Bijanakhedi	95.4	33.35	33.35	100	22.6	17.77	78.63	0	0	NA
7	Fawaka	17.1	4.68	4.68	100	0.2	0	0	0	0	NA
8	Chouma	45.1	16.50	16.50	100	9.5	11.1	116.84*	0	0	NA
9	Burlay*	41.7	6.6	6.6	100	0	0	NA	0	0	NA
Sub- Total (Unit 7)		***436***	***88.94***	***88.94***	***100***	***44.7***	***29.47***	***65.93***	***5.2***	***4.2***	***80.77***
10	Surajpur	23.4	11.84	11.84	100	18.2	42.14	231.54*	0	0	NA
11	Lalupura	50.6	10.21	10.21	100	0	0	NA	0	0	NA
12	Hanoti	144.4	42.24	42.24	100	18.5	15.35	82.97	0	0	NA
Sub- Total (Unit 8)		218.4	***64.29***	***64.29***	***100***	***36.7***	***57.49***	***156.65****	***0***	***0***	***NA***

[10] Only 4.84% of the total private land was surveyed due to unavailability of private land owners in village/ during survey and refusal from giving surveys.

Sl No.	Village Name	Govt. land (NRED allotted + Identified + Horticulture + Seasonal Pond) (ha)	Govt. land under agri use as per GIS (ha)	Govt. land under agriculture surveyed (ha)	% of Govt. Under agriculture surveyed	Private Land (ha)	Private land surveyed (ha)	% surveyed	Patta Land (ha)	Patta land surveyed (ha)	% surveyed
Total (Unit 6, 7,8)		***882.5***	***211.63***	***211.63***	***100***	***99.5***	***102.82****	***103.34****	***5.2***	***4.2***	***80.77***

Source: Land Asset Survey, August 2020, ERM

Note: The Private land surveyed in villages like Burlay, Chouma & Surajpur are more than the private land identified in the villages. The surveys for private land parcels were carried out on the recall basis and the gap is due to the reporting ability of the concerned respondents.*

3.3.2 Assets affected

During land & asset survey it was identified that land procurement for the project will have impact on residential structures and other immovable assets. The details have been given below:

- 19 residential structures identified to fall within the project footprint. These structures comprise of permanent concrete residential structures, reinforced brick concrete (RBC) built structures and tin shed structures;
- 34 other structures such as cattle sheds, greenhouses, storage etc. were identified both on private & government land;
- 1 memorial Chhatri identified on encroached Govt. land parcel;
- 2 commercial assets including 1 grocery shop and 1 stone quarry (under immovable asset);
- 33 immovable items, i.e. pipeline in agricultural fields, wells, bore-wells etc.;
- 1395 timber trees and 285 fruit trees

3.4 Project Affected Households (PAHs)

The land (i.e. Government, Private or Patta) will be procured from eleven (11) villages in Moman Badodiya & Shajapur Tehsil of Shajapur District for Unit 6, 7 & 8. A total of 364 households are likely to be affected due to the project's land procurement (private& patta land owners and informal users of government land). of these 307 (73.10 %) were covered as part of the resettlement surveys. The Table 3. gives a detail of total project affected households covered as part of land & asset and household survey.

Table 3.4 Status of Household surveys

Survey Coverage by category	Count (in numbers)	Proportion (%)
Total Number of PAHs (Surveyed+not Surveyed)	364	100
Total Physically Displaced PAHs (Surveyed+ not Surveyed)	18	4.94
Total Economically Displaced PAHs (Surveyed+ not Surveyed)	346	95.05
Number of Households Surveyed	358	
Number of PAH Households Surveyed	307	84.3
Number of Physically Displaced PAHs Surveyed	18	100
Economically Displaced PAHs	289	94.13
Women Headed PAHs surveyed	27	8.79

Survey Coverage by category	Count (in numbers)	Proportion (%)
Vulnerable PAHs surveyed	55 (including WHH & excluding 170 Youths)	17.91
Number of Sample Households	51	14.24
Households that did not consent to the survey or are absentee households	57	15.65

Source: Land & Asset and household Surveys, 2020

3.5 Collective Entities

Apart from the structures which were identified to be within the project footprint, there were few more structures identified at village level which were not within the project footprint but have access points that could be impacted/ or is in close proximity of the site boundary. In Surajpur, Hanoti and Burlay villages, temples were identified as being very close to the land/ structures falling within the project footprint. The government land under any use by project entities were measured and the details pertaining to the type of usage attached/ dependent on it, were captured. The details on collective entities have been detailed out in ***Section 1.1.1,*** below.

3.6 Commercial Entities

Apart from residential structures falling within the project footprint, there were also commercial structures identified as falling within the project footprint. Both the structures were identified to belong to one household. The details and impact of the commercial asset has been given in ***Section 1.1.1*** .

4. SOCIO-ECONOMIC BASELINE PROFILE OF AFFECTED COMMUNITIES OF SHAJAPUR SOLAR PARK

A socioeconomic baseline for the project area was included in the ESIA document based on primary consultations and secondary data. The baseline presented in this section is based on an enumeration and survey of project affected entities (ref. Section 3). This section profiles the socio-economic, livelihood, gender disaggregated and vulnerability profile across affected communities on the basis of information collected through the RAP surveys and consultations.:

- 10 village profile tools;
- 358household surveys including 307 PAHs and 51 sample surveys; and
- 16 FGDs and 7 KIIs.

The information provided in **Section 4.1** is based on the village profiling exercise and consultations conducted with Gram Panchayat while the household level information in **Section 4.2** is based on the primary household survey data.

4.1 Profile of Villages in Project Footprint

The project footprint in the Shajapur district is comprised of three units, Unit 6,7 and 8. While, unit 6&7 consists of 7 villages; Bijnakhedi, Chauma, Dehripal, Dhatrawada, Fawaka, Jawadi and Parsula; Unit 8 consists of 3 villages; Surajpur, Hanoti and Lalupura. The detailed profile of Unit 6 &7, Moman Badodiya and Unit 8: South Shajapur is given in the following sections.

4.1.1 Village Profile of Unit 6 and 7: Moman Badodiya

4.1.1.1 Village Population

Villages in unit 6 and 7 have a total population of 10,600 individuals and 1,420 households. Dehripal and Dhatrawada have the highest population in unit 6 & 7.

Table 4.1 Population Profile of Villages

Villages[13]	Total Households	Total Population
Bijnakhedi	180	1,000
Chauma	135	1,400
Dehripal	370	3,000
Dhatrawada	300	1,600
Fawaka	200	1500
Jawadi	75	1000
Parsula	160	1100
Total	**1,420**	**10,600**

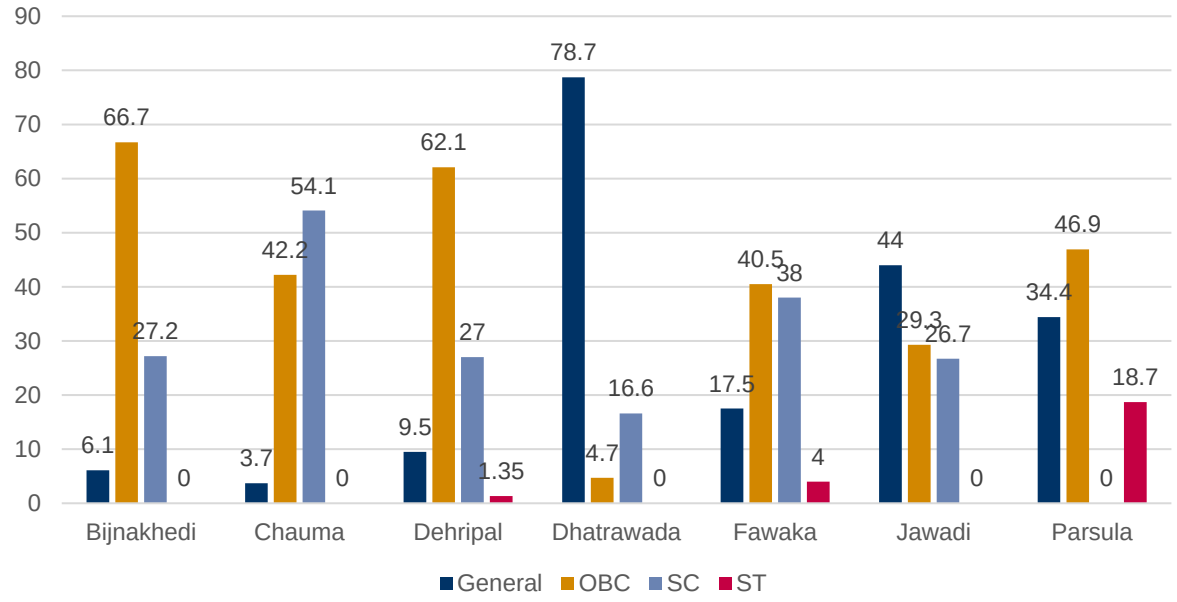
Source: Village Profiling 2020

4.1.1.2 Social Stratification

While a mixed population characterises the total population in the villages in terms of religion and caste, the dominant religion is reported to be Hinduism (Figure 4.1)

[13] The data for Burlay village is not available, as the villages refused to give the information pertaining to village, in the absence of Sarpanch. ERM has tried multiple time to arrange the meeting with Sarpanch, however, the Sarpanch has refused to take part in such meeting.

Figure 4.1 Proportion of Social Group Households



Source: Village Profiling 2020

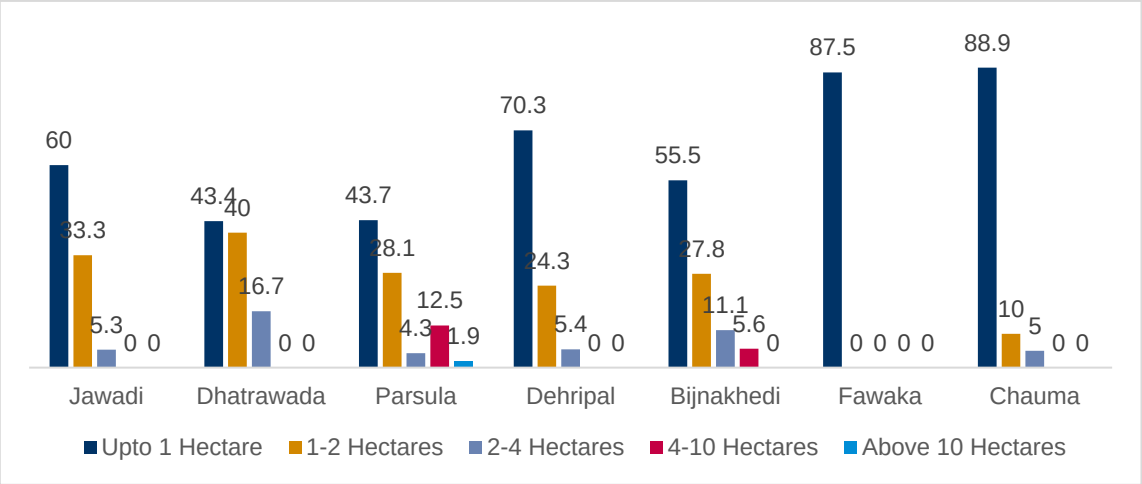
The majority of the population across villages belonged to the Other Backward Classes (OBC) category. The three villages having Scheduled Tribe (ST) population are Parsula (18.7 %), Dehripal (1.35 %), and Fawaka (4 %). While Bijnakedi, Dehripal, Fawaka and Parsula has higher proportion of SC population. The main groups among the Hindus in unit 6 and 7 villages include Gurjars, Brahmins, Sondhiya, Rajputs, Meghwals, Chamar, Balahi, Lohar, Nai, Banjara, Prajapati, Dhobi, Kumhar, Sonar, Sutaar and Banghi. Of these, the castes, Prajapati, Meghwals, Chamar, Balahi, Kumhar are categorised as Scheduled Castes, while the main Schedule Tribe group in the villages is Bhil.

4.1.1.3 Land Ownership

According to the consultation, the land use in the villages in Unit 6 and 7 is characterised by a dominance of agriculture (privately owned) and grazing purpose (open government lands).

As can be seen in the figure given below, over half of households (56.3 % of total households) fall under the category of marginal farmers, that is, those owning less than 1 hectare. Chauma has the largest number of them at 89% and Dhatrawada the fewest, at 43%. While the medium farmers (owning 4 to 10 hectares or more) are only 0.2 % of the total households, and the large farmers (holding 10 hectares or more) comprise of 1.5 % of the total households in the villages.

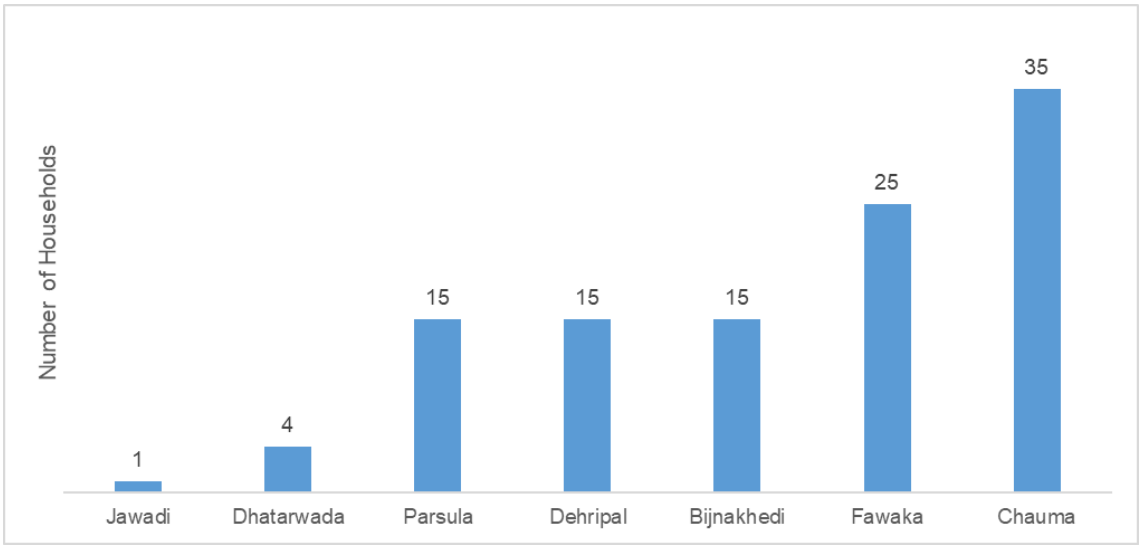
Figure 4.2 Average Land Holding



Source: Village Profiling 2020

As shown in Figure 4.3, a smaller proportion (7.7 %) are landless households. Among the villages, Chauma reported the highest number of landless household (26 %), followed by Fawaka (12.5 %). Jawadi and Dhatrawada village recorded the minimum number of landless households (1.4 %).

Figure 4.3 Number of Landless Households



Source: Village Profiling 2020

The corollary to the above finding is the share of households with formal ownership. Jawadi has the highest (100 % of the total households) percentage of households who have Formal ownership[14] of Private and Patta land, followed by Dhatrawada (98.7 %of the total households).

The most impacted villages from the project are those who have a high percentage of households that are using government land for agriculture informally. Dhatrawada has the highest proportion of households (83.3 percent) that have encroached on government land for agriculture use, followed by Bijnakhedi (30.56 % of the total households) and Chauma (18.52 %).

[14] Formal ownership is broadly determined by access to a land title, a document that state such ownership. Having a clear land title protects the rights of the title-holder against other claims made by anyone else to the property.

4.1.1.4 Livelihood Profile

People in villages within Unit 6 and 7 of the Project footprint are dependent upon a mix of agriculture and livestock-based livelihoods, with agricultural-based livelihoods playing a critical role. The dependence on non-farm based[15] livelihoods account for 5% of the total population.

Table 4.2 Proportion of village population per Livelihood Source

Village	Agriculture	Livestock (grazers/herders/etc.)	Machinery/ Factory workers	Agricultural labourers	Transport workers	Construction workers	Businesses	Government/ Private service
Jawadi	90	10	3	1	1.5	0.7	0	0.2
Dhatrawada	93.8	93.8	0.3	0.3	0.2	0.5	0.1	0.94
Parsula	36.4	45.5	4.5	72.7	0	0	0	0
Dehripal	93.3	0	0	0	0	0.7	0	0
Bijnakhedi	80	7	7	3	0	2	0.5	2.7
Fawaka	80	13.3	6.7	13.3	0	0.5	0	0.33
Chauma	78.6	7.1	0	6.8	0.1	4.3	0	0.21

Source: Village Profiling 2020

Consultation with villages found that livestock rearing is used for a sustenance use for meeting household consumption needs rather than income. There is a trend of out-migration of an average of 24.5 %of the total households in the Project villages for livelihood. This out-migration is for work as a machinery/factory workers or transport workers, who also contribute remittances to their families in the village.

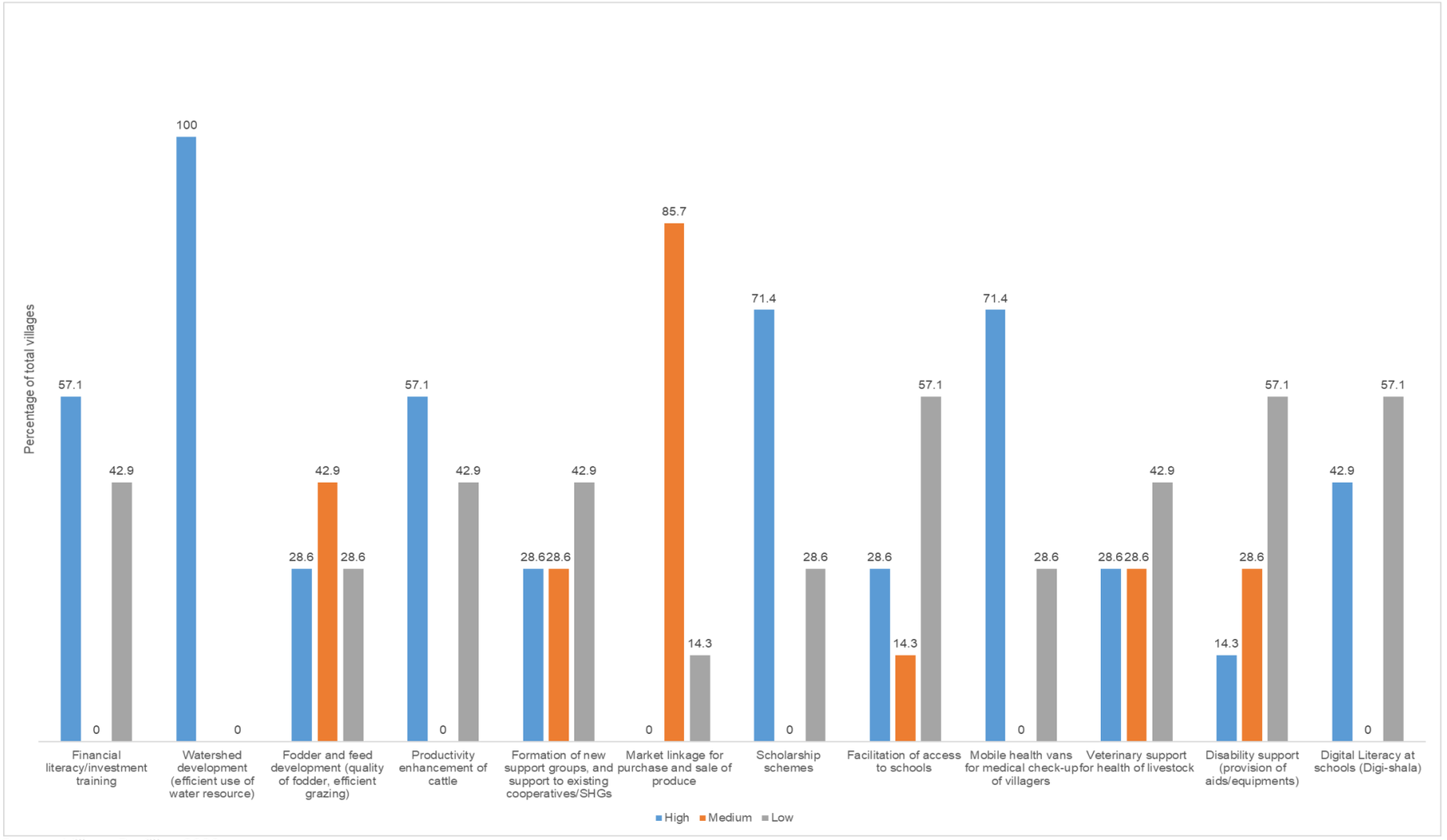
4.1.1.5 Community Development

All the households in the village have access to water for drinking and household consumption, along with access to electricity. For education facilities, almost all the Project affected villages have a school up untill 5th class. For further studies, children from the villages have to travel to Moman Badodiya town, which is at approximately 12 km away from the villages. Further, there are no medical facilities in any of the villages, with the nearest medical facility found in Moman Badodiya.

Findings from the village profile regarding the expected community support from the Project are presented in the figure given above. The villagers were asked to rank the support into High, Medium, Low and not-interested preference. Based on this, villagers have expressed a mixed option about the community support from the Project, with the highest percentage (100% of villages) of villages have given a high rank to Watershed development, followed by scholarships and a mobile health unit (71.4% respectively. A large proportion of villages (85.7%) also ranked market linkage as of medium importance.

[15] Machinery/Factory workers, transport workers, construction workers, involved in businesses and government/private services.

Figure 4.4 Preference of Community Development Support



Source: Village Profiling 2020

4.1.2 Profile of Villages in Unit 8: South Shajapur

4.1.2.1 Village Population

As can be seen in the following table, villages in unit 8 are characterised by a total population of 4,800 individuals and 475 households. Of these entire villages, Hanoti and Lalupura have reported the highest population, followed by Surajpur.

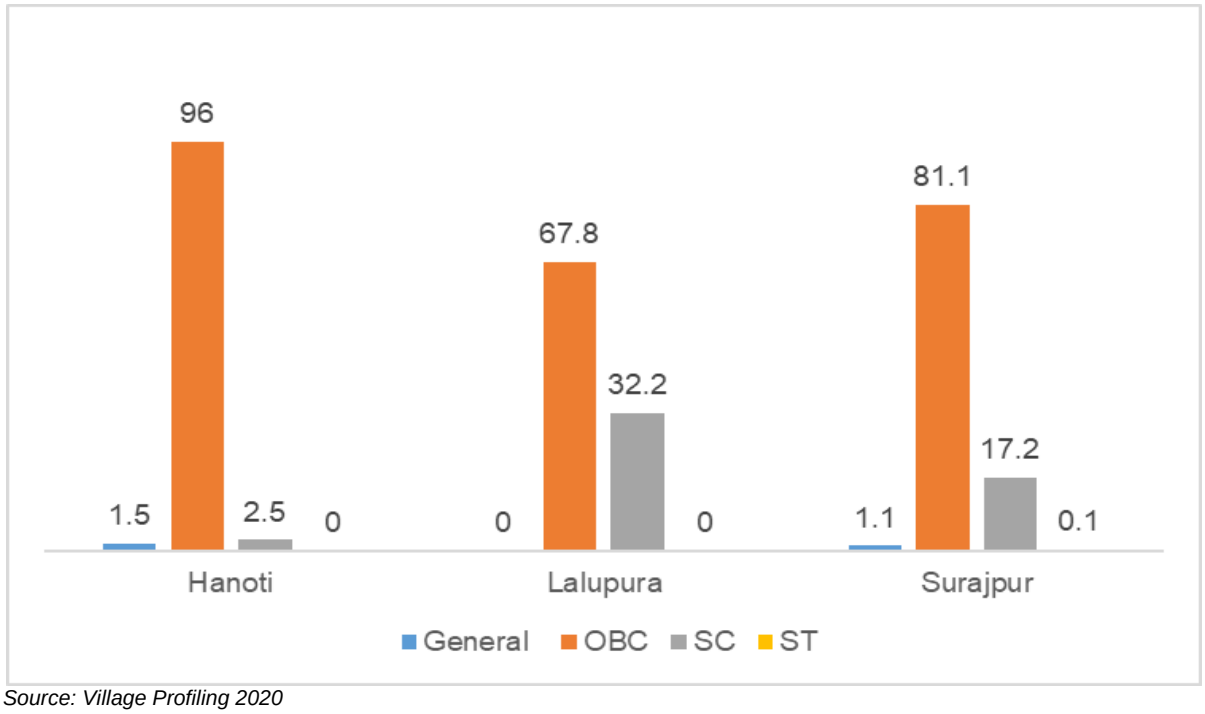
Table 4.3 Village Population

Villages	Total Households	Total Population
Hanoti	200	2000
Lalupura	90	2000
Surajpur	185	800

4.1.2.2 Social Stratification

While a mixed population characterises the total population in the villages in terms of religion and caste, the dominant religion is reported to be Hinduism.

Figure 4.5 Proportion of Social Group Households



Source: Village Profiling 2020

As can be seen in the above table, the majority of the population in the villages belonged to the Other Backward Classes (OBC) category followed by SC population, especially in Lalupura and Surajpur. The villages have lowest ST population as compared to other social groups, with Surajpur with one household (0.1 %of total households) is the only village with ST population. The low proportion of ST population is in keeping with the overall trend in the District, where in Shajapur the ST population comprises of 2.5 percent of the total population (Census 2011).

The main groups among the Hindus in unit 8 villages include Gurjars, Brahmins, Harijans, Khati, Bhil, Balahi, Chamar, and Malviya. Of these, the castes, Harijans, Chamar, Balahi, and Malviya, are

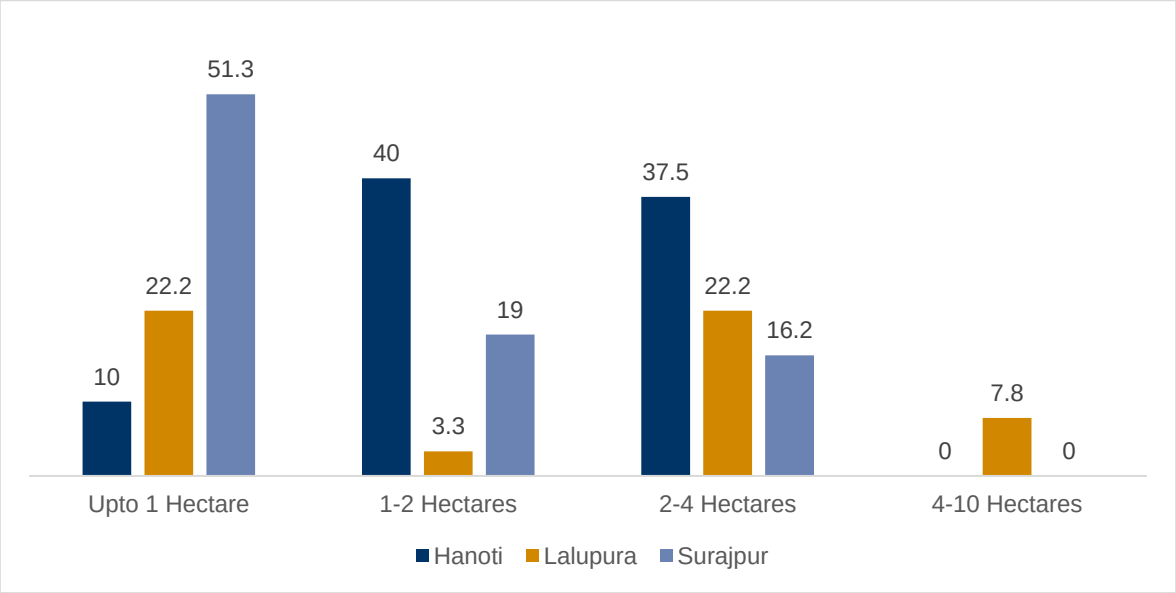
reported to be categorised as Scheduled Castes. According to the consultations with the villagers, the Scheduled Tribe found in the villages include, Bhil.

4.1.2.3 Land Ownership and Land Holding

The land use in the villages in Unit 8 is characterised by a dominance of agriculture (privately owned) and grazing purpose (open government lands).

As can be seen in the Figure 4.6, about one-third of the households (28.4 %) are the marginal farmers, that is, owning less than 1 hectare. While the small farmers (owning 1 to 2 hectares or more) is count to around 25% of the total households, and the semi-medium farmers (holding 2 to 4 hectares or more) comprise of 26.3 % of the total households in the villages. While only 1.5 percent are medium farmers (owing 4 to 10 hectares), and there are no large farmers (owning more than 10 hectares) in the villages. Of all the villages, Surajpur is the most vulnerable village in terms of landholding, as 51.5 %of the total households falls under the category of marginal farmers.

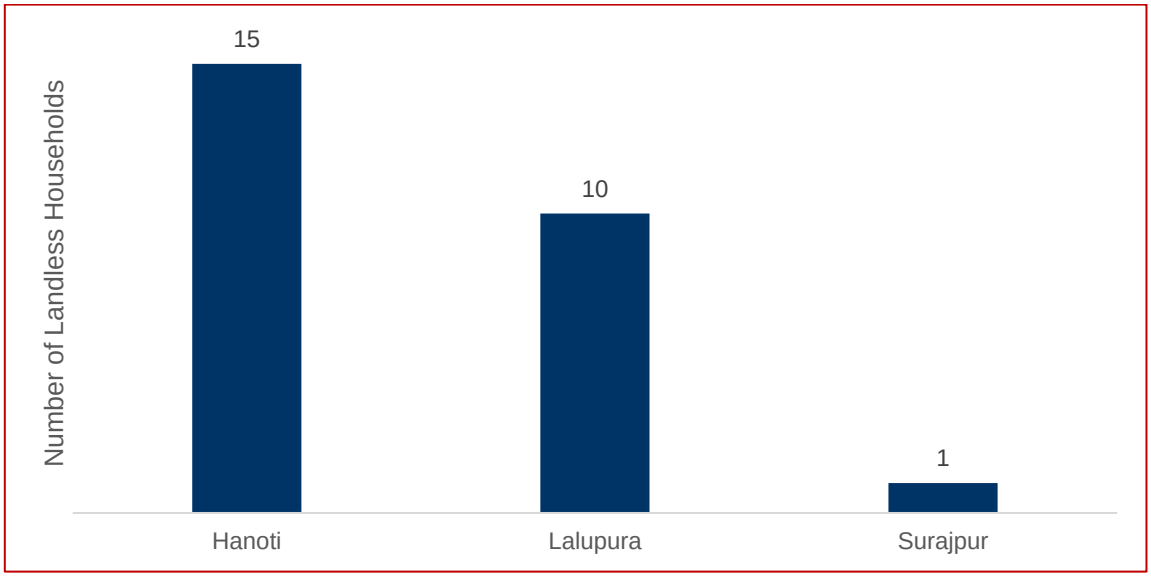
Figure 4.6 Average Land Holding



Source: Village Profiling 2020

As can be seen in the table given below, there is a small proportion (around 5.5 %of the total households) of landless households. Among the villages, Lalupura has the highest percentage i.e. 11.1 %of the total household are landless, followed by Hanoti with 7.5 %of the total households are landless.

Figure 4.7 Number of Landless Households



Source: Village Profiling 2020

Hanoti village has the highest (92.5 %) percentage of households who have Formal ownership of Private and Patta land, followed by Lalupura (around 90 %). Hanoti with 90 %of the total households has encroached the government land for agricultural use, followed by Bijnakhedi (22.2 %of the total households) while encroachment in Surajpur is lower (Refer to 1.1.1)

4.1.2.4 Livelihood Profile

People in surveyed villages are dependent upon a mix of agriculture and livestock-based livelihoods, with agricultural-based livelihoods playing a critical role. With this, there is a considerable percentage of population (85.4 %of total households) in agricultural activity, only 4.1 %of total population are involved in livestock based livelihood activities and approx. 4.4 %of total population are agricultural labourers. The dependence on non-farm based[16] livelihood is minimum (2.8 %)

Table 4.4 Percentage of Total Population per Livelihood Source

Village	Agriculture	Livestock (grazers/herders/etc.)	Machinery/ Factory workers	Agricultural labourers	Transport workers	Construction workers	Businesses	Government/ Private service
Hanoti	85	0	5.5	5	0	1	0	0.65
Lalupura	90	5	3	0.5	0.2	1	0	0.5
Surajpur	75	11.9	6.3	12.5	3.1	0.5	0.5	4.38

Source: Village Profiling 2020

As with villages in unit 6 & 7, livestock rearing is used for a sustenance use. There is a trend of out-migration in the Project villages for livelihood with about 37.4 households reporting out migration. The out-migration is mostly for work as a machinery/factory workers or transport workers.

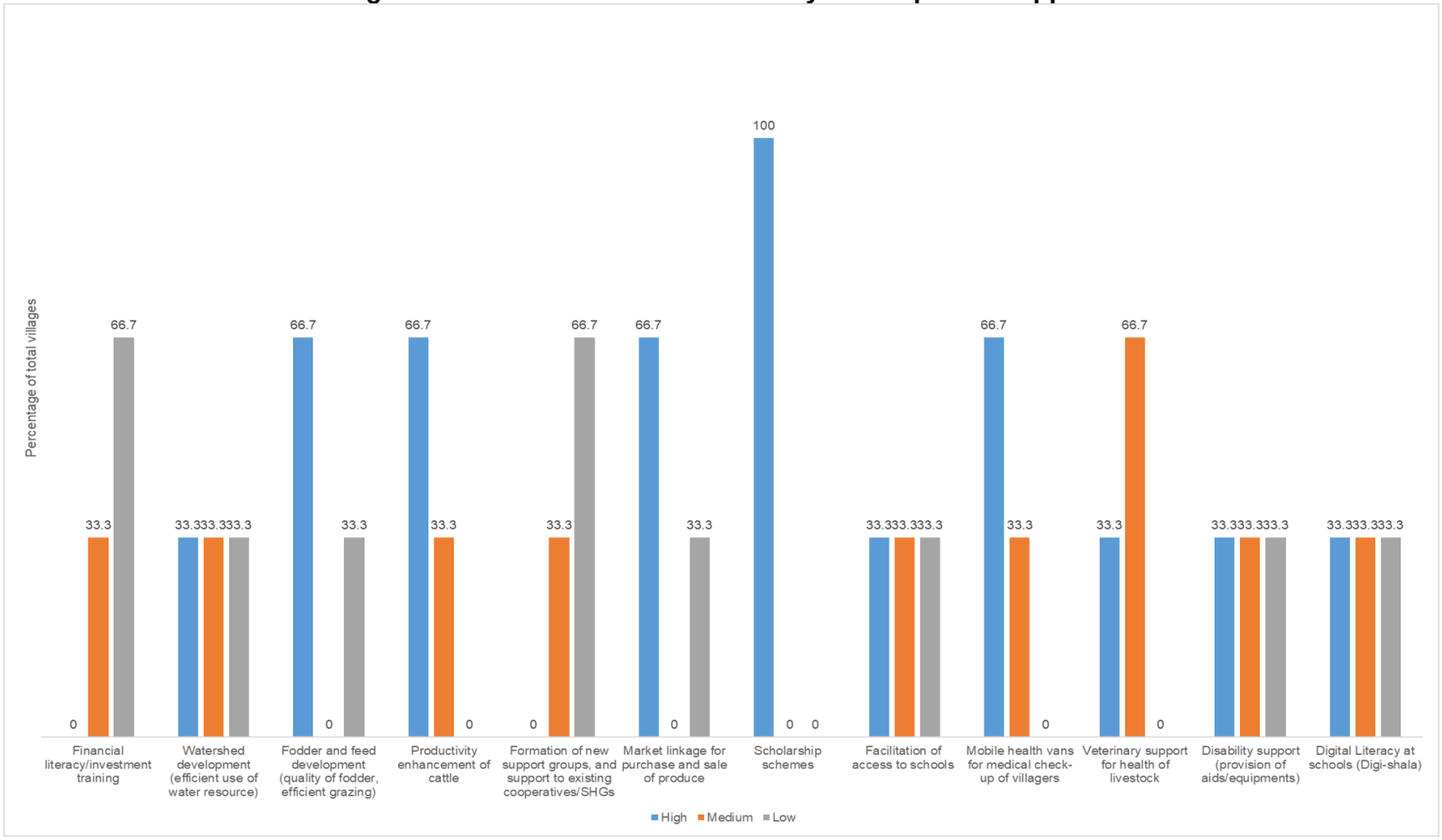
[16] Machinery/Factory workers, transport workers, construction workers, involved in businesses and government/private services.

4.1.2.5 Community Development

All the households in the villages in unit 8 have access to water for drinking for household consumption and irrigation purpose and 100 % access to electricity through grid supply. For education facilities, almost all the Project affected villages have school until 5th class. For further studies, children from the villages have to travel to Jhokar and or Makshi town town, which is approximately 6 km away from the villages. Further, there are no medical facilities in any of the villages, with the nearest medical facility in Jhokar and Makshi town.

Findings from the village profile regarding the expected community support from the Project are presented in Figure 4.8. The villagers were asked to rank the support into High, Medium, Low and not-interested preference. Based on this, villagers have expressed a mixed option about the community support from the Project, with the highest percentage (100 %of villages) of villages have given high rank to Scholarship Scheme, followed by equal weighting given to fodder and feed development, market linkages, productive enhancement of cattle and mobile health vans (66.7%), along with 66.7% of villages have given medium rank to veterinary support.

Figure 4.8 Preference of Community Development Support



Source: Village Profiling 2020

4.1.3 Cultural Resources

There are no listed cultural resources (nationally or state-protected), that are affected by the Project

The cultural resource in the area is primarily religious structures such as temples and local deities. The details of cultural resources are given below in Table 4.5. Although all of these arewithin the proposed solar park boundary based on the aerial survey imagery, a final check for some locations, after adjustments to the boundary are made, will need to be confirmed, on-ground.

Table 4.5 Cultural resources in Shajapur Solar park

Village	Cultural Resource	Status of cultural resource on the project boundary	Remarks	Categorization of the resource as per IFC PS 8	Suggestion for RUMSL
Dehripal	Temple Local Deity	Inside	As informed by the village community, the temple and the local deity is as old as 100 years and in May every year village communities of 40 villages come to the place for worship. Reportedly, the temple and the local deity has attracted the attention of worshipers from every caste and across a wide geographical area, which includes 40 villages of the neighborhood of Dehripal village, who frequent the temple.	Tangible sources of cultural resource	As per the observation made during the RAP site visit, it is feasible to exclude the cultural resource by making optimization in the project boundary;
Fawaka	Local Deity	Inside	The local deity plays an essential part of local tradition and worship. Reportedly, people worship the deity regularly and/or once in a year. The establishment of this deity goes back to at least 3-4 generations	Tangible source of cultural resources	RUMSL shall not impact the cultural resources and shall allow continued access to the cultural site or shall provide the alternative access route. Where avoidance is not feasible, then RUMSL shall only remove the cultural resource in the consultation with the local community.

Village	Cultural Resource	Status of cultural resource on the project boundary	Remarks	Categorization of the resource as per IFC PS 8	Suggestion for RUMSL
					RUMSL will bear the cost of shifting/removing and reconstructions of cultural resource.
Jawadi	Local Deity	Inside	As informed by the local community, it's a place of shrines and sacred trees for local deities who are locally honored for protecting the people from harm caused by natural disasters or evil influences. Reportedly, these shrines are more than 100 years old, and people of Jawadi Village worship them regularly.	Tangible source of cultural resources	As per the observation made during the RAP site visit, it is feasible to exclude the cultural resource by making optimization in the project boundary.
Bijnakhedi	Temple	Inside	As informed by the village community, the temple belongs to the Devnarayan god, it's a 100-year-old temple, and temple helped the villagers with various problems over the years. In the time of trouble, devotees sometimes make vows to the god. The village community hold an important feast of thanksgiving to the god who granted their prayers.	Tangible source of cultural resources	RUMSL shall not impact the cultural resources and shall allow continued access to the cultural site or shall provide the alternative access route. Where avoidance is not feasible, then RUMSL shall only remove the cultural resource in the consultation with the local community. RUMSL will bear the cost of shifting/removing and reconstructions of cultural resource.

4.2 Socioeconomic profile of the households surveyed in Project Footprint

This section provides an overview of the socio-economic baseline of the project affected households (PAH) and sample households. The socio-economic profile is entirely based on the primary survey and consultations conducted in the 11 villages in all three units across Shajapur Solar Park in Madhya Pradesh. This section of the report discusses the crucial aspects related to education, livelihood, land and asset ownership, financial conditions, physical and social infrastructure in amongst the PAHs and sample households. It also attempts to highlight different vulnerabilities amongst the population and their dependency on resources to understand involuntary resettlement impacts.

4.2.1 Demographics

A total of 358including 51 sample households comprising 2006 members were interviewed in Shajapur Solar Park. The important characteristics of the population surveyed are presented in the table below.

Table 4.6 Demographic Profile of surveyed households

Village	Number of Households	Total Population	Sex Ratio[17]	Average family Size	Dependency Ratio[18]
Burlay	26	155	761	6.2	56.6
Jawadi	23	137	827	5.9	90.3
Dhatrawada	49	295	1049	5.9	64.8
Unit 6 Total	**98**	**587**	**912**	**6.0**	**67.7**
Parsula	47	247	885	5.4	51.5
Dehripal	44	237	809	6.0	75.6
Bijnakhedi	34	188	979	5.6	69.4
Fawaka	11	52	793	4.7	26.8
Chauma	32	190	827	4.7	62.4
Unit 7 Total	**168**	**914**	**865**	**5.3**	**61.2**
Surajpur	32	155	802	4.9	36.0
Lalupura	23	133	1015	5.8	44.6
Hanoti	37	217	904	6.3	49.7
Unit 8 total	**92**	**505**	**898**	**5.7**	**43.9**
Grand Total	**358**	**2006**	**887**	**5.6**	**58.2**

Source: Household Survey responses 2020

The overall sex ratio is significantly lower than that of the district of Shajapur (938) and Madhya Pradesh (931) while the average family size is slightly higher compared to overall 5 persons per household in the district. The trend of sex ratio amongst the surveyed population is in consistency with the Census 2011 figures. The sex ratio in Dhatrawada and Lalupura is more equal than the other villages, which is aligned with the Census of India, 2011 (1007 for Dhatrawada and 972 for Lalupura). Burlay, Dehripal and Hanoti have larger household sizes while Chauma and Fawaka are on the lower side.

[17] Sex ratio refers to the ratio of females to males.
[18] The total dependency ratio refers to the number of persons aged 0-14 and 60 and above per 100 persons in the age range of 15-59 years.

The surveyed population is dominated by the economically active age group (63%), which is 18 to 60 years of age; followed by children in age 6 to 15 years (18%). Individuals aged 60 years and above constitutes 8% of the total population. A higher dependency reflects greater burden on economy in supporting the young and elderly population. The total dependency ratio among the surveyed population i.e. 58.2 per 100 working age population, which is lower than that of Madhya Pradesh (65.9) and India (60.1), with Jawadi, Dehripal and Bijnakhedi having more dependent population compared to the other villages.

Table 4.7 Age structure of the population

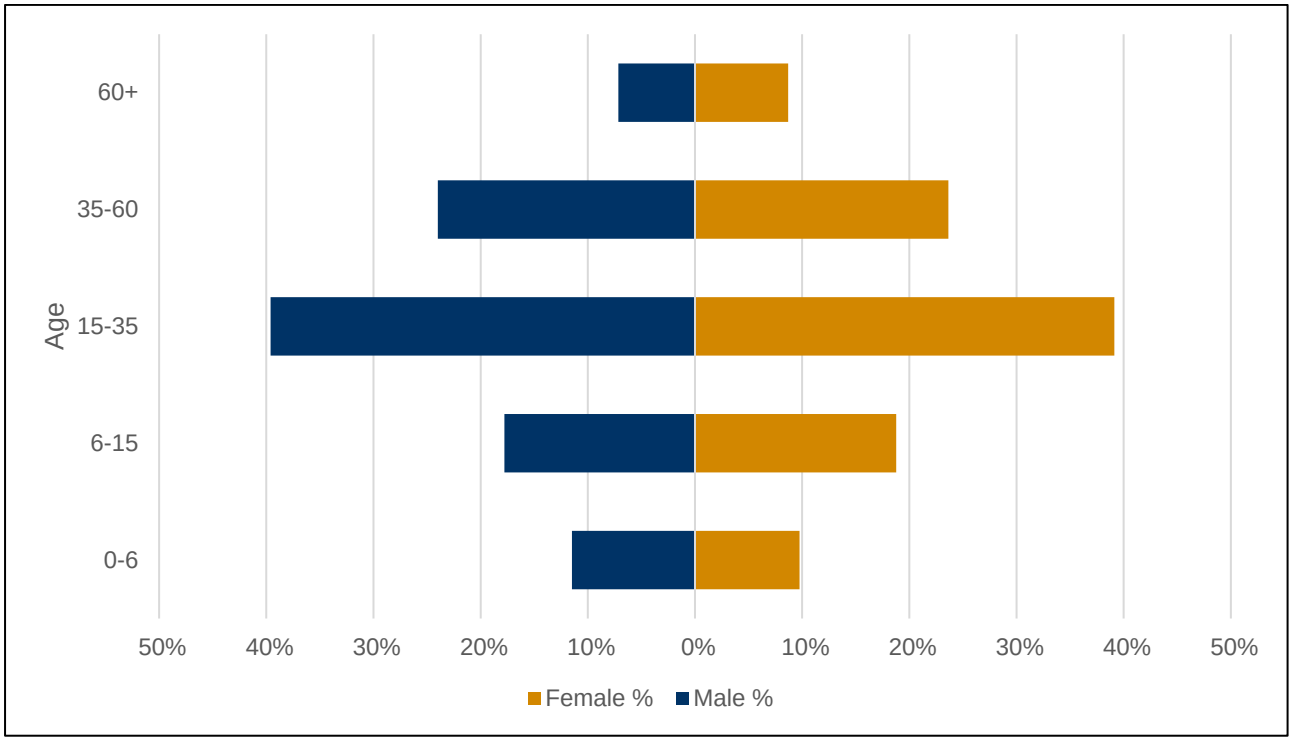
Age Group	Males	%	Females	%	PAPs	%	Sex Ratio
Below 6 years	122	11.48	92	9.76%	214	11%	754
6 to 15 years	189	17.78	177	18.77%	366	18%	937
15 to 35 years	421	39.6	369	39.13%	790	39%	876
35 to 60 years	255	23.99	223	23.65%	478	24%	875
Above 60 years	76	7.15	82	8.70%	158	8%	1079
Total	**1063**	**100**	**943**	**100.00%**	**2006**	**100%**	**887**

Source: Household Survey responses 2020

Age group 60+ is characterized by a positive sex ratio of 1079 females per thousand males, confirming the feminization of ageing[19] reported (Table 4.7). However, the sex ratio in population below 6 years is the lowest among all the age groups. Despite several policies and schemes to promote gender development, these figures raise serious concerns towards gender equality. The trend in child sex ratio reaffirms that practices such as cultural and gender biases, gender preferences are still prevalent in the rural areas. If seen among different social groups, overall sex ratio is significantly lower among ST (676) compared to other social groups, reflecting deepening gender imbalance due to social norms and attitude.This also suggests that ST community have not benefitted from the social campaigns and targeted interventions by Government programmes such as Beti Bachao Beto Padhao.

[19] The feminization of aging is the trend of women outliving men, is becoming more prominent with women living on average of 1 to 7 years longer than men

Figure 4.9 Age-Sex Pyramid



Source: Household Survey responses 2020

As discussed, the average family size of surveyed households is 5.6. More than half of the households (57%) have up to 5 members followed by 38% households having between 5-10 members. Women headed households are present in the village of Chauma, Parsula and Dehripal, with the average household size of women headed households (4.48) is slightly lower than the male headed households (5.7). This perhaps reflects the weaker social capital among women heading the household in the absence of men in the family which may also be reason why women take such responsibilities in a society which is majorly patriarchal in nature. In a rural context, these women headed households account for households where men are absent as a result of death, separation and lack of sons. Households from OBC and SC have reported to have larger family sizes compared to others. In the Census 2011, Madhya Pradesh recorded faster increase in an average household size with a rate of 38 % which is higher than most states in India[20].

4.2.1.1 Religion, Caste and Ethnicity

The villages have a mixed population belonging to general (Brahmin, Rajput, Sondhia, Pal, Khan) other backward class (Banjara, Gurjar, Khati, Bairagi), Schedule caste (Bagri, Balai, Chamar, Balmiki, Harijan) and Scheduled tribe (Bhil, Bhilala) across two major religions- Hinduism and Islam. More than 95 percent of surveyed households are Hindu.

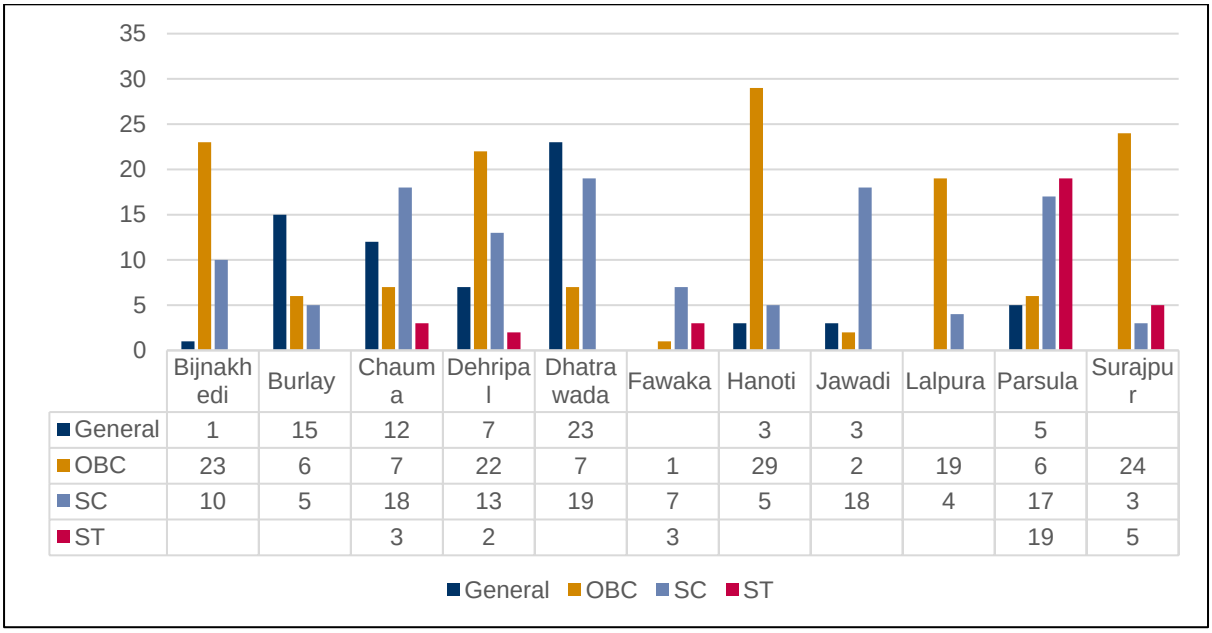
The surveyed population belonged to two major social groups; 40 % are Other Backward class and 32 % are Scheduled castes. Nine percent of the total households are Scheduled tribe and are mainly concentrated in Parsula, Fawaka and Surajpur. OBCs are mainly present in Bijnakhedi, Dehripal, Hanoti, Surajpur and Lalupura while Dhatrawada, Chauma, Jawadi have more Scheduled caste population.

Dalits have presence in all the villages but were mainly found in Bijnakhedi, Chauma, Dehripal, Dhatrawada, Jawadi and Parsula. Women headed households in the project affected community are

[20] Nayak, D. K., & Behera, R. N. (2014). Changing household size in India: an inter-state comparison. *Transactions*, *36*(1), 1-18.

more common among Scheduled Caste and OBC households, mainly among the Banjara community. A possible reason for the same could be higher instances of separations amongst wedded couples amongst these groups., As discussed, the population of ST are present in Parsula (19), Surajpur (5), Fawaka (3), Chauma (3) and Dehripal (2). All the surveyed SThousehold head reported Hinduism as their religion.

Figure 4.10 Social Groups by Village



	Bijnakhedi	Burlay	Chauma	Dehripal	Dhatrawada	Fawaka	Hanoti	Jawadi	Lalpura	Parsula	Surajpur
General	1	15	12	7	23		3	3		5	
OBC	23	6	7	22	7	1	29	2	19	6	24
SC	10	5	18	13	19	7	5	18	4	17	3
ST			3	2		3				19	5

Source: Household Survey

4.2.1.2 Settlement Pattern

Moman Badodiya is comparatively more densely populated than Shajapur Tehsil. Villages are divided into settlements with distinctive characteristics. The hamlets within the villages have specific population belonging to certain social groups. The villages are mostly divided into three main categories- main village, colony and a third extension called Chak/Baldi. Main village usually have a mixed social fabric while colony and Baldi are usually specific to certain groups united by their socio-economic history. Main village and colonies are mostly located along the main road while Baldi/Chak are mostly situated in the interiors of village. Main village and colonies have better connectivity and access to basic amenities in near proximities. For instance, if people have to go the main village in Dehripal from the two Chak settlements, the travelling distance would be is 1.5-3 km. Chak/Baldi are mostly located near the agricultural lands in the village and are connected to main villages with narrow and kutcha roads.

Box 4.1: Settlement patterns across Shajapur solar park villages

Parsula has three parts- village, colony and chak. A mixed population lives in the village, the colony has a dominant Harijan population and chak largely has Bhil households. Dehripal has three parts- village and two Chak settlements. Again, the main village has a mixed population and is located on primary location, whereas the other two Chak settlements are located in the village interior and have Banjara and Harijan community. Within the two chaks in Dehripal, there are hamlets of Banjara and Harijan. Dhatrawada has three main settlements-Village, Colony and Govinda. Village has a mixed population while Colony has more Banjara community while Govinda has more Muslim population. Chauma is divided into three parts- new Chauma, Old Chauma and Dak Bangla. Burlay has Village and colony and Hanoti has village and Baldi.

Source: consultations with the local community during RAP study

The project area is characterized by a mixed type of housing and structure of houses are different in different hamlets. There are all types of houses in the region. Across villages, most of the houses located especially in Baldi/chak settlements are kutcha and semi-kutcha while houses in village and colonies are pucca or semi-pucca. The roads connecting different settlements within the village are mainly kutcha roads while roads connecting to the main village with others villages are mostly pucca.

Photo1: Wooden fencing around the house

Photo 2: Connecting settlements within the village

Photo 3 & 4: Residential structures in Shajapur solar park

Areas up to 1-3 km from settlement in the villages are used for open defecation, natural resources and livestock grazing by the community. The charnoi/chargah land is mostly situated outside the village on average of 2.5-3 km from the abadi area especially in Dhatrawada, Lalupura, Hanoti while it is just 500 meters for Chauma village.

Note: Subsequent sections of the socio-economic baseline discuss/analyse either and/or gender disaggregated data and caste group disaggregated data as relevant to identify any differential baseline conditions.

4.2.2 Social Group Dynamics

Scheduled Caste and Scheduled tribe constitute more than 40% of the total population and are segregated in different villages. More than two-thirds in Fawaka and Jawadi are Scheduled caste while Scheduled tribes are more present in Parsula and Fawaka. The main sub caste of SC population in the region are Malviya, Khati, Bagri, Suryavanshi and Balai. Scheduled caste in the region is also referred to as Harijan and their settlements in the villages are informally known as Harijan settlements. Such segregation patterns in habitation based on social identity has been observed in many villages. These are small or marginal farmers possessing smaller landholdings and depend more on labour work to earn a living.

The major social groups of ST population in the region are Bhil and Bhilala tribe. They also own less land and depend heavily on other sources of livelihood. Such segregated patterns of ST community living separately from the other social groups was observed in Parsula, Dehripal and Fawaka. Hamlets are mostly for people from the same social group. Some of the hamlets don't have positive interaction with other people from other hamlets. For example, in two hamlets in Dehripal, Banjara and Harijan lack mutual trust and don't engage with each other.

THE BANJARA COMMUNITY

During consultations, it was found that the Banjara community are not originally the inhabitants of these villages or tehsil. They migrated from other places nearly three decades ago. They have settled in the project villages such as Dehripal, along with Bijnakhedi and Parsula villages. They were brought under the Scheduled Castes, Scheduled Tribes and Backward Castes in different Indian states. Banjara community in Madhya Pradesh is designated as OBCs and they have also identified as OBCs in household surveys. They didn't inherit land and are mostly marginal farmers. They are largely engaged in trading of handmade goods and usually migrate to nearby states to sell their products like, blankets, clothes etc. Most household have reported their annual household income

between INR 1 lakh to 3 lakh and mostly own cows and goats. They live in Baldi or Chak settlements where their socio-political position is influential. The community is depended on natural resources such as fodder, firewood, soil and stones from the nearby areas.

The following table provides a qualitative assessment of social group dynamics which are further elaborated with data in relevant sections:

Table 4.8 Summary of Qualitative Observations on Social Groups

Aspect	General	OBC	SC	ST
Settlement Pattern	Households belonging to General category mostly live in the main village	OBCs live in main village and colonies	SCs reside within the main village, however, their hamlets are situated separated from the other social groups.	STs are mainly found in Baldi/Chak areas of the village.
Land Ownership	Most of households own land and are marginal, small and semi-medium farmers.	OBCs own land and some are medium and large farmers.	SCs own less land compared to other and are mostly marginal farmers	STs also own land but are mainly marginal farmers.
Literacy Levels	Most of the households are literate. Few are graduates.	Most of the households are literate. Few are graduates.	Only half of the population are literate and very few individuals have higher level of education.	Only half of the population are literate. Many have never attended formal school.
Skill Levels	Fewer skills	More OBCs have skills related to driver, electrician, tailor & welding and an artisan.	Fewer skills including tailoring, mechanic work.	Some have livestock rearing skills.
Participation in the Work Force	Mainly engage in agricultural related work, some are involved in business/shops	Heavily involved in agricultural work and business/shops, some are engaged in private jobs.	Engaged in agriculture, agricultural and construction labour work	Same as SCs, engaged in agriculture, agricultural and construction labour work
Poverty Levels	Low (10.14 percent) [22]	Low (4.11 percent)	Low (10.08 percent)	Low (15.62 percent)
Gender Roles	Most women perform unpaid-domestic roles such as reproductive roles household chores while men work to earn for the family. Most women from general category don't work outside the house.	Domestic roles for women and less outside work among women. Men are engaged in various income-generating activities. Women manages the livestock and household when men are away for work.	Most men and women in working age groups are engaged in agricultural and labour work. In addition, women also perform all major household chores.	Men and women both are involved in economic activities. When men migrate to other places for work, women manages the household and livestock.

[22] As per the Planning commission method, the poverty line is determined by the ability of individual to spend INR 32 per day per person for rural areas. The poverty level was calculated based on total annual per capita expenditure. The values has been adjusted against inflation rate in 2020. https://www.prsindia.org/theprsblog/poverty-estimation-india

4.2.3 Education

4.2.3.1 Education and Literacy

The total literacy rate among the surveyed population is lower than the district average (69%) but close to the literacy rate in project villages (62 %) as compared to Census of India (2011). Illiteracy has been reported higher in Jawadi (51.8%), Parsula (48.9%) and Bijnakhedi (51.6%). The individuals who reported higher literacy live in Surajpur (71.6%), Fawaka (67.3%), Burlay (67.7%) and Chauma (63.6%). The trend in literacy rate among male and female shows that the gender gap is much higher in Dhatrawada, Lalupura and Hanoti. There is also significant generation gap in literacy rate. More than 80 percent of individuals aged 60 and more are illiterate. It can be easily explained by lack of educational establishments in the region at that time and trends of preferring working in farms or home than studying.

Table 4.9 Literacy amongst surveyed population

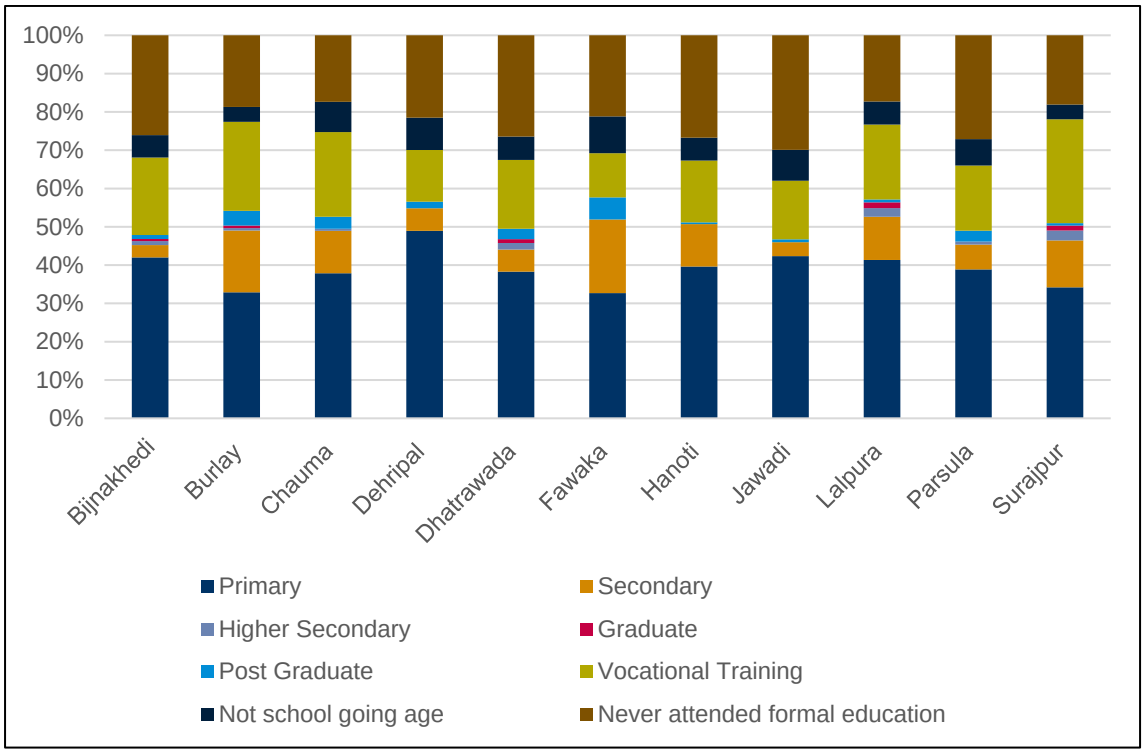
Categories	Illiterate				Literate			
Village	**Men (N)**	**Men %**	**Women (N)**	**Women %**	**Men (N)**	**Men %**	**Women (N)**	**Women %**
Burlay	22	25	39	41.79	66	75	28	58.21
Jawadi	32	42.67	23	62.9	43	57.33	39	37.1
Dhatrawada	40	27.78	70	53.64	104	72.22	81	46.36
Unit 6 Average %	**94**	**31.82**	**132**	**52.78**	**213**	**68.18**	**148**	**47.22**
Parsula	52	39.69	47	59.48	79	60.31	69	40.52
Dehripal	55	41.98	54	49.06	76	58.02	52	50.94
Bijnakhedi	40	42.11	36	61.29	55	57.89	57	38.71
Fawaka	9	31.03	15	34.78	20	68.97	8	65.22
Chauma	28	26.92	45	47.67	76	73.08	41	52.33
Unit 7 Average %	**184**	**36.35**	**197**	**50.46**	**306**	**63.65**	**227**	**49.54**
Surajpur	16	18.6	41	40.58	70	81.4	28	59.42
Lalupura	14	21.21	28	58.21	52	78.79	39	41.79
Hanoti	32	28.07	44	57.28	82	71.93	59	42.72
Unit 8 Average %	**62**	**22.63**	**113**	**52.02**	**204**	**77.37**	**126**	**47.98**
Total Average %	**340**	**31.98**	**442**	**53.13**	**723**	**68.02**	**501**	**46.87**

Source: Household Survey responses 2020

About a third of the surveyed population (38.69%) has completed the education till primary level while 23.3% reported that they do not have formal education. Only a few individuals have studied till higher secondary level and graduation. However, informal training in form of vocation have been reported by 18% of the surveyed population. These trainings are often provided for a purpose of teaching skills to people so that they can earn their livings. However, these trainings may not always provide any certification. About two-thirds of surveyed population (64.6 percent) in the active working age group (18-50 years) are literate. The gender disparity in literacy among the working age group is significantly large. Majority of men in working age (79.5%) are literate while just half of their female counterparts are literate. About one-third of women of the working age group (34%) never attended formal

education. A case depicting school dropouts among girls in village is discussed below. If seen social group wise, the literacy rate is higher among the individuals belonging to OBC and general compared to SC and ST.

. Figure 4.11 Level of Education among surveyed population



Source: Household Survey responses 2020

Table 4.10 Age wise literacy level among Surveyed Households

Age group	Literate		Illiterate	
	Male	Female	Male	Female
6-15 years	175	149	14	28
15-35 years	369	236	52	133
35-60 years	139	40	116	183
Above 60 years	18	4	58	78
Total	**701**	**429**	**240**	**422**

Source: Household Survey responses 2020

Literacy forms an important asset of individuals that enables them to comprehend their situations and environment better and respond to it appropriately. Only Chauma has a school for secondary education. The higher level of education of schools in other villages is middle and primary while Jawadi have just till primary. Children have to go to other villages for medium or higher level education, which may account for the wider gender gap in literacy among individuals aged 15 years and more as shown in Table 4.10.

4.2.3.2 Other Skills (Non-Farm based)

Several skills have been reported across villages in the Units. Some people have reported having skills related to horticulture, livestock rearing and cooking. Very few individuals have reported vocational skills such as mechanic, welder, tailor and electrician. Overall, 90 individuals reported having skills while just 22 individuals have some sort of certification to back the skill. Knowledge and

skills on farm-based activities (agriculture and livestock rearing), are ubiquitous across the project affected households (discussed in **Section 4.2.5)**

4.2.4 Land and Asset Ownership

The common type of farmers amongst the PAHs are marginal farmer, small farmer and semi-medium farmer and large farmers. The average land holding among the PAHs in unit 8 (2.8 Ha) is higher than those in unit 6 (1.44 Ha) and unit 7 (0.88 Ha) and only Lalupura, Hanoti and Surajpur (in Unit 8) have some large farmers. The social composition of villages explains the trend of having larger farmers as these villages have higher population of Khati, Gurjar and Rajputs which are considered as upper caste farmers and hold larger chunks of private lands. On the other hand, about half of the PAHs in Fawaka and Dehripal in Moman Badodiya are marginal farmers which have higher population of Scheduled caste and also have marginal presence of Scheduled tribes. Gendered analysis of land holdings among the PAH doesn't show much differences as about 40 % of both Female Household and Male Household are marginal farmers. However, it should be noted that there are no large farmers in Female Households, whilst all the five large farmers are from Male Households.

Table 4.11 shows land holding trends among PAHs. and Table 4.12 shows trends of land holdings by village. It should be noted that land holding trends are only given for project affected households. It excludes 51 sample households because this was a purposive sample to assess the profile of landless households. Thus including them would skew the data/analysis.

Table 4.11 Size of land holdings

Land Holding Size	PAHs (%)
Marginal Farmer (<1 ha)	40.32
Small Farmer (1-2 ha)	32.06
Semi-medium Farmer (2-4 ha)	17.78
Medium Farmer (4-10 ha)	8.25
Large Farmer (>10 ha)	1.59

Source: Household Survey responses 2020

Table 4.12 Land holding amongst the PAHs by Village

Village	Marginal farmer (<1 ha) N	Marginal farmer (<1 ha) %	Small farmer (1-2 ha) N	Small farmer (1-2 ha) %	Semi-medium (2-4 ha) N	Semi-medium (2-4 ha) %	Medium farmer (4-10 ha) N	Medium farmer (4-10 ha) %	Large farmer (>>10) N	Large farmer (>>10) %
Burlay	4	20.00	10	50.00	4	20.00	2	10.00	0	0.00
Jawadi	8	36.36	13	59.09	0	0.00	1	4.55	0	0.00
Dhatrawada	13	28.26	15	32.61	14	30.43	4	8.70	0	0.00
Unit 6 total	**25**	**28.41**	**38**	**43.18**	**18**	**20.45**	**7**	**7.95**	**0**	**0.00**
Parsula	26	72.22	6	16.67	3	8.33	1	2.78	0	0.00
Dehripal	30	78.95	5	13.16	2	5.26	1	2.63	0	0.00
Bijnakhedi	13	44.83	10	34.48	6	20.69	0	0.00	0	0.00
Fawaka	1	20.00	4	80.00	0	0.00	0	0.00	0	0.00
Chauma	19	55.88	14	41.18	0	0.00	1	2.94	0	0.00
Unit 7 total	**89**	**62.68**	**39**	**27.46**	**11**	**7.75**	**3**	**2.11**	**0**	**0.00**
Surajpur	5	17.24	3	10.34	11	37.93	8	27.59	2	6.90
Lalpura	1	4.35	11	47.83	7	30.43	3	13.04	1	4.35
Hanoti	7	21.21	10	30.30	9	27.27	5	15.15	2	6.06

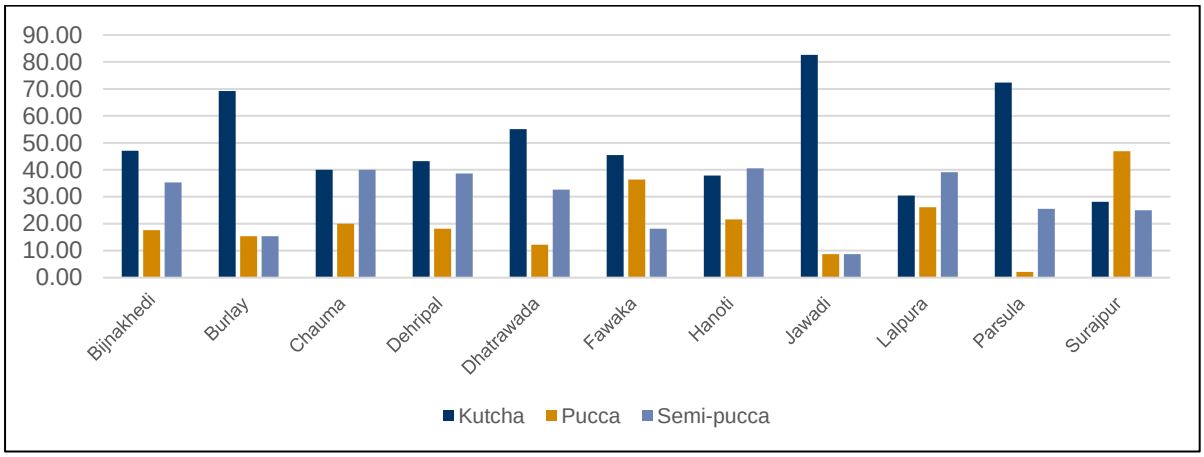
Village	Marginal farmer (<1 ha) N	Marginal farmer (<1 ha) %	Small farmer (1-2 ha) N	Small farmer (1-2 ha) %	Semi-medium (2-4 ha) N	Semi-medium (2-4 ha) %	Medium farmer (4-10 ha) N	Medium farmer (4-10 ha) %	Large farmer (>>10) N	Large farmer (>>10) %
Unit 8 total	**13**	**15.29**	**24**	**28.24**	**27**	**31.76**	**16**	**18.82**	**5**	**5.88**

Source: Household Survey responses 2020

4.2.4.1 Nature of Primary Residence

The structure of houses (primary residence) of surveyed households in unit 6 & unit 7 are more kutcha while households in unit 8 have more semi-pucca or pucca houses. More than half of the houses in Burlay, Dhatrawada, Jawadi and Parsula are kutcha while more than half in Hanoti, Lalupura and Surajpur are pucca or semi-pucca.

Figure 4.12 Type of Housing



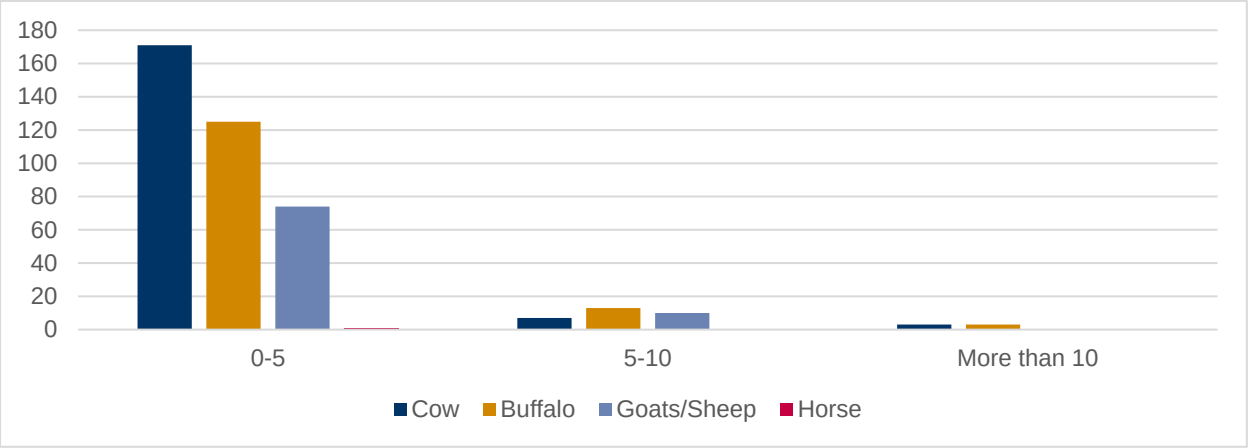
Source: Household Survey responses 2020

4.2.4.2 Livestock Ownership

The most common livestock holdings among the surveyed households are cow and buffalo followed by goats and sheep. Buffalo rearing is more common among households from OBC and general category while goats and sheep were more common among SC and Muslim households. Overall, 40% of households have cows, 34% have buffalos and 21% have goats or sheep.

The average livestock holding for cow, buffalo and goats amongst most households is 1-5 while some households hold more 10 cows and buffalo. Cow and buffalo are a source of income for some households who sell milk. Only 18% of households reported selling cows milk, with the rest used for self-consumption, more than half of the households reported selling milk of buffalo for income. Goats/sheep and poultry are maintained primarily for sale of products such as milk, meats, eggs and others.

Figure 4.13 Type and Number of Livestock



Source: Household Survey responses 2020

The common sources of fodder for cow and buffalo are grazing on open government lands, agricultural land and crop residues, with open grazing on government land the most common for all types of livestock. During consultations, it was reported that due to poor quality of grass in dry seasons, cow and buffalo are more dependent on government land during the monsoon season while goats/ sheep graze on government land in all seasons. Grazing on private land is not widely common amongst the households requiring fodder for their livestock. The trend of awara gai (stray cattle) is also increasing in the solar park region on accounts of unproductivity of cattle, however, there is limited information on the nature and extent of the trends of awara gai in the surveyed villages. Jawadi has around 500 stray cattle and Chauma has about 150 stray cattle. Big herds of cows grazing and resting on the farms and on roads is a common site in the region. It has created a concern for farmers since they eat and damage their crops, along with causing hazards on roads. There are sufficient cattle sheds in the village areas to keep the stray cattle however due to issues surrounding budget availability, issues surrounding care of cattle, as well as a fee involved in registering cattle with these sheds, farmers do not prefer to keep their own cattle in such sheds or take responsibility of stray cattle.

4.2.4.3 Poultry Ownership

Poultry was not observed as a common practice among the surveyed population. Only three households in Bijnakhedi have reported keeping poultry with a total number of 11 birds. All three households have reported commercial use of poultry using the egg and meat. These all are banjara households and are marginal and small farmers who reported earning INR 2,000 to 9,000 from poultry, annually.

4.2.4.4 Other Movable Assets

Most households own at least one communication device. Mobile cell phones have become a common device in the households. About half of the households own a vehicle and motorcycles have become a real necessity in the region in order to provide the last mile connectivity especially in keeping with the budget constraints amongst the PAHs. Mostly households from OBC and general category own these. The ownership of means of transport is limited among SC and ST households. Large farmers from Hanoti, Surajpur and Lalupura and households belonging to OBC reported owning agriculture appliances such as tractor, cultivators and others. The majority of SC and ST households don't own any agricultural appliances. Household appliances were least common in households from SC & ST category. The least common movable asset among the households is kitchen appliance. When the houses are kutcha and most houses don't have a separate kitchen, owning a kitchen appliance is not a priority. Probably this is why most households from SC and ST don't have a separate kitchen.

Table 4.13 Movable assets amongst surveyed households by village

Village	Kitchen Appliance	Kitchen Appliance %	Household Appliance (N)	Household Appliance	Agricultural appliance (N)	Agricultural appliance %	Means of Transport (N)	Means of Transport %	Communication devices (N)	Communication devices %
Burlay	3	11.54	8	30.77	3	11.54	9	34.62	26	100
Jawadi	3	13.04	8	34.78	2	8.7	9	39.13	18	78.26
Dhatra wada	7	14.29	19	38.78	7	14.29	26	53.06	47	95.92
Unit 6 Total	**13**	**13.27**	**35**	**35.71**	**12**	**12.24**	**44**	**44.9**	**91**	**92.86**
Parsula	3	6.38	12	25.53	8	17.02	28	59.57	43	91.49
Dehripal	4	9.09	12	27.27	3	6.82	19	43.18	40	90.91
Bijnakhedi	2	5.88	10	29.41	1	2.94	22	64.71	33	97.06
Fawaka		0	3	27.27		0	5	45.45	11	100
Chauma	7	17.5	16	40	1	2.5	13	32.5	38	95
Unit 7 Total	**16**	**9.09**	**53**	**30.11**	**13**	**7.39**	**87**	**49.43**	**165**	**93.75**
Surajpur	14	43.75	18	56.25	11	34.38	20	62.5	32	100
Lalupura	3	13.04	8	34.78	9	39.13	19	82.61	23	100
Hanoti	3	8.11	12	32.43	13	35.14	28	75.68	37	100
Unit 8 Total	**20**	**21.74**	**38**	**41.3**	**33**	**35.87**	**67**	**72.83**	**92**	**100**
Grand Total	**49**	**13.39**	**126**	**34.43**	**58**	**15.85**	**198**	**54.1**	**348**	**95.08**

Source: Household Survey responses 2020

Socio-economic disparity in access to housing and assets is clear from the survey. Among all, households belonging to SC and ST have less access to basic household amenities compared to households belonging to OBC and general category.

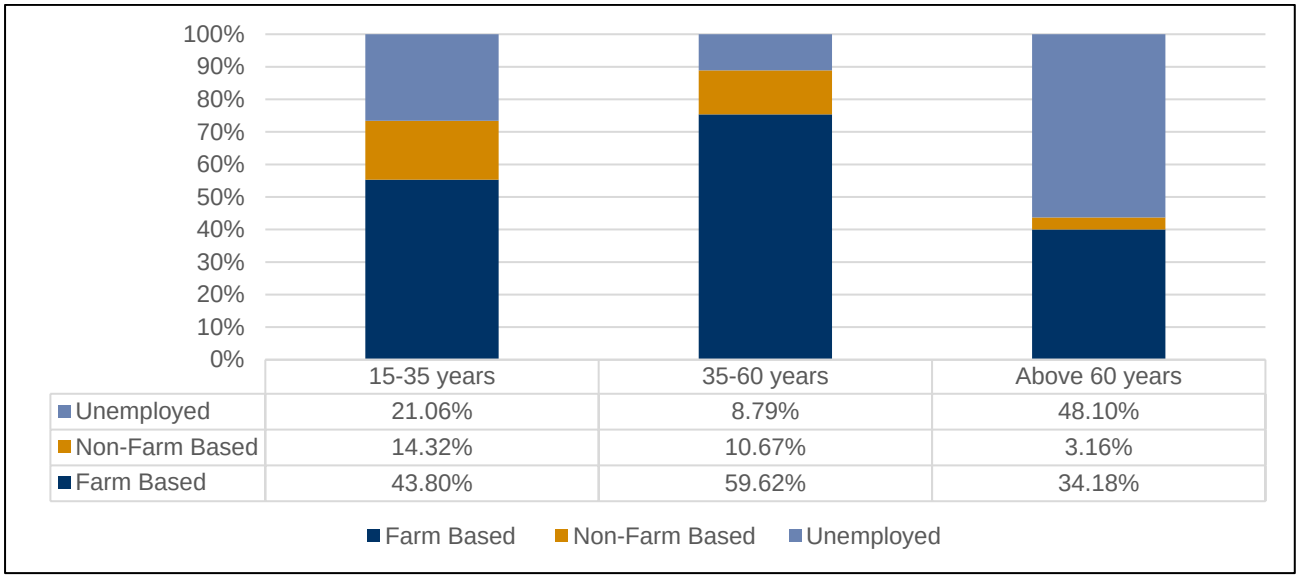
4.2.5 Livelihood Profile

Primarily, the working age population (15-60 years) in the surveyed households are involved in agricultural activities which included working in their own farms or in other farms. However, just about one-third of the working age population (34%) have reported their occupation as agriculture followed by agricultural labour (14.6 %). Apart from agriculture, the other primary source of income for others are petty business, government and private jobs and others. About 17% reported having no occupation which may include women, unemployed youth, seasonal labours and potentially farmers who don't perceive agriculture as an occupation.

4.2.5.1 Primary Occupation

The majority of the surveyed population in the working age group are engaged in farm-based occupations. The following images show primary occupation of surveyed population by age, village, gender and social groups.

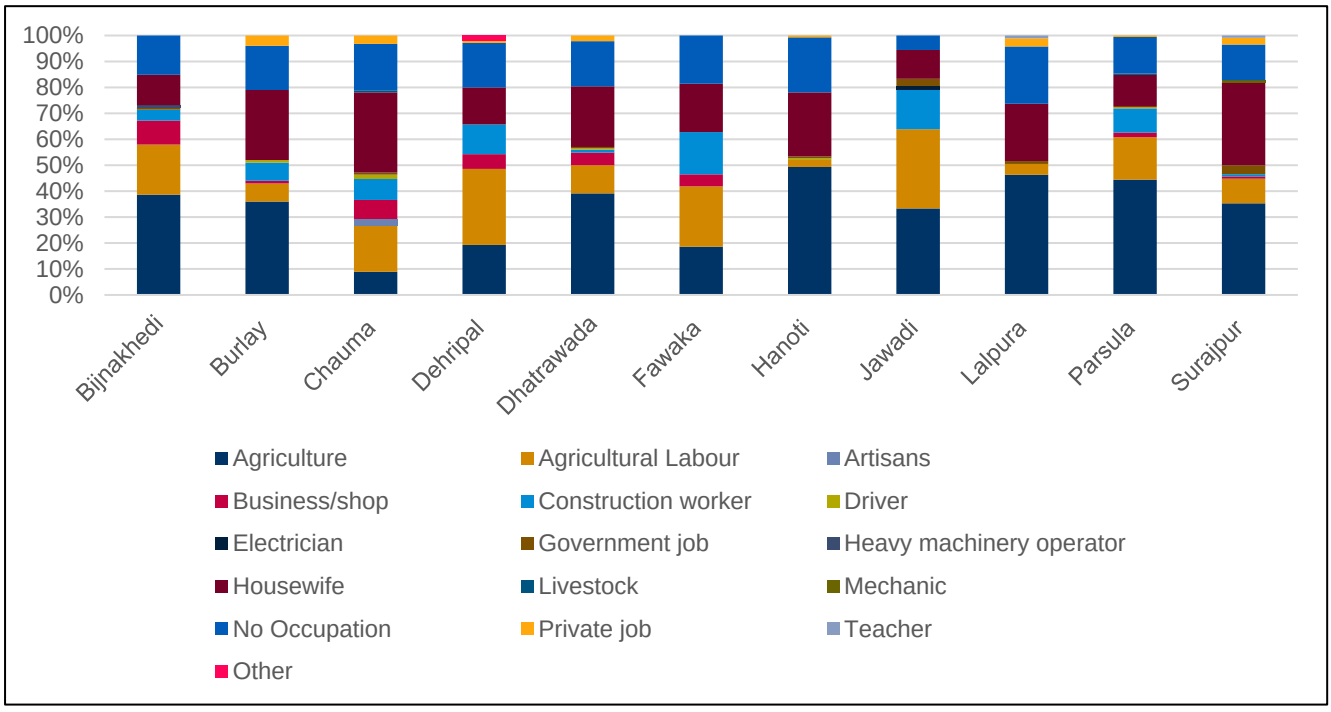
Figure 4.14 Primary livelihoods across Age groups



	15-35 years	35-60 years	Above 60 years
Unemployed	21.06%	8.79%	48.10%
Non-Farm Based	14.32%	10.67%	3.16%
Farm Based	43.80%	59.62%	34.18%

Livestock management has been mostly reported as a secondary occupation amongst the surveyed population in spite of qualitative discussions indicating that the local community identifies itself as grazers first and then as farmers. Agricultural labour is also reported as secondary because of it being seasonal and unpredictable. People take up agricultural labour work as and when it is available, primarily during the harvest and sowing times.

Figure 4.15 Primary Occupation by Village

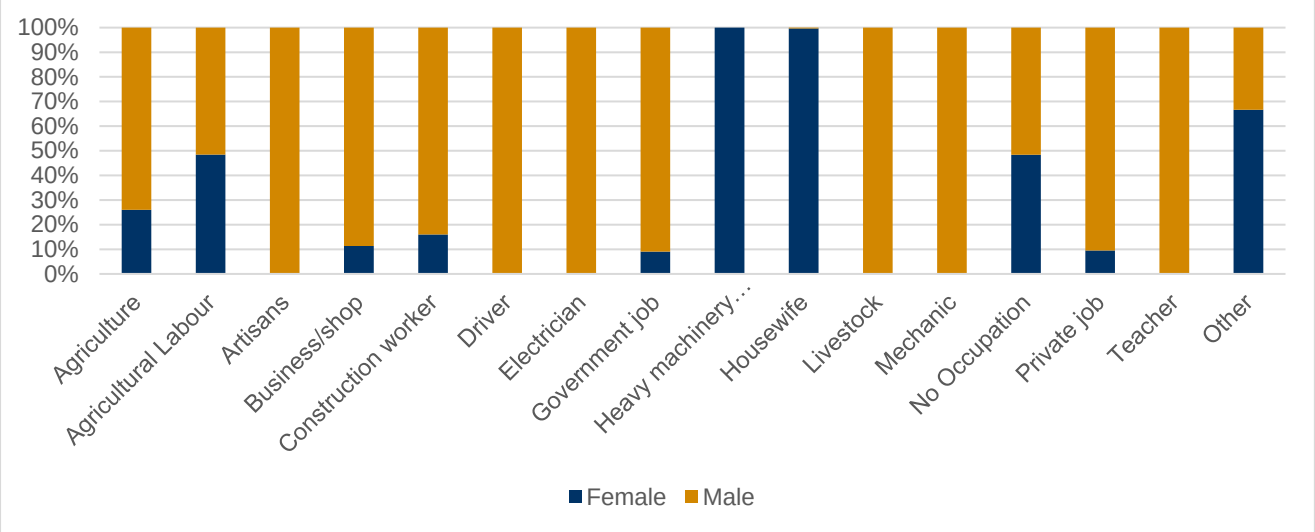


Source: Household Survey responses 2020

Since the villages like Chauma, Dehripal and Fawaka have more marginal farmers, people reported relying more on other sources of income such as labour work, construction, small shops. One of the households in Chauma was an artisan involved in the traditional profession of blacksmith. In Dehripal, there are large number of migrant workers who go out the district and state to find work opportunities, with the majority engaged in small businesses selling household stuff such as blankets.

On the other hand, villages in Unit 8 such as Surajpur, Hanoti and Lalupura have large farmers who rely primarily on agriculture for living.

Figure 4.16 Primary Occupation by Gender



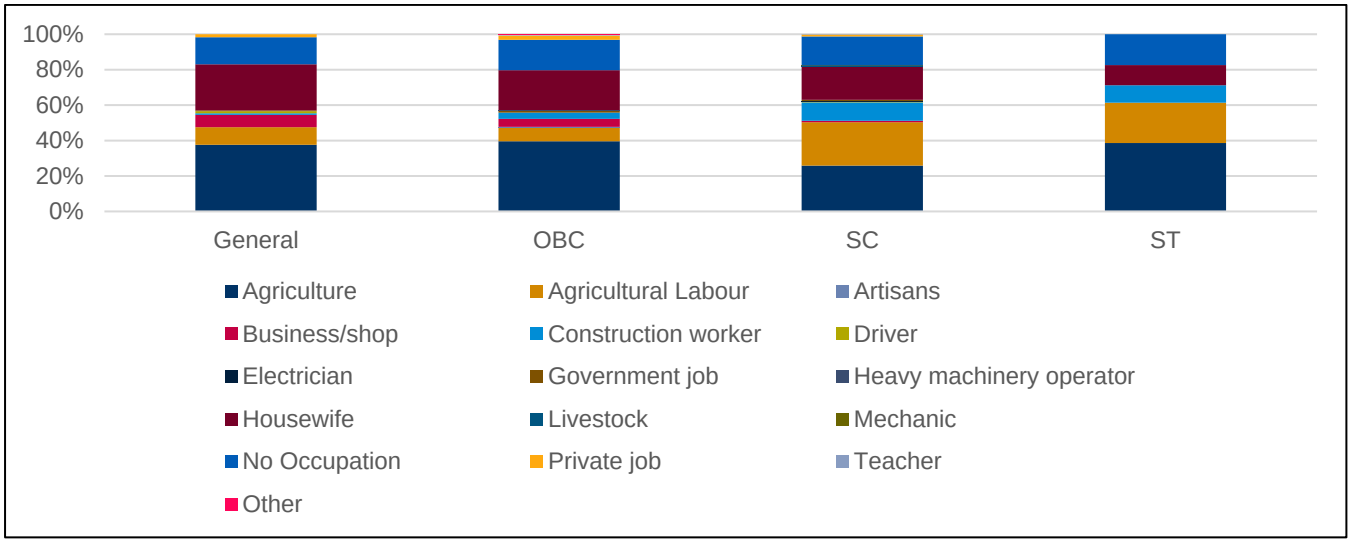
Source: Household Survey responses 2020

The division of occupation between men and women clearly shows the gender disparity in terms of livelihood opportunities. While males are involved in outside work women have mostly reported being housewives. The maximum participation of women in outside work is agriculture and agricultural labour which is often driven by the necessity to contribute to sustenance of the family. This is why women from upper socio-economic background don't engage in labour work. While many other professions such as business/shops, driver, mechanic, mechanic and even teaching profession have been reported only as male oriented professions. Such professions require a training which is rarely accessible to women especially in rural areas. The only easily available work for women is agriculture labour but is often only taken up if there are poor financial situation in family.

Children at a young age start helping their families in agricultural work irrespective of the nature of responsibility. About 6% of the surveyed population under the age of 15 years are reportedly engaged in agriculture or agriculture labour and small shops. The nature of this engagement may however be informal and part time. As shown in Figure 4.14, about half of the elderly reported that they are not working. However, they might be working or assisting their families in carrying out farm based or household-based tasks. Similarly, women have reported being housewives but unfortunately the unpaid labour in managing the household often remains unrecognized.

Elderly, women, youth are dependent on working age population amongst the surveyed population. The dependency can only be lowered if there are better educational, vocational and employment opportunities for vulnerable groups in the society. In addition, village like Chauma, Dehripal and Fawaka has demonstrated potential of adopting diverse professions but further awareness and training can enhance their abilities to improve their economic situation.

Figure 4.17 Primary Occupation by Social Group



Source: Household Survey responses 2020

ST households are engaged only in agriculture, agricultural or construction labour while SC households also engage in other diverse activities such as driver, mechanic and electrician. Households belonging to OBC and general are engaged in main agriculture, business/shop and other government and private jobs. The livelihood profile based on caste confirms that livelihood opportunities are still highly influenced by one's social identity especially in the rural context.

4.2.5.2 Farm Based Livelihoods

The Shajapur Solar Park region is mainly characterized as agrarian and most of surveyed households are engaged in some form of agricultural activities such as working on their own farms or others farm. However, it is observed that many households have not reported agricultural activities as their occupation but reported agriculture as one of the source of primary income for them. The average income reported from agriculture is INR 1,19,305. This suggests that involvement in agricultural activities among the surveyed households more than what is reported. Women and youth also help the family in farm-based activities which is not counted as an occupation. This is why many women and youth have reported no occupation.

Marginal and small farmers who have small land holdings also work on others' farms. However, availability of such work is seasonal. During Covid19 pandemic lockdown, several agricultural labour workers were out of work. In consultations, they informed that they get work on 8-15 days a month and are paid INR 200 per day. The period of remaining unemployed also increased during the COVID19 economic disruptions.

Management of livestock is a full time job for the households which requires taking care of livestock, feeding, grazing and the responsibilities of managing the responsibilities often fall on the shoulders of women, girl and youth.

4.2.5.3 Non-Farm Based Livelihoods

Over the past few decades, non-farm sector has grown significantly in rural India. The same is also visible among the surveyed households, however the reach is limited to a few villages and households. However, the push factor is not the planned development initiatives, but rather an outcome of marginalization due to the land fragmentation, non-productivity in agriculture and growing population. Households in Chauma, Fawaka and Dehripal have reported several non-farm-based sources of livelihood. In Chauma, PAHs are engaged in small business/shops, construction work, driver, electrician, mechanic and private and government jobs. Similarly, household members in

Dehripal go out of district and nearby states such as Rajasthan and Gujrat to find work. They engage in private jobs, labour work and small businesses such as selling household items. The most commonly reported household product sold for income was blanket. Surveyed households reported out-migration to near places such as Devas, Indore, Bhopal and some even go out of the state for better and long-term opportunities. Those engaged in non-farm-based livelihoods are marginal farmers. Hence the engagement in non-farm sector may not be always out of choice. COVID19 pandemic hit this sector harder than farm based because of the strict lockdown in cities and restricted economic activities. The impact of the slowdown of economy will last for longer for these workers. Though the participation of women in non-farm sector is as low as in farm sector.

4.2.5.4 Migration

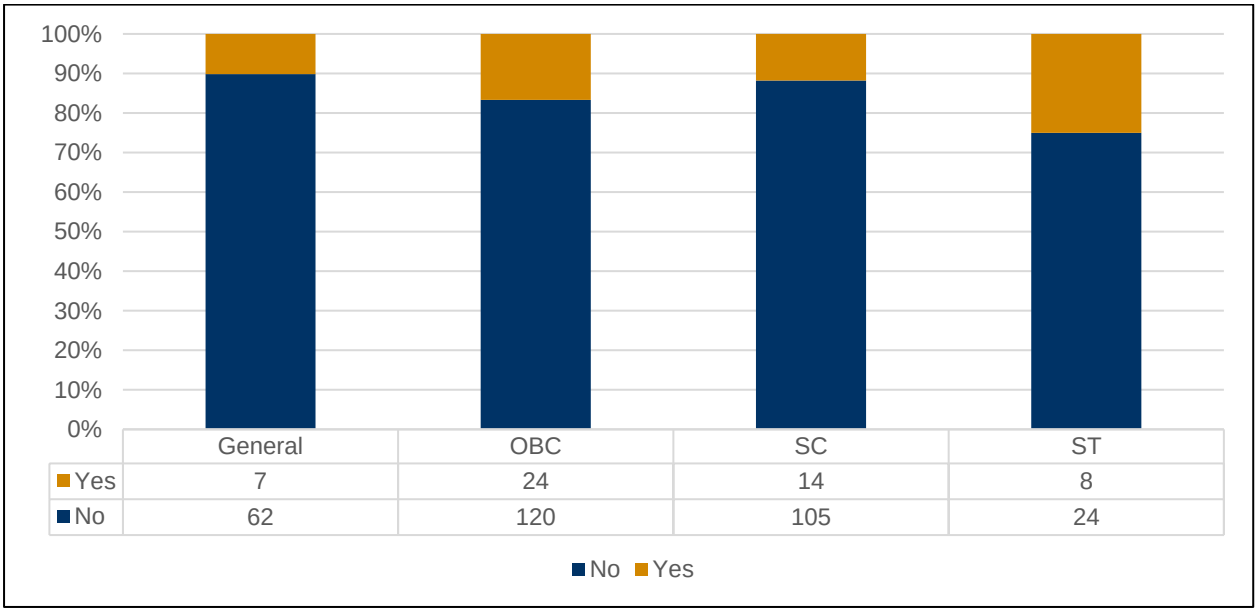
Over all, 14% of the surveyed households reported out-migration. In search for long term and reliable work, the majority of the migrated persons in surveyed households (61%) reported going to different states. Another 28% reported out-migration in another district within the state and 9% prefer working within the same district. These migrant workers are mostly in working age group 25-45 years. The out-migration was more reported in Dehripal, Bijnakhedi and Parsula.

Box 4.4: Return of migrant worker due to COVID19 Pandemic lockdown

There is an out-migration trend in Dehripal. Most months, men go out of the district and state to work. They engage in labour, contract work, construction and business activities. In the absence of men in the family, women have to take up responsibility of managing the household where they rely mostly on livestock and agricultural labour work. In the context of the recent Covid-19 pandemic, many of the migrant workers returned home. They stayed in the village for the entire lockdown period and faced extreme economic hardship due to lack of work opportunities within the village. They had no source of income for several months which pushed them on the verge of poverty. Some households reported receiving monetary assistance from the family but that is not sufficient to survive for a family with dependent members. After 3-4 months of stay, they started going back to their locations of work.

Source: consultations with the local community during RAP study

Figure 4.18 Trends of out-migration by social group



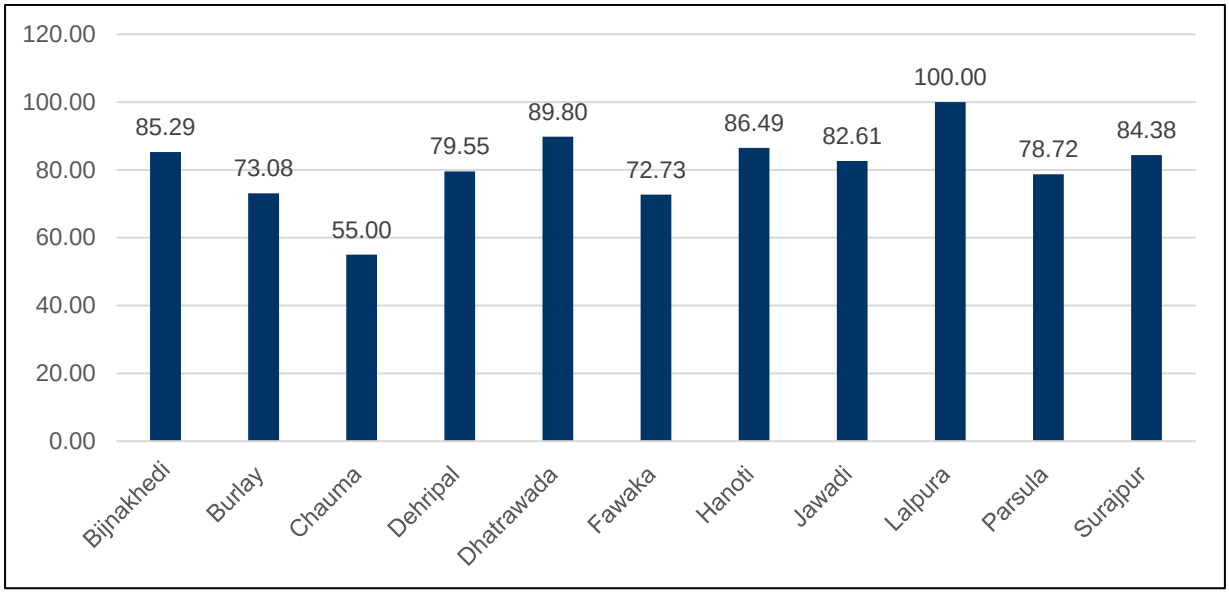
Source: Household Survey responses 2020

The migration has been reported more by OBC households. COVID19 pandemic has made the situation even worse for migrant workers. About half of the migrant workers reported returning back to village after this the breakdown of COVID19 in cities. It made them ponder over their future possibilities in these times of uncertainty. MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) work through Gram panchayat in villages are yet to initiate opportunities for these migrant works. However, some households have reported receiving some financial assistance from the Government of India under direct bank transfer scheme for one to three months. However, the assistance amount is small (about INR 500) and not all the surveyed households received it at the time of the survey.

4.2.6 Agricultural Activities

Households across social groups have reported income and engagement in agricultural activities. This suggests that the society is mainly agrarian. This specifically stand correct for villages in unit 8 such as Lalupura, Surajpur and Hanoti. Since surveyed households from Chauma and Fawaka have reported mixed occupations, they have comparatively lesser engagement with agriculture. Since this agricultural profile of villages is based on their reporting in income from agriculture, the information can be considered more reliable.

Figure 4.19 Households engaged in Agriculture by Village



Source: Household Survey responses 2020

Since the dependency on agriculture for sustenance is higher in almost all the villages, any loss in land, crop or productivity is a severe setback for people. Several households informed about experiencing loss of crop in the previous financial year. For example, many households in Dehripal and many other villages shared 100 % loss and damage of soyabean due to uncertain weather patterns leading to infestation of pest and insects. Soyabean is one of the main crops in the region and Madhya Pradesh is a major source of soya bean for the country. The soyabean crop loss is severe among the surveyed households and in villages in general. Moreover, many are still yet to receive any compensation for the crop loss.

Both the primary and secondary source of occupation of elderly who are working is agriculture based. This suggest that older generation in the surveyed households is only skilled and engaged in agricultural activities while younger generations are exploring other sources of occupation such as small business, private jobs and migrant work.

4.2.6.1 Agricultural Activities and Land utilization

About one-third of the project affected households have reported use of government land for agricultural activities and the rest have reported using their own private or patta land. Though 'Kabja ki Jameen' (encroached and squatted land) is a common term in the villages but there might be underreporting in usage of government by the respondents because of the concerns about losing their land or being known for using it.

4.2.6.2 Irrigation Sources

The main source of irrigation for major crops are open well, ponds, tube well, check dams and canal while there is also large dependence on rain, mainly for regular crops such as fodder, jowar, maize. As reported, more than half households (60%) are dependent on rains for crops especially for soyabean, followed by open well (14%) and tube well (10%).

4.2.6.3 Major Crops and Their Productivity

Madhya Pradesh is primarily a food grain growing state with around 62 %of its gross cropped area devoted to food grains and 32 %to oilseeds[23]. Amongst the surveyed households, wheat is the main cereal grown and gram (Channa) is the chief pulse grown. The most common oilseed grown is soyabean. Overall, soyabean and wheat are the most grown crops amongst the surveyed households. Soyabean, wheat, channa and onion are major cash crops in the region. While Soyabean and maize are major kharif crops, Wheat and pulses are major Rabi crops and are often intercropped with each other. Out of all, 136 households grow multiple crops while 137 and 48 double and single crops respectively. As per the cropping patterns among the surveyed households, 306 households grow soyabean followed by wheat (220), channa (92), Dal (40), Garlic (36), maize (22), Mustard (50), Potato (18), Onion (51), Vegetables (19), orange (2) and other (1). The seasonal calendar of crops grown in shown in Figure 4.20.

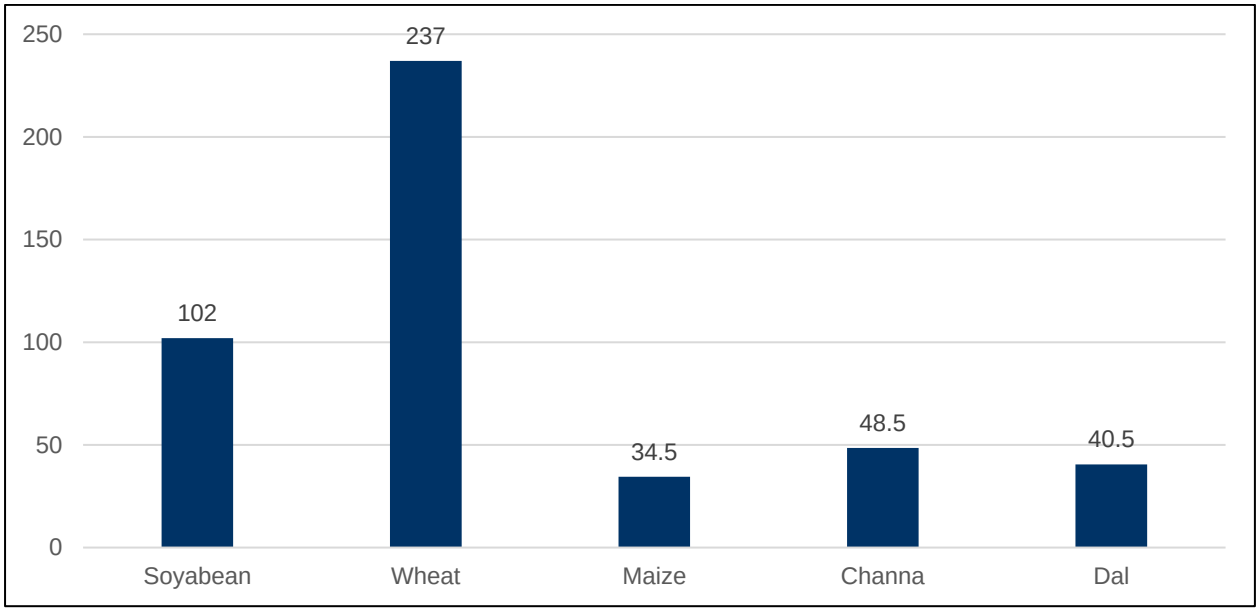
Figure 4.20 Seasonal calendar for major crops of surveyed households

Crop	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Soyabean						■	■	■	■	■	■	
Wheat	■	■	■	■						■	■	■
Maize						■	■	■	■	■	■	■
Channa	■	■	■	■						■	■	■
Dal	■	■	■	■						■	■	■
Garlic				■	■	■	■	■	■	■		
Mustard	■	■								■	■	■
Potato	■	■	■					■	■	■	■	■
Garlic	■	■	■	■	■	■	■	■	■	■	■	■
Onion	■	■	■	■	■	■	■	■	■	■	■	■
Orange	■	■	■								■	■

Source: Household Survey responses 2020

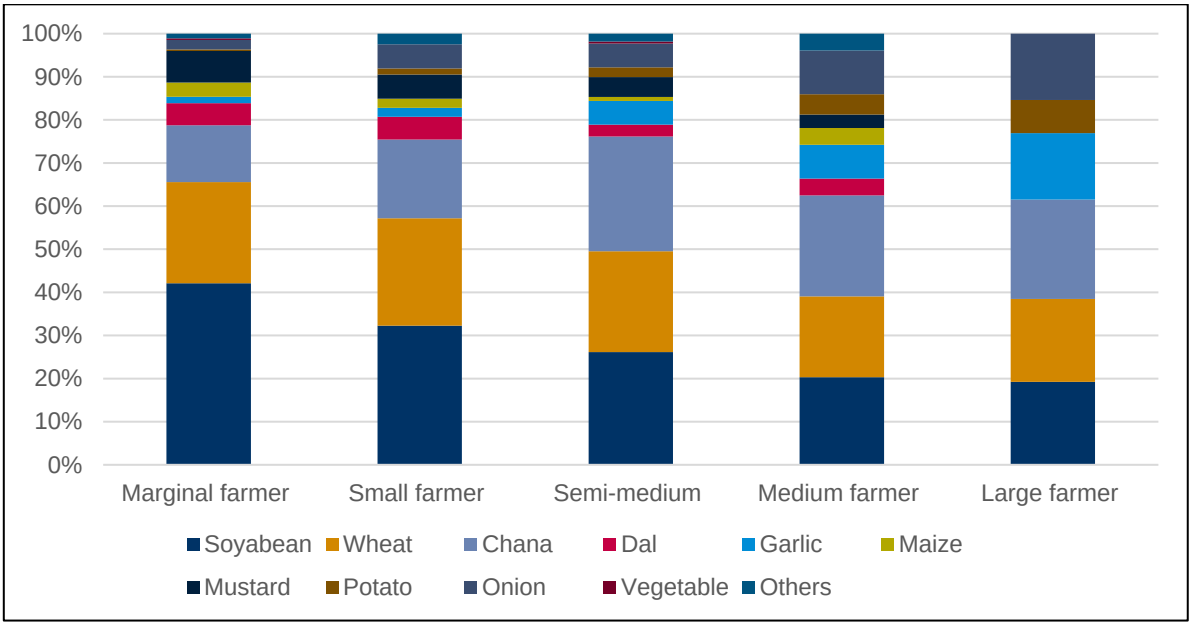
[23] Gulati, A., Rajkhowa, P., & Sharma, P. (2017). Making Rapid Strides-Agriculture in Madhya Pradesh: Sources, Drivers, and Policy Lessons.

Figure 4.21 Crop Productivity per hectare (in quintal)



Source: Household Survey responses 2020

Figure 4.22 Cropping patterns amongst PAH by types of Farmer



Source: Household Survey responses 2020

Overall, Madhya Pradesh has seen changes in its agricultural growth, crop patterns and changes in cropped area over the decades. For example, soya bean was introduced in MP as a short duration crop but due to high prices and market-linkages, soyabean cultivation quickly increased. This changed the cropping pattern of the region drastically in favor of high valued cash crops at the expense of low valued food crops like Jowar and contributed to higher crop yields per hectare[24]. The same pattern can be observed in the region. However, agricultural sector in the region stills require more support from the state in view of its uncertainty and productivity. The productivity of crops per quintal has been show in Figure 4.21. Irrespective of size of land holdings, farmers prefer growing

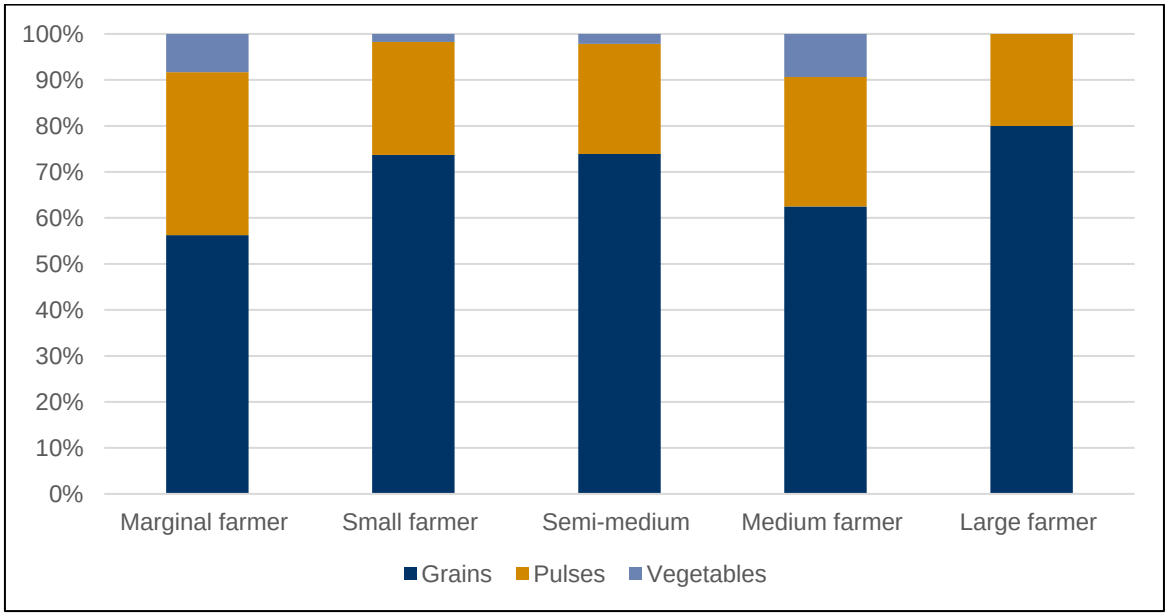
[24] Shankar, P. V. (2005). Four decades of agricultural development in MP: An agro-ecological sub-region approach. *Economic and Political Weekly*, 5014-5024.

soya bean because it is a cash crop and brings more security for farmers for its better market linkages (Figure 4.22).

4.2.6.4 Food Security

On an average, only one-third of total surveyed households reported having produced grains sufficient for the household consumption; 15 percent for pulses and just 3 percent for vegetables. Sufficiency for household consumption of grains was reported more in unit 8 across villages where people are larger farmers and own private land. However, procuring grains is a concern among households in Chauma, Dehripal and Jawadi. Overall, half of the households procured it under the government assistance. About 60 percent of them reported receiving such assistance for 12 months. Since just about one-third of the households or less grow pulses, just 15 percent have reported sufficient production of pulses for household consumption and therefore, they have reported to have procured it. About half of them have received some assistance from government schemes on food security. Since only 19 households reported growing vegetables, only few households reported have sufficient vegetables for consumption and mostly purchase it every month from the market.

Figure 4.23 Food security amongst PAH by the Types of farmer



Source: Household Survey responses 2020

Overall, food security is reported better amongst OBC and male-headed households. Figure 4.23 shows that larger famers have more food security for grains while vegetables are grown mainly by farmers with smaller land size.

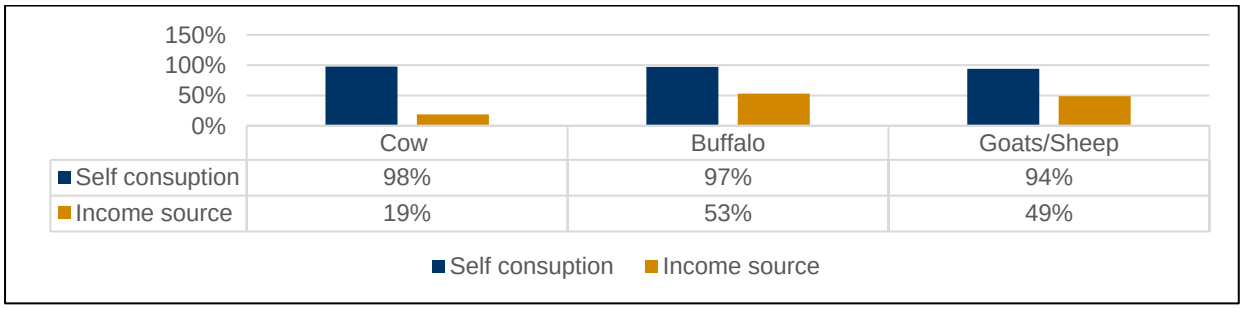
4.2.7 Livestock Rearing

The livestock profile of surveyed household is discussed in land and asset ownership section. Cows, buffaloes and goats are the major livestock owned by the households. As per Census of India, 2011 shows that approximately 4 percent of the total geographical area in Project villages is under permanent pastures, in terms of land use, implying grazing land. Use of open government land for grazing has been widely reported. The local community also uses and stores crop residue after harvest of wheat, soybean and mustard as dry fodder for livestock. This is used during the summer season and the stored fodder lasts for around 8-10 months. The stored fodder, is supplemented with green fodder from government land for open grazing. The dependence on government land for grazing increases during the monsoon season due to increased availability of grass which is used as green fodder. Dry fodder is available for livestock from crop residue (husk, soybean) is widely used.

The cost of buying fodder is about INR 2,000 per trolley and it takes approximately 0.2 ha land to grow one trolley-load of fodder.

Nearly every household in the Project villages has approximately 3-4 livestock (i.e. cows, buffaloes and goats), except for a few SC and ST households. There are also some households (mostly from the more dominant communities, in this case, Rajputs and Patels) who own around 10-15 livestock per household. Households mostly own an indigenous breed of cow called Malvi[25] (a breed of the Zeebu cattle from the Malwa region of Madhya Pradesh). They are traditionally owned by household in the area because bullocks are used, especially being a draught prone area, to help farmers plough the field, and pull their cart. The commercial use of Buffalo and Goat/Sheep is more than cows (Figure 4.24). People have keep their livestock inside and outside the porch in the house. In smaller houses, livestock have been seen being kept inside the house.

Figure 4.24 Uses of livestock



Source: Household Survey responses 2020

Table 4.14 Month wise dependence on Grazing land and Fodders

Livestock	Dependence on Grazing land and Fodders			
	Charnoi/Chargah	**Cultivate Fodder Parcels**	**Self-Grown crop residue**	**Purchased Fodder**
Cow	July to December	July to November	December to January and March to April	February and May to June
Buffalo	July to November	July to November	December to January and March to April	February and May to June
Goats/Sheep	January to December	July to December	December to January and March to April	February and May to June

Source: Village Profiling and FGDs with Graziers

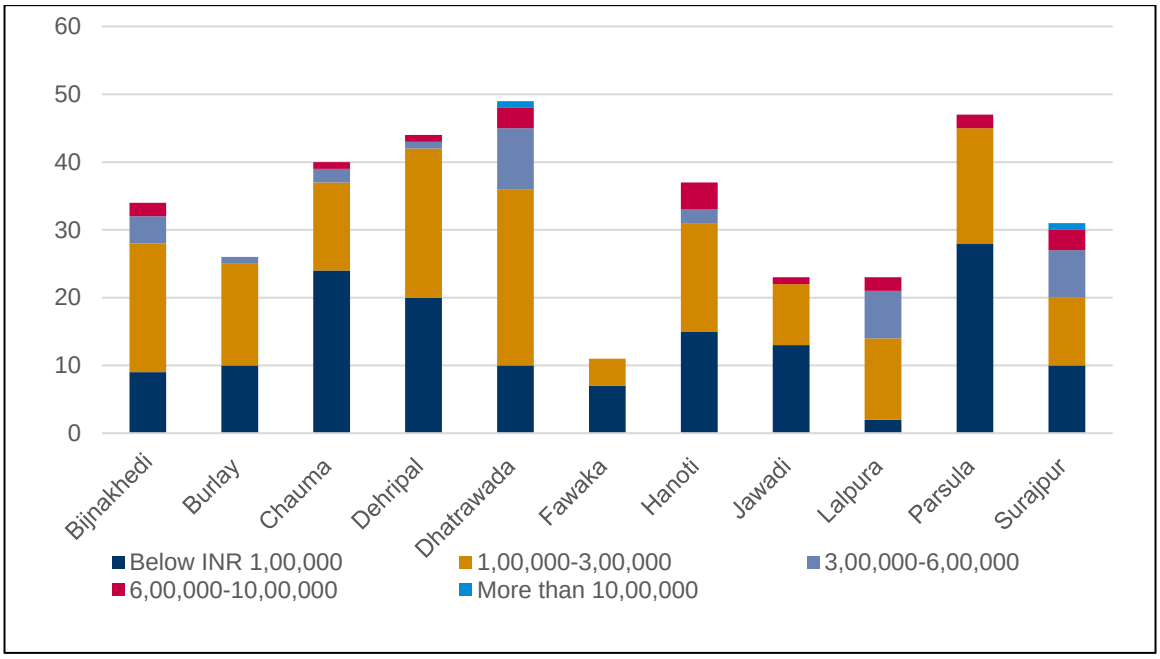
[25] http://afs.okstate.edu/breeds/cattle/malvi/index.html/

Photo 5 &6 Livestock rearing amongs the surveyed households

4.2.8 Income and Expenditures

Since the proportion of medium and large farmers is more in Surajpur, Lalupura, Hanoti, Dhatrawada and Bijnakhedi, the average annual income of surveyed households in these villages is higher than that of households in Jawadi, Fawaka, Chauma, Burlay and Dehripal. In view of the reported average income, households from Fawaka are the poorest among all.

Figure 4.25 Annual income of the Surveyed Households (INR)

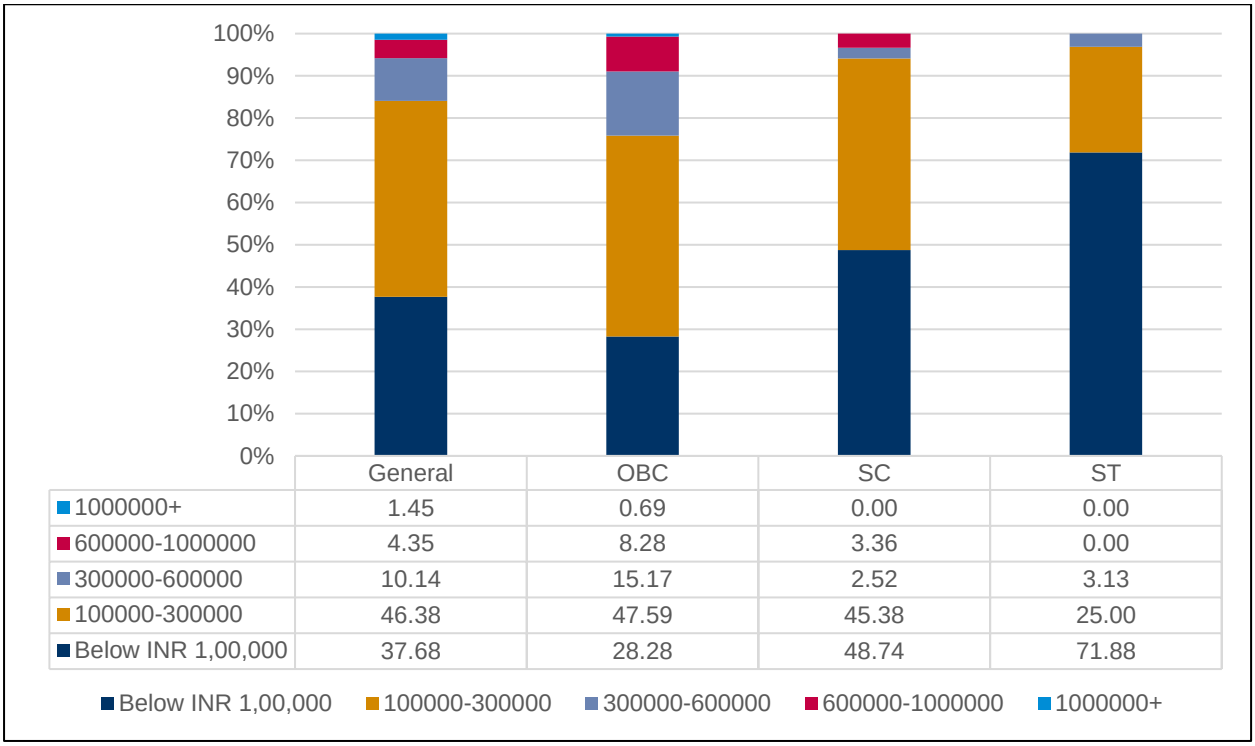


Source: Household Survey responses 2020

The financial situation of households from SC and ST is poorer than the households from non-SC-ST categories. While some households from OBC and general category have also reported their income more six lakhs. The mean income of male headed household in OBC category is INR 2,34,511 while it is just INR 1,31,217 for households belonging to SC and 92,414 for ST households. The disparity and inequality in income among households from different socio-economic backgrounds is evident here. Income is directly influenced by the sources of livelihood. The average income of women

headed households from ST community is just INR 48,200 compared to male headed households (INR 92,414).

Figure 4.26 Annual Income of Surveyed Households by Social Group



	General	OBC	SC	ST
1000000+	1.45	0.69	0.00	0.00
600000-1000000	4.35	8.28	3.36	0.00
300000-600000	10.14	15.17	2.52	3.13
100000-300000	46.38	47.59	45.38	25.00
Below INR 1,00,000	37.68	28.28	48.74	71.88

Source: Household Survey responses 2020

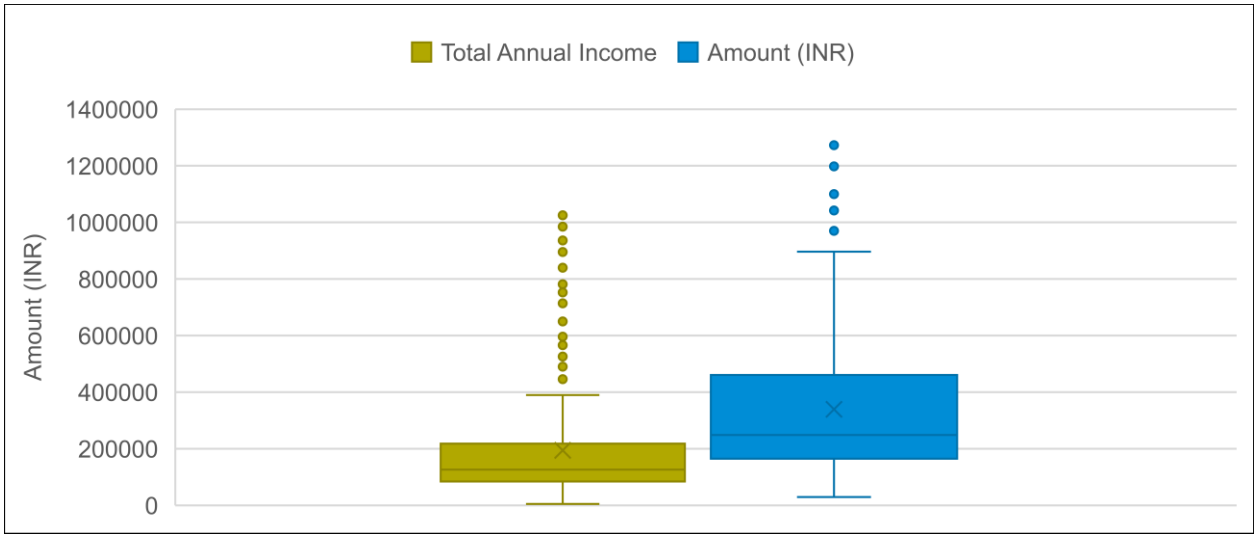
All the households with only elderly have an annual income below one lakh. To conclude, households from unit 6 & 7 and those belong to SC and ST have higher levels of poverty than their counterparts.

Table 4.15 Average Annual Household Expenditure by Income group

Income Range (INR)	Average Annual Household Expenditure (INR)	Lowest Annual Household Expenditure (INR)	Median Annual Household Expenditure (INR)	Highest Annual Household Expenditure (INR)
Below INR 100,000	2,49,369	29,150	1,77,380	23,30,925
100,000-300,000	3,50,340	39,100	2,52,750	22,78,100
300,000-600,000	6,27,366	97,520	511300	35,28,000
600,000-1,000,000	7,41,765	2,01,200	6,40,000	17,46,500
More than 1,000,000	56,13,875	5,31,950	56,13,875	1,06,95,800

Source: Household Survey responses 2020

Figure 4.27 Income-Expenditure Comparison



Source: Household Survey responses 2020

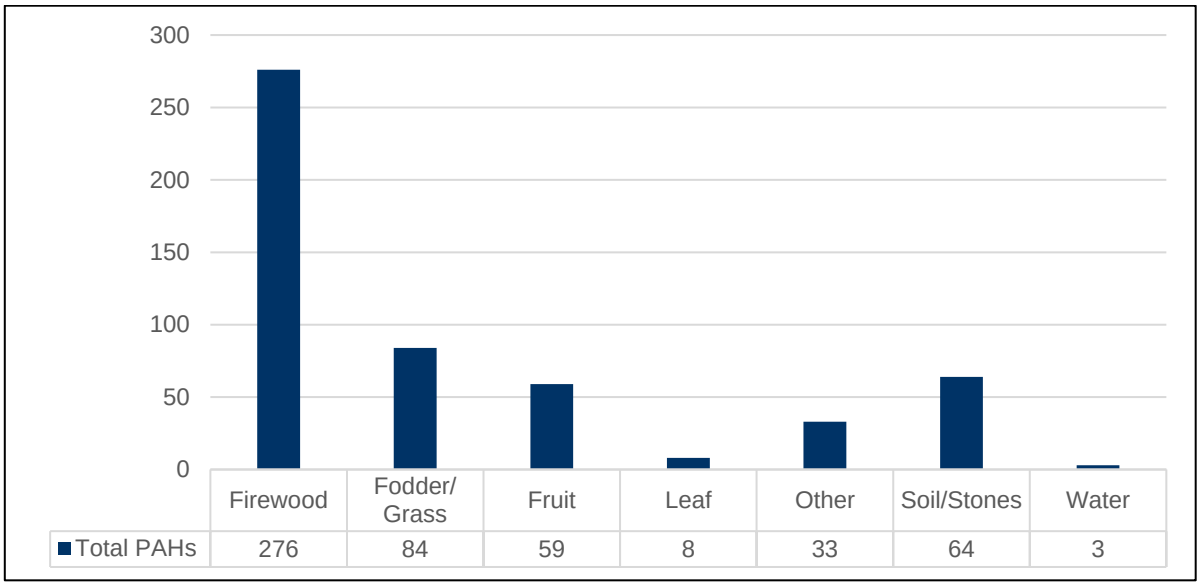
The average total expenditure among the surveyed households is INR 3,68,358. Within the PAH, the ST households reported an average annual expenditure of INR 32,924.5. Being a primarily agricultural region, the major chunk of expenditure has been reported from agricultural activities such as Agriculture Input Investment, Agricultural Rent. The average expenditure of loan repayment is the highest except the other one-time expenditure which might include big family events such as wedding, hospitalisation, funerals etc. A comparison of reported income and expenses (excluding outliers) is shown in Figure 4.27 reflect that reported expenses are higher than average annual household income

PAHs spend less on education especially in women headed households (37%) compared to male headed households (64%). However, the reported prevalence of chronic diseases amongst PAHs is very low, the expense on health is on the higher side. As emerged during consultation, these expenses occur against the general health concerns such as fever, injuries etc.

4.2.9 Community Dependence on Natural Resources

Dependency on firewood is common among the surveyed households irrespective of gender and social group with households reported collecting 183 kg firewood on an average every month. The area of Shajapur has a rich forest where livestock grazing and collection of firewood is very common. This is also true because many houses still use firewood as source of energy for cooking. Since livestock and grazing is also common in the region, the dependence of households on fodder, water, leaves are understandable. Secondly, since several houses in the region are still kutcha or semi-pucca, thus there is a significant dependence of these households on soil, stones and water.

Figure 4.28 Dependence of surveyed households on Natural Resources



Source: Household Survey responses 2020

There is no dependency on natural resources for income earning amongst the households. Households with annual income less than 3 lakhs have reported more dependency on natural resources such as fruits, fodder, leaf and firewood.

There is a gendered division in roles in procuring the resources for the household. While fetching water is a prime responsibility of women, bringing firewood from the forest is shared by both men and women. These gendered roles become a part of socialization from an early age in the households especially in rural areas. Women and girls carrying two to three buckets (one on their head and one each in both the hands) was a common sight in the villages.

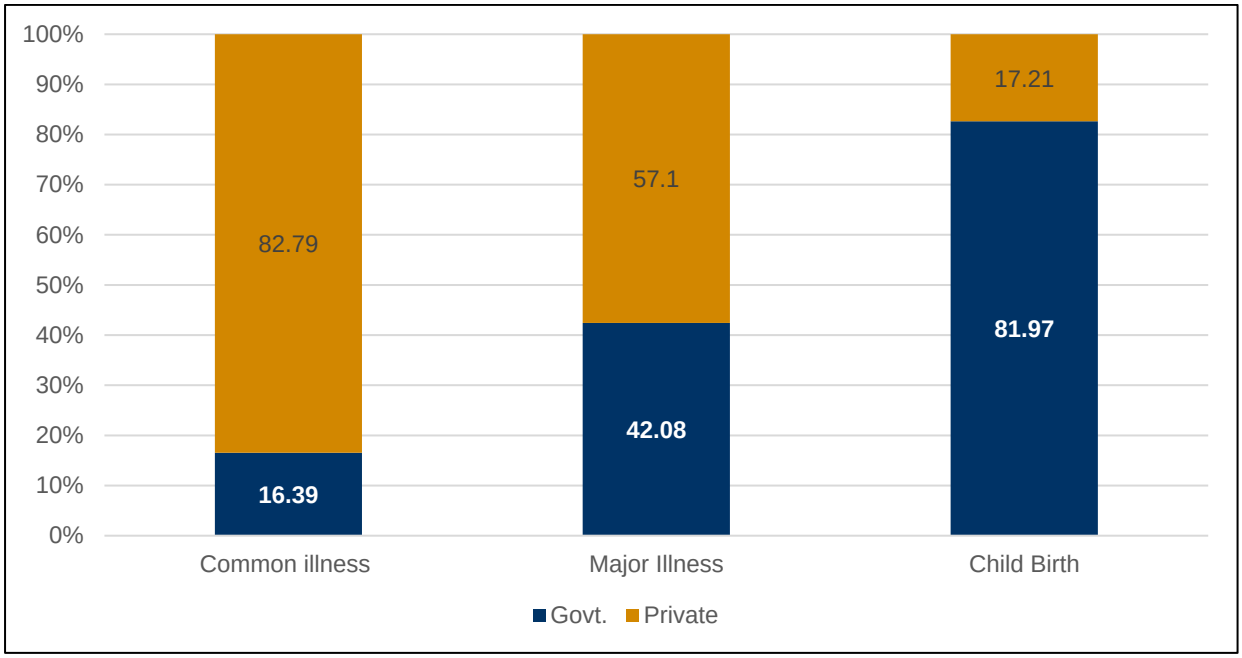
The actual use and dependency on natural resources may be more than what is reported. The direct and indirect use of these resources is related the villages or household's economy. The economy of these villages is connected with its natural resources base such as forest, grazing land and water resources. Wood for fuel, fodder for livestock, and water for irrigation or household consumption are considered normal to use in rural areas.

4.2.10 Physical and Social Infrastructure

4.2.10.1 Healthcare and Health Infrastructure

The preference over the health care facility among the surveyed households vary according to the nature of health problem. It is noted that people prefer government run facilities more for childbirth than treating major and common illness. However, irrespective of social category, income category and gender, most prefer private facilities for common illness. The possible factor over this preference could be the distance from the home. Government facilities are mostly located at Tehsil level which is usually far from the village. No village except Chauma has primary health sub-centre and dispensary within the village premises. In addition, as also reported in ESIA report, there are no maternity and child welfare centres, dispensaries, veterinary hospitals and family welfare centres in project footprint. The reported prevalence of chronic health diseases by the surveyed households is low but expenses mostly occur for one-time illnesses such as fever, cold, injuries, child birth and others.

Figure 4.29 Preference of Health Care Facility



Source: Household Survey responses 2020

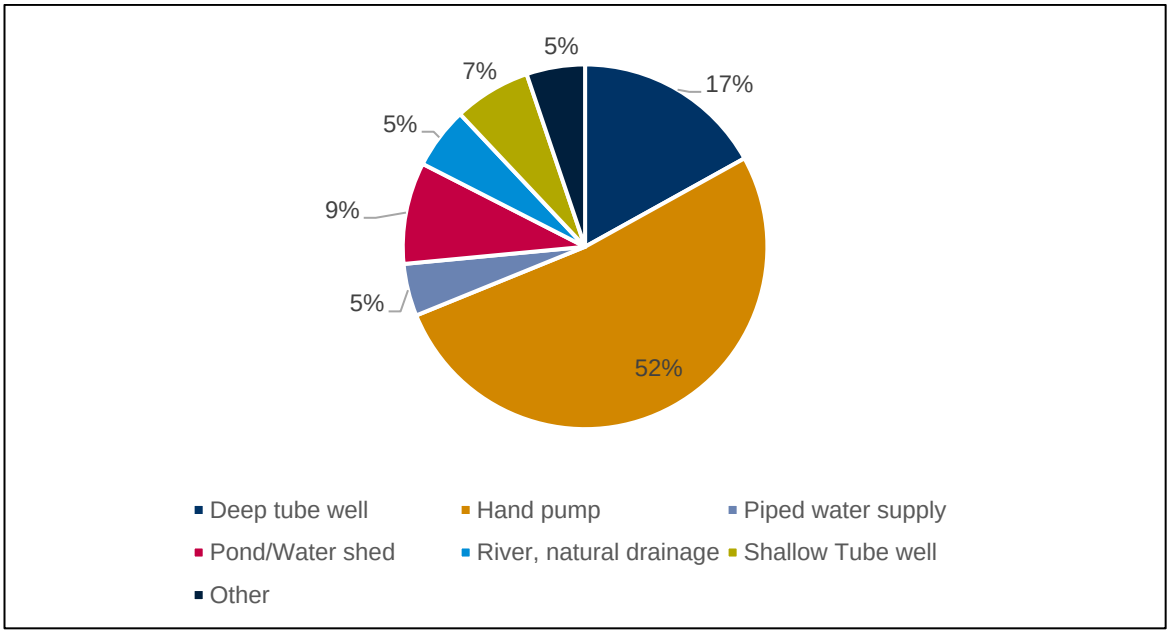
4.2.10.2 Access to Electricity

All the surveyed households have access to electricity from government supply while one household reported solar panel as a source of electricity. Though the electricity bill for normal household use ranges from INR 100 to INR 400 per month but the gender disparity in electricity bill is significant. The average expense reported for electricity for women headed households (i.e. INR 2,732 annual) is significantly lower than the male headed households (INR 11,106 annual). This also suggests that male headed households are engaged in more revenue generating activities that require higher electricity consumption.

4.2.10.3 Drinking water and Water for household consumption

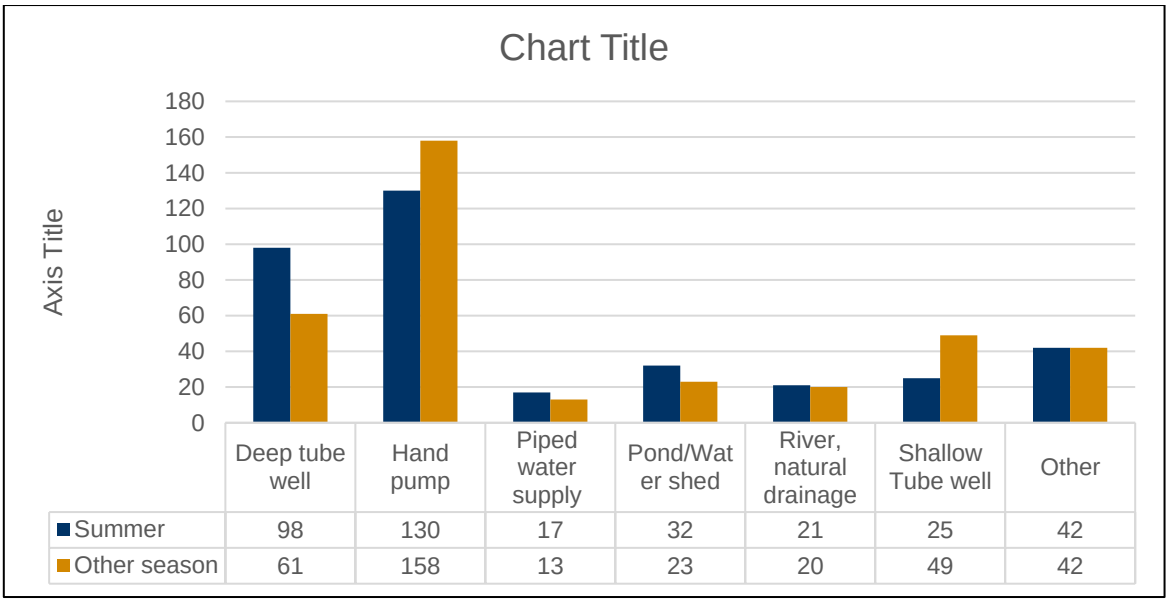
Irrespective of season, the major source of drinking water among the surveyed households is Hand pump. Another common source of drinking water amongst households across villages is tube well.

Figure 4.30 Source of Drinking Water



Source: Household Survey responses 2020

Figure 4.31 Source of water for household use



	Deep tube well	Hand pump	Piped water supply	Pond/Water shed	River, natural drainage	Shallow Tube well	Other
Summer	98	130	17	32	21	25	42
Other season	61	158	13	23	20	49	42

Source: Household Survey responses 2020

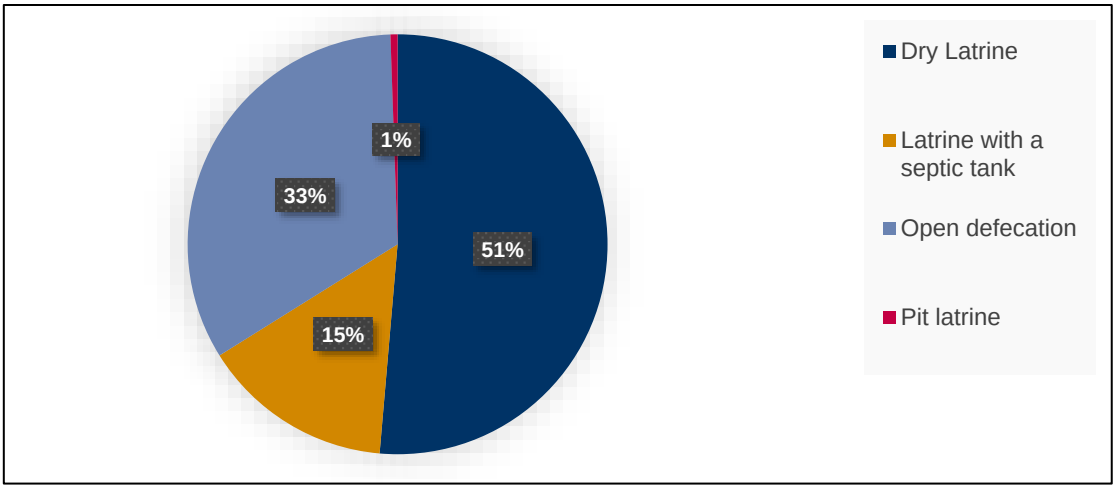
The quality of water has been reported poor in the months of summer with majority of people being satisfied with the quality in other months. On average, households across the village have reported facing scarcity of water for a period of 2.4 month. The scarcity is reported higher in Parsula, Hanoti and Jawadi. The continuous availability of water has been reported among households in Surajpur, Lalupura, Fawaka and Chauma.

4.2.10.4 Sanitation and Wastewater Disposal

Despite the fact that about two-thirds of the surveyed households have facility of toilet inside the house, they are not free from age old practice of open defecation. More than half still practice open defecation. Most of these toilets are built under the Swachh Bharat Mission scheme but the usage and functionality of these toilets is a question. Probably the conditions of these toilets are a constraint

for people for not using them. Studies have confirmed that good condition of toilets induces people to reduce open defecation[26]. Good conditions include proper functioning doors, availability of water or strong roofs and walls. In addition to institutional and structural constraints, there might be constraints related socio-cultural behaviours of people in the village. Having a household latrine is widely seen to damage the purity of the home[27]. Open defecation is more among OBC and SC households compared to other social groups.

Figure 4.32 Sanitation Facilities in households



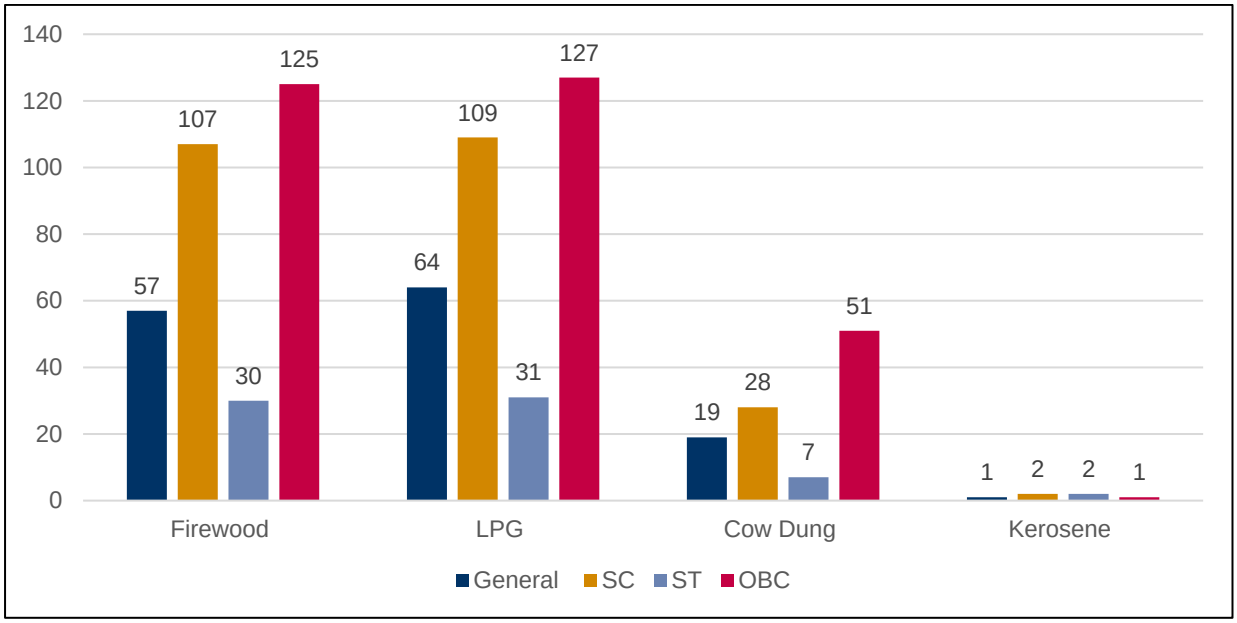
Source: Household survey 2020.

4.2.10.5 Energy

Tthe fuel requirement across surveyed population according to social group are shown in Figure 4.33, It must be noted that only 24 percent of the households use at least three type of fuels, 14.7% of the households use just one type of fuel and 0.5% use more than 3 sources of fuel (of which fire wood and cow dung are linked to dependence on common property resources and livestock), these households use a combination of LPG, firewood, cow dung and kerosene. Thus, the Figure 4.33 does not equate to 358 households since since the responses are multiple based. While LPG gas remains an unviable option for a substantial proportion of the households as the sole source of fuel, there are growing concerns associated with the dependence upon fire wood as a cooking fuel. These concerns are primarily resultant from the decreasing availability of agricultural land and increasing market rates for fire wood. This can be seen in the fact that more than 50% of the households reported having to transverse a distance of more than 3 km for the procurement of fire wood.

[26] Hajra, G., & Dutta, A. (2016). The gap between construction and usage of toilets: an under-identified problem.
[27] Coffey, D., Gupta, A., Hathi, P., Khurana, N., Spears, D., Srivastav, N., & Vyas, S. (2014). Revealed preference for open defecation. *Economic & Political Weekly*, *49*(38), 43.

Figure 4.33 Cooking Fuel Usage across Social Groups



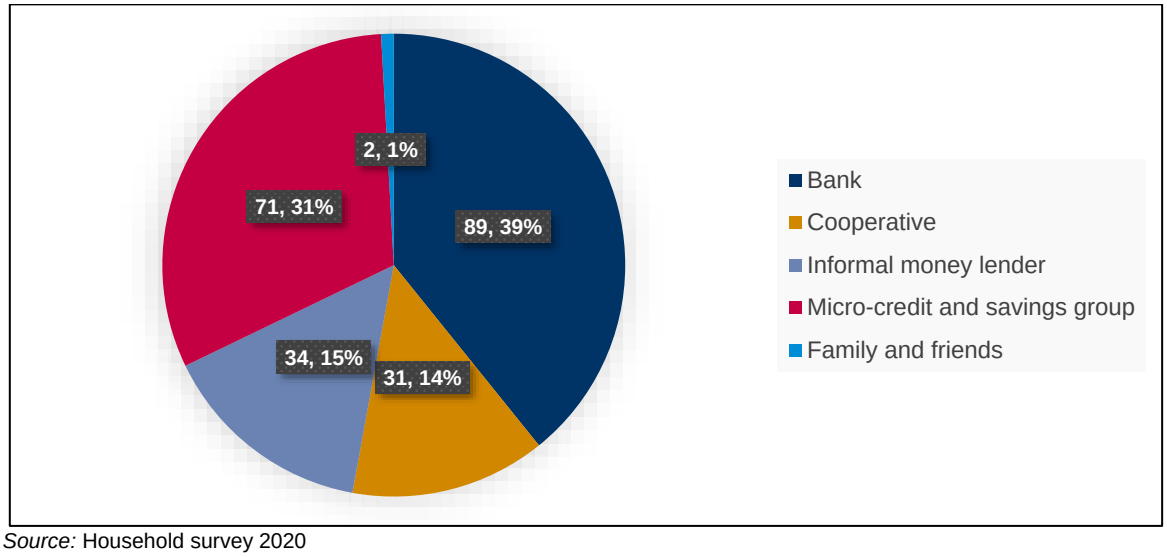
Source: Household survey 2020

4.2.10.6 Markets and Market Linkage

Of all, about half of the households (53.8%) have taken loans in the past year, with the most common reason for taking a loan being for home construction (33.3%). Those who took loans for health and treatment (14.8%) also took loans to pay off another loan, for marriage or ritual, for expenditure on livestock and expenditure on agriculture.

Among these households there are some who took a loan from multiple credit sources, with the most common source from Banks (64.02%). Nearly 36.04% sourced their loan from the micro-credit or savings groups and 6.7% of those also took a bank loan from cooperatives, micro-credit and savings groups too. The potential reason which came up during consultations for having multiple sources of loans is the different interest rate, collateral assets and different process of availing a loan from the bank. The preferred choice for half of the of women headed households (46.1%) are loans from banks, cooperatives and micro-credit or savings groups.

Figure 4.34 Sources of Credit



Source: Household survey 2020

In terms of access to market facilities, of those who reported having market facilities within their village, nearly 46% of the households have a market facility within 500m for their daily needs. 40.9% of those who do not have a market within their village, 51.3% travel 10-25km for their daily needs. When it comes to the market for buying and selling agricultural products, 20.06% of those have to travel a distance of 5-10 km and 5.7% of those who require to buy or sell agricultural products have to travel 20-40 kms for the same. Of the households that buy and sell livestock and livestock products, 32.5% have the markets within 500m while 43.34% travel 10-20 kms for the same. The main markets for villages in Unit 6 & 7 are located in Chauma and Moman Badodiya while main market for villages in Unit 8 is Maksi.

4.2.10.7 Memberships to Groups

Community based organisations (CBO) are generally instrumental in solving local problems related to social, political and economic issues. Membership to such social groups are also an indicator of social, economic and psychological wellbeing of the members and overall society. Such social groups can be in the form of SHG/Swayam Sahayta Samuha, Mahila Mandal, Gram Van Samiti, Farmer's cooperative/Krishi Upaj Samiti, Watershed committee, NGOs, Dairy cooperative, Poultry cooperative, Artisans committee and Fodder committee. About one-fifth of the surveyed households (23 %) reported paying for membership fees to such samuh/samiti. It was also informed during consultations that many of these groups aren't active and functional.

Women social groups were particular present and active in Fawaka, Lalupura and Surajpur. There are three Mahila mandal in Fawaka with 33 members. Women who are active and responsible members in these groups also actively participated in the kick-off meetings in the Fawaka. Though they were wearing a veil, they were willing and excited to talk about their groups. Another active form of women's group is Self-help groups which have increasingly been used as vehicle for social, political and economic development. SHGs are present in Dehripal, Dhatrawada, Jawadi and Chauma. There are four working SHGs in Dehripal. However, it was informed during consultations that these groups are not functional. Similarly, two SHGs were formed in Parsula in past years but these are also not functional. The name of women groups are mostly based on Hindu Goddesses such as Durga, Amba and so on.

Other kind of social groups reported are cooperative groups and village development groups. There is one cooperative group in Dehripal called Sanchi Dairy cooperative with 10-15 members from the village. Jawadi has a village development group named as Gram Raksha Samiti with 12 members and Dehripal has environmental group called Gram Van Samiti. The presence of any non-governmental organisation was not reported in any village. The membership in social groups is associated with political participation and social awareness and is often based on social identity especially in rural areas. Thus, these social groups may not be accessible to all in the village.

4.2.11 Gender Profile

About 8% of the surveyed households are headed by women. There are 29 women headed households compared to 337 male headed households.

Table 4.16 Demography of women led households among surveyed PAH

Village	Number of household		Sex Ratio		Average family size	
	Women HoH	Men HoH	Women HoH	Men HoH	Women HoH	Men HoH
Burlay	1	25	1000	759	2	6.4
Jawadi	1	22	2000	811	3	6
Dhatrawada	2	47	1000	1050	3	6.3
Unit 6 total	**4**	**94**	**1200**	**1000**	**2.7**	**6.2**
Parsula	4	43	1556	836	5.5	5.5
Dehripal	4	40	1500	776	3.8	6.3

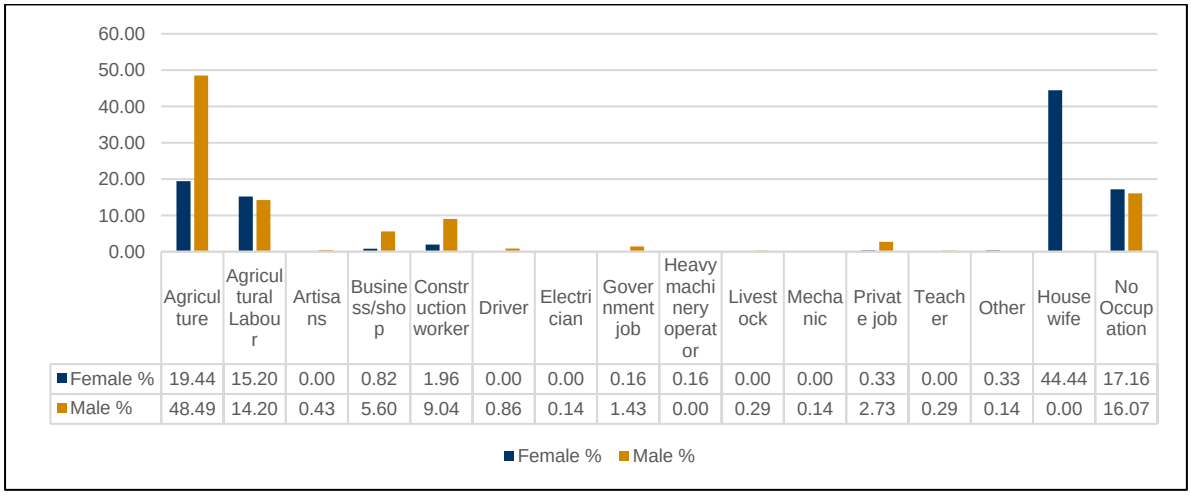
Village	Number of household		Sex Ratio		Average family size	
	Women HoH	Men HoH	Women HoH	Men HoH	Women HoH	Men HoH
Bijnakhedi	3	31	1429	943	5.7	5.5
Fawaka	1	10	1500	741	5	4.7
Chauma	6	34	867	820	4.3	4.7
Unit 7 total	**18**	**158**	**1256**	**831**	**4.9**	**5.4**
Surajpur	3	29	857	797	5	5.1
Lalpura	1	22	1000	1016	9	5.7
Hanoti	3	34	1250	848	6	6.4
Unit 8 total	**7**	**85**	**1050**	**1037**	**6.7**	**5.7**
Grand total	**29**	**337**	**1188**	**865**	**4.8**	**5.8**

Source: Household Survey responses 2020

Women headed households are not very common in the surveyed villages and are generally only in the absence of male members in the family. The reasons for the absence of male members in the house may be due to out- migration in the village, or death of the male family member/s . Most of the villages have established informal self-help groups such as Mahila mandal but these groups are not functional. The name of the groups are mostly kept on the name of Goddess such as Durga samiti and Amba samuh.

Furthermore, the sex ratio amongst the surveyed households shows fewer females. The sex ratio amongst the women headed households and men headed households is 1188 and 856 respectively. As per the segregation given in Table 4.16 sex ratio among individuals aged 60 and above have a positive sex ratio while the negative sex ratio amongst the children below age 6 years is a concern.

Figure 4.35 Primary Employment by Gender



	Agriculture	Agricultural Labour	Artisans	Business/shop	Construction worker	Driver	Electrician	Government job	Heavy machinery operator	Livestock	Mechanic	Private job	Teacher	Other	Housewife	No Occupation
Female %	19.44	15.20	0.00	0.82	1.96	0.00	0.00	0.16	0.16	0.00	0.00	0.33	0.00	0.33	44.44	17.16
Male %	48.49	14.20	0.43	5.60	9.04	0.86	0.14	1.43	0.00	0.29	0.14	2.73	0.29	0.14	0.00	16.07

A greater proportion of females are in the working age group which suggests their role and contribution in the household management and chores (Figure 4.35). There are 39.1% female in age group 15-35 years and 24 % in 35-60 years. The nature of work is mostly domestic and their contribution is mostly invisible. Their role in the family includes household work, child bearing and rearing and taking care of older persons in the family. Though the work participation rate is generally low among women, those from economically weaker families participate in agricultural activities to support the family. However, it is not seen as contributing to the household income. Work, marriage and household chores restrict women's educational opportunities to a great extent. Though there are a few female sarpanch (local representatives) in the region but the actual duties are carried by their brothers, husbands or fathers. recent years, the state has offered a rebate in the applicable stamp

duty and registration fees if the owner is female- this may have resulted in the increase of female land/asset owners. However, functionally, all decisions are made by the male members of the household. Similarly, it has been observed that among the patta land holders, the land allotted to women is not being actually used by them but by their fathers, brothers or husbands. This allotment of land to women remains on paper without any actual impact in terms of access and decision making by women. The economic and social profile according to gender has been discussed in the respective sections.

Box 4.5: Gendered practices in the region

Across surveyed villages, there were few women who were comfortable in talking and giving interviews for two very apparent reasons: lack of awareness about the household financial matters and bound by a social and gendered practice of not interacting with outsiders. In situations where women sat during the interview, they sat on the floor while male members were sitting on the charpayi (traditional woven bed). They wore a veil and rarely spoke, even when specifically prompted by the enumerator.

Such social context may have a significant impact on: access/control/ownership of resources, woman's ability to make decisions and manage a household in the absence of a male member in the family and the patriarchal nature of roles and responsibilities which pose a challenge to achieve gender mainstreaming as part of livelihood restoration. Intersectionality of caste, class and age along with the shortfalls of income and assets further push women headed households into marginalization this is why women headed households are often seen as the poorest of poor and linked to feminization of poverty. While the intra-household dynamics may be same for women from all castes, the challenges of women from lower castes are more in dealing with the outside world.

Source: consultations with the local community during RAP study

Table 4.17 Qualitative Observations on Female headed and Male headed households

Aspect	Women headed households	Male headed households
Land Ownership	Most Women headed households own a very marginal land. No Female households have a large farmer.	Male headed households have marginal to large farmers.
Literacy Levels	About half of population in Women headed households is literate. More Women headed households' members than Male household members have completed education till secondary levels.	More than half of Male household members are literate and more Male household have studied till primary levels and graduate levels.
Skill Levels	Women headed household members lack skills.	Male headed household members have few skills such as mechanic, electrician, driver, horticulture etc.
Participation in the Work Force	Low participation in economic activities and under reported economic contribution of Women headed household.	High work participation rate among Male headed households. However, participation of Male headed Households members in work is same as of Women Headed household members.
Family Size	Since there are less male members in Women headed household family, the	Male headed household family size is bigger than Women headed household.

Aspect	Women headed households	Male headed households
	family size is smaller than Male headed household family	

4.2.12 Vulnerability

This section discusses the socio-economic vulnerabilities amongst the project affected households. Considering the socio-economic context of the region, five main vulnerabilities have been identified amongst the project affected households. These are below poverty line, women headed households, households with only elderly persons, landless households and village artisans. This identification of vulnerable groups has been guided by the Environmental and Social Management framework (ESMF) for solar parks by the World Bank. The vulnerabilities amongst the PAH are discussed below, with several households reporting more than one vulnerability, making for greater socioeconomic precarity:

- Below poverty line households: It is noted that more than half of the population reported having a Below Poverty Card. The purpose of having a BPL may or may not be related to financial ability since the BPLs are commonly used for public distribution system. In Madhya Pradesh, 83 % of rural households and overall, 80% of the households own ration card while only 1.3 percent of ration card holder owns Antodaya card which is for the poorest of the poor[28]. Thus, a lot of households who do not fall under the poverty line have obtained BPL ration cards so as to be able to avail of the benefits offered by the government to this group. In keeping with this, the vulnerable group identified is those who fall below the poverty line. As per Niti Ayog method of determining poverty levels[29], 19 project affected households fall below poverty lines.
- Women headed households: Gender related challenges are very apparent in the villages putting a female household into the category of vulnerability. Cultural norms do not allow women sitting on charpaayi (wooden-jute bed) next to male member of house and are required to cover their faces in the presence of men and not talk to people outside the house. In addition, they have lower access to income earning livelihood activities and lower literacy levels. They are also unlikely to participate in community or household decision making.
- Households with only elderly persons: An elderly person living alone or only with spouse are vulnerable to social, financial and physical security. Furthermore, it is also noted that households with only elderly have multiple vulnerabilities. Some are also BPL or headed by women. Being poor in old age and without the support of other family member put such households in a severe vulnerable position. They also lack social and financial assistance from the state. Firstly, not all elderly are beneficiaries of social security schemes and secondly even if they receive a pension or any assistance, the amount of pension is meagre and not sufficient for self-sustenance.
- Landless: Another vulnerable group is people who lack economic resources. Despite several development projects in the region, the life situation of landless people has not changed or improved over the years. They have mainly remained excluded from the benefits of developments planned to improve the quality of life of people.
- Village artisans: Though there is only one household artisan, this vulnerable group has been identified in keeping with the ESMF applicable for the project. However, there is a need to support the artisans as they have no other livelihood source. Furthermore, lack on data on artisan have hampered the required assistance or security from the state.

[28] State Planning Commission. (2016). Report on socio-economic Disparities in Madhya Pradesh (Working Paper I).

[29] As per the Planning commission method, the poverty line is determined by the ability of individual to spend INR 32 per day per person for rural areas. The poverty level was calculated based on total annual per capita expenditure. The values has been adjusted against inflation rate in 2020.

- Uneducated youth without skill: there are a total of 170 youth identified in this category. Of these, 65 are OBC, 64 SC, 21 General and 20 ST. this is in keeping with the overall socio-economic profile of the villages. The vulnerability for this group stems from the trend of the youth population moving towards non-farm based livelihoods, in comparison to illiterate population without skills in other age categories. This shift is primarily due to the reducing size of land holdings; due to growing families; higher risk in agriculture etc. however, while overall the youth is moving towards non-farm based livelihoods, the lack of literacy and skills restricts the opportunities available for such individuals in terms of livelihood opportunities. the lack of literacy and appropriate skills is also likely to restrict the ability of these individuals to partake in the employment opportunities created by the project

Table 4.18 provides an understanding of the number of the vulnerable households identified amongst the PAHs across the Shajapur solar park

Table 4.18 Types of vulnerability amongst the PAHs

Village	Below Poverty Line	Women headed households	Households with only elderly	Landless	Artisan	Uneducated youth Without skill
Burlay	2	1				4
Jawadi	2	1		2		10
Dhatrawada	2	2	1	1		24
Unit 6 total	**6**	**4**	1	**3**		**38**
Parsula	5	3				33
Dehripal	3	4	1	1		20
Bijnakhedi	1	2				33
Fawaka		1				2
Chauma	2	6	1			17
Unit 7 total	**11**	**16**	**2**	1		**105**
Surajpur	2	3	1		1	3
Lalupura		1				12
Hanoti		3				12
Unit 8 total	**2**	**7**	1		1	**27**
Grand total	**19**	**27**	**4**	**4**	**1**	**170**

Source: Household Survey responses 2020

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5. STAKEHOLDER ENGAGEMENT

This section provides the stakeholder identification and mapping for the project based on the criteria developed during the RAP study. The broader stakeholder mapping was undertaken in the ESIA stage. In the current stage of the project, the profiling has been developed for the stakeholders linked to the RAP study, and subsequently, their engagement has been mapped. The impact/ influence of each stakeholder is dynamic throughout the project life cycle, and hence the Stakeholder Engagement Plan (SEP) is a live document and will be updated from time to time, so as to make it comprehensive for any given period of time.

5.1 Stakeholder Identification and Mapping

The table below presents the key stakeholders identified at the RAP stage of the Project, and have been categorized as primary and secondary stakeholders.

Table5.1 Stakeholder group Identified

Stakeholder Group	Primary Stakeholders	Secondary Stakeholders
Affected Community within the Project Footprint	■ Private land owners and Patta land holders from the Project Area villages ■ Informal land Users (Encroachers/Squatters to be impacted) ■ Agricultural labourers ■ Graziers/Livestock holding households ■ Banjara households and Bhil households ■ Women groups ■ Vulnerable groups (Landless households, Below Poverty Line households, women headed households) ■ Owners of land required for temporary occupation or use during construction phase	■ Fence Line Communities from other villages in the vicinity ■ Non-recognised 'patta owners' who have procured the patta based on a verbal agreement with the original (and registered) patta holder;
Institutional Stakeholders	■ Gram Panchayats of impacted villages ■ Tehsil level officials for concerned tehsils; ■ Patwaris; ■ EPC Contractor; ■ RUMSL	■ Local Political Groups ■ Civil Society/ Local NGOs ■ Agriculture and Livestock Department; Dairy Development Board ■ Industrial Training Institute (ITI)

The subsequent analysis has mapped the significance of the identified stakeholders based on specific parameters and their characteristics. The significance of each stakeholder has been assessed considering four parameters:

- Impact on the project/ power to Influence the project;
- Dependence on the project, and
- Perception/ Expectation level

Table5.2 Parameters and characteristic

Parameters	Characteristics
Influence/Power to Impact	■ Affecting the reputation of the project ■ Ability to cause delay in project activities

Parameters	Characteristics
	■ As pool of available labour for the project, can impact construction activities ■ Source of early warning signals for emerging concerns
Impacted by the Project	■ Direct Impact – Land intake ■ Indirect Impact – Impact on livelihoods ■ Vulnerability criteria*
Perception/ Expectation Level	■ Awareness amongst a few but no real concern ■ Broader awareness, but little concern ■ Considerable concern influencing a few ■ Considerable concern influencing many

Table5.3 Characterization and Assessment of Stakeholders Significance

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
Primary Stakeholders				
Physically Displaced Households	■ The physically displaced households are those who will lose their residential structure due to land procurement for the project; ■ Based on the land & asset survey there are a total of 18 households, who shall be physically displaced as their residential structure fall within project footprint.	■ The support and agreement of these 18 households who shall be losing their residential structure would be very important for the project as they are the ones who shall be most affected; ■ Until date, most of the structural habitations have been avoided by RUMSL. The physically displaced households will also have a major impact of project for further changes in project boundary.	■ A total of 19 project entities belonging to 18 households will lose their only residential structure due to land procurement for the project.	■ The expectation was to avoid their residential structure from getting affected
Private landowners & Patta landowners	■ Private landowners, whose land parcels fall within the project footprint area (footprint area identified for project) ■ Patta holders comprises of households who were landless in past and were provided Government land on Patta, around 20 years ago by then District Collector; ■ As informed during land & asset survey, these landless households (largely from SC & ST groups) were given 1ha of Patta land nearly 20-30 years ago, at different points of time and under different circumstances. The 1 ha patta land allotted then, has now reduced to only 0.5 ha per household due to family	■ The private landowner stakeholder group's influence on the project is directly linked to their agreement to a Mutual Consent agreement to sell their land (MP Mutual Consent Policy 2014); while for patta landowner's District Collector's permission in granting patta land for the project ■ Their ongoing support will also be key to the smooth functioning of the construction phase activities, and the timely completion of the project activities; ■ Ongoing support in the operations phase will also be useful, through their influence at that stage may be significantly lower	■ There are a total 85 private landowners and 12 patta owners (including 05 Awaas patta). ■ Out of these 10 Private landowners shall be both physically & economically displaced rest 75 private landowners shall have impact on their agricultural land parcel; ■ Similarly, out of total 12 patta landowners, 04 will have their residential structure affected and one will have the impact of land procurement on both his agricultural land parcel and his residential structure. ■ The procurement of private and patta land for the project will affect	■ The major concern of the landowners from the project is to get adequate payment as per the MP Mutual Consent Policy, (twice the market rate established by the collector office) and get timely payment of the amount; ■ Potential employment opportunities that the project will generate, both in

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	growth and sub-division among families in the decades since the allotment; ■ Based on the consultation with Tehsildaars it was understood that land was given to any landless households by the District Collector, irrespective of their caste; however the specific criteria for allotting land to Patta Holders is not known as reportedly these documents were lost over time and are not available; ■ This group is dependent on their land parcels for livelihood. During land & asset survey 12 patta landowners and 85 private landowners were identified.		this stakeholder group leading to reduced land holdings or landlessness, in some cases;	construction and operational stage
Informal Land Users, encroachers (who were identified to have encroached nearby government land parcels) and squatters (who acquired/ squatted upon government land parcels for using it as agricultural land, cattle shed, structure etc.)	■ This stakeholder group comprises of households that have illegally encroached Government Land, adjoining the private lands and was lying unused, in the project area and around; ■ Encroachment of Government land is a common practice in Project villages; where households having government land adjoining their private lands extend their cultivation area in the government land and encroach it even without any legal ownership of the land parcel;During land & asset	■ The power of this stakeholder group to impact is moderate, considering they do not have legal rights on the land. ■ However they can influence the attitude of the large community by virtue of their economic position in the village, as in the case of households having access to encroached land in Agar tehsil who belong to the wealthier strata and have a dominant position in the villages.	■ The project would lead to disruption of economic activities and incomes to these households. The extent of economic displacement of this group is high considering the lack of legal ownership of land, and immovable assets. ■ The dependence on land-based livelihood is high, and the income loss is twofold – loss of income from agriculture on current informal land use, and lack of alternative economic opportunities.	■ Awareness among the few but no real concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	survey 71 encroachers and 174 Squatters were identified; ■ When the encroachment related practices are identified by the Government officials, a fine/ penalty is charged on them; in response encroachers pay the fine/ penalty charged on them and continue cultivating the encroached land. The assessment of the encroachment for the fine will usually not reflect the actual extent of encroachment.			
Graziers	■ Out of the total project footprint area, nearly 846.6 ha. is Government land., which, in addition to squatting and encroachment, is used as grazing land by local communities; ■ The livestock ownership in the Project villages is higher amongst communities, like Sondhiya Thakur, Rajputs, Gurjars etc. The household from SC and ST groups also possess livestock, though not as many in number; ■ The grazing activity increases more during rainy season thus limiting the amount of fodder to be purchased from the market.	■ The influence of graziers on the project would be very low as individuals but given the numbers and the near universal dependence of all village households on grazing areas, they would gain significance and strength from lobbying together; ■ Restrictions on accessibility, lack of vegetation layer etc. during construction stage may lead to lack of fodder availability for livestock, thus leading to low bi-product (i.e. milk, meat) and/ or increased household spend on purchasing fodder from market.	■ As informed by project entities, they mostly depend on the nearby government land for grazing their livestock. The procurement of Government land will reduce the amount of land available for grazing near the project villages; ■ Also, the project boundaries shall also impose a restriction on the left over/ available Govt. land to be used for grazing purposes; ■ During land & asset survey respondents informed that after land procurement they will have to depend on stall feeding their livestock. Currently, livestock has been their secondary livelihood income, stall feeding will reduce their livestock's productivity and thus reducing their income;	■ The main concern of graziers in the project area was on unavailability of grazing land due procurement of nearby government land for project; ■ The other concern was related to facilities to be given by project for fodder and stall feeding their livestock. They informed that the livestock productivity will reduce over a period of time due to stall feeding;

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
			■ The project construction work, movement of frequent vehicles, labour crowd etc. will also lead to disruption of livestock grazing activities and loss of vegetation cover in the nearby fields.	■ The key expectations of this stakeholder group is to allow for the provision of adequate and accessible (2 percent to be confirmed) grazing land for livestock grazing, after taking the project area; ■ Easements shall be retained or replaced /provided through project design to have minimal impact on this stakeholder groups' ease of activities;
Agricultural Labourers	■ This stakeholder group comprises of those households that have marginal or limited land holdings and members of their families work as Agricultural labourers in the land parcels falling in the area identified for project across all three categories- private land, patta land (that is being cultivated), and encroached land under agriculture ■ As per household surveys, people from SC and ST	■ The influence of this group on the project is limited, given that they do not have any legal claims on the land; ■ This group can be utilised during the construction phase of the project as unskilled labour with priority hiring and may additionally be included in Livelihood Restoration initiatives;	■ Considering that 10% of the total project entities have informed their primary occupation as agricultural labourers and allied activities, the land procurement for the project will lead to reduction in landholding and thus reducing agricultural activities/ cultivation in the project area which will thereby lead to deterioration of the household income;	■ Awareness amongst a few but no real concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	communities are largely landless and work as agricultural labours;		■ However, the project shall generate employment opportunities during construction and operational phase in the project area, thus leading to employment of local community.	
Vulnerable social groups such as women headed households, BPL and Landless households	This stakeholder group is comprised of /households that are vulnerable due to their social, or economic status in the villages	■ The involvement of this stakeholder group is expected to be as part of the larger local community; ■ This stakeholder group should be specifically consulted to ensure adequate provisions in the RAP and LRP for the differential impacts expected on this group.	■ The influence of project on this group is similar in nature as the entire project affected villages, as it is a subset of the same however, the impact is higher in magnitude owing their nature of vulnerability	■ Awareness amongst a few but no real concern
Indigenous People	■ The project area does not fall under Schedule V area; however, there 32 households belonging to ST community were identified during land & asset survey; ■ Out of these 32 ST households, 19 households are in Parsula village; largely belonging to the Bhil tribe. ■ This stakeholder group has also been understood to be engaged in encroachment and squatting of Government land for cultivation.	■ The involvement of this stakeholder group is expected to be as part of the larger local community; ■ In keeping with the requirements of the IFC PS 7, the project will require to obtain Free Prior Informed Consent from this stakeholder group prior to the initiation of project activities.	■ Based on the land & asset survey the ST community has been identified to be mostly impacted as a "patta land owner" category and a "squatter on government land" category, among all the other categories of impact;	■ Priority in economic benefits and development opportunities created by the project; ■ Minimal disturbance to the community in regards to access issues, grazing land, pollution and influx of migrant workers
Banjara households	■ The banjara groups largely reside near Delhripal Chak village, are landless, and are	■ Although this group forms part of the larger category of informal users their concerns and impacts are to be treated separately as	■ There are certain pockets of Banjara settlements in the project footprint area, i.e. in pockets of	■ Awareness amongst a few but no real concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	engaged in share-cropping on many patta and government land parcels and are potential users of the government land identified for the project; ■ These groups were also identified to have squatted upon some patta land parcels belonging to other households in Parsula village	their livelihood profile and location profile is relatively unique compared to the overall profile of the village. They depend on livestock (grazing, livestock management) as their main source of livelihood. Their power to impact the project is limited but crucial as according to the requirements of IFC PS 7, prior informed consent from the IP households is required to be undertaken by the project.	Dehripal village (Chak) and at the borders of Dehripal & Parsula villages,; ■ These groups were identified to be impacted mostly as squatters, as they do not possess any formal landholding. Previously pockets of Dehripal village having residential structures of Banjara community were coming under project footprint; however, with optimization their structural area has been carved out. ■ Banjaras were identified as landless, and engaged in share-cropping on many patta and government land parcels and are potential users of the government land identified for the project as squatters;	
Owners of land required for temporary occupation or use	■ Some of the project components may require short term leasing of land available, largely from Private and/ or Patta land owners; ■ This requirement would be better understood during the planning of the construction activity.	■ This stakeholder group is critical for availability of land parcels that are conveniently located in the vicinity of project footprint (based on the needs) and are available without disturbances or issues during the lease period.	■ The project related activities on these land parcels may be for purposes of storage, set up of labour camps, etc. and may result in change in land use/ land cover due to construction activities, contamination issues, etc.	■ Awareness amongst a few but no real concern
Patwaris	■ This stakeholder group is critical because the physical verification of the allotted land parcels, verification of encroachment area, extent of	■ This group has critical role in impacting the project because of their role determining the land parcels, and also guiding village opinion on the project activities and the land take process	■ No impact	■ Broader awareness, but little concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	squatting on the allotted government land parcels is carried out by this stakeholder group			
Gram Panchayats (GPs) of impacted villages ○ Surajpur for Surajpur and Lalupura villages ○ Fawaka for Parsula and Fawaka villages ○ Bijanakhedi for Chouma village, ○ Sangadiya for Jawadi village, ○ Dehripal, Burlay and Dhatrawada;	■ This stakeholder group is comprised of Sarpanch, ward member and Gram Sewak of Panchayats of project villages.	■ This group has the ability to influence the perception of the community in regards to the Project and its activities	■ The impact of project on this stakeholder group is minimal due to limited control that the project can exert on the functioning of this group.	■ Awareness amongst a few but no real concern
Tehsil Moman Badodiya & Shajapur;	■ This group is comprised of the regulatory authorities at the tehsil level that are responsible for land demarcation for the project and for various permits and licenses pertaining to the project. ■ The authorities at tehsil level with whom the meetings/ consultations were carried out by ERM team are: ○ Tehsildaar of Shajapur; ○ Tehsildaar of Moman Badodiya;	■ This stakeholder group is high in priority as this group provides the land demarcation and permits and licenses essential for the functioning of the project; ■ They also hold all official land records, including a record of violations, fines, relating to encroachment, special permissions, and documents pertaining to easements, grazing areas, and community use (Nistar Patrak, Wajib-ul-arz) ■ Non-compliance to conditions laid down in permits issued by this group stakeholders group can result in penalties and fines being levied on the Project.	The impact of the project is limited on this stakeholder group, and is limited to permitting requirements.	■ Broader awareness, but little concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	■ The local administration in this regard tehsil/ block level administration comprising of the offices of the Taluka Development Officer and Revenue officer etc. The revenue department is responsible for allotment of Govt. land, mutation, updating and records and transfer of land;			
District Administration	■ The local administration in this regard refers to the district level administration comprising of the offices of the District Collector, and Revenue officer etc. ■ The allotment of Government land for project purpose is provided by the District Collector on the basis of which the lease land will be granted.	■ The District Administration is a high influence stakeholder due to their pivotal role in land allotment approval, oversight on private land purchase, and acting as the decision making authority on award of compensation, solatium for private land purchase, and for other land based impacts, as decided by the project	■ No impact	■ Broader awareness, but little concern
Secondary Stakeholders				
Fence Line Community	■ This stakeholder group is comprised of the local population in eleven project villages, coming under the project boundaries; ■ This stakeholder group has been using the land identified for the Project for grazing of their livestock, accessing their agricultural fields or using the land for other common activities.	This stakeholder group shall play a critical role in the smooth functioning of the Project	The project will use land which is currently being used by this stakeholder group in accessing their farms, ponds and other common areas, grazing their livestock, etc. there is also the potential impact on agricultural use of land in the immediate project vicinity These activities will be disrupted after the project related activities commence on the identified land	■ Awareness amongst a few but no real concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	■ Some sub-categories of the community are directly impacted by the project and are discussed above; while this stakeholder group is important on account of its presence near project and associated impacts			
Private Dairies	This group is comprises of private dairies which are either located in the project footprint, nearby villages or within Shajapur & Moman Badodiya tehsils. This group shall play an important role in livelihood restoration plans such livestock support to the community, artificial insemination, providing fodder and supplements to enhance productivity of livestock.	The influence of this group over project would be minimal as there are not very high numbers of private dairies falling within the project footprint	This group shall be impacted adversely as the land procurement will have direct impact over grazing land; The reduction in grazing land will lead to less fodder availability and thus reduction in mil productivity. The low productivity of milk/ reduction in supply of milk will lead to business loss of dairies in the area.	■ Awareness amongst a few but no real concern
Local Political Groups	■ This stakeholder group is comprised of the political parties and local politicians active in the region; ■ This group might be active in the area and may play an important role in influencing of public opinion towards the Project, especially before elections.	This group can influence the project life cycle by polarizing public opinion of the local communities (within impacted villages and Fence line community); The political groups can capitalize on the existing adverse sentiments regarding the project site/construction activities and make it a tool of propaganda against the project	No impact	■ Awareness amongst a few but no real concern
Civil Society/Local NGOs	This stakeholder group comprises of NGOs and Civil Society Organizations of a national, state and local level who may be active in the area. Most of the NGOs and	The influence of this stakeholder group is potentially limited as currently, there are no active NGOs working in this region Based on understanding through consultations with villagers on NGOs who were operating in the	No impact	■ Awareness amongst a few but no real concern

Stakeholder	Profile of Stakeholders	Power to Impact	Impacted by the Project	Perception/ Expectation
	CSOs working in the region are state level NGOs, involved in literacy, water management, WASH and gender equality some of the key NGOs and CSOs working in the region include the following: ■ Water Aid ■ Madhya Bharat Social welfare & education society ■ Grask Gramin Rojgar Evam Samaj Kalyan Samiti Samiti Dewas ■ Samaj Pragati Sahayog ■ Jan Shree Foundation ■ Guru Shaheb Public Education Society	past, their role is short-term in nature and limited in outreach.		
Agriculture and Livestock Department; Dairy Development Board	To increase agricultural production in the district To increase livestock and increase milk production in the district. Promote small/marginal and landless farmers to undertake animal husbandry	The stakeholder group can provide assistance to the project and help the project in implementing the Grazing Management Plan (GMP), developed as part of the mitigation measures for the villagers in the affected areas; They can influence the impact mitigation measures to be adopted by the Project during the construction and operation stage	No impact	■ Awareness amongst a few but no real concern
Industrial Training Institute (ITI)	This stakeholder group shall be responsible to provide training in industrial trades to men and women and develop the capacity for securing employment in industrial establishments	The stakeholder group can provide assistance to the project and help the project in creating a goodwill among by providing skill training specific to the project requirements. They can influence the impact mitigation measures to be adopted by the Project during the construction and operation stage	No impact	■ Awareness amongst a few but no real concern

Figure5.1 Position of Stakeholders as per stakeholder assessment

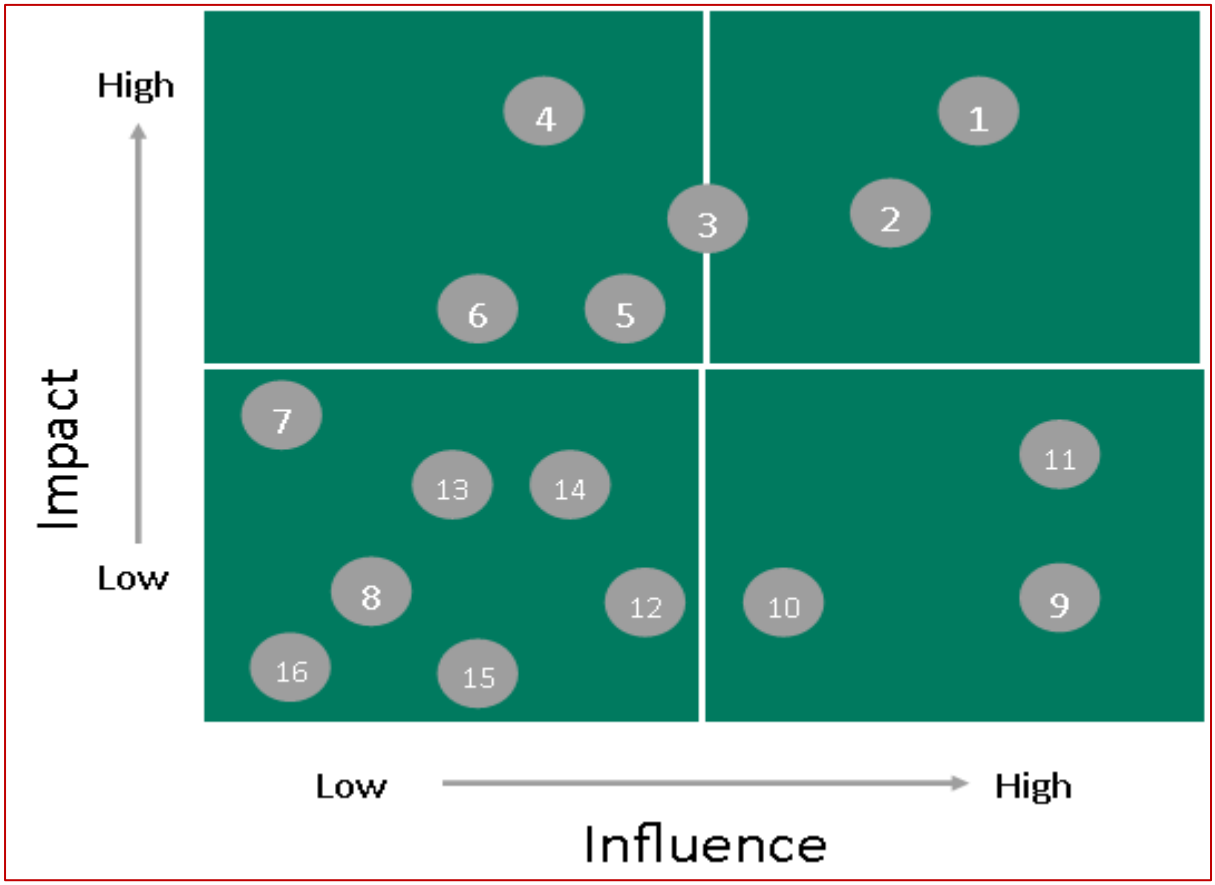


Table5.4 Stakeholder positioning

S. No	Stakeholder	S. No	Stakeholder
1	Private land owners	9	Gram Panchayat
2	Informal land users	10	Moman Badodiya & Shajapur Tehsil Administration
3	Agricultural labourers	11	District Administration
4	Graziers of livestock	12	Patwari
5	Banjara and Bhil households	13	Industrial Training Institute (ITI)
6	Vulnerable households	14	Agricultural and Dairy Development Board
7	Fence line community	15	Local Political Groups
8	Owners of land required during construction phase	16	Civil Society/ NGOs

5.2 Overview of Engagement as part of Resettlement Planning

Consultations with community was carried out in various phases of the resettlement study and planning. This section provides an overview of the nature and details of the consultation carried out.

5.2.1 Project Layout Finalisation

Consultations were undertaken during this stage by ERM with the villages that were identified to be part of the project footprint (September 2018). During this stage, a site reconnaissance visit was

undertaken based on the proposed project footprint. As part of the visit, consultations were undertaken with the residents of Parsula, Dehripal, Bijnakhedi, Dhatrawada and Fawaka villages. The consultations were carried out by ERM team, where a group of 10- 15 people were consulted in each village.

The main concern raised during this stage was that while the project would require the diversion of land from the villages, the local community is unlikely to benefit from the development of the project in terms of employment opportunities. The community reported that even if the project provides them with economic opportunities, it will be restricted to the construction phase and for small contracts and unskilled work.

5.2.2 Government Land Allotment

The government land allotment for the project started in years 2017 and by 2019, 846.6 ha. of land has been allotted for the project. Only 14. Ha. of identified government land under Unit 8 in Surajpur (0.7 ha), Lalupura (0.8 ha.) and Hanoti (12.5 ha.) remains un-identified till date and is due for allotment.

As part of the land allotment process, consultations were undertaken by the following agencies with the village community in general, and landowners in particular.

- RUMSL was responsible for overall coordination across various stakeholders including the district administration, and the administration at the tehsil level. A District Renewable Energy Officer (DREO) has been appointed by RUMSL to undertake the initial meetings with the Teshil office and guide the land allotment process.
- District Collector is the key officer contacted by RUMSL for any land related matters. The DC is the authority for final communication on the decisions made on the land. He has the authority to approve or reject allotment requests for any land parcels required for development projects. For the land acquisition under RUMSL project, the DC also held consultations with the individual landowners regarding the land procurement of private land, and the benefits/impact from project activities on the private land parcel owners. Further, the DC was appraised about individual and village level details by respective Patwaris and Tehsildaars.
- Sgurr[30] was responsible for providing technical guidance to RUMSL and to that purpose, conduct optimization exercise to avoid/reduce E&S risks. As a part of this exercise, Sgurr held consultations with the residents in the impacted villages to understand the nature of land use of government land (agriculture, residence, etc.), and dependence on natural resources such as surface water bodies
- Tehsil Administration was responsible for executing the tarmeem process (revision of land records based on updated land use, land occupancy, and involves revision of land maps for subdivisions in khasras. As part of the tarmeem process, the patwaris held consultations with the Gram Panchayat on encroachment and squatting in the impacted villages in the Solar Park, and with individual landowners who have been using government land parcels informally on the duration of encroachment and use of such encroached parcels.

5.2.3 ESIA

The ERM team undertook the ESIA study related site visits in January 2020 to develop the socio-economic baseline of the villages in the project footprint and held consultations across all the eleven villages in the Solar Park. These consultations were focused on understanding the general profile of the villages with specific focus on the types of caste groups, land holding pattern, and gender differences in division of labour, livelihood profile, etc. this understanding was used to develop the

[30] SgurrEnergy is a UK based renewable energy consulting. It was formed in year 2002 and have their office in Pune, Maharashtra, India

stakeholder profile and potential primary and secondary impacts, which were updated based on the RAP study.

5.2.4 Resettlement Surveys

The resettlement surveys were undertaken during July – August 2020, and as part of this exercise consultations were undertaken through household surveys, Land and Asset surveys and focus group discussions with potentially impacted stakeholder categories as listed in Table5.1. The details pertaining to stakeholders and consultations carried out with separate stakeholders are given in Appendix B. Through these consultations, information was collected on the extent of land use of private land, government land, livelihood profile, caste differences in land use, and gender role in land-based livelihood. The information collected was utilized to update the impact significance of each stakeholder group

5.2.5 Incorporation of Stakeholder Feedback into Project Decision Making

Through the consultations and discussions undertaken for the RAP, the following key feedback relevant to the resettlement planning was received across the Shajapur Solar Park. Also, during land and asset survey, consents on giving their land for project from private and patta owners were taken, on which 78 gave a positive response and 36 refrained from giving consent. The question pertaining to giving consent as per MP mutual consents policy was not asked from informal owners.

Table5.5 Feedback Received for Incorporation into Resettlement Planning

Feedback Received	Incorporation into Resettlement Planning
Potential impacts on religious structures and how that will be managed	As part of the RAP preparation, religious structures within the project footprint have been identified. the Volume I of the RAP provides the measures to be taken for these cultural resources.
Reduction/loss of grazing land (also since the 2% grazing land is not known to the community and is likely to be encroached upon) and subsequent reduction in livestock heads resulting in increase in 'Awara Gai' and reduction in income from livestock	During community consultations across all the villages people raised concerns regarding loss of grazing land and loss of accessibility/ increase accessibility time, to grazing land due to project boundaries. Currently, the grazing land used to collect fodder/firewood, and for open grazing – all these activities are equally shared by men and women. The women can allocate time to collect fodder since the land parcels are within 10 - 15 minutes of walking time. As part of Resettlement Planning, the loss of access to grazing land has been assessed and mitigation measures have been included in the Grazing Management Plan.
Project entities having apprehension regarding their standing crop getting affected and compensation	As part of the RAP entitlements have been identified for the impact on standing crops as discussed in Volume I
Potential reduction in access to common property resources such as area used for cooking fuel, manure, water for livestock etc.	As part of the RAP entitlements have been identified for the impact on common property resources as discussed in Volume I
Reduction in productivity in remaining land due to heat island effect	As part of the disclosure and engagement activities to be undertaken for the project, a focused effort will be made to inform the local community of the potential impacts from the project and the mitigation measures put in place to minimize the same
Impact on water infrastructure (water pipes laid underground) due to construction activities	As part of the engagement activities prior to the project construction phase, the project will try and identify the underground water infrastructure that may get impacted due to the project and work with the concerned local community to avoid or mitigate the same

Feedback Received	Incorporation into Resettlement Planning
Potential employment and other benefits (such as free electricity) to the impacted villages.	As part of the RAP specific provisions have been included for the sharing of benefits with the local community in the impacted villages.

6. INVOLUNTARY RESETTLEMENT IMPACTS

This section presents the involuntary resettlement impacts linked to land procurement (for the project boundaries of Unit 6, 7 and8) associated with the Shajapur Solar Park. The impacts have been identified and categorised based on the analysis of the information collected from the following sources:

- Project Information as described in **Section Section 2.1**
- Project affected entities as described in **Section 3**
- Socio-economic baseline of the Project Affected Households as described in **Section 4.2** Spatial assessment of all (100 percent) land parcels within the solar park area, using aerial imagery data and khasra related information from the official land records.

This section is in two parts, the first describes the affected assets (immovable and movable) in **Section 6.1**and covers the extent and scale of loss of land and change in land use, loss of assets on all such land parcels that are falling within the project footprint.

The second part, **Section 6.2** provides an assessment of project-affected households, under each impact category, based on their dependence on the project affected land and assets.

This section provides an analysis of the magnitude of such impacts due to land loss of the PAHs, particularly loss of land – based livelihood, and potential landlessness.

6.1 Summary of Key Impacts

The analysis of the magnitude of such impacts due to land procurement for the solar park is summarized below and detailed in the following section. These losses/impacts have been categorized into the physical and economic displacement impact-types noted below:

- Impact on residential structures which are located within the project footprint area
- Impact on other immovable assets on the private/patta land parcels within the project footprint area
- Impact on other immovable assets constructed on government land which is encroached/squatted upon
- Loss of agricultural land leading to loss of livelihood that was dependent on private and patta agricultural land within the project footprint and government land that is used ((occupied-encroached/squatted upon) for agriculture;
- Economic losses to cultivators from the clearing of standing crops on private, patta or occupied land;
- Economic loss to owners/users from the clearing of trees (fruit or timber) on private and patta land or occupied land
- Loss of access to grazing land due to use restrictions within the project boundary

The table below summarises the aggregate numbers of project affected households, assessed across the project footprint.

Table 6.1 Summary of Impacts for the TL RoW

Category of Impact	Summary of Impact
Impact on Residential Structures leading to physical displacement	■ The present project footprint will affect 19 residential structures in the Solar Park. Of these 19 structures, 06 were identified in Bijnakhedi village, 05 in Parsula, 03 in Surjapur, 02 in Dhatrawada and 01 each in Burlay, Chouma and Hanoti; ■ . These structures are associated with 18 PAHs. The total homestead area to be impacted is 0.073 ha ■ These impacts are likely to have an overall medium magnitude as the impact is limited to 19 structures in seven villages with 18 PAHs being impacted. All the 19 structures across seven villages were identified/ informed to be in use; however the impact on the 11 permanent structures and those in Parsula is estimated to be relatively higher, as the structures in Parsula are located on "Awaas Patta" land belong to families who were once landless and were allotted patta land for making their house; ■ .
Impact on Commercial Assets	■ The Project will result in an impact on one (01) commercial structure (grocery shop) and one (01) stone quarry and crusher unit used for commercial purposes belonging to 1 PAH, located in the Project footprint area. ■ The impact from the land procurement for the project on these commercial asset is assessed to be limited due to the limited number of such assets and the scale of operations. Also, as the structure owner had not applied for a license renewal and thus would have to end the operations; irrespective of the project. Furthermore, in case the stone quarry owner wishes to continue his operation, it is understood that the government may allot alternative government land for the same.
Impact on Immovable Assets	■ The project will result in an impact on 34 immovable structures such as cattle shed, water feeding stall, fodder storage shed, any other agricultural structures, ■ The project will also result in 33 fixed and salvageable assets included sanitary arrangement, wire fencing (with cemented pillar, and wooden poles), open wells and pipelines There are 11 households who will be impacted by loss of immovable structures ■ The impacts on immovable assets is highest in Unit 7, with 23 assets being impacted. However, these are likely to be medium in terms of impact magnitude as these are not primary residences for the households. ■ . ■ The impact on the other salvageable assets and structures is mostly in Unit 8, with 15 of the 33 assets being located in the unit. At the village level, Lalupura is likely to be most impacted as 9 structures. Within the Unit 5 villages, Umariya is likely to be most impacted as 22 structures (27 percent) are located in this village.The magnitude of this impact however is likely to be low
Impact on Private and Patta Agricultural Land Parcels with Project Footprint	■ As part of the project footprint optimization, an attempt was made to reduce the number of private land parcels for the reduction of E&S risks. However, due to restrictions on land availability and technical constraints, the present project footprint will affect 188 private/patta land parcels. These land parcels have a cumulative area of 93.4 ha (9.5 percent of the total land requirement); ■ These land parcels are associated with 65 PAHs, corresponding with 101 individual land owners ■ All these land parcels will be affected by a permanent change in land use and ownership (farm based to non-farm based) and loss of standing crop during the land clearing phase. The impact of land use and ownership change will be permanent, while the loss of standing crop will be a one-time impact, on those land parcels which are under cultivation at the time of land clearing; ■ These impacts are likely to have a high magnitude due to the permanent nature of impact, high dependence of the local community on agriculture as a source of livelihood.
Impact on Government Land Used/occupied for Agriculture (squatters/encroachers)	■ Of the 888.06 ha of government land, 214.9 ha (24 percent) is occupied (encroached/squatted) for informal use for agriculture or fodder cultivation (for private consumption). Of the total area under informal use, 73.5 percent is under

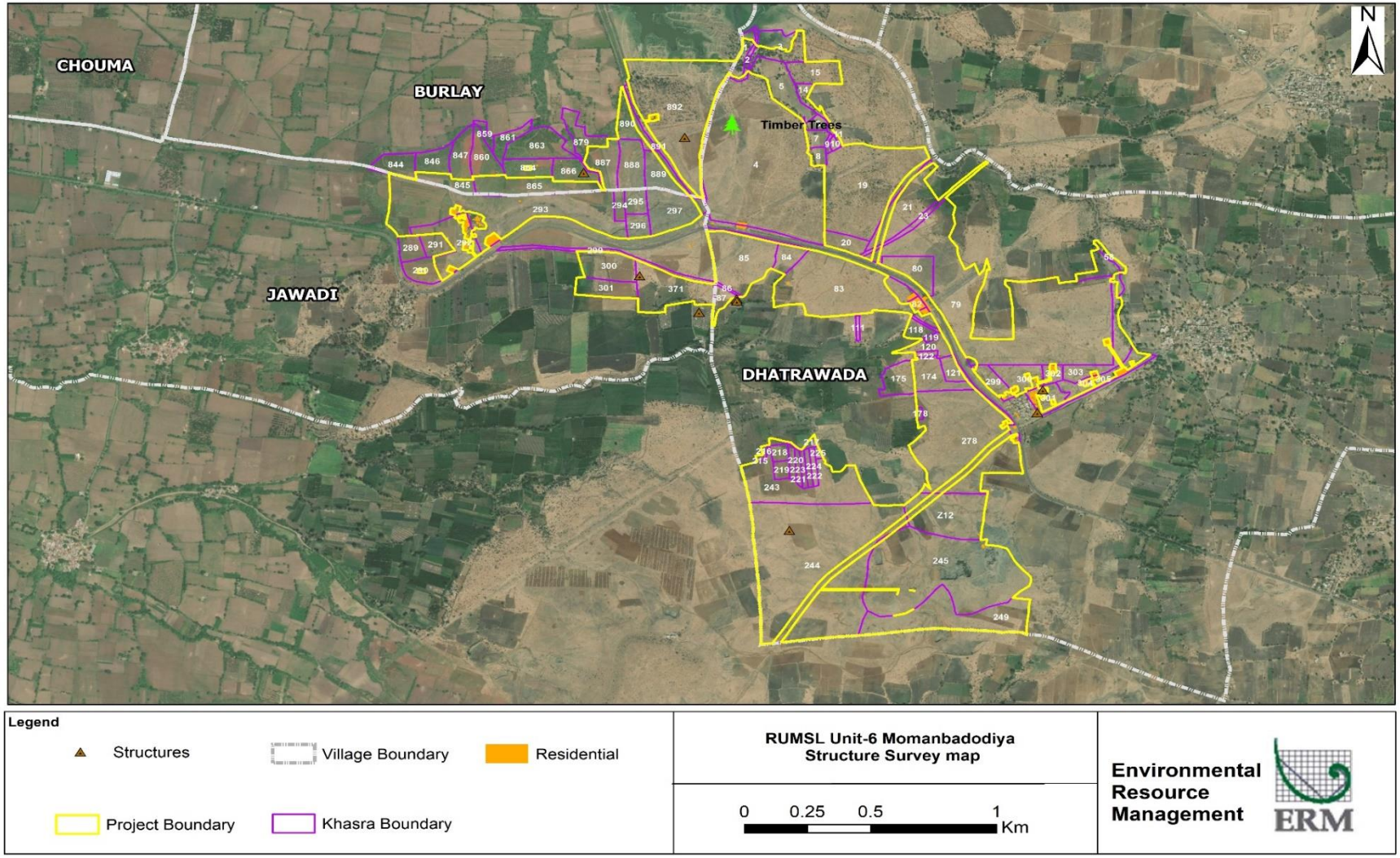
Category of Impact	Summary of Impact
	squatting for agriculture. There are 281 PAHs who will be impacted by loss of livelihood arising from informal use of government land ■ The loss of this land under informal use is likely to overall have a low magnitude of impact, due to the small proportion of total required government land that is under occupation for cultivation.
Impact due to Clearing of Crops	■ . A total of 319.6 hectares of land is under agricultural use (private and government land). Cultivators of this agricultural land would be impacted by loss of standing crop at the time of land clearing, depending on the season. ■ The project land take will result in an impact on the agricultural income for the PAHs in terms of loss of standing crop at the time of land clearing as well as opportunity cost for the cultivation that would have been undertaken on the land parcel in the next season. This is assuming that the PAHs will likely take one more agricultural season to procure replacement land and make it productive, or participate in the Livelihood Restoration opportunities
Change of land use on government land used for grazing	■ Data from the household survey with PAHs revealed that the PAHs depend on government land for collection of firewood, followed by fodder, soil and/or stone for top soil, boundary marking, and fruits. ■ Of the total government land identified for the project footprint, 284.33 ha is designated as grazing land (Charnoi or Chargah) land in government records. ■ The impact observed is high in all the villages except Dhatrwawada, where reportedly 33.3% households depend on nearby government land parcels for open grazing. The overall magnitude of the impact is assessed as medium for most of the villages in the project footprint. This impact is likely to be most significant for the Dhatrawada (Unit 6), Parsula (Unit 7), Bijnakhedi (Unit 7) and Chouma (Unit 7) as these villages will not have any grazing land remaining after project land take.
Impact on Timber and/or Fruit Trees	■ A total of 1,512 trees (timber and fruit) have been identified across 96 land parcels in the project footprint. ■ . 93 PAHs are assessed to be impacted by the loss of timber trees, while 27 PAHs will be impacted by loss of fruit trees ■ The project land take will require the felling/clearing of these trees as part of the land clearing process. This will result in a significant economic impact or loss of assets for the owners
Affected Collective Assets	■ During the land & asset survey it was identified that there is 6 collective assets have been identified. Apart from the structures listed above, there were a few additional structures identified at village level which were not within the project footprint, but where accessibility could be impacted/ or is in close proximity of site boundary. ■ The land procurement for the project will lead to a direct impact over these temples and local deities falling within the project footprint or in-direct impact as loss of accessibility to those collective entities, which are not falling within the project footprint but are close by.
Gendered Livelihood Impact	■ Based on the information available, 37 women headed households are expected to be impacted by the project ■ The women headed households identified through the households survey will be economically displaced by the project and will be also be impacted due to lack of any other source of earning to supplement agricultural income. ■ The women headed households identified through the households survey will be economically displaced by the project and will be also be impacted due to lack of any other source of earning to supplement agricultural income. ■ Apart from these impacts, women as a group are also likely to be impacted by increased responsibilities for livestock rearing due to potential shift towards stall feeding and lack of lack of access to the economic opportunities/ livelihood restoration programs by the project, due to lower literacy levels and socio-cultural norms and restrictions on women engaging in income generating activities.

Category of Impact	Summary of Impact
Impact on Vulnerable Group	■ 55 households are likely to fall in the vulnerable group category due to baseline conditions ■ The impacts of these households are similar in nature to the involuntary economic displacement related impacts, discussed earlier.

6.2 Project-Affected Land and Assets

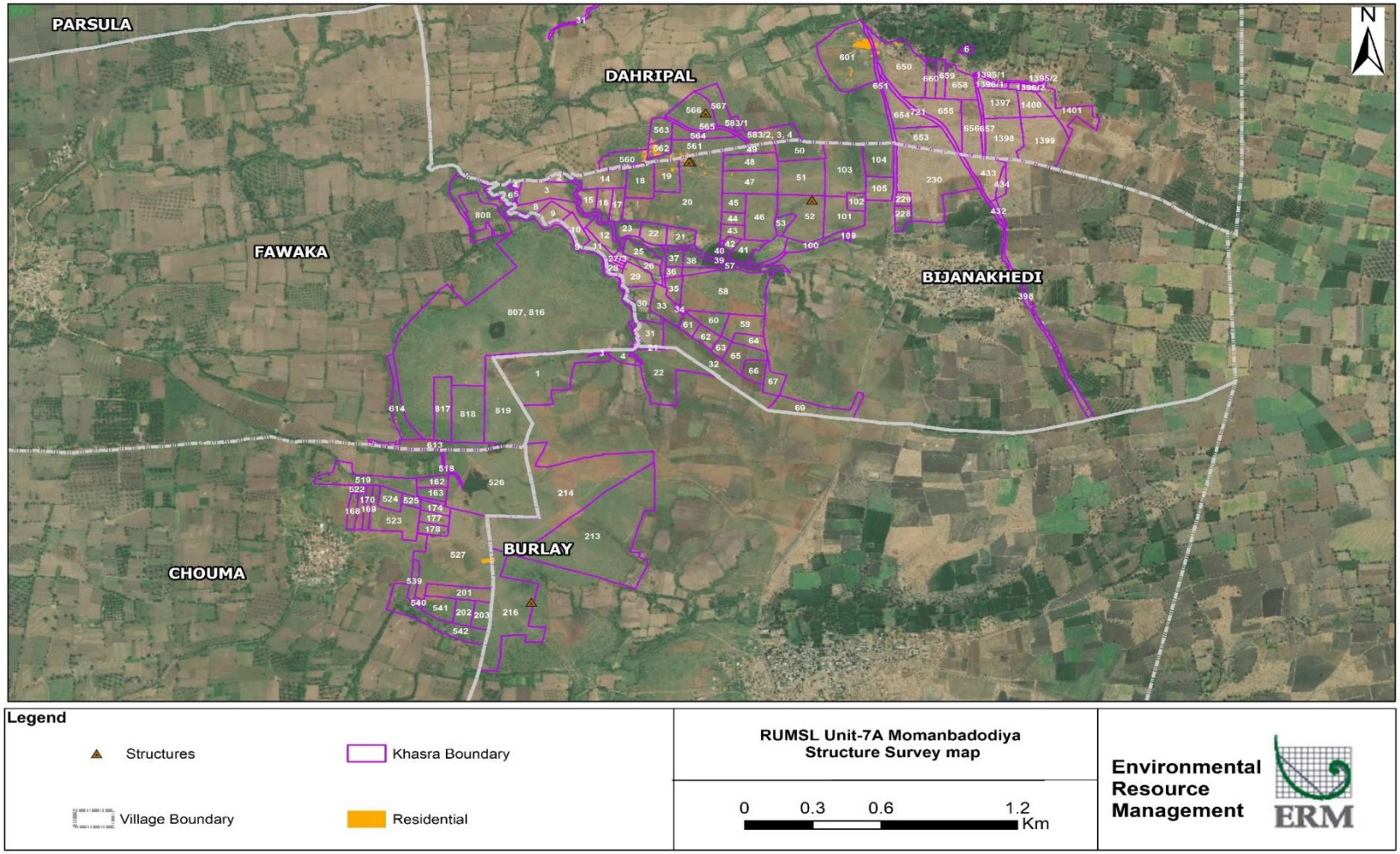
The overview of the impacted land within the project footprint and assets impacted as well as those surveyed is shown on a map in the following figures. The figures depict the distribution of assets impacted (crops, structures), for the surveyed land parcels. The following subsections provide an understanding of the assets that are likely to be impacted by the project.

Figure 6.1 Map of structure survey in Unit 6



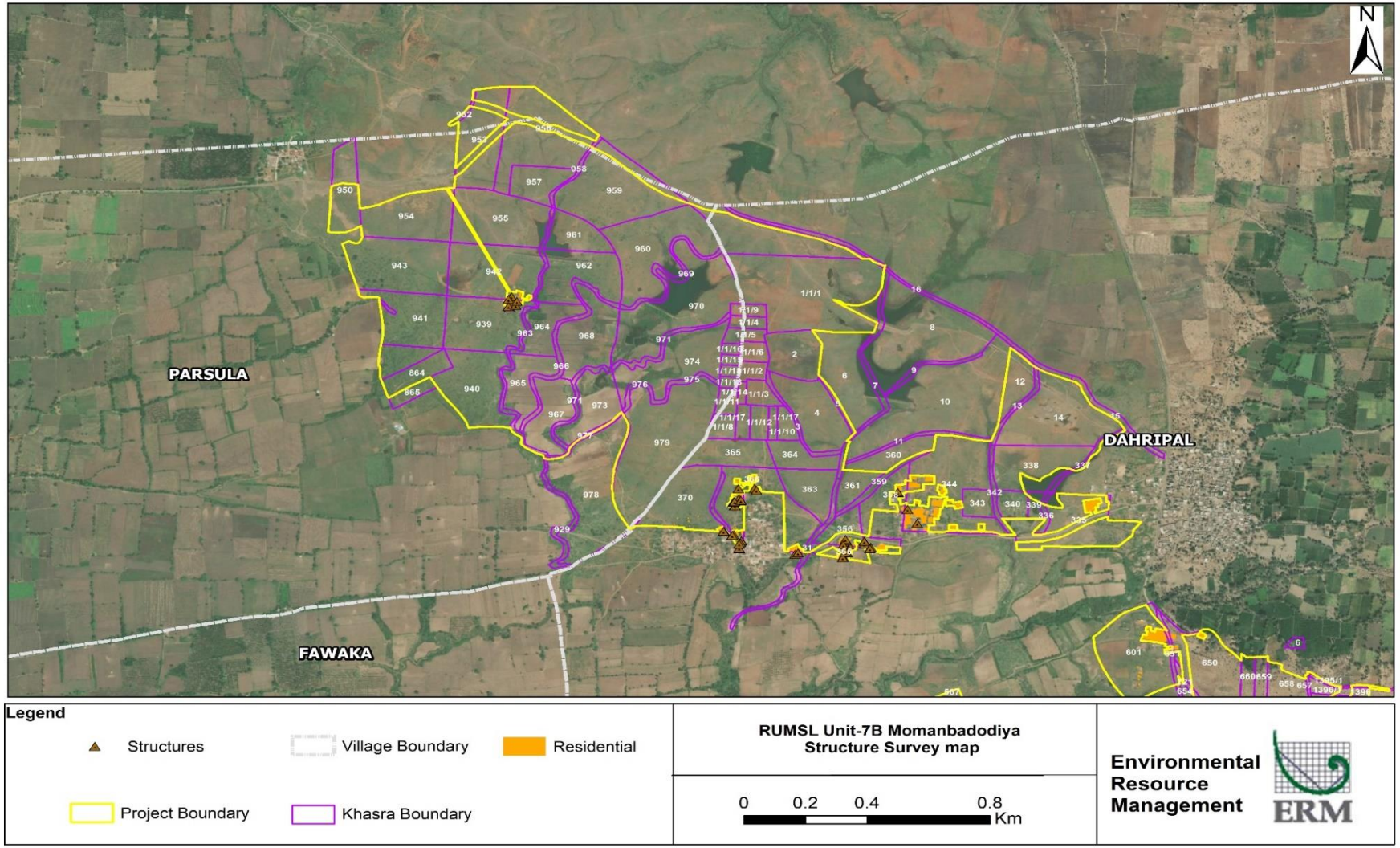
Source: Land Asset Survey, August 2020, ERM

Figure 6.2 Map of structure survey in Unit 7A



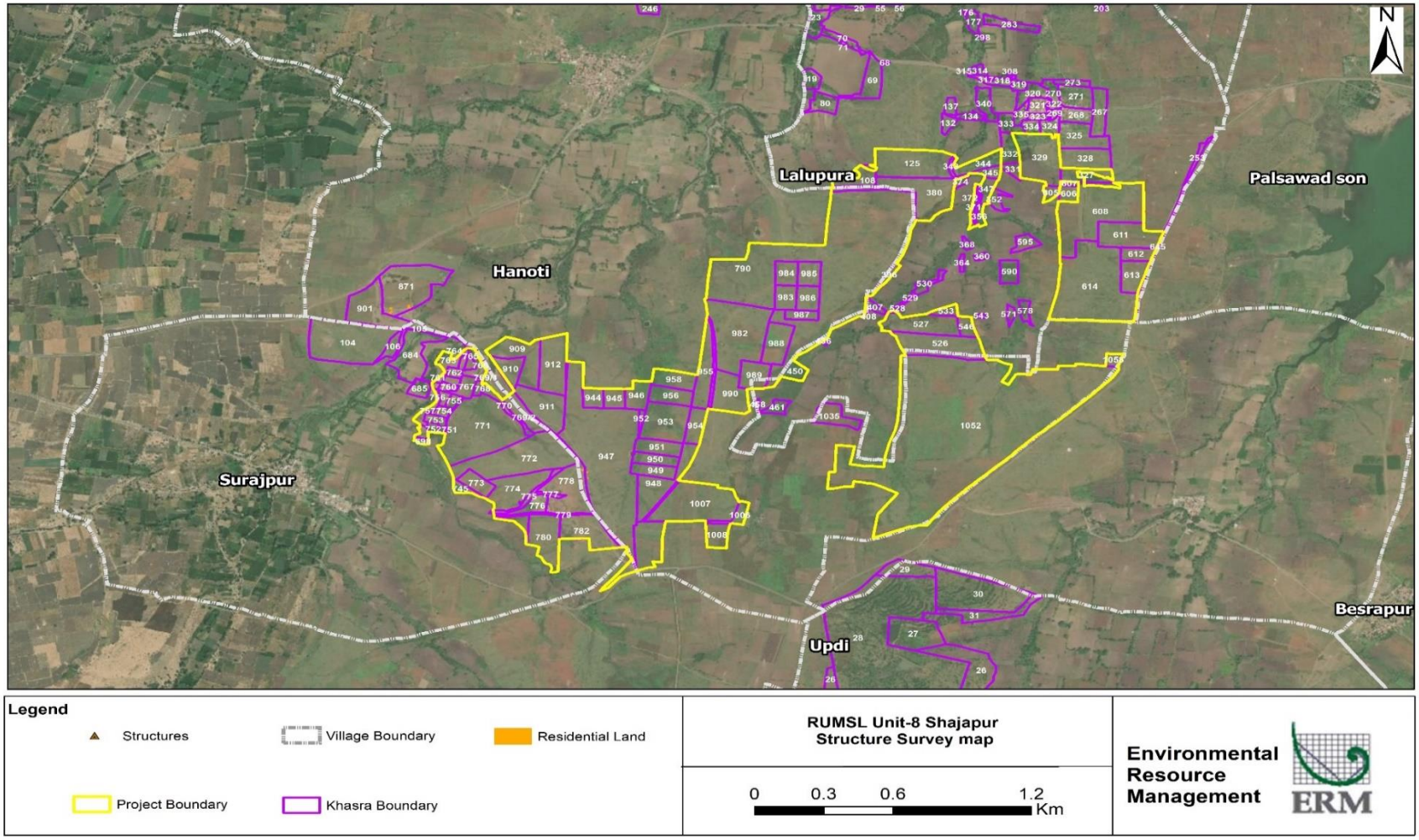
Source: Land Asset Survey, August 2020, ERM

Figure 6.3 Map of structure survey in Unit 7B



Source: Land Asset Survey, August 2020, ERM

Figure 6.4 Map of structure survey in Unit 8



Source: Land Asset Survey, August 2020, ERM

6.2.1 Affected Residential Structures

While the aim has been to minimize impacting residential structures, due to restrictions on land availability and technical constraints, the present project footprint will affect nineteen (19) residential structures.

- Of these 19 structures, 11 are permanent structures and rest 8 are temporary structures having thatch, wood or plastic sheet roofs and walls;
- Of these 19 structures, 06 were identified in Bijnakhedi village, 05 in Parsula, 03 in Surjapur, 02 in Dhatrawada and 01 each in Burlay, Chouma and Hanoti;
- The 05 structures identified in Parsula village are located on "*Awaas Patta*" land, 10 on private land, 03 on squatted government land and remaining one on government encroached land. Refer to Appendix D for further details on each individual structure;
- The average built up area of all the 19 residential structures were identified to be 38.72 square meter. The total land area of these structures taken together is 60.75 m^2 (0.006 ha). The total land area of these structures 735.7 m^2 (0.073 ha).
- 08 out of 19 structures were reported to be built between years 2000- 2002. 10 structures were reported to be built in the last 10 years between years 2010- 2018. One structure was reported to be built in year 1980;
- The impact from the land procurement for the project on these structures will be permanent as these structures will be removed during the land procurement.
- These impacts are likely to have an overall medium magnitude as the impact is limited to nineteen stuctures in seven villages. All the 19 structures across seven villages were identified/ informed to be in use; however the impact on the 11 permanent structures and those in Parsula is estimated to be relatively higher, as the structures in Parsula are permanent residents and are located on "Awaas Patta" land belong to families who were once landless and were allotted patta land for making their house;

6.2.2 Affected Commercial Assets

- The Project will result in an impact on one (01) commercial structure (grocery shop) and one (01) stone quarry and crusher unit used for commercial purposes located in the Project footprint area.
- During land & asset survey it was also informed by the stone quarry owner that the license to operate their stone quarry, which is on government land, will expire in the current year 2020; they had not applied for license renewal at the time of the survey. in addition, the project entity informed to have established his stone quarry in year 2012 and there were 37 labours identified to be engaged in stone quarry.
- The shop/ structure having its total area of 102.5 sq. meter was identified to have four separate sections each made of RCC and brick and was reportedly built in 2011.
- The impact from the land procurement for the project on these commercial asset is assessed to be limited due to the limited number of such assets and the scale of operations. Also, as the structure owner had not applied for a license renewal and thus would have to end the operations; irrespective of the project. Furthermore, in case the stone quarry owner wishes to continue his operation, it is understood that the government may allot alternative government land for the same.

6.2.3 Affected Immovable Assets

Immovable structures include cattle shed, water feeding stall, fodder storage shed, any other agricultural structures, which are used for agricultural activities.

- The project footprint will result in an impact on thirty four (34) such structures the 3 units. The estimated total area to be affected is 0.13hectares. The Table below provides an understanding of these structures by type and village.

Table 6.2 Summary of other structures impacted

Villages	Kuccha						RCC		Tin shed		Total
	Agri-shed	Cattle Shed	Foundation	Greenhouse	Others	Storage Shed (Fodder/Grains/Firewood)	Storage Shed (Fodder/Grains/Firewood	Guard Area	Storage Shed (Fodder/Grains/Firewood	Cattle Shed	
Unit 6 & 7											
Bijnakhedi	3	0	2	0	1	4	0	0	1	0	11
Burlay	2	2	0	0	2	0	0	0	0	0	6
Burlay	0	0	0	0	0	0	0	0	0	0	0
Chauma	1	0	0	0	0	1	1	1	1	1	6
Dehripal	0	0	0	0	0	0	0	0	0	0	0
Dhatrawada	1	1	0	0	0	2	0	0	0	0	4
Fawaka	0	0	0	2	0	0	0	0	0	0	2
Jawadi	0	0	0	0	0	1	0	0	0	0	1
Parsula	0	1	0	0	0	0	0	0	0	0	1
Unit 8											
Lalpura	0	0	0	0	0	0	0	0	0	0	0
Hanoti	0	0	0	0	0	0	0	0	0	0	0
Surajpur	0	3	0	0	0	0	0	0	0	0	3
Total	***7***	***7***	***2***	***2***	***3***	***8***	***1***	***1***	***2***	***1***	***34***
	29						***2***		***3***		

- The agricultural and storage shed structures are primarily made of brick and wood, with mud flooring, and supported by tin sheets/plastic sheets/thatch for roofing.
- Visual observations of these structure during the LA survey showed that these structures are in currently in use during the *Rabi* cropping season.

Other fixed and *salvageable* assets surveyed across the land parcels included bore well, stone crusher machinery, boundary wall, open wells and pipelines. There are thirty three (33) such assets on 31 land parcels, Details of these assets are as given below:

The table above clearly states that of the total 33 immovable assets, 24 assets have been installed to enhance/ provide the irrigation facilities. Basis of consultation with project entities, the expense details on these assets are as follows:

- Wire fencing (with wooden poles): The boundary walls constituted of wire fencing, held together by wooden pillars in majority of the cases (it is easier to replace, and incurs less cost compared to cement pillars). Twenty-one (21) such wire fencings have been observed during the LA survey. These have been observed to be in use, specifically by the encroachers, to demarcate their land use area, as separate from others.
- Open Well: 05 open wells have been identified in the entire course of land & asset survey. The wells were identified to be built with stone or brick and cement on the inside, these structures are typically 50- 60 feet in depth, and five (5) metres diameter, drawing water from the shallow aquifers. The cost of construction, including labour was reported to be an average of INR 2 Lakh-3.5 Lakhs;
- Pipelines/ tube wells/ bore wells: A total of 12 pipe-lines, 05 tube-wells and one bore well identified on the land parcels surveyed. The pipe-lines have mostly been installed in the years 2005-2008 with an average cost of INR 25,000-50,000. The cost depends on the length of the

pipe-line and the area of the land parcel installed. Similarly, 05 tube wells identified, were reported to be built with an average cost of INR 1, 50,000/ tube-well;

Table 6.3 Count of immovable & fixed assets

Villages	Total Immovable Assets	Bore well	Livestock drinking water trough	Boundary wall	Open well	Pipe line	Stone crusher machine/ stone quarry
Unit 6 & 7							
Bijnakhedi	3	0	1	0	0	2	0
Burlay	0	0	0	0	0	0	0
Chauma	2	0	1	1	0	0	0
Dehripal	1	0	0	1	0	0	0
Dhatrawada	8	2	1	1	2	1	1
Fawaka	0	0	0	0	0	0	0
Parsula	2	0	1	0	1	0	0
Jawadi	2	0	0	1	1	0	0
Unit 8							
Lalpura	9	0	0	0	0	9	0
Hanoti	1	1	0	0	0	0	0
Surajpur	5	4	0	0	1	0	0
Total	**33**	**7**	**4**	**4**	**5**	**12**	**1**

Source: Land Asset Survey, August 2020, ERM
NA: Not Applicable

- The impacts on immovable assets is highest in Unit 7, with 23 assets being impacted. However, these are likely to be medium in terms of impact magnitude as these are not primary residences for the households.
- The impact on the other salvageable assets and structures is mostly in Unit 8, with 15 of the 33 assets being located in the unit. At the village level, Lalupura is likely to be most impacted as 9 structures. Within the Unit 5 villages, Umariya is likely to be most impacted as 22 structures (27 percent) are located in this village. The magnitude of this impact however is likely to be low, as the material from the structures can be salvaged and moved to an alternate land parcel

6.2.4 Private agricultural land parcels

The selection of private parcels has been undertaken following avoidance criteria (**Section** 2.2) wherein, the private land parcels within the final project boundary were selected after taking into consideration optimization exercise for reduction of E&S risks.

- As part of the project footprint optimization, an attempt was made to reduce the number of private land parcels for the reduction of E&S risks. The only impact on Patta land is in Parsula village. However, due to restrictions on land availability and technical constraints, the present project footprint will affect one hundred and eighty eight (188) private/patta land parcels. These land parcels have a cumulative area of 93.4 ha (9.5 percent of the total land requirement);
- Of these 188 land parcels, 92 (49 percent) are located in Unit 7, while 63 (33.5 percent) are in Unit 6 and the remaining are in Unit 8.
- The average land holding among the PAHs in unit 8 (1.76 ha.) is higher than those in unit 6 (1.28 ha.) and unit 7 (0.74 ha).. However, in terms of land area, 41.6 percent of the total private land area is in Unit 8, 37 percent is in Unit 7 and remaining is in Unit 6, indicating towards a larger size of land parcels in Unit 8. Of the PAHs, 5 (1 percent) are likely to become landless due to the land take for the project

- All these land parcels will be affected by a permanent change in land use and ownership (farm based to non-farm based) and loss of standing crop during the land clearing phase. The impact of land use and ownership change will be permanent, while the loss of standing crop will be a one-time impact, on those land parcels which are under cultivation at the time of land clearing;
- These impacts are likely to have a high magnitude due to the permanent nature of impact, high dependence of the local community on agriculture as a source of livelihood. Within the project footprint, the villages of Hanoti (Unit 8), Dehripal (Unit 7), Bijnakhedi (Unit 7) and Surajpur (Unit 8) are likely to most impacted, as the highest proportion of private land requirement is from these villages, comprising of 70 percent of the total private land requirement for the solar park.

6.2.5 Government land used for agriculture and private fodder lots

- Of the 888.06 ha of government land, 214.9 ha (24 percent) is occupied (encroached/squatted) for agriculture or fodder cultivation (for private consumption). Of the total area under informal use, 73.5 percent is under squatting for agriculture. The table below provides details on the extent of informal use of government land.

Table 6.4 Government Land area under informal land use

	Informal Patta Holder[37]				Land owner encroachment on government land				Squatter on government land				Total
Villages	**Agriculture**	**Fodder Lot**	**Agriculture & residential**	**Total**	**Agriculture**	**Agriculture & residential**	**Fodder & any other use**	**Total**	**Agriculture**	**Fodder Lot**	**Agriculture & residential**	**Total**	
Bijnakhedi	0	0	0	0	8.93	3.06	0	11.99	17.08	0.36	3.88	21.32	33.31
Burlay	0	0	0	0	0.65	0	0	0.65	12.1	0	4.05	16.15	16.8
Burlay	0	0	0	0	0	0	0	0	0	0	0	0	0
Chauma	0	2.4	0.8	3.2	2.4	1.7	0	1.7	7.24	0	2.9	10.14	17.44
Dehripal	0	0	0	0	0	0	1.6	1.6	17.52	0.9	0	18.42	20.02
Dhatrawada	0	0	0	0	4.82	0.9	0	5.72	19.89	1.5	1.6	22.99	28.71
Fawaka	0	0	0	0	0	0	0	0	3.4	0	1.28	4.68	4.68
Jawadi	1.3	0	0	1.3	5.02	0	0	5.02	5.34	0	4.44	9.78	16.1
Parsula	0.25	0	0	0.25	8.2	0.35	0	8.55	4.34	0	0	4.34	13.14
Sub- Total Unit 6 & 7	***1.55***	***2.4***	***0.8***	***4.75***	***30.02***	***6.01***	***1.6***	***35.23***	***86.91***	***2.76***	***18.15***	***107.82***	***150.2***
Hanoti													
Lalpura	0	0	0	0	2.87	0	0	2.87	7.34	0	0	7.34	10.21
Surajpur	0	0	0	0	1.18	0	0	1.18	9.32	0	1.34	10.66	11.84
Sub Total Unit 8	***2.8***	***0***	***0***	***2.8***	***7.8***	***0***	***0***	***7.8***	***51.07***	***0.98***	***1.34***	***53.39***	***63.99***
Total	***4.35***	***2.4***	***0.8***	***7.55***	***37.82***	***6.01***	***1.6***	***43.03***	***137.98***	***3.74***	***19.49***	***161.21***	***214.19***

Source: Land Asset Survey, August 2020, ERM

[37] those who have informally purchased patta land from the registered patta holders.

The informal use (squatting/encroachment) of government land for agriculture has the following patterns in Unit 6-8:

- Encroachment of government land adjacent to existing owned land to cultivate larger parcels or plots in villages of Unit 6, 7 & 8 (Bijnakhedi, Burlay, Chauma, Dehripal, Dhatrwawada, Parsula, Jawadi, Lalpura, Hanoti & Surajpur) except Fawaka village in Unit 7 Land owners of large land parcels who are relatively economically well-off in the village, have used encroachment as a practice to increase the area under private control, and used for agricultural, livestock practices. This practice has been in existence for more than ten (10) years due to which the land owning class has amassed large parcels for farm-related use.
- Limited scale of squatting for agriculture: In the villages across all the three Units of solar park, the use of government land is prevalent among the marginal land holding households and/or landless households (Bijnakhedi, Burlay, Chauma, Dehripal, Dhatrwawada, Fawaka, Parsula, Jawadi, Lalpura, Hanoti & Surajpur). These households have relied on squatting for multiple cropping, and grazing. The government land used for multi-cropping, have both mountainous terrain and plain landscape.
- The general trend among encroachers/squatters, is to utilize government notified kabil kast land (land suitable for farming) for agriculture.
- Across the Units, Hanoti village in Unit 8 has the highest area that has been occupied for informal use (41.94 hectares)
- When compared with private land parcels in terms of crop being cultivated, it is understood that the government land under agriculture is primarily used for cultivation of crop for income purposes, with soyabean being the dominant crop (41.26 percent of the area under cultivation). This preference is because this is a dependable source of income with a ready market and has a lower investment requirement than wheat. Furthermore, this land is primarily cropped for a single season, with only 36 percent of the total area being reported to be cultivated during the Rabi season as well;
- The loss of this land under informal use is likely to overall have a low magnitude of impact, due to the small proportion of total required government land being under cultivation (by squatters and encroachers) as well as the amount of land that remains at a village level.

6.2.6 Clearing of crops

A total of 319.6 hectares of land is under agricultural use (private and government land). Cultivators of this agricultural land would be impacted by loss of standing crop at the time of land clearing, depending on the season.

Within this agricultural land, the private land parcels reported a higher number of crops in a given year (up to six crops), in comparison to agriculture on government land (up to 4 crops). Thus, given the trend to multi crop in the area, the likelihood of impacts to standing crops increases. The land parcels under multi-cropping would be more likely to be impacted by loss of standing crops;

The loss to farmers, from clearing standing crops will depend on when the possession of the land required for the project will be taken by the Solar Park Developer (SPD). The more favourable option would be to allow standing crops to be harvested before taking possession and thus not needing to clear standing crops. This will reduce the extent of income loss and provide a buffer for transition of households that are economically displaced (economic loss of produce),

6.2.7 Change of land use on government land used for grazing

Of the total government land identified for the project footprint, 284.33 ha is designated as grazing land (Charnoi or Chargah) land in government records.

As discussed in Section 4.2.7, open grazing is the preferred form of livestock feeding in most villages. The dependence on government land for grazing has been assessed through village profiling and consultations.

Table 6.5 Households dependent on open grazing

Unit	Villages	No of Persons	% of total population
Unit 6 & 7	Bijnakhedi	175	100
	Burlay	NA	NA
	Chauma	90	60.00
	Dehripal	360	90.00
	Dhatrawada	100	33.33
	Fawaka	250	98.04
	Parsula	250	100
	Jawadi	NA	NA
Unit 8	Hanoti	200	100
	Lalpura	90	100
	Surajpur	100	54.35

Source: Land Asset Survey, August 2020, ERM

The above table shows that grazing is an important source of livelihood and is linked to availability of land parcels for open grazing.

The impact observed is high in all the villages except Dhatrwawada, where reportedly 33.3% households depend on nearby government land parcels for open grazing. The overall magnitude of the impact is assessed as medium for most of the villages in the project footprint. This is in keeping with the understanding that while alternative grazing land will be available within the village after Project related land procurement, the location in terms of distance from settlement and suitability of the land for fodder or grazing is presently unknown. The loss of grazing land may thus result in an increased travel time for grazing purposes as well as increased pressure on the remaining grazing land in the village. This impact is likely to be most significant for the Dhatrawada (Unit 6), Parsula (Unit 7), Bijnakhedi (Unit 7) and Chouma (Unit 7) as these villages will not have any grazing land remaining after project land take.

6.2.8 Clearing of privately owned fruit and timber trees

- A total of 1,512 trees (timber and fruit) have been identified across 96 land parcels in the project footprint.
- Out of total of 1,512 timber trees, 1027 timber trees are spread across 35 private & patta land parcels have been identified in the project footprint. Of these 56.55 percent of the trees surveyed are used for timber/construction related use. On an average, there are 16 trees on a single land parcel.
- Among the timber trees assessed, 46 percent of them have an average diameter of more than 45 cm at breast height.
- Similarly, 379 fruit trees were assessed on 33 land parcels with an average of 11 fruit trees on one land parcel. It has been found that 67 percent of the fruit trees are in the young productive (fruit bearing) years. Almost a third of the fruit trees are orange. The orange trees surveyed were not part of a planted orchard.
- The project land take will require the felling/clearing of these trees as part of the land clearing process. This will result in a significant economic impact or loss of assets for the owners.
- In terms of magnitude, the impact is likely to be higher in Unit 6&7 due to the significantly higher number and type of trees.

6.2.9 Affected Collective Assets

The land & asset survey was used to identify structures or assets which are located on the government land and are under informal ownership (i.e. respective encroacher or squatter of that khasra land); but are considered as a common resource by local community. The map showing the location of such sites have been given in ***Figure 6.1, Figure 6.2, Figure 6.3*** and ***Figure 6.4*** above***.***

- During the land & asset survey it was identified that there is (1) one chhatri/ memorial located on the government land in village *Chouma*, which was found to be under encroachment and used for agriculture.
- In the same village land & asset survey team identified one *gau shala* / cattle-shed built for "*awaara gai*"/ stray cows. The structure was identified to be built on government/ Panchayat Dept. land using RCC and concrete material having a total area of 482.885 sq. Meter. The government land on which cattle shed was built measured 1.70 ha approximately, the remaining area was used as a fodder lot and grazing land for cattle;
- 01 temple/ local deity in Dehripal village was identified as falling within the project footprint. The temple was reported to be more than 100 years old and is considered a major community asset in Dehripal and nearby villages. As per information provided, the temple is visited by every caste of people from 40 nearby villages;
- 01 local deity each was identified in Fawaka and Jawadi villages. The local deity was informed to be from the last 100 years in the village. The local deity was informed to be worshipped on a regular basis and hold a very deep religious connection with people of both the villages;
- One (1) hundred-year-old temple was identified to be located within project footprint in Bijnakhedi village.

Apart from the structures listed above, there were a few additional structures identified at village level which were not within the project footprint, but where accessibility could be impacted/ or is in close proximity of site boundary. In Surajpur, Hanoti and Burlay villages, a temples was identified which was identified to be very close to the land/ structures falling within the project footprint. Also one temple in Dehripal village (*near Chak*) was found to be under construction, the identified religious structure was very close to other structures falling within the project foot print, approximately within a 50 meters of radius.

In addition to the above, a number of season and perennial water bodies are likely to be impacted by the project. from the discussions with RUMSL it is understood that while these water bodies will be maintained, access may not be provided to the same for the local community. This will result in an increase in a pressure and dependence on the remaining water bodies outside the project area.

The land procurement for the project will lead to a direct impact over these temples and local deities falling within the project footprint or in-direct impact as loss of accessibility to those collective entities, which are not falling within the project footprint but are close by.

6.3 Involuntary Displacement Impacts

This section discusses the effect of the impact on land and assets on the PAHs. The impacts due to the Project can be categorized as impacts on livelihood (economic displacement) and/or impacts on structures for residential uses (physical displacement). These involuntary impacts will lead to economic displacement of 346 PAHs, of which 83.53 percent were covered through the LA survey. There are eighteen (18) households who will be displaced due to loss of physical structure, and hence are likely to be physically displaced.

Table 6.6 Economic and Physical displacement of PAHs

Units	Villages	Economic Displacement	Physical & economic displacement	Physical displacement	Grand Total
Unit 6 & 7	Bijnakhedi	44	6	0	50
	Burlay	26	**1**	0	27
	Chauma	24	1	0	25

Units	Villages	Economic Displacement	Physical & economic displacement	Physical displacement	Grand Total
	Dehripal	27	0	0	27
	Dhatrawada	58	2	0	60
	Fawaka	3	0	0	3
	Jawadi	28	0	0	28
	Parsula	14	1	3	18
Unit 8	Hanoti	38	1	0	39
	Lalpura	35	0	0	35
	Surajpur	49	3	0	52
Grand Total		***346***	***15***	***3***	***364***

Source: Land Asset Survey, August 2020, ERM

6.3.1 Physical Displacement: Households Impacted by Loss of Residential Structure and other Immovable Assets

A key impact due to the land procurement for the project is the loss of residential structures located within the project footprint. 18 PAHs will be impacted by the loss of residential structures across the three units.

The 03 households identified to be physically displaced and 01 physically & economically displaced in Parsula are Govt. allotted Awaas patta owners. Out of total 19 structures, 10 structures belong to Private land owners, 05 belong to Patta owners, 03 to squatters and 01 to encroacher. Of these structures, 2 structures belong to 1 PAH, of which one is used as a permanent residence, while the second one is used for temporary purposes during the agricultural season.

Thus, the magnitude of impact is expected to be higher for the patta land owners; including Awaas Patta holders. Furthermore, the loss of such physical assets is concurrent with the loss of livelihood due to economic displacement, and hence the impacts are to be considered in totality for such PAHs.

Figure 6.5 Typical residential structures surveyed in Unit

Source: Land Asset Survey, August 2020, ERM

The above image represents the type of affected residential structures in Shajapur Solar Park. These are isolated structures in small clusters, away from the main village settlement and have permanent use.

6.3.2 Economic displacement

6.3.2.1 Households impacted due to loss of private and patta land

A key impact is the loss of private and patta land due to the land procurement for the project and the overall reduction in land holding amongst the PAHs. As can be seen from the table below, a total of 65 PAHs (16.48 percent of total PAHs) are to be impacted by the loss of private/patta land. These correspond to 101 individual land owners spread across 93.4 ha

Table 6.7 Impact on households owning Private/ Patta land

Unit	Villages	Private land PAHs	Patta land PAHs	Total PAPs	Potential landless PAHs
Unit 6 & 7	Bijnakhedi	8	0	59	0
	Burlay	3	0	23	1
	Chauma	6	0	34	0
	Dehripal	2	0	23	1
	Dhatrawada	7	0	35	0
	Fawaka	0	0	0	NA
	Jawadi	4	0	16	0
	Parsula	1	5	50	0
Unit 8	Hanoti	11	0	76	1
	Lalpura	0	0	0	NA
	Surajpur	18	0	74	1
Grand Total		***60***	***5***	***390***	***4***

Source: Land Asset Survey, August 2020, ERM

These 65 PAHs will be impacted by a permanent loss of asset and livelihoods; in terms of agricultural livelihoods.

Amongst these PAHs, the impact magnitude is likely to be high, whereas it is assessed to be most severe for the 04 households (one each in Burlay, Dehripal, Hanoti & Surajpur villages) who would become landless due to the project land take.

Within the villages, Surajpur (Unit 8), Bijnakhedi (unit 7), Hanoti (Unit 8) and Parsula (unit 8) have the highest number of PAHs impacted by loss of private/patta land.

6.3.2.2 Households impacted due to change of land use of government land

There are 281 PAHs who will be impacted by loss of livelihood arising from informal use of government land for agriculture, due to project land allotment. Of these 193 PAHs,(68.68 percent) are squatters, and the remaining are private land owners who have encroached upon adjacent government land for agriculture. Each of these PAH have an average area of less than one hectare under informal agricultural use. Of the 281 PAHs, 06 PAHs reported informal use of occupied government land for fodder crop cultivation.

Table 6.8 Number of informal users

Unit	Villages	Encroacher PAHs	Squatter PAHs	Informal Patta owners	Total
Unit 6 & 7	Bijnakhedi	13	35		37
	Burlay	4	22		20
	Chauma	7	11	3	15
	Dehripal	2	26		25
	Dhatrawada	12	33		37
	Fawaka	0	4		3
	Jawadi	11	10	2	14
	Parsula	19	4	1	23
Unit 8	Hanoti	4	22	2	24
	Lalpura	6	18		24
	Surajpur	2	8		7
	Total	***80***	***193***	***8***	***281***

Source: Land Asset Survey, August 2020, ERM

Across the three Units, Hanoti in Unit 8 has the highest area under informal use (41.94 ha) with 24 PAHs. Three (3) of the encroacher households also reported to owning private agricultural land apart from the land under informal use. The magnitude of impact on these informal users will be high due to a loss of livelihood associated with the land allotment and change in land use. Amongst the PAHs, the impact on squatters is likely to be more severe as they are either landless or own land that is less productive in comparison; as in the case of patta owners;

6.3.2.3 Households Impacted due to loss Commercial Structure

One PAH in Dhatrwada village will be impacted by the loss of the grocery shop, stone quarry and cursher unit. The household survey of the given PAH further states that he belongs to the general community and have ten members in the household, depended on this structure and asset as their primary source of livelihood, apart from the labourers engaged for the operations. The households informed to have his annual income of INR 19, 80,000/ annum, out of which he was earning INR 12, 00,000/ annum from stone quarry; with the remaining amount earned from agricultural products and shops. The impact from the loss of commercial structure on the livelihood of this PAH and the workers engaged will be high as this is the primary source of livelihood. This impact may be reduced if the PAH is allotted an alternative quarry and crusher site (upon application) and the workers are retained.

6.3.2.4 Households impacted due to loss of other structures

There are twenty three (23) households who will be impacted by loss of immovable structures. 11 of the household are informal users of government land for agriculture and have constructed structures for agricultural uses on those government parcels such as -livestock sheds, fodder storage shed,

water feeding stall. The rest are private land owners who have constructed temporary sheds/ kutcha structures on their private agricultural land. While the overall impact magnitude is low, the highest impact is likely to result from loss of access to open wells which are used for irrigation of land outside the project footprint. In such cases, the project should consider allowing continued access to such wells by other households during project construction and operation.

6.3.2.5 Households impacted due to loss of income from agricultural activities

- As discussed in Section 1.1.1 and Section 4.2 the primary occupation amongst the PAHs is farm based activities (~59.62 percent across the age group 35-60 years) and a total of 319.6 ha across the solar park is under agricultural use presently. Almost all of the PAHs also engage in agricultural labour work. On an average, agricultural income comprises 59 percent of the total household income
- The project land take will result in an impact on the agricultural income for the PAHs in terms of loss of standing crop at the time of land clearing as well as opportunity cost of the cultivation that would have been undertaken on the land parcel in the next season. This is assuming that the PAHs will likely take one more agricultural season to procure replacement land and make it productive, or participate in the Livelihood Restoration opportunities made available by the project.
- Agricultural activities also contribute towards the food security of the household. Thus, a reduction in overall land under agriculture per household may, in some cases also impact the food security of the household, thereby increasing the dependence on the Government PDS schemes or increasing the expenditure on food grains. This is likely to be significant for households left with sub-optimal land after the land procurement; whose land holdings get reduced significantly or the small and marginal farmers;
- The magnitude of impact is assessed as high, due to the importance of agricultural activities in the household income as well as food security for the household

6.3.2.6 Households impacted due to loss of timber and fruit trees

- 93 PAHs are assessed to be impacted by the loss of timber trees, while 27 PAHs will be impacted by loss of fruit trees

Table 6.9 PAH impacted by loss of timber trees

Villages	PAH	Count of Trees										
		Babul	Khajur	Khejdi	Banyan	Bor	Imli	Mango	Others	Kumtha	Neem	Palash
Unit 6 & 7												
Bijnakhedi	23	33	15	112	0	4	0	5	39	0	82	235
Burlay	6	17	2	6	0	0	1	1	55	0	2	0
Chauma	13	10	0	6	0	0	0	0	3	0	12	4
Dehripal	3	6	0	2	0	10	3	0	1	0	16	17
Dhatrawada	13	52	15	83	0	7	0	0	12	21	28	59
Fawaka	2	2	0	0	1	0	0	0	0	0	2	0
Jawadi	1	8	0	0	0	0	0	0	0	0	5	0
Parsula	13	27	1	17	1	3	0	0	68	0	4	7
Unit 8												
Lalpura	3	18	0	0	0	0	0	0	171	0	0	0
Hanoti	5	15	5	10	1	0	0	0	52	0	4	16
Surajpur	11	71	0	0	1	0	9	1	0	0	16	0
Total	***93***	***259***	***38***	***236***	***4***	***24***	***13***	***7***	***401***	***21***	***171***	***338***

Source: Land Asset Survey, August 2020, ERM

- Of the total timber trees reported, 68 percent (1027 trees) have been grown on private land, remaining 32% timber trees were grown on government land parcels being informally used for agriculture. According to the discussion with the encroachers/squatters these trees have been grown by the individuals for their personal use, and are differentiated from the naturally growing trees on government land;
- On an average a typical households has about 16 timber trees on the land parcel under agricultural use,. The difference among private land owners and those who are cultivating government land informally is in the type of trees grown. The informal land using households grow *neem* (INR 10 per sapling), and *Khejdi* trees for household uses, while private land owners cultivate *Palash* and *Babul* trees which have a higher price in the market (420/cubic meter) as compared neem (14/cubic meter) as reported by the land parcel owners and informal land users during consultations.
- 27 PAHs were identified to have 285 fruit trees on their land parcels, of which 70% (19 PAHs) were private and patta land owners

6.3.3 Community based livelihood impacts

- The primary impact at the community level arises due to reduction in available land for open grazing, due to land use change, i.e. loss of livelihood and sustenance linked to use of government land for open grazing of livestock. Open grazing of livestock reduces the input costs linked to grazing which otherwise would be market purchased fodder, and/or paying for stall feeding, which would increase the input costs of livestock management, and reduce the net income from sale of livestock products.

Table 6.10 Dependence of households on grazing land

Unit	Village	No. of Households informally using government land for grazing	% of total Households in the village
Unit 6 & 7	Bijnakhedi	135	77.14
	Burlay	NA	NA
	Chauma	90	60.00
	Dehripal	360	90.00
	Dhatrawada	100	33.33
	Fawaka	250	98.04
	Jawadi	NA	NA
	Parsula	250	100.00
	Unit 6& 7	**1185**	**72.70**
Unit 8	Hanoti	180	90.00
	Lalpura	90	100.00
	Surajpur	100	54.35
	Unit 8	**370**	**78.06**
	Grand Total	**1555**	**73.91**

Source: Village Profile, August 2020, ERM

- Open grazing of livestock is the most preferred option, as against stall feeding, reported during consultations with livestock grazing households.
- Livestock holding has been reported by 95 percent of the PAHs (358 surveyed PAHs), of which 53 percent of the households depend on livestock as a source of income.
- The loss of income form livestock is estimated at INR 60,527 per year, excluding input costs of fodder. Livestock income is a crucial source of livelihood for the marginal farmers and landless households and is also a regular source of income for graziers – who tend to cattle for a cluster of houses for a fee.
- Due to loss of access to grazing lands, these households may have to rely on market purchase for fodder which would increase input costs, and therefore affect their income.

- Secondly, the reduction in such common land for grazing could also lead to reduction in count of livestock held by these households, as input costs increase (creation of stall-shed, feeding stalls, etc.). Thus, the total income earning capacity for the household from livestock may reduce.
- In keeping with this, the impact magnitude is assessed as high, especially for Hanoti and Lalupura, as it has reported the highest proportion of population dependent upon government land for grazing

6.3.4 Gendered livelihood impacts

The Section 4.2.12, assesses Women headed households as a vulnerable group. Based on the information available, twenty seven (27) such households have been identified; based on extrapolated data for the entire PAH, there are estimated to be 37 Women headed households.

Women headed households are primarily dependent on agricultural labour work, and supplementary income from livestock. 27 Women headed households were identified to have an average land holding of 1.64 ha, i.e. marginal farmers (less than 2 ha), 18 of the women headed households were identified to own livestock, one Women headed households family was also identified to be Below Poverty Line.

The women headed households identified through the households survey are likely to be economically displaced by the project and did not report any other source of income other than their agricultural income as part of the household survey.

Another impact on women headed households will be the Impact due to loss of access to government grazing land that were located near their village, and are now included in the project boundary. This is based on the understanding that the grazing activities by women were primarily undertaken close to the village settlement, with men taking livestock to grazing land that was located further away. Due to the project impact on the grazing areas close to the settlement, grazing areas may be available at further distances, the alternative is to access the parcels which are at greater distance and will thus have higher time cost implications. This in turn may have an opportunity cost of time lost that was earlier used for other agricultural labour work activities

Apart from the impacts on women headed households, there are also likely to be certain impacts which differentially impact women in the project affected population. Most of the women land owners are joint owners. If not managed well, there is a risk of women in joint land ownerships not getting their fair share, or access to their share of the compensation amount. This may be further compounded by the lack of access to the economic opportunities/ livelihood restoration programs by the project, due to lower literacy levels and socio-cultural norms and restrictions on women engaging in income generating activities.

Furthermore, reduction in available government land for open grazing is likely to lead to a shift towards stall feeding in the short term. In the current practice of livestock management, the responsibilities are shared equally by men and women, with women undertaking feeding of the animals in stalls, cleaning, washing, mulching, while men undertake grazing, and help in collection of fodder. The shift towards stall feeding could increase the work load and responsibilities of women of the households without any remuneration attached for the same. Men on the other hand, may have lesser work share as they were responsible for open grazing livestock and to a lesser degree, in stall-feeding activities.

6.3.5 Impact on Vulnerable groups

The vulnerability profiling (**Section 4.2.12)** of impacted households shows that there are 55 vulnerable households were identified of which19 households were identified to fall below poverty line, 27 women headed households, 4 households with only elderlies, 4 landless and 1 artisan household. The impacts of these households are uniform in nature to the involuntary economic displacement related impacts, discussed earlier.

7. IMPLEMENTATION STRATEGIES FOR SHAJAPUR SOLAR PARK

This section discusses the Solar Park specific implementation strategies that have been identified based on the resettlement surveys undertaken, as distinct from the overall implementation plan presented in Volume I of the RAP-LRP. This section provides the implementation strategies, the necessary stakeholder engagement activities, and the RAP budget for Shajapur Solar Park.

In addition, actions and processes to be completed before starting RAP-LRP implementation are also noted below.

7.1 Project-specific Implementation Strategies

Based on the entitlement matrix and measures of compensation, rehabilitation and livelihood restoration, the following table summarises specific mechanisms that will need to be incorporated as a part of the RAP and LRP Implementation. It should be noted that the implementation strategies applicable across the 3 solar parks is provided in Volume I:

Table 7.1 Pre-Implementation Actions

Aspect	Description
Access to land presently under lease to the stone quarry	From the review of the land records it is understood that the land under lease for a stone quarry has been allotted to the project, as the lease for the quarry was set to end in 2020. However, from discussions with the local community, there is a possibility that the lease holders may have sought to stay and the matter may be sub-judice. Prior to taking possession of the land, RUMSL shall coordinate with the revenue department to ensure that the land is free of encumbrances and claims.
Impact on Commercial Entities	According to the discussion in Volume I, commercial entities will be separately covered by RUMSL and are not under the scope of the entitlement matrix. For this purpose, RUMSL, through theResettlement Implementation Consultant (RIC), shall undertake focused engagement activities with the impacted households to explain the entitlements identified in the RAP &LRP

7.2 Insights on Stakeholder Engagement and Grievance Management

In keeping with the Stakeholder Engagement Plan for the project, the following engagement activities shall be undertaken for the villages within the project boundary. These include –

- Consultations with the Gram Panchayat to provide update on the land procurement process of private and patta land in the villages
- Sharing of timeline of project activities with the Tehsil office and sensitisation on the same with the Tehsildar.
- Regular meetings with the private and patta land holders to be impacted by land take should be held by the DREO, in association with the Tehsildar, and Patwari to make them aware of the potential land based impacts as well as share information on the livelihood restoration measures;
- A focussed meeting with project entities from vulnerable communities and Banjara communities is recommended to be held by the DREO and associated officials of RO, in-order to record their challenges and inform them about livelihood restoration plans;
- Conduct workshops with specific stakeholder groups identified during the resettlement surveys to incorporate feedback and suggestions on resettlement planning such that the specific needs of vulnerable groups are included in the implementation plan.

The current state of stakeholder engagement requires improvement in terms of record keeping of grievances, identifying community representatives to ensure sustained engagement, and involvement of local government authorities as a grievance record keeping and resolution platform.

7.3 RAP implementation schedule for Shajapur Solar Park

The overall implementation schedule in the Volume I of the RAP-LRP contains the key project timelines, including the disclosure of RAP and LRP as well as regular engagement activities. A Solar Park level implementation schedule will be prepared in keeping with the Volume 1 schedule for Agar Solar Park. .

APPENDIX A PHOTO DOCUMENTATION

Survey Photo documentation

Photo 1: Land and Assets survey, RAP Study 2020

Photo 2: Household interview

Photo 3: Household interview

Photo 4: Household interview

Photo 5 Household interview in field

Photo 6: Household interview in field

Photo 7: Household interviews with female respondents

Photo 8: Household interview with a shopkeeper in Chauma village

Photo 9: Household interview

Photo 10: Kick off meeting in Dehripal

Photo 11: Livestock grazing on open government land

Photo 12: Livestock grazing on open government land

Photo 13: Livestock grazing on open government land

Photo 14: Livestock returning home in evening after grazing

Photo 15: Pathways inside the village

Photo 16: Open drainage in village

Photo 17: Residential structure-inside

Photo 18: Residential structure-outside

Photo 19: Livestock management inside the house

Photo 20: Women managing Livestock

Photo 21: Livestock management inside the house

Photo 22: Livestock management inside the house

Photo 23: Livestock grazing on open government land

Photo 24: Livestock grazing on open government land

	
Photo 27: Consultation in village Bijnakhedi	Photo 28: Consultation in village Lalupura
	
Photo 29: Standing crops (Soyabean) within project footprint	Photo 28: Consultation on grazing activities in village Burlay

APPENDIX B SUMMARY OF CONSULTATIONS

SUMMARY OF CONSULTATIONS

FGD with Grazer's Groups at Fawka

- The community reported that almost the entire government land in the village has been encroached upon, with only about 4 ha of land remaining for grazing. This has led to significant conflict between the grazers and the informal users. The informal users pay the fine levied by the government but consider the encroached/squatted land as their private land parcels
- Most of the encroachment is done by the powerful groups in the village
- While stall feeding may be considered for cows and buffaloes, goats need to graze in the open
- Buffalo milk is sold to a dairy cooperative in Chouma. Cow milk is used for household consumption
- A household needs to maintain atleast 2 or more buffaloes to be able to produce enough milk to sell
- Goat is primarily used for sale as an animal
- The minimum grazing area required is 1 bigha per 2 cows
- According to the community there is also a pond development project that has been approved within the village which will further reduce the land available
- The poorer groups in the village will not get access to any project benefits, as it will be proportioned by the powerful in the village

FGD with Grazer's Group at Jawadi

- Most of the people in the village now don't graze in the open, because most of the government land has been encroached upon.
- Most people have also reduced their livestock holdings as a result of this
- While a number of complaints have been filed against the encroachments, no action was taken
- Most of the encroachments are opportunistic in nature

FGD with Grazer's group at Dhatrawada

- There are more than 1000 livestock heads in the village
- The community undertakes open grazing upto 2-3 kms in the North and West direction from the village abadi area
- People from neighbouring villages also graze their cattle within the village boundaries as there is no clear demarcation
- While agriculture is a source of income, livestock is mostly a source of sustenance and emergency cash
- The grazing land in the village has reduced. The village has also run out of abadi area
- The typical cost of maintaining a cow is INR 20,000 annually and 40,000 INR for a buffalo

- The reduction in grazing land may not lead to livestock deaths but it will reduce the milk production, which will impact the sustenance and livelihoods of the community
- Loss of grazing land and lack of additional abadi land being available are two concerns for the local community

FGD with Women's group at Dhatrawada

- The women have to fetch water from long distances on a daily basis. Due to lack of water, adequate sanitation facilities are also not present in the village
- The project should provide employment. The women would also participate in the project in terms of employment. The women also want training, especially for girls who are educated
- The waterbodies around the village are important for livestock.
- If women are taking the livestock out, they typically go upto 100-200 m from the abadi area but men go further, uptil the water bodies
- The hillocks surrounding the village are divided between families informally for grazing purposes

FGD with Women's group at Parsula

- There is a lack of adequate sanitation facilities in the village
- The project should provide employment. The women would also participate in the project in terms of employment. The women also want training, especially for girls who are educated

FGD with Grazer's group at Parsula

- The land south of the village abadi area is heavily encroached upon
- There are more than 2000-3000 livestock heads in the village
- The project should provide employment to the members from the village and not employ outsiders
- The project should also provide free electricity and irrigation for the village

FGD with Women's and Grazer's group at Dehripal

- The Banjara community has low literacy in comparison the other caste groups. The community typically out migrates to Jaisalmer for Cumin farming. Presently most have returned due to COVID-19 pandemic
- The daily wage rate for agriculture is 100-150 for women and 200-250 for men
- There has been a significant increase in awara gai population in the village since 2014
- A gaushala will not solve the problem of grazing land as even the cattle in gaushala need to be grazed in open fields
- While large land owners can graze their cattle on their private land parcels, the same cannot be done by the small and marginal land owners
- There is no milk sale in the village, it is used for self-consumption

- Most of the open government land has been encroached upon, with some of the encroachments being 30-40 years old
- The community was of the opinion that since the project is a government project, no grievance or protest can be filed against the project
- If the grazing land is reduced, it will have a cumulative impact on the remaining grazing land as well. This is because, due to increase in density of grazing per ha of land, the fodder will get trampled and productivity will reduce
- The local community cannot also sell their cattle, since there is no market value for cows now due to fear of mob lynching

FGD with local community at Hanoti

- The designated grazing land in the village is encroached upon
- The local community typically grazes upto 1-2 km from the abadi area
- The government land is divided amongst the hamlets in the villages for grazing purposes
- In case most of the government land impacted is from one hamlet, it will create conflict in the community. The remaining land should either be redistributed proportionately or equal land should be taken from each hamlet
- The local community does not want to keep their cattle in gaushalas, as the animals there die due to lack of proper care

FGD with women at Hanoti

- Women are not aware of the proposed project
- The decision making is undertaken by the male members of the households and thus they will decide whether to sell their land or not
- The grazing land should not be impacted due to the project

FGD with local community at Surajpur

- The community is not aware of the location of the grazing land
- A significant amount of land in the village is not usable due to the presence of a stream, which allows divides the village into two hamlets
- The government land in the village is heavily encroached upon
- The project should provide employment for every household in the village
- In case the community has to switch to stall feeding, the work load for women will increase as taking care of the livestock at home is the women's responsibility

FGD with local community at Lalupura

- The community was concerned about the impacts to the underground irrigation pipelines connecting the fields to the dam
- The grazing land in the village is encroached upon. In order to avoid in-fighting in the village, the entire government land should be taken or nothing should be impacted

- While the community can stall feed the livestock, the water body should not be impacted as that is critical
- The project should also construct a pucca road connecting the village to the main highway

APPENDIX C PROFILE OF INFORMAL USERS IN SHAJAPUR SOLAR PARK

SUMMARY PROFILE OF INFORMAL USERS IN AGAR SOLAR PARK

The table below provides a summary of the profile of the informal users (encroachers and squatters) on government land who will be impacted due to the land procurement for the Agar Solar Park.

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Parsula	962/A	743197	20214369177	SC	Encroacher	1.02	Agriculture	Yes	<10	Yes	
Parsula	962/B	743187	20214364179	SC	Encroacher	1.30	Agriculture	Yes	<10	Yes	WHH
Parsula	962/C	743171	20214364183	SC	Encroacher	0.90	Agriculture	Yes	<15	Yes	
Parsula	964/B	743174	20214364175	SC	Encroacher	0.35	Agriculture	Yes	<10	Yes	
Parsula	965/K	743186	20214370198	ST	Encroacher	0.25	Agriculture	Yes	<10	Yes	
Parsula	964/E	743191	Not available for HH survey		Encroacher	0.35	Agriculture	Yes	<7	Yes	
Parsula	964/F	743192	20214368194	ST	Encroacher	0.35	Agriculture	Yes	<10	Yes	BPL

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Parsula	964/G	743193	20214365178	ST	Encroacher	0.35	Agriculture	Yes	<10	Yes	
Parsula	964/D	743190	20214367195	ST	Encroacher	0.35	Agriculture	Yes	<15	Yes	BPL
Parsula	964/C	743189	20214369176	SC	Encroacher	0.35	Agriculture	Yes	<10	Yes	
Parsula	965/I	743184	20214365180	SC	Encroacher	0.25	Agriculture	Yes	<5	Yes	
Parsula	965/E	743180	20214367215	ST	Encroacher	0.25	Agriculture	Yes	<15	Yes	
Parsula	965/B	743177	20214365705	ST	Encroacher	0.25	Agriculture	Yes	<10	Yes	
Parsula	965/G	743182	20214365710	SC	Encroacher	0.25	Agriculture	Yes	<10	Yes	
Parsula	965/J	743185	20214365704	SC	Encroacher	0.25	Agriculture	Yes	<15	Yes	
Parsula	965/L	743223	20214365708	SC	Encroacher	0.25	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Parsula	965/F	743181	20214365709	ST	Encroacher	0.25	Agriculture	Yes	<10	Yes	
Parsula	965/A	743176	20214365706	ST	Encroacher	0.32	Agriculture	Yes	<10	Yes	
Parsula	965/D	743179	20214365708	SC	Encroacher	0.25	Agriculture	Yes	<10	Yes	
Parsula	964/H	743194	20214367202	OBC	Encroacher	0.31	Agriculture	Yes	<10	Yes	
Parsula		743195									
Jawadi	300	646558	20214670278	SC	Encroacher	1.40	Agriculture	Yes	<10	Yes	BPL
Jawadi		646559	20214670277	SC	Encroacher			Yes	<10	Yes	
Jawadi	291, 292	646562	20214667251	SC	Encroacher	0.84	Agriculture	Yes	<15	Yes	
Jawadi		646563	20214667292	SC	Encroacher	0.28	Agriculture	Not Applicable	<10	Yes	
Jawadi	300	646579	20214768463	OBC	Encroacher	1.28	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Jawadi		646580	20214768462	OBC	Encroacher			Yes	<10	Yes	
Jawadi	294	646578	20214668294	OBC	Encroacher	0.66	Agriculture	Yes	<10	Yes	
Burlay	22/C	649310	Not available for HH survey		Encroacher	0.45	Agriculture	Yes	<10	Yes	
Burlay	4	649307	20214969613	General	Encroacher	0.20	Agriculture	Yes	<15	Yes	
Dhatrawada	21	648610	20214869479	General	Encroacher	0.35	Agriculture	Yes	<15	Yes	
Dhatrawada		648609						Yes	<10	Yes	
Dhatrawada	83 87/03	648629	20214864477	SC	Encroacher	0.96	Agriculture	Yes	<10	Yes	
Dhatrawada		648631	20214869476					Yes	<15	Yes	
Dhatrawada	178	648626	HH SURVEY REFUSED		Encroacher	0.90	Agriculture	Yes	<10	Yes	
Dhatrawada	303	648637	20214870524	OBC	Encroacher	0.46	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dhatrawada	79/A	648638	20214868522	General	Encroacher	0.08	Agriculture	Yes	<10	Yes	
Dhatrawada	79/B	648642	20214867526	General	Encroacher	0.94	Agriculture	Yes	<10	Yes	
Dhatrawada	79/C	648278	20214868516	General	Encroacher	1.06	Agriculture	Yes	<7	Yes	
Dhatrawada	118/A	648280	20214868503	General	Encroacher	0.15	Agriculture	Yes	<10	Yes	
Dhatrawada	118/B	648279	20214865473	General	Encroacher	0.20	Agriculture	Yes	<10	Yes	
Dhatrawada	178	648627	20214867533	OBC	Encroacher	0.60	Agriculture	Yes	<15	Yes	
Surajpur	768	852749	20225280962	OBC	Encroacher	0.40	Agriculture	Yes	<10	Yes	
Surajpur	782/A	852764	20225265987	ST	Encroacher	0.78	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/9	745718	20214570258	SC	Encroacher	0.80	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dehripal	1/1/MIN/4	745719	20214567265	SC	Encroacher	0.80	Agriculture	Yes	<10	Yes	
Hanoti	790/I	851765	20225370824	SC	Encroacher	0.22	Agriculture	Yes	<10	Yes	
Hanoti	1007/B	851721	20225167813	OBC	Encroacher	1.50	Agriculture	Yes	<10	Yes	
Hanoti	1007/c	851741			Encroacher	2.00	Agriculture	Yes	<15	Yes	
Hanoti	790/E	851753	20225367825	OBC	Encroacher	0.02	Agriculture	Yes	<10	Yes	
Bijnakhedi	228/B	750696	20215070539	SC	Encroacher	0.67	Agriculture	Yes	<10	Yes	
Bijnakhedi	58/B	750333	20215068538	SC	Encroacher	0.70	Agriculture	Yes	<15	Yes	
Bijnakhedi	58/D	750335	20215069635	SC	Encroacher	0.50	Agriculture	Yes	<10	Yes	
Bijnakhedi	58/C	750334	20215068543	OBC	Encroacher	0.60	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Bijnakhedi	64	750331	Not available for HH survey		Encroacher	1.60	Agriculture	Yes	<10	Yes	
Bijnakhedi	20/A	750670	20215070568	OBC	Encroacher	1.60	Agriculture	Yes	<10	Yes	
Bijnakhedi	20/C	750672	20215070560	OBC	Encroacher	1.46	Agriculture	Yes	<10	Yes	
Bijnakhedi	49	750686	Not available for HH survey		Encroacher	1.30	Agriculture	Yes	<15	Yes	
Bijnakhedi	50/A	750669	20215070550		Encroacher	1.76	Agriculture	Yes	<10	Yes	
Bijnakhedi	228	750695	20215070539	SC	Encroacher	0.20	Agriculture	Yes	<10	Yes	
Lalpura	607	853381	20225382828	OBC	Encroacher	0.29	Agriculture	Yes	<10	Yes	
Lalpura	332, 345, 352	853384	20225380832	SC	Encroacher	1.66	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Lalpura	347/A	853388	20225370829	OBC	Encroacher	0.23	Agriculture	Yes	<10	Yes	
Lalpura	347/B	853390	20225380826	OBC	Encroacher	0.23	Agriculture	Yes	<10	Yes	
Lalpura	347/C	853389	20225381827	SC	Encroacher	0.23	Agriculture	Yes	<10	Yes	
Lalpura	347/D	853387	20225367826	OBC	Encroacher	0.23	Agriculture	Yes	<15	Yes	
Chauma	527/A	747608	Not available for HH survey		Encroacher	1.71	Agriculture	Yes	<15	Yes	
Chauma	512	747594	20214767490	SC	Encroacher	0.04	Agriculture	Yes	<10	Yes	
Chauma	519-A	747602	20214765148	General	Encroacher	0.44	Agriculture	Yes	<10	Yes	
Chauma	519/B	747603	20214765457	SC	Encroacher	0.92	Agriculture	Not Applicable	<10	Yes	
Chauma		747604	20214765423	SC	Encroacher		Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Parsula	940	743519	20214365701	General	Squatters	1.44	Agriculture	Yes	<5	Yes	
Parsula	973	743529	20214370250	OBC	Squatters	2.00	Agriculture	Yes	<10	Yes	
Parsula/ Dehripal	979, 1/1/MIN/1L	745541	Not available for HH survey		Squatters	0.90	Agriculture	Yes	<15	Yes	
Fawaka	613	744520	Not available for HH survey		Squatters	0.80	Agriculture	Yes	<10	Yes	
Fawaka	614	744521	20214468316	OBC	Squatters	0.48	Agriculture	Yes	<5	Yes	
Fawaka	819	744522	20214470214	SC	Squatters	3.40	Agriculture	Yes	<5	Yes	
Dehripal	1/1 MIN/1A	745530	20214565345	OBC	Squatters	0.34	Agriculture	Yes	<5	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dehripal	1/1/MIN/3	745531	20214565343	OBC	Squatters	0.34	Agriculture	Yes	<5	Yes	
Dehripal	1/1/MIN/1C	745532	20214565346	OBC	Squatters	0.34	Agriculture	Yes	<15	Yes	
Dehripal	1/1/MIN/1/D	745535	20214565342		Squatters	0.34	Agriculture	Yes	<15	Yes	
Dehripal		745663	20214569329	OBC	Squatters	0.34	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/G	745539	20214565344	OBC	Squatters	0.56	Agriculture	Yes	<5	Yes	
Dehripal	1/1/MIN/H	745554	20214569329	OBC	Squatters	0.56	Agriculture	Yes	<5	Yes	
Dehripal		745555	Not available for HH survey		Squatters	0.56	Agriculture	Yes	<5	Yes	
Dehripal	1/1/MIN/1	745537	20214567359	OBC	Squatters	0.60	Agriculture	Yes	<5	Yes	
Dehripal	1/1/MIN/J	745538	20214565367	OBC	Squatters	0.80	Agriculture	Yes	<5	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dehripal	1/1/MIN/1K	745540	20214564360	General	Squatters	2.26	Agriculture	Yes	<15	Yes	
Dehripal	1/1/MIN/1M	745542	20214569327	SC	Squatters	2.80	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/1 N	745543	20214564325	OBC	Squatters	0.16	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/0	745544	20214565323	OBC	Squatters	0.80	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/1P	745545	20214565322	OBC	Squatters	0.60	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/Q	745546	20214569636	OBC	Squatters	0.31	Agriculture	Yes		Yes	
Dehripal	1/1MIN/R	745547	HOUSEHOLD LOCKED		Squatters	1.34	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/S	745548	HOUSEHOLD LOCKED		Squatters	0.61	Agriculture	Yes	<10	Yes	
Dehripal	1/1/MIN/W	745552	20214568226	SC	Squatters	0.54	Agriculture	Yes	<10	Yes	
Dehripal	601/A,	745553	20214568253	SC	Squatters	1.50	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
	601/B										
Dehripal	1/1/min-3	745716	20214568263	SC	Squatters	0.71	Agriculture	Yes	<15	Yes	
Dehripal	1/1/MIN/2	745717	20214568230	SC	Squatters	0.91	Agriculture	Yes	<5	Yes	
Dehripal		745726	20214568231	SC	Squatters			Yes	<5	Yes	
Jawadi	371	646560	20214670276	SC	Squatters	4.40	Agriculture	Yes	<5	Yes	
Jawadi		646561	20214668277					Yes	<5	Yes	
Jawadi	293/B	646570	20214668281	SC	Squatters	1.10	Agriculture	Yes	<10	Yes	
Jawadi		646571	20214668282	SC	Squatters		Agriculture	Yes	<10	Yes	
Jawadi		646572	20214667280	SC	Squatters		Agriculture	Yes	<10	No	
Jawadi	293/D	646576	20214667286	SC	Squatters	1.30	Agriculture	Yes	<15	Yes	
Jawadi		646577									

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Jawadi	293/C	646595	20214670297	General	Squatters	1.30	Agriculture	Yes	<10	Yes	
Burlay	213/B	649312	20214964610	General	Squatters	0.40	Agriculture	Yes	<5	Yes	
Burlay	892/B	649327	Not available for HH survey		Squatters	0.40	Agriculture	Yes	<7	Yes	
Burlay		649328	Not available for HH survey					Yes	<5	Yes	
Burlay	1/D, 22/A	649304	20214968618	General	Squatters	1.80	Agriculture	Yes	<15	Yes	
Burlay		649305	20214969616	General	Squatters		Agriculture	Yes	<7	Yes	
Burlay	1/B	649302	20214967610	SC	Squatters	0.70	Agriculture	Yes	<7	Yes	
Burlay	1/C	649303	20214964625	General	Squatters	0.30	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Burlay	22/B	649308	20214965614	General	Squatters	0.30	Agriculture	Yes	<5	Yes	
Burlay		649309					Agriculture	Yes	<5	Yes	
Burlay	213/A	649311	20214969611	General	Squatters	0.30	Agriculture	Yes	<5	Yes	
Burlay	892/A	649324	20214870535	General	Squatters	2.21	Agriculture	Yes	<5	Yes	BPL
Burlay		649623									
Burlay	879	649316	20214965617	OBC	Squatters	1.40	Agriculture	Yes	<10	Yes	
Burlay		649317	Not Avl		Squatters		Agriculture	Yes	<7	Yes	
Burlay	216/A	649313	20214969715	General	Squatters	0.60	Agriculture	Yes	<10	Yes	
Burlay	888	649322	Not available for HH survey		Squatters	4.0	Agriculture	Yes	<7	Yes	
Burlay	887/B	649321	20214965631	SC	Squatters	0.40	Agriculture	Yes	<15	Yes	
Burlay	886, 865	649315	20214965620	SC	Squatters	0.40	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Burlay	216/B	649314	20214964712	General	Squatters	0.30	Agriculture	Yes	<7	Yes	BPL
Burlay	864	649349	20214969630	OBC	Squatters	0.91	Agriculture	Yes	<10	Yes	
Burlay	1/A	649301	20214965628		Squatters	2.00	Agriculture	Yes	<10	Yes	
Dhatrawada	245/B	648611	20214867557	General	Squatters	1.00	Commercial Shop	Yes	<10	Yes	
Dhatrawada	19, 243/D, 220	648273	20214869471	SC	Squatters	1.00	Agriculture	Yes	<10	Yes	
Dhatrawada	278	648613	20214870531	SC	Squatters	2.00	Agriculture	Yes	<10	Yes	
Dhatrawada		648614			Squatters		Agriculture	Yes	<10	Yes	
Dhatrawada	Z/12	648618	20214867525	SC	Squatters	1.31	Agriculture	Yes	<10	Yes	WHH
Dhatrawada	4/C	648621	Not available for HH survey		Squatters	1.51	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dhatrawada	4/E	648622	DONT LIVE IN DHATRAW		Squatters	0.51	Agriculture	Yes	<10	Yes	
Dhatrawada	4/B	648623	20214870535	General	Squatters	0.62	Agriculture	Yes	<10	Yes	BPL
Dhatrawada	5	648624	20214869479	General	Squatters	0.52	Agriculture	Yes	<10	Yes	
Dhatrawada	4/A	649326	20214868534	General	Squatters	1.61	Agriculture	Yes	<15	Yes	
Dhatrawada	4/D	648634	20214868299	SC	Squatters	1.42	Agriculture	Yes	<7	Yes	
Dhatrawada	243/H	648268	20214869467	OBC	Squatters	0.21	Agriculture	Yes	<7	Yes	
Dhatrawada	243/G, 215	648269	20214869468	SC	Squatters	0.51	Agriculture	Yes	<15	Yes	
Dhatrawada	243/A	648276	20214864465	General	Squatters	1.00	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dhatrawada	243/F, 216	648270	20214864466	General	Squatters	0.40	Agriculture	Yes	<10	Yes	
Dhatrawada		648271	20214864465	General	Squatters			Yes	<15	Yes	
Dhatrawada	243/E, 218, 219	648272	20214864469	SC	Squatters	0.24	Agriculture	Yes	<10	Yes	
Dhatrawada	243/C, 223	648274	20214869472	SC	Squatters	0.12	Agriculture	Yes	<10	Yes	
Dhatrawada	120, 119, 118/C, 83	648278	20214868516	General	Squatters	0.66	Agriculture	Yes	<10	Yes	
Dhatrawada	244/D	648259	20214867502	SC	Squatters	1.50	Agriculture	Yes	<7	Yes	
Dhatrawada		648260	20214870506	SC	Squatters		Agriculture	Yes	<10	Yes	
Dhatrawada	245/A	648258	20214867501	SC	Squatters	0.97	Agriculture	Yes	<10	Yes	
Dhatrawada	244/C	648262	20214867504	SC	Squatters	0.90	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Dhatrawada	244/B	648263	NOT ANS		Squatters	0.53	Agriculture	Yes	<10	Yes	
Dhatrawada	221, 243/I	648267	20214868511	SC	Squatters	0.40	Agriculture	Yes	<15	Yes	
Dhatrawada	243/B	648275	20214868296	General	Squatters	0.30	Agriculture	Yes	<15	Yes	
Dhatrawada	243/J, 222	648266	20214870550		Squatters	0.60	Agriculture	Yes	<10	Yes	
Dhatrawada	244/A	648264	20214870550		Squatters	1.40	Agriculture	Yes	<10	Yes	
Surajpur	780/B	852774	20225269968		Squatters	0.42	Agriculture	Yes	<10	Yes	
Surajpur	780/A, 774/B	852768	20225269984	OBC	Squatters	3.18	Agriculture	Yes	<15	Yes	
Surajpur	782/C	852756	20225264964	OBC	Squatters	0.15	Agriculture	Yes	<10	Yes	
Surajpur	782/B	852757	20225265975	OBC	Squatters	0.37	Agriculture	Yes	<10	Yes	
Surajpur	774/A	852769	20225269982	ST	Squatters	1.34	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Hanoti	990/C	851747	20225167816	OBC	Squatters	1.40	Agriculture	Yes	<15	Yes	
Hanoti	790/H, 945	851745	20225164944	OBC	Squatters	3.75	Agriculture	Yes	<10	Yes	
Hanoti	947/A	851720	HH SURVEY REFUSED		Squatters	1.25	Agriculture	Yes	<10	Yes	
Hanoti	947/B	851721	20225167813	OBC	Squatters	1.25	Agriculture	Yes	<10	Yes	
Hanoti	947/C	851723	HH SURVEY REFUSED		Squatters	1.25	Agriculture	Yes	<10	Yes	
Hanoti	1007/A	851780	Not available for HH survey		Squatters	1.80	Agriculture	Yes	<15	Yes	
Hanoti	988, 990/A, 945	851746	OUT OF STATE	OBC	Squatters	4.72	Agriculture	Yes	<10	Yes	
Hanoti	790/A	851749	20225264980	OBC	Squatters	0.30	Agriculture	Yes	<10	Yes	
Hanoti	790/B	851750	20225269986	OBC	Squatters	0.30	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Hanoti	790/C	851751	20225264 976	OBC	Squatters	0.30	Agriculture	Yes	<10	Yes	
Hanoti	790/D	851752	20225264 980	OBC	Squatters	0.26	Agriculture	Yes	<10	Yes	
Hanoti	790/F	851756	20225167 822	OBC	Squatters	3.40	Agriculture	Yes	<7	Yes	
Hanoti	790/G	851760			Squatters	3.40	Agriculture	Yes	<10	Yes	
Hanoti		851761	FAMILY DOES NOT LIVE				Agriculture	Yes	<10	Yes	
Hanoti	1052/A	851728	20225167 821	OBC	Squatters	3.54	Agriculture	Yes	<10	Yes	
Hanoti	1052/B	851729	20225170 818	General	Squatters	1.12	Agriculture	Yes	<10	Yes	
Hanoti	1052/D	851731	20225167 800	General	Squatters	1.84	Agriculture	Yes	<15	Yes	
Hanoti		851730	20225168 820		Squatters	4.90	Agriculture	Yes	<10	Yes	
Hanoti	1052/E	851733	HH SURVEY REFUSED		Squatters	2.80	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Hanoti	947/D	851727	20225167812	OBC	Squatters	1.25	Agriculture	Yes	<10	Yes	
Hanoti	947/B	851722	Not available for HH survey		Squatters	1.25	Agriculture	Yes	<10	Yes	
Bijnakhedi	229	750696	20215070539	SC	Squatters	0.67	Agriculture	Yes	<10	Yes	
Bijnakhedi	230	750697	20215068552	SC	Squatters	1.40	Agriculture	Yes	<15	Yes	
Bijnakhedi		750698	20215067556	SC	Squatters		Agriculture	Yes	<10	Yes	
Bijnakhedi	104	750699	20215067570	OBC	Squatters	1.50	Agriculture	Yes	<10	Yes	
Bijnakhedi	65/B	750342	20215067528	OBC	Squatters	1.00	Agriculture	Yes	<7	Yes	
Bijnakhedi	62, 63	750337	20215064633	OBC	Squatters	2.50	Agriculture	Yes	<10	Yes	
Bijnakhedi		750338	20215064635		Squatters			Yes	<10	Yes	
Bijnakhedi	60, 61/A	750335	20215069655		Squatters	1.06	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Bijnakhedi	61/B	750336	20215070536	SC	Squatters	0.40	Agriculture	Yes	<15	Yes	
Bijnakhedi	32/A, 66	750329	HH SURVEY REFUSED		Squatters	1.20	Agriculture	Yes	<10	Yes	
Bijnakhedi	69/E	750348	HH SURVEY REFUSED		Squatters	0.30	Agriculture	Yes	<10	Yes	
Bijnakhedi	69/D	750347	HH SURVEY REFUSED		Squatters	0.30	Agriculture	Yes	<10	Yes	
Bijnakhedi	69/B	750345	HH SURVEY REFUSED		Squatters	0.30	Agriculture	Yes	<10	Yes	
Bijnakhedi	69/C	750346	HH SURVEY REFUSED		Squatters	0.30	Agriculture	Yes	<10	Yes	
Bijnakhedi	32/B	750330	HH SURVEY REFUSED		Squatters	0.40	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Bijnakhedi	69/A	750343	HH SURVEY REFUSED		Squatters	0.30	Agriculture	Yes	<10	Yes	
Bijnakhedi		750344	HH SURVEY REFUSED					Yes	<10	Yes	
Bijnakhedi	19	750667	20215067555	OBC	Squatters	0.86	Agriculture	Yes	<15	Yes	
Bijnakhedi	48	750669	20215070550		Squatters	0.30	Agriculture	Yes	<10	Yes	
Bijnakhedi	20/B	750671	20215068549	OBC	Squatters	0.36	Agriculture	Yes	<15	Yes	
Bijnakhedi	20/D	750673	20215067555	OBC	Squatters	1.34	Agriculture	Yes	<10	Yes	
Bijnakhedi		750674	Not available for HH survey		Squatters	1.34	Agriculture	Yes	<7	Yes	
Bijnakhedi	20/E	750675	NA		Squatters	0.60	Agriculture	Yes	<10	Yes	
Bijnakhedi	20/H	750676	20215067565	SC	Squatters	0.42	Agriculture	Yes	<15	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Bijnakhedi		750677	Not available for HH survey					Yes	<10	Yes	
Bijnakhedi	20/K	750683	20215067569	SC	Squatters	0.02	Agriculture	Yes	<10	Yes	
Bijnakhedi	18	750684	20215068549	OBC	Squatters	2.04	Agriculture	Yes	<10	Yes	
Bijnakhedi	103/B, 103/C	750691	Not available for HH survey		Squatters	1.60	Agriculture	Yes	<15	Yes	
Bijnakhedi	18	750694	20215068564	OBC	Squatters	2.80	Agriculture	Yes	<10	Yes	
Lalpura	595/B	853382	20225365834	OBC	Squatters	0.16	Agriculture	Yes	<10	Yes	
Lalpura	608/C	853377	20225380830	OBC	Squatters	0.25	Agriculture	Yes	<10	Yes	
Lalpura	608/D	853378	20225368831	SC	Squatters	0.17	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Lalpura	608/E	853379	20225370829	OBC	Squatters	0.35	Agriculture	Yes	<10	Yes	
Lalpura	608/F	853380	20225380832	OBC	Squatters	0.14	Agriculture	Yes	<10	Yes	
Lalpura	613	853364	HH SURVEY REFUSED		Squatters	0.52	Agriculture	Yes	<10	Yes	
Lalpura	611/A	853372	HH SURVEY REFUSED		Squatters	0.73	Agriculture	Yes	<10	Yes	
Lalpura	331/B, 605	853383	20225382900	OBC	Squatters	0.75	Agriculture	Yes	<15	Yes	
Lalpura	331/A, 590	853374	20225382991	OBC	Squatters	0.40	Agriculture	Yes	<10	Yes	
Lalpura	612	853365	20225367838	OBC	Squatters	0.46	Agriculture	Yes	<10	Yes	
Lalpura	327	853381	20225382828	OBC	Squatters	0.37	Agriculture	Yes	<10	Yes	
Lalpura	331/C	853384	20225380832	OBC	Squatters	0.25	Agriculture	Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Lalpura	595/A	853385	20225365833	OBC	Squatters	0.17	Agriculture	Yes	<10	Yes	
Lalpura	608/A	853375	HH SURVEY REFUSED		Squatters	0.13	Agriculture	Yes	<10	Yes	
Lalpura	611/D	853368	20225367836	OBC	Squatters	0.20	Agriculture	Yes	<10	Yes	
Lalpura	611/C	853369	20225368835	OBC	Squatters	0.40	Agriculture	Yes	<10	Yes	
Lalpura	611/B	853370	20225370826	OBC	Squatters	0.55	Agriculture	Yes	<15	Yes	
Lalpura		853371						Yes	<15	Yes	
Lalpura	608/B	853376	2022538828		Squatters	0.25	Agriculture	Yes	<15	Yes	
Chauma	527/B	747582	20214769905		Squatters	2.90	Agriculture	Yes	<10	Yes	
Chauma	527/C	747583	20214769456	SC	Squatters	0.88	Agriculture	Yes	<10	Yes	
Chauma		747584						Yes	<10	Yes	

Name of Village	Khasra No.	PAE Number	PAH Number	Caste	Encroacher/ Squatter	Area Encroached / Squatted (ha.)	Nature of Dependence (Agriculture/ Grazing/firewood etc.)	Dependence on land for primary livelihood (Yes/No)	Years of Land Use	Any other Land Available	Assessment of Vulnerability
Chauma	527/D	747586	20214769406	SC	Squatters	1.08	Agriculture	Yes	<10	Yes	
Chauma	527/E	747587			Squatters	1.40	Agriculture	Yes	<10	Yes	
Chauma		747588	20214767478	SC				Yes	<15	Yes	
Chauma	527/F	747589	20214764455	ST	Squatters	0.80	Agriculture	Yes	<10	Yes	
Chauma		747590						Yes	<10	Yes	
Chauma	527/G	747592	20214765429	OBC	Squatters	0.92	Agriculture	Yes	<15	Yes	
Chauma	542/B	747596	20214769430	OBC	Squatters	1.00	Agriculture	Yes	<10	Yes	
Chauma		747597	20214769431	OBC			Agriculture	Yes	<10	Yes	
Chauma	523	747598	20214764402	SC	Squatters	1.16	Agriculture	Yes	<10	Yes	
Chauma		747599						Yes	<15	Yes	

APPENDIX D PROFILE OF RESIDENTIAL STRUCTURES WITHIN SHAJAPUR SOLAR PARK

SUMMARY PROFILE OF RESIDENTIAL STRUCTURES IN AGAR SOLAR PARK

The tables below provides the details on PAE wise use of the residential structures that will be directly impacted due to the land procurement for the project footprint, or can be potentially displaced (induced due to proximity to the project boundary) based on the field assessments undertaken as part of the resettlement surveys.

Table D7. Impacted Residential Structures

S. No	Unit	Village	Khasra No.	Direct/ Induced Displacement	Ownership Status of Land	PAH ID	PAE ID	Area of Structure	Description of Structure	Vulnerability Status of PAH	Approx Value of Structure
1.	Unit 7	Parsula	942/A	Direct Displacement	Government – AwasPatta	20214364183	743171	36	RCC	BPL Ration Card	385992
2.		Parsula	939/A	Direct Displacement	Government – AwasPatta			49	RBC		420322
3.		Parsula	939/B	Direct Displacement	Government – AwasPatta	20214364175	743174	60	Tin shade		437460
4.		Parsula	939/C	Direct Displacement	Government – AwasPatta	20214369176	743175	70	Tin shade		510370
5.		Parsula	942/B	Direct Displacement	Government – AwasPatta	NOT ANL	743172	24.75	Tin shade		180452.25
6.		Burlay	861	Direct Displacement	Private Land Owner	20214969609	649351	23.8	RCC		255183.6
7.		Chauma	519-3	Direct Displacement	Private Land Owner	20214769416	747649	29.11	Kutcha	BPL Ration Card	199752.82
8.		Dhatrawada	83	Direct Displacement	Land owner encroachment on government land	20214864477	648629	70	RBC	BPL Ration Card	600460
9.		Dhatrawada	6	Direct Displacement	Private Land Owner	20214865474	748709	23.46	Kutcha	BPL Ration Card	160982.52
10.		Surajpur	773/MIN/1	Direct Displacement	Private Land Owner	20225269961	852765	16.65	Kutcha	BPL Ration Card	114252.3
11.		Surajpur	956	Direct Displacement	Private Land Owner	20225264954	852763	10.53	Kutcha		72256.86
12.		Surajpur	956	Direct Displacement	Private Land Owner	20225264950	852748	28.29	Kutcha	BPL Ration Card	194125.98
13.		Hanoti	912	Direct Displacement	Private Land Owner	20225168594	851744	10.53	Kutcha	BPL Ration Card	72256.86
14.		Bijnakhedi	230	Direct Displacement	Squatter on government land	20215068552	750697	99.63	Tin shade	BPL Ration Card	726402.33
15.		Bijnakhedi	30-2	Direct Displacement	Private Land Owner	20215068538	750333	15.51	Kutcha	BPL Ration Card	106429.62
16.		Bijnakhedi	20/H	Direct Displacement	Squatter on government land	20215067565	750676	69.12	Tin shade		503953.92
17.		Bijnakhedi	20/K	Direct Displacement	Squatter on government land	20215067569	750683	35.67	Tin shade	BPL Ration Card	260069.97

S. No	Unit	Village	Khasra No.	Direct/ Induced Displacement	Ownership Status of Land	PAH ID	PAE ID	Area of Structure	Description of Structure	Vulnerability Status of PAH	Approx Value of Structure
18.		Bijnakhedi	21	Direct Displacement	Private Land Owner	20215068559	750702	15.91	Kutcha		109174.42
19.		Bijnakhedi	33/3	Direct Displacement	Private Land Owner	20215068567	750703	47.74	RBC	BPL Ration Card/ Women HoH	409513.72

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