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# SOCIAL IMPACT ASSESSMENT STUDY FOR THE PROPOSED ADDITIONAL LAND ACQUISITION IN DISTRICT SHIMLA AND MANDI FOR SUNNI DAM HYDRO ELECTRICAL PROJECT (382 MW)

Under H.P. Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015

## Draft Report (Volume A: Executive Summary & Main report)

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## Abbreviations

BPL	Below Poverty Line
CA	Chartered Accountant
CHC	Community Health Centre
CPRs	Common Property Resources
CS	Company Secretary
CWC	Central Water Commission
Dept.	Department
EIA	Environmental Impact Assessment
FC	Financial Charges
FRL	Full Reservoir Level
Govt.	Government
GP	Gram Panchayat
GSI	Geological Survey of India
HEP	Hydro Electrical Project
HP Rules 2015	Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015
HPS	Hydro Power Station
HP SIAU	Himachal Pradesh Social Impact Assessment Unit
HR	Human Resources
IDC	Interest During Construction
IPH	Irrigation and Public Health Department
L 2	Level 2 Health Facility
L 3	Level 3 Health Facility
LADF	Local Area Development Fund
LHEP	Luhri Dam Hydro Electrical Project
NGO	Non-Governmental Organization
NHM	National Health Mission
OBC	Other Backward Classes
PAFs	Project Affected Families
PAPs	Project Affected People
PDFs	Project Displaced Families
PHC	Primary Health Centre
PMAY	Pradhan Mantri Awas Yojana
PWD	Public Works Department
RTFCTLARR Act 2013	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013
R&R	Rehabilitation and Resettlement
SC	Scheduled Castes

SHEP	Sunni Dam Hydro Electrical Project
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
SJVN	Satluj Jal Vidyut Nigam
ST	Scheduled Tribes
TRT	Tail Race Tunnel

## Glossary

- ❖ **Act** means: The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013( 2013).
- ❖ **Administrator** means an Officer appointed for the purpose of rehabilitation and resettlement of affected families under sub-section (1) of Section 43 of the Act.
- ❖ **Affected Area** means such area as may be notified by the appropriate government for the purposes of land acquisition.
- ❖ **Affected Family includes:**
  - i. A family whose land or other immovable property has been acquired.
  - ii. A family which does not own any land but member(s) of such family may be agricultural labourers, tenants including any form of tenancy or holding of usufruct right, share-croppers or artisans or who may be working in the affected area, for three years, prior to acquisition of the land, whose primary source of livelihood stand affected by the acquisition of land.
  - iii. The scheduled tribes and other traditional forest dwellers who have lost any of their forest rights recognized under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) due to the acquisition of land.
  - iv. Family whose primary source of livelihood for three years prior to the acquisition of the land is dependent on forests or water bodies and includes gatherers of forest produce, hunters, fisher folk and boatmen and such livelihoods is affected due to acquisition of land.
  - v. A member of the family who has been assigned land by the State Government or the Central Government under any of its schemes and such land is under acquisition.
  - vi. A family residing on any land in the urban areas for preceding three years or more prior to the acquisition of the land or whose primary source of livelihood for three years prior to the acquisition of the land is affected by the acquisition of such land.
- ❖ **Agricultural Land** means land used for the purpose of:
  - i. Agriculture or horticulture.
  - ii. Dairy farming, poultry farming, pisciculture, sericulture, seed farming breeding

of livestock or nursery growing medicinal herbs.

- iii. Raising of crops, trees, grass or garden produce; and
- iv. Land used for the grazing of cattle.

- ❖ **Below poverty line or BPL Family** refers to families falling below the poverty line as defined by the Planning Commission of India, from time to time, as well as those included in the BPL list of Himachal Pradesh.
- ❖ **Central Government** refers to Government of India.
- ❖ **Collector** means the collector of a revenue district, and includes a deputy commissioner and any officer especially designated by the appropriate Government to perform the functions of a collector under the Act 2013.
- ❖ **Commissioner** means the commissioner for Rehabilitation and Resettlement appointed under sub-section (1) of section 44 of the Act 2013.
- ❖ **Compensation** refers to the amount to be paid as compensation under various provisions of the Act 2013, for private property, structures and other assets acquired for the project, including rehabilitation and resettlement entitlements.
- ❖ **Cost of acquisition** includes:
  - (i) Amount of compensation, which includes solatium, any enhanced compensation ordered by the -Land Acquisition and Rehabilitation & Resettlement Authority or the Court and interest payable thereon and any other amount determined as payable to the affected families by such authority or court.
  - (ii) Demurrage to be paid for damages cost to the land and standing crops in the process of acquisition.
  - (iii) Cost of acquisition of land and building for settlement of displaced or adversely affected families.
  - (iv) Cost of development of infrastructure and amenities at the resettlement areas.
  - (v) Cost of Rehabilitation and Resettlement as determined in accordance with the provisions of the Act 2013.
  - (vi) Administrative cost:
    - A. For acquisition of land, including both in the project site and out of project area lands, not exceeding such percentage of the cost of compensation as may be specified by the appropriate Government.

- B. For rehabilitation and resettlement of the owners of the land and other affected families whose land has been acquired or proposed to be acquired or other families affected by such acquisition.
- (vii) Cost of undertaking the Social Impact Assessment study.
- ❖ **Displaced Family** means any family, who on account of acquisition of land has to be relocated and resettled from the affected area to the resettlement area.
  - ❖ **Family** includes a person, his or her spouse, minor children, minor brothers and minor sisters dependent on him:  
Provided that widows, divorcees and women deserted by families shall be considered as separate families.
  - ❖ **Land** includes benefits to arise out of land, and things attached to the earth or permanently fastened to anything attached to the earth.
  - ❖ **Land acquisition** means acquisition of land under The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
  - ❖ **Landless** means such person or class of persons who may be: Considered or specified as such under any state law for the time being in force; or In a case of landless not being specified under clause (i), as may be specified by the appropriate Government;
  - ❖ **Land owner** includes any person-
    - (i) Whose name is recorded as the owner of the land or building or part thereof, in the records of the authority concerned; or
    - (ii) Any person who is granted forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) or under any other law for the time being in force; or
    - (iii) Who is entitled to be granted Patta rights on the land under any law of the State including assigned lands; or
    - (iv) Any person who has been declared as such by an order of the court or authority;
  - ❖ **Marginal farmer** means a cultivator with an un-irrigated land holding up to one hectare or irrigated land holding up to one-half hectare.

- ❖ **Market value** means the value of land determined in accordance with Section 26 of the Act 2013.
- ❖ **Notification** means a notification published in the Gazette of India or, as the case may be, the Gazette of a state and the expression “notify” shall be construed accordingly.
- ❖ **Project** means the Sunni Dam Hydro Electrical Project (382MW).
- ❖ **Public purpose** means the activities specified under sub-section (1) of Section 2 of the Act 2013.
- ❖ **Rehabilitation and Resettlement (R & R) means** carrying out rehabilitation and resettlement as per RFCTLARR Act 2013.
- ❖ **Requiring Body** here means Satluj Jal Vidyut Nigam (SJVN) Limited.
- ❖ **Scheduled Areas** means the scheduled areas as defined in section 2 of the provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 (40 of 1996).
- ❖ **Small farmer** means a cultivator with an un-irrigated land holding up to two hectares or with an irrigated land holding up to one hectare, but more than the holding of a marginal farmer.
- ❖ **Social Impact Assessment** means an assessment made under subsection(1) of Section 4 of the Act.
- ❖ **Social Impact Management Plan** means the plan prepared as part of Social Impact Assessment Process under sub-section (1) of Section 4 of the Act.
- ❖ **State Government or “Government”** means the Government of Himachal Pradesh
- ❖ **Tenants** are those persons having bonafide tenancy agreements for three years prior to the acquisition of the land, with a property owner with clear property titles, to occupy a structure or land for residence, business or other purposes.
- ❖ **Vulnerable groups** include persons such as differently abled, widows, and women

headed household, persons above sixty years of age, Scheduled Caste and Scheduled Tribes and other groups as may be specified by the State Government.

- ❖ **Women Headed Household** means a family headed by a woman and does not have a male earning member. This woman may be a widow, separated or deserted woman.



# Executive Summary

## Project and Public Purpose

The Sunni Dam Hydro-Electrical Project, also known as Luhri Stage-III, is an initiative to harness the abundant hydropower potential of the Satluj River. This project is designed as a 382 MW run-of-river scheme and is a crucial component of the broader Luhri Hydro-Electric Project (HEP) multi-stage development.

Situated between the Rampur and Kol Dam Hydro-electric projects, the Sunni Dam project aims to tap the renewable energy resources of the Satluj River effectively. It envisions generation of approximately 1,369 million units (MU) of electric energy in a year with a 90% dependable capacity.

The project plan entails construction of a substantial concrete gravity dam, with a height of approximately 71 meters above the riverbed, spanning across the Satluj River. Additionally, an underground power house will be established on the right bank of the river.

Himachal Pradesh is renowned for its significant hydroelectric power potential, primarily sourced from its five major rivers. To facilitate the construction of this vital project, the Government of Himachal Pradesh intends to acquire additional land spanning approximately 9-10-99 hectares. This land acquisition will encompass 12 villages, including Lunsu, Mungna, Jaishi, and Bharara in the Sunni Tehsil of Shimla District, as well as Majhrog in the Kumarsain Tehsil of Shimla District. Furthermore, it will include Beludhak, Bhaunra, Fafan, Jakleen, Kharyali, Magan, and Parlog villages situated in the Karsog Tehsil of Mandi District.

In Himachal Pradesh, the approach towards harnessing hydroelectric power is centered on maximizing energy production while minimizing both costs and detrimental environmental impacts. This strategy not only contributes to the state's economic well-being but also aligns with broader developmental objectives.

The rapid development of hydroelectric power potential promises to significantly bolster the state's financial health. This is due to the allocation of 12 percent of free power, coupled with an additional 1.5% contribution to the Local Area Development Fund (LADF) from the project's total cost. These financial gains will notably augment the state's resources. Moreover, a percentage of free power generated will be directed towards benefiting the residents of the 12 affected villages through the Local Area Development Allocation (LADA) for the entire lifespan of the project. Additionally, for a decade following the commencement of electricity generation, project-affected families will receive the equivalent of 100 units of free electricity as a cash benefit. Furthermore, provision has been made to compensate farmers at market rates for any damage to standing crops during the acquisition process.

The necessity for the project arises from the increasing demand for electricity and the burgeoning energy deficit within the Northern Region. In accordance with Section 2, sub-section 1(b) of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act, 2013, the Sunni Dam Hydro-Electrical Project, generating 382 MW, unequivocally falls under the category of infrastructure projects, specifically in the realm of energy generation, serving a public purpose.

In Himachal Pradesh, approach for harnessing hydroelectric power is guided by a commitment to maximize energy production while minimizing both cost and any adverse impacts on the environment. This strategy not only aligns with our environmental stewardship but also promises to bolster the economic vitality of our state significantly.

The swift and effective utilization of hydroelectric power potential stands to enhance the state's economic well-being. This is due to the allocation of 12 percent of the generated power for public use, along with a supplementary 1.5% contribution to the Local Area Development Fund (LADF) based on the project's cost. These financial resources hold the potential to significantly augment the state's overall prosperity. Additionally, 1% of the power generated, derived from the project's revenue, will be distributed among the residents of the 20 affected villages through the Local Area Development Allocation (LADA) throughout the project's lifespan. Moreover, for a decade following the initiation of electricity generation, project-affected families will receive the equivalent of 100 units of free electricity as a cash benefit. Furthermore, provision has been made to compensate farmers at market rates for any damage to standing crops during the possession phase.

As per Section 2 sub-section 1(b) of the RTFCTLARR Act, 2013 the Sunni Dam Hydro-Electrical Project (382 MW) is well justified under the definition of infrastructure projects (energy generation) for public purpose.

## **Location**

Proposed project is located on Satluj river basin in Himachal Pradesh with District Shimla falling on its left Bank and District Mandi on its right bank.

The dam is located near Khaira Village (District Shimla) at Longitude 77°12'39" E and Latitude 31°14'53" N.

## **Size and attribute of land acquisition**

The additional land required for this project is 9-10-99 hact. which falls under Lunsu, Mungna, Jaishi, Bharara Tehsil Sunni Distt. Shimla , Majhrog Teshil Kumarsain Distt. Shimla, and Beludhak, Bhaunra, Fafan, Jakleen, Kharyali, Magan and Parlog villages of tehsil karsog Mandi district.

Initially, total land requirement for the Project was considered 442.2054 hectare. Now an additional private land measuring 9-10-99 hectare is big acquired covering a total of 12 villages falling in 7 Gram Panchayats under two districts namely Shimla and Mandi, three sub-divisions namely Kotgarh/Kumarsain, Karsog and Shimla and three tehsils namely Sunni, Kumarsain and Karsog. Now an additional land is required for this project for the purpose of Muck Dumping and Dam pondage.

Out of the total 496 title holders of the land being acquired, No PAPs is getting landless. Most of the PAPs have additional land (other than the Khasra being acquired) either in the same panchayat or in some other panchayat. No titleholders are losing their houses in present acquisition.

Further information on land being acquired and PAPs have been discussed in detail under chapter 3 and 4.

### **Alternatives considered**

The Sunni Dam hydro electrical project is part of The Luhri Project which contemplates construction of three dams in three stages viz. Luhri Hydro-Electric Project Stage-I (210 MW), Luhri Hydro Electric Project Stage-II (172 MW) and Sunni Dam Hydro-Electrical Project (382 MW).

On the downstream of Sunni Dam HEP lies the 800 MW Kol Dam HEP. On the upstream of the Luhri project lies the 412 MW Rampur HEP which in-turn utilizes water discharged from the further upstream 1500 MW Nathpa-Jhakri project.

Conclusively, there are currently 6 HEPs commissioned consecutively on the Satluj river between Nathpa-Jhakri and Kol Dam over a stretch of approximately 250 km. Since the Sunni Dam HEP is part of the Luhri project and lies between the Kol Dam and Luhri Stage-II HEP, therefore, leaving limited scope for any alternative location for the project. However, alternatives regarding the Layout of the project was studied in detail to finalize the best location for Dam and power house with minimal displacement and also keeping in mind the engineering parameters.

The following alternatives studies were carried out to explore the selection of Project layout:

- **Alternative 1:** Dam and surface toe Power House at left bank.
- **Alternative 2:** Dam and underground Power house with 2D cover to Power House at right bank.
- **Alternative 3:** Dam and surface toe power house at right bank.
- **Alternative 4:** Dam and underground Power House with 4D cover to Power House at right bank.

After carefully studying each alternative finally Alternative-4 with temporary diversion tunnel has finally been selected. The details of alternatives that were studied can be found under ***section 1.4: examination of alternatives***

## **Social Impacts**

Acquisition of land proposed for the project will have a direct and indirect bearing on livelihood, employment, income, production, health, well-being and quality of life of the community, socio-cultural systems and environment.

There is a general optimism for the upcoming Sunni HEP project in the area. The study found that 90% of the primary stakeholders are willing to surrender their land for acquisition provided appropriate compensation is paid and only 10% resisted the acquisition process. During the FGDs with Panchayats, the villagers and secondary stakeholders were also found to have a very positive opinion towards the project as it would bring an overall development to the entire area in terms of infrastructure development (both Social and Physical) and increase in employment and business opportunities. Also, they anticipated the increase in land prices of the area which would be a beneficial factor for them.

However, they were also apprehensive about the negative impacts that may arise from the project if not properly mitigated. There were concerns regarding the rise in disputes among stakeholders for receiving the compensation and that the vulnerable groups may be left out or be cheated. Another possible impact is that on receiving the compensation amount, there would be a change in the financial condition of the PAFs which in turn would alter their purchasing capacity and would also increase the risk of fund miss-management as many of the landowners are not properly educated, especially regarding financial management. The project area may also experience rise in cases of frauds and cheats once the compensation amount is distributed. There are also chances of changes in cultural practices and traditions because of changes in the spending pattern. There is also apprehension among the villages that if dumping sites are not managed scientifically, these may pose threat of floods and landslides which may ultimately result in damaging the villagers land and property.

A total of 3 Gharat in Beludhank, Jaishi and Bharara villages and Kuhals in different villages are being affected due to proposed land acquisition. No other public assets will be affected.

During the construction phase of the project, the stakeholders had a positive outlook towards the project as it would generate good direct and indirect employment and business opportunities for them. Due to in migration they would witness increased consumption of goods which would benefit the local economy. However, they also showed concerns regarding in-migration of labour

for the project as it would raise the pressure on existing infrastructure like health facilities, educational facilities, roads etc. There may be chances of rise in conflicts among the locals and the in-migrants and the stakeholders also opined that there are chances in rise in crime rates and anti-social activities in the area because of migration. The area may also witness cultural mixing. Further, there would also be problem of traffic, air and noise pollution because of the heavy transport vehicles, material transport and construction. The area may also witness rise in health problems due to increased pollution levels.

During the post construction phase, the stakeholders opined that the area may witness reduced pollution and better living environment. Due to funds like LADA the area would also witness further development. A cultural stability may also be witnessed during this stage. However, they also highlighted some negative impacts which may arise during this phase such as, due to drop in construction activities there would be less employment and business opportunities for locals and may also lead to unemployment to the temporary work force involved in the project.

The area may witness sudden fall in local economy and low consumption of goods and services due to out migration of the temporary workers involved in construction stage. Consequently, people may face difficulty in maintaining the living standards set forth due to the increased income level during construction phase.

## **Mitigation measures**

To cope up with the possible challenges and difficulties, the following mitigation measures have been proposed:

### ➤ **Social Measure**

1. If there is any dispute between the stakeholders, then this dispute should be resolved first and make sure that the compensation is given to the legal owner.
2. Provide fund for Construction/ upgradation of temples of local deities in the villages.
3. Construction of Community halls in all villages and Panchayats of the project area
4. Construction, repair and up gradation of building/structures used as Mahila Mandal, Yuvak Mandal Gram Panchayat Offices.
5. Efforts should be made for the upliftment of women and marginal sections like Backward Classes categories by ensuring their participation in decision making and enhancing their traditional skills and by developing new skills
6. Job should be provided as per the provisions of the RFCTLARR 2013.
7. Promotion of sports through construction of sports complexes and provide training to youth
8. Assistance/ Loan from other ongoing development scheme

### ➤ Environmental Measures

**I) Afforestation and plantation** in the project area

**II) Measures for reducing noise pollution and vehicular traffic**

Noise pollution and traffic may be minimized by:

- a) Defining specific hours of the day for entry of heavy transport vehicles.
- b) Regulating the number of heavy vehicles that can enter/leave the project site in one day.
- c) Strict instructions to the drivers to minimize the use of horns.
- d) Complete ban on pressure horns on transport vehicles.
- e) Staggered timings of entry and exit of transport vehicles evenly throughout the day in order to avoid unnecessary overload on the roads and traffic situations.
- f) Strict instructions to drivers of heavy vehicles to give regular overtake passes on priority to small vehicles and adhering to speed limits.

**III) Measures suggested to reduce Air Pollution**

Air pollution arising due to dust during transportation, construction, excavation, mining and dumping may be mitigated by affectively covering the construction site, transport vehicles such as trucks, tippers etc. mining & dumping sites. Also, regular water spray throughout the day in the project area will also help in reducing air pollution.

**IV) Measures suggested to reduce Water Pollution, Water borne Diseases and increased humidity.**

- 1) Water pollution may be minimized by strictly assuring that during excavation and mining operations, no dumping occurs near the highest flood zone of the river and all the dumping sites should be developed above the HFL.
- 2) The dumping site should be created away from the river banks in order to avoid the dump entering the river especially during rains and monsoons.
- 3) The storage units of construction material especially sand and aggregate should also be placed away from the river banks.
- 4) The dumping site should have proper drainage arrangements and garland drain should be provided for safe passage of storm water. The garland drain should be properly cascaded to check the erosive velocity to avoid any channel erosion.
- 5) After the exhaust of the dumping capacity of the sites, the dumping site should be developed as public utility site such as parks, parking sites or any other public utility sites.
- 6) The excavated top soil should be stored in separated heaps and should be utilised in rehabilitating / developing the sites.
- 7) Increased humidity due to the reservoir may be minimized by afforestation. However special care should be taken to plant local trees instead of alien decorative trees. Also, only

those varieties of trees should be planted that reduce humidity and help keep surroundings comparatively cooler

#### **V) Measures to reduce Risk of Land Slides Due to increase in Water Levels**

The competent authorities may make sure to build embankment walls/retaining walls etc. at vulnerable locations in order to check the river course and minimize risk to landslides due to increased water levels in the river.

No dumping should be allowed in the catchment drainage lines except the designated sites.

#### **➤ Other Mitigation Measures**

**A) Promotion of Tourism:** The area can be developed as a tourist destination as well as hub for water related activities /sports, rafting, camping etc. Also Ferrying and boat facility may be permitted to increase connectivity between both banks.

**B) Promotion of Fisheries:** The project will provide congenial conditions for development of fisheries. Training can also be imparted in Pisciculture to the interested persons in the affected area along with issuing of fishing license.

**C) Promotion of Animal Husbandry** will be helpful to small and marginal farmers for increasing their income. A milk cooperative can be promoted in the area which will benefit not only the project affected families but also the entire area.

**D) Forming and Strengthening Self-Help Groups (SHGs)** to provide opportunities for women to come together and form SHGs and strengthen the existing ones with proper training and to facilitate them to earn their livelihoods through the credit offered under various schemes. Handicraft, dairy, shawl making, stitching and embroidery etc. can be introduced.

**E) Institutional linkages and skill upgradation for income restoration:** Requiring body can play a proactive role to mobilize affected family members to get some vocational/ skills training opportunities and also support in establishing forward and backward linkages for raw materials, inputs, besides marketing and credit facilities.

**F) Project-based Employment:** Preference to Project-related employment opportunities such as work under the project construction, maintenance, supply and transportation contracts can be given to the affected families.



**G) Local Area Development Committee**

In order to utilize the Local Area Development Fund (LADF) properly in the project area, a Local Area Development Committee (LADC) can be formed comprising various stakeholders such as government departments, members from project affected families, requiring body officials etc.

**H) Revision of Circle rates**

Many of the PAPs and PAFs of the villages falling under present acquisition, feel that the existing circle rates of their land is very low. They have therefore requested to revise and increase the circle rates before the compensation is calculated.

**I) Organizing Awareness Camps & Financial Literacy Camps** for PAPs and PAFs for better financial management.

**Assessment of social costs and benefits**

On analysis, the social costs and benefits of the project at large clearly outweigh the social costs of the project affected families. The compensation provisions to be paid under the RTFCTLARR Act, 2013 keep in mind that the losses and inconvenience caused to the PAPs and PAFs getting affected by the project are generously compensated. The Act not only compensates for the land that is being acquired but also for the Structures and assets attached to it. Further the Act compensates for the standing crops and trees (both fruit and non-fruit bearing). In-case of displacement, the act provides additional compensation as subsistence and transportation allowance for relocation. For loss of livelihood, the act provides to compensate the PAP for re-establishing his livelihood either by providing him alternate employment source or one-time assistance.

During the study it was observed that the project has a general acceptance in the area. In-fact most of the Primary and secondary stakeholders are looking forward for the project to be implemented as it would bring an overall development in the area. Even from the survey 90% of the primary stakeholders are willing to give their consent for the acquisition provided their issues are resolved. The issues have been discussed under social Impacts and mitigation measures. During FGDs the panchayats were also in favour of the project as they were optimistic about the development of their gram panchayats through funds like LADF and CSR.

The people in the affected area are hopeful about the increase in employment opportunities, land price, and increased scope for small and medium business ventures. They are also expecting better road network and drainage facilities, higher frequency and better-quality transportation services, improved infrastructural facilities and the area will become a landmark in the HEP Map of Himachal Pradesh.



On the Macro level, the project compliments the strategy followed by the Govt. of Himachal Pradesh for harnessing of hydroelectric power to produce as much energy as possible with minimum cost and with minimum negative environment impacts. The speedy exploitation of hydro-electric power potential will definitely improve the economic health of the State because 12 percent free power plus 1.5% LADF (Local Area Development Fund) of the project cost, on all new installations will increase the resources of the state to a significant extent. The need for the project also arises from the need, to fulfill a steady increase in peak electricity demand and the growing energy deficit in the Northern Region.<sup>1</sup> Also, 1% free power out of revenue generated will be distributed among the residents of the affected 12 villages under LADA for the entire life span of the project plus 100 units free electricity power in terms of cash will be given to the project affected families for 10 years after electricity generation.

It can therefore be concluded that the project benefits will be extended to the people of the affected area, district and state. If the proposed Mitigation Plan is followed, it will help mitigate the social impacts by minimizing the negative impacts and amplify the positive impacts, thereby over shadowing the adverse social costs.

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<sup>1</sup> (Department of MPP and Power, 2019)

# 1 Detailed Project Description

## 1.1 Project Background

Sunni Dam HEP is a run of river type scheme and a part of multi-stage development of Luhri HEP. The Project was conceived in the year 2008 and was proposed to be constructed in three stages without constructing tunnels by Satluj Jal Vidyut Nigam Ltd. a joint venture of Govt. of Himachal Pradesh and Govt. of India. The project contemplates construction of three dams in three stages viz. Luhri Hydro-electric Project Stage-I (210 MW), Luhri Hydro-



electric Project Stage-II (172 MW) and **Sunni Dam Hydro-Electrical Project (382 MW)**. The project is to harness the hydel potential of Satluj River between Rampur and Kol Dam Hydro-electric projects.<sup>2</sup>

The project is situated near Khaira village in Shimla and Mandi districts of Himachal Pradesh. The Project is proposed to generate 1,369 MU of electric energy in a 90% dependable year. Sunni Dam Hydro Electrical Project was proposed to harness the hydel potential of river Satluj. The project envisages construction of a concrete gravity dam of  $\pm 71$ m high above river bed level across river Satluj near Khaira village and underground power house on the right bank.

### 1.1.1 Inter State/ International Aspects

The project lies in the Satluj basin, which is a part of Indus Basin, and is to be governed by relevant provision of Indus Water Treaty signed between India and Pakistan in 1960. Since Satluj is an Eastern flowing river of Indus Basin hence India has exclusive right over its water sharing. Hence, Inter State/ International aspects stands cleared.<sup>3</sup>

<sup>2</sup> (SJVN, Inception for Detailed Project Report of Sunni HEP (382 MW), 2018)

<sup>3</sup> (SJVN, Inception for Detailed Project Report of Sunni HEP (382 MW), 2018)

## 1.1.2 Developers Background

SJVN is a well-established ISO 9001 and ISO 14001 certified company. It is multi-disciplinary organization and has acquired sufficient expertise for planning and executing Hydro Power Projects. Beginning from a single hydropower project company, SJVN today has a footprint in a Hydroelectric Projects in Himachal Pradesh, Uttarakhand and in the neighboring countries of Nepal and Bhutan.



SJVN Limited, a Mini Ratna, Category-I and Schedule – ‘A’ CPSE under administrative control of Ministry of Power, Govt. of India, was incorporated on May 24, 1988 as a joint venture of the Government of India (GOI) and the Government of Himachal Pradesh (GOHP). SJVN is now a listed Company having shareholders pattern of 62.44 % with Govt. of India, 26.85% with Govt. of Himachal Pradesh and rest of 10.71 % with Public.<sup>4</sup>

### 1.1.2.1 Subsidiaries

- **SJVN Arun -3 Power Development Company Pvt. Ltd. (SAPDC)**—Fully owned subsidiary incorporated in Nepal for implementation of 900 MW Arun-3 Project in Nepal.
- **SJVN Thermal Private Limited**—Fully owned subsidiary incorporated for execution of 1320 MW Buxar Thermal Power Project in Bihar.

### 1.1.2.2 Joint Ventures

- **Cross Border Power Transmission Company Limited (CPTC)**—To construct and maintain 86 km long, 400 kv D/C transmission line from Muzaffarpur Nepal connection point and a bay extension at Muzaffarpur Sub Station.
- **Kholongchhu Hydro Energy Limited**—for execution of 600 MW Kholongchhu Hydro Electric Project in Bhutan. Infrastructure works viz roads and bridges for the project are in progress and bids invited for main civil works.

### 1.1.2.3 Financial Performance

The total Income of the Company for the FY 2022-23 was Rs. 3298.84 Crore and earned profit after Tax of Rs.1363.54 Crore.

#### **SJVN – A Mini Ratna Company**

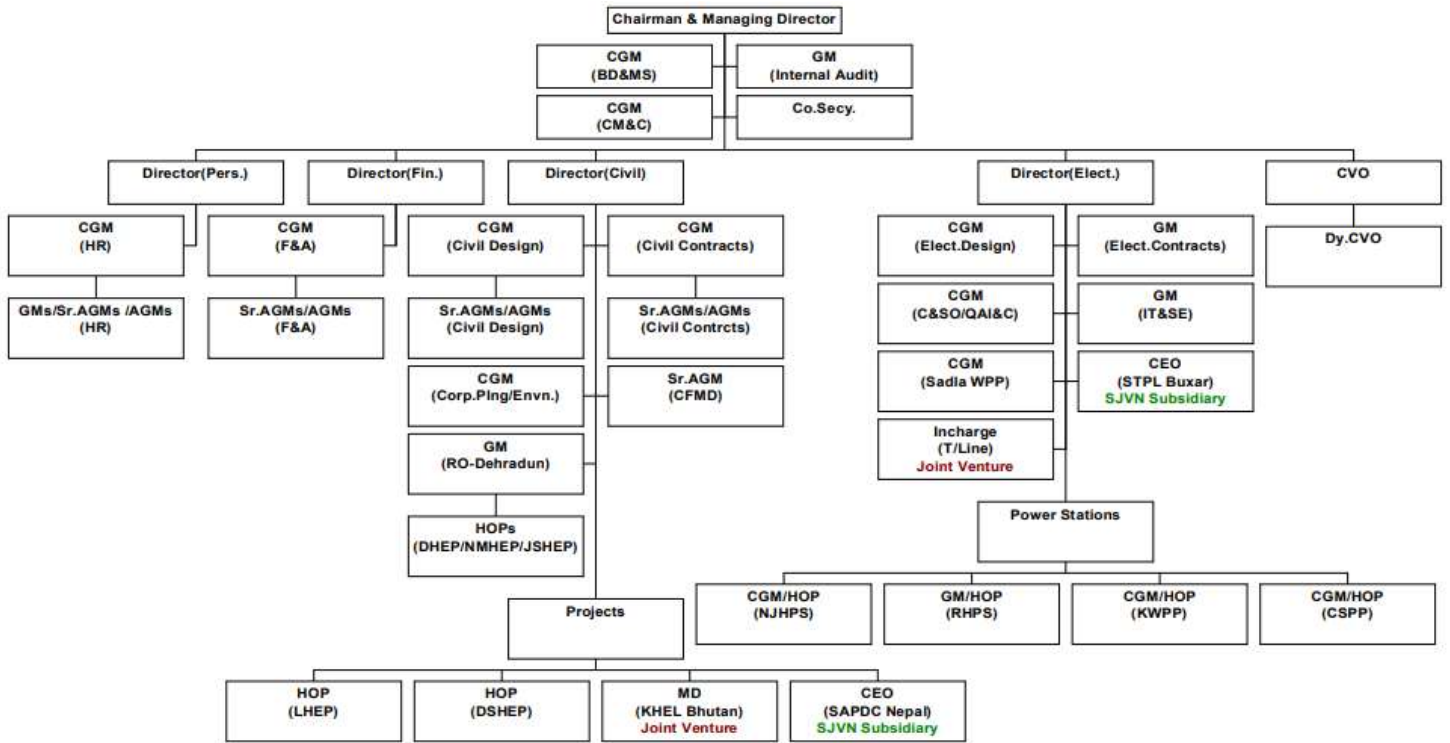
SJVN Limited was conferred with "Mini Ratna: Category-I" status by the Government of India in the year 2008.

#### **SJVN – Schedule 'A' Company**

<sup>4</sup> (Company Profile: SJVN Limited, 2019)

Meeting the criteria laid down by the Department of Public Enterprises, SJVN on qualifying both qualitative and quantitative parameters was upgraded as Schedule 'A' PSU in 2008.

**Figure 1: Organizational Structure-SJVN**



**Note:**

•Projects shall mean Projects in Investigation, Pre-Construction and Construction Stage.

\*Source: SJVN Company Profile.

## 1.2 Project Rationale

Himachal Pradesh is blessed with vast hydroelectric power potential in its five major rivers. The Government of Himachal Pradesh intends to acquire the land at 5 villages of Shimla and 7 villages of Mandi district each for construction of Sunni Dam Hydro Electrical Project (382MW) in order to harness optimal hydel potential river of Satluj. This is run of river type development proposed scheme and SJVN Limited is the implementing agency for the same.

The strategy followed in Himachal Pradesh for exploitation of hydroelectric power is to produce as much energy as possible with minimum cost and with minimum negative environment impacts. The speedy exploitation of hydroelectric power potential will definitely improve the economic health of the State because 12 percent free power plus 1.5% LADF (Local Area Development

Fund) of the project cost, on all new installations will increase the resources of the state to a significant extent. The need for the project also arises from the need, to fulfill a steady increase in peak electricity demand and the growing energy deficit in the Northern Region.<sup>5</sup>

As per Section 2 sub-section1(b) of the RTFCTLARR Act, 2013 the Sunni Dam Hydro-electrical Project (382 MW) is justified well under the definition of infrastructure projects (energy generation) for public purpose.

Therefore, in exercise of powers conferred by rule 3 of the Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015, a social impact assessment study is to be conducted for the land which is being acquired.

## 1.3 Project Details

### 1.3.1 Project Size

The project envisages construction of a concrete gravity dam of  $\pm 71$  m high above river bed level across river Satluj near Khaira village and underground power house on the right bank. Total cost of construction is estimated to be 2911.85 crore. Given below are the details of design, dimension and capacity of various components of the project:

**Table 1-1: Sunni Dam HEP Project Size and Design**

S. No.	Component	Location	Design	Dimensions	Capacity
1.	River Diversion Works	Left side of river valley	Horse shoe shaped	10 m dia, Height: 1. Upstream cofferdam: $\pm 18.80$ m 2. Downstream cofferdam: $\pm 9.20$ m	773 cu.m/sec
2.	Dam		concrete gravity 6 integral gated spillways of 8.5m (W) X 16.0m (H)	Height: $\pm 71$ m Foundation level: $\pm 623$ m The Full Reservoir Level: 712.0 m Minimum Draw Down Level: El.709.50m	15473 cu.m/.sec Gross pondage: 82.5 MCM Live storage: 7.9MCM

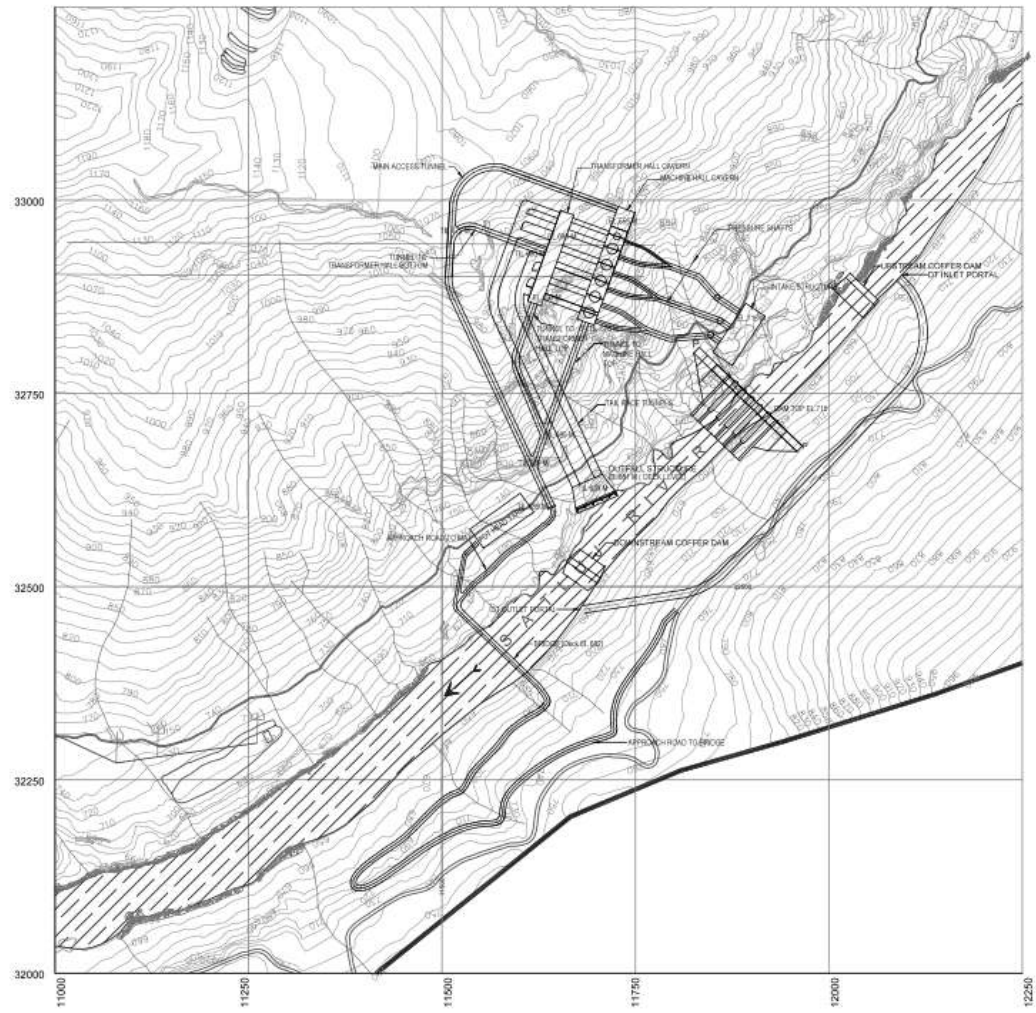
<sup>5</sup> (Department of MPP and Power, 2019)

S. No.	Component	Location	Design	Dimensions	Capacity
				Dam Top Length: 185m Length of dam at top: 178m	
3.	Intake structure	Right bank of river	With trash screens Intake gates with stoplog gates	Centre line of intake at $\pm 696.26\text{m}$	744.07 cu.m/sec Intake-1 and 2: 270.8 cu.m/sec each Intake-3: 171.27 cu.m/sec
4.	Pressure shaft		3 pressure shafts		726.95 cu.m/sec
5.	Power House and Transformer Hall	Underground on right bank of river	The power house cavern is $\pm 220\text{m}$ inside the hill top cover of $\pm 226\text{m}$ . Minimum 50.0 m rock cover between transformer hall and machine hall	Power house: 171.0m (L) x 22.5 m (W) x 50.5 m (H) Transformer hall cavern: 176.0m (L)x17.5m(W)x27m(H)	382 MW (4 x 73 MW – Main Units, 1 x 73 MW+ 1 x 17 MW- Environmental Units)
6.	Tail Race Tunnel and Outfall Structure		Horse shoe shaped	9.0m dia Length of tail race tunnel: $\pm 280.0\text{m}$ Crest level of El 647.2 m	
7.	Access Tunnels		A maximum slope of 1 in 15 and making them as straight as possible for ease of maneuvering large vehicles		
8.	Main Access Tunnel		D-shaped Maximum slope of 1 in 16. An enlarged section will be created at the junction between the tunnel and the machine hall loading and erection bay to form a parking area	8.5m dia, 590 m long	

\*Source: Inception Report for Sunni HEP DPR



# Map 1-1: General Layout Plan, Sunni Dam



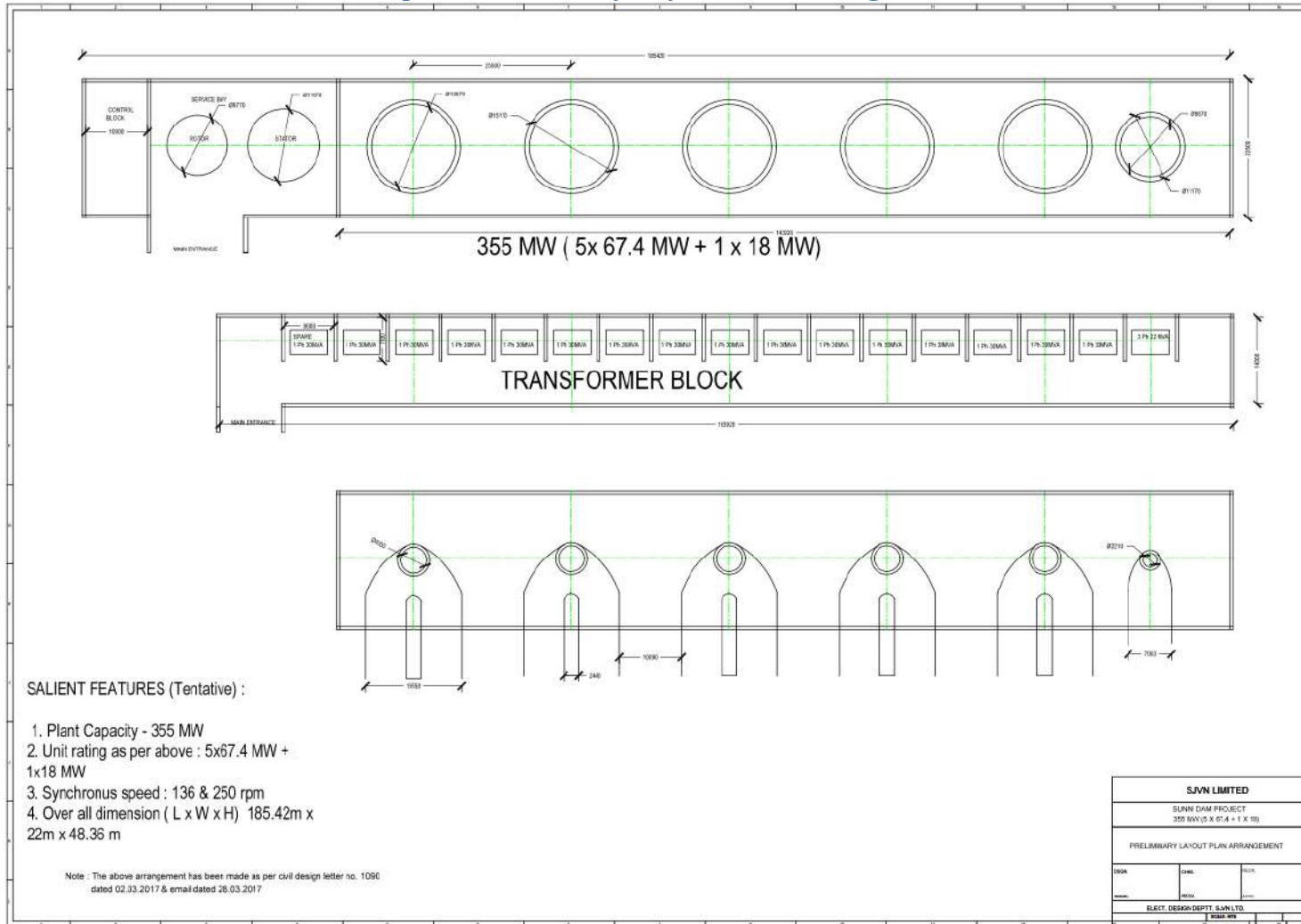
NOTES:  
 1. THE LAYOUT AND NO. OF UNITS ARE TENTATIVE AT THIS STAGE, WHICH WILL BE FINALIZED AFTER FREEZING OF FRL AND HYDROLOGICAL STUDIES.

DAM AXIS CO-ORDINATES (PP)		
POINTS	EASTING	NORTHING
P	11832.294	32809.643
P'	11965.558	32682.158

DAM AXIS CO-ORDINATES (PP)		
POINTS	LONGITUDE	LATITUDE
P	77°12'34"	31°14'57"
P'	77°12'36"	31°14'53"

<b>सुनरीयाम लिमिटेड</b> <b>SJVN LIMITED</b>		
<b>SUNNI DAM (H.P.)</b>		
<b>GENERAL LAYOUT PLAN</b>		
डिजाइन Date:	अनुमोदित Date:	पृष्ठ Page:
ड्राफ्ट	08/11	001
ड्राफ्टिंग		

Map 1-2: Preliminary Layout Plan Arrangement





## 1.3.2 Location

Proposed project is located on Satluj river basin in Himachal Pradesh with District Shimla falling on its left Bank and District Mandi on its right bank.

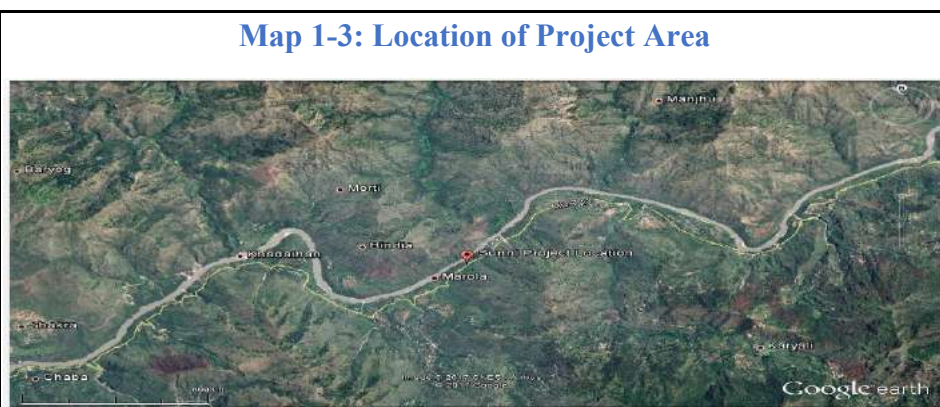
The dam is located near Khaira Village (District Shimla) at Longitude 77°12'39"E and Latitude 31°14'53"N. On the upstream of the project lies the 412 MW Rampur HPS, which utilizes water discharged from the further upstream 1500 MW Nathpa-Jhakri project.

On the downstream of Sunni Dam Hydroelectric project lies the 800 MW Kol Dam HPS (FRL 642 m). In between Rampur HPS and proposed Sunni Dam Project, Luhri HEP Stage-I (nearly 50 km upstream) and Luhri HEP Stage-II (Between LHEP-I & Sunni Dam) are also proposed. <sup>6</sup>

The Following Map provides the location and extent the project. Table 1-2 provides the list of villages falling in Shimla and Mandi District where the Land Acquisition is taking place.

**Table 1-2: List of Project Villages**

S. No	Shima District	Mandi District
1	Lunsu	Parlog
2	Moongna	Beludhak
3	Jaishi	Bhaunra
4	Bharara	Fafan
5	Majhrog	Jakleen
6		Maghan
7		Karyali

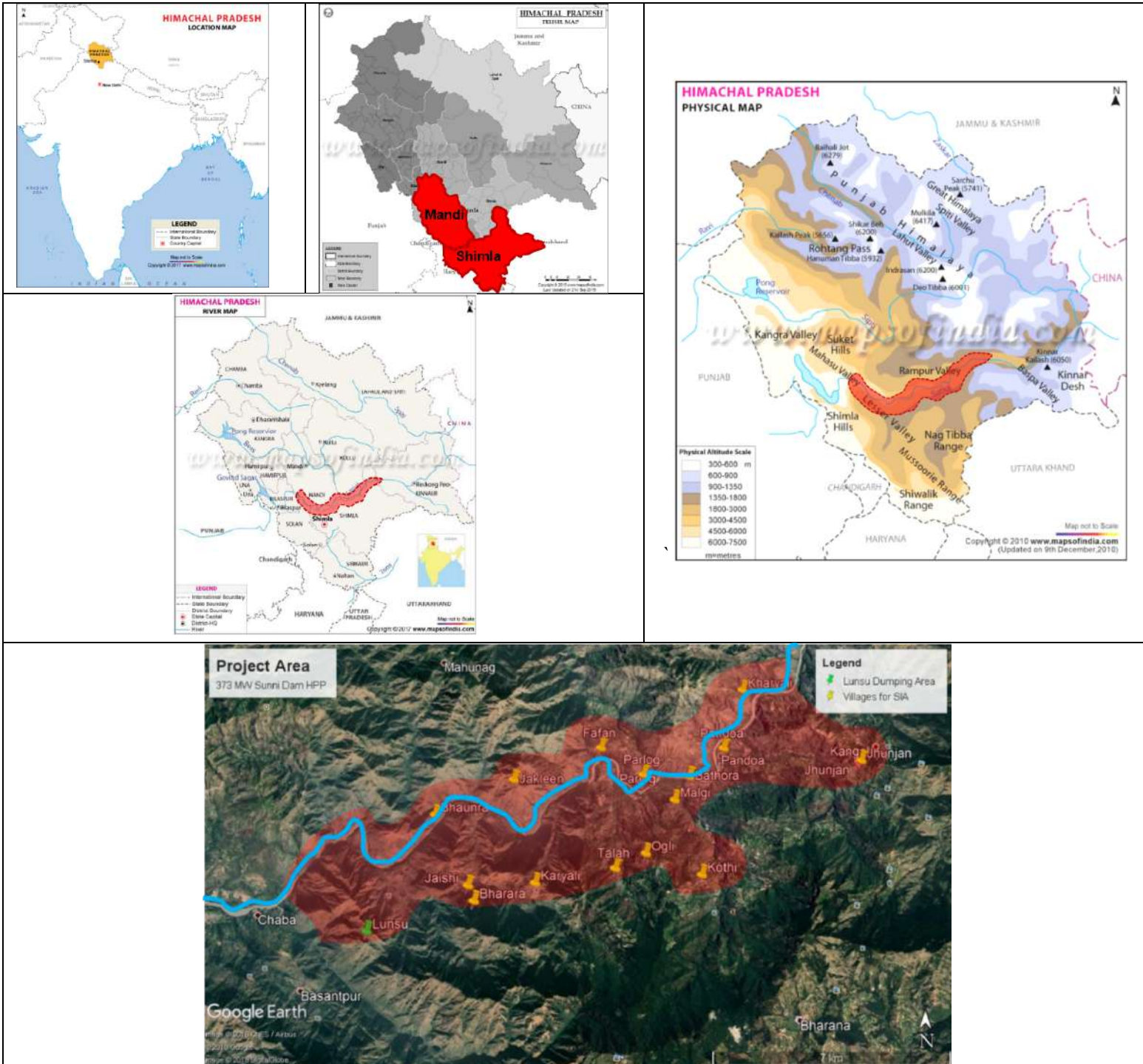


### 1.3.2.1 Access to project area

The project site is located at about 50 km from the state capital Shimla and the nearest railhead (broad gauge) is about 145 km at Kalka in Haryana. The site can be approached by NH-5 followed by SH-13 and MDR- 22 via. Shimla, Naldhera and Chaba. The nearest airport is at Jubbar Hati (Shimla) about 70 km from project site. The nearest international airport is located at Chandigarh at a distance of 160 km from the project site. Nearest village from Dam Site is village Khera in District Shimla and nearest urban area is Sunni at a distance of 30km.

<sup>6</sup> (SJVN, Inception for Detailed Project Report of Sunni HEP (382 MW), 2018)

Map 1-4: Location of Proposed Project Area



### 1.3.2.2 Physiography and Geomorphology:

The project lies in the Inner Lesser Himalaya between the Dhauladhar range in the south and the Higher Himalayan Range in the north. The Satluj River is the main drainage in the catchment area with headwaters located in the highlands of Tibet. Geo-morphologically the area is located in a young mountain chain which is characterized by rapid down cutting valley. Hence, most of the valley slopes are steep and the Satluj River is confined within narrow V-shaped valleys on the higher reaches. In the upstream reaches of the project flat land/terraces can be seen on the both on right & left river banks. The hill ranges in the right bank of Satluj river trend North West-South East and on the left bank North East-South West. The area forms part of the drainage basin of Satluj, which flows in nearly southwest direction. Behnakhad, Kotlu Khad, Gumma Khad and Bahairari Khad are important tributaries of the river Satluj. The drainage in the area exhibits sub-dendritic to trellis pattern controlled both by structure and lithology.<sup>7</sup>

### 1.3.2.3 Seismicity

Himachal Pradesh falls in the Himalayan region, which is one of the more seismically active regions in the world. The Project area lies in the Shimla Block of the Main Himalayan Seismic Zone domain of North West Himalayan seismic belt (Narula et al. (2000) the project falls in Earthquake Zone V in accordance with the Seismic Map of India (IS:1893:1984). It is demarcated by the Main Central Thrust in the north and the Main Boundary Fault/Thrust in the south, and limited in east and west by interpretative fundamental transverse faults. The Kangra Block lies to its west and the Garhwal Block in the east.<sup>8</sup>

## 1.3.3 Capacity and Outputs

Given below in the table is details of total capacity and output of various components of the project:

**Table 1-3: Capacity and Output of Sunni Dam Hydro Electrical Project**

<b>Hydrology</b>	
Catchment Area at Diversion Site	52955 km <sup>2</sup>
90% dependable year	2001-2002
Flood discharge for river diversion	773.00cu.m/se
Probable Maximum Flood (PMF)	15473.00cu.m/se
<b>Reservoir</b>	
Full Reservoir Level (FRL)	EL712.00m

<sup>7</sup> (SJVN, INCEPTION REPORT (Revised), ENVIRONMENTAL CLEARANCE OF SUNNI HEP, 2017)

<sup>8</sup> (SJVN, INCEPTION REPORT (Revised), ENVIRONMENTAL CLEARANCE OF SUNNI HEP, 2017)

Minimum Draw Down Level (MDDL)	EL709.50m
Gross Storage at FRL	82.50X10 <sup>6</sup> cu.
Dead Storage at FRL	64.2X10 <sup>6</sup> cu.m
Live Storage at FRL	7.9X10 <sup>6</sup> cu.m
Length of Reservoir	20.70km (approx.)
Desilting Basin	Reservoir will act as Desilting basin
<b>Dam</b>	
Type of Dam	Concrete Gravity
Top of the Dam	EL 715.00 m
Average River Bed Level at Dam Site	EL 644.00 m
Dam Height above River bed	71.00 m
Length of Dam at Top	178.00m
Top Width of Dam	8.00 m
Length of Overflow Blocks	87.00 m
Length of Non-Overflow Blocks	97.42 m
<b>Spillway</b>	
Design Flood (PMF)	15473.00cu.m/se
Type of Spillway	Combination of Upper Level Spill-way (ULS) and Low Level Spill-way (LLS) (sluice spillway)
Energy Dissipation System	Stilling Basin
<b>Low Level Spill-way (LLS) (Under sluice Spillway)</b>	
Type	Sluice type
No. of Bays	Six (06)
Size of opening	8.5 m (W) X 16.0m
Type & No. of gate	Radial, Six
Width of each block	14.5 m
Total width of LLS Blocks	87.00m
Crest Level	EL 660.00
<b>Upper Level Spill-way (ULS) (Overflow Spillway)</b>	
Type	Ogee with open crest overflow
No of Bays	One (01) (Block No. 7)
Size	5.0m(W)X4.5m(H)
Type and No of gates	Flap Gate, One (01)
Width of each block	14.5 m

Total width of ULS	14.5 m
Crest of ULS	EL 707.00 m
<b>VI) River Diversion</b>	
River Diversion Discharge (1 in 25 years)	773.00cu.m/se
Diversion Scheme	Through Diversion Tunnel (DT) and coffer dams
Location of Diversion Tunnel	Left Bank
No. of Tunnel	One
Diameter and shape of DT	10.0m, Horse Shoe Shape
Length of Tunnel	670m
<b>VII) Power Intake</b>	
Number of Intake	Three (03)
Invert level	EL685.0
Discharge Capacity of Intake 1 and 2 (for Main Units)	277.84cu.m/sec (10%additional capacity)
Discharge Capacity of Intake 3 (for Environment Units)	171.26cu.m/sec (10%additional capacity)
Size of Intake gate	5.7m(W)X8.0m(H)
<b>VIII) Pressure Shaft</b>	
Number of Pressure Shaft	Three (03) further bifurcated into six (06)
Design Discharge for Pressure Shaft-1 and 2 (for Main units)	277.84cu.m/sec
Design Discharge for Pressure Shaft-3 (for Environment units)	171.27cu.m/sec
Diameter of Penstock	7.5 m and 5.4m after bifurcation
Length of Penstock	± 250.0 m
<b>IX) Power House</b>	
Type	Underground
Location	Right Bank
Size of machine Hall	185.42 m (L)
Normal Tail Water Level	EL 651.20 m
Minimum Tail Water Level	EL 647.50 m
Gross Head	59.97m
Rated Head	57.85m



Turbine Type	Francis
No of Unit	Six (06)
Design Discharge	726.95 cu.m/sec
Installed Capacity (Main units)	4*73MW
Installed Capacity (Auxiliary units)	1*73MW + 1*17MW
Total Installed Capacity	382MW
<b>X) Tail Race Tunnel</b>	
Number	Two (02)
Size of Tunnel	10.5m dia & 9.0m dia, Horse Shoe Shaped
Length of Tunnel	280m
<b>XI) Power Generation</b>	
Design Energy (Main Units)	987.84GWh
Design Energy (Auxiliary Units)	393.93GWh
Annual Energy	1381.77GWh
Annual Load Factor (Main Unit)	40.04%
Annual Load Factor (Environment Unit)	51.60 %

\*Source: Inception report for Sunni HEP DPR

### 1.3.4 Project cost and risks

The project is estimated to cost INR 2911.85 Cr. including IDC and financing charges at March, 2017 price level. The Annual energy of the project calculated as 1299 GWh. The breakdown of the cost estimates are given below:

**Table 1-4: Sunni Dam Project Cost**

Total Hard Cost at March'17:	INR 2414.20 Crores
Interest during Construction:	INR 487.46 Crores
Financial Charges	INR 10.19 Crores
Total Basic Cost including IDC and FC:	INR 2911.85 Crores
The tariffs for the project are as below:	
1 <sup>st</sup> year Tariff	INR 5.40/kWh
Levelized Tariff	INR 5.07/kWh

\*Source: Inception report for Sunni HEP DPR

No information was available related to the associated risks for this particular project. However, a few of the risks which can be associated with the project are as follows:

- Agitation and resistance by locals/political parties/community organization during pre-construction, construction and post construction phases of the project.

- b. Risks involved during construction of project esp. dam, tunnels, shafts, bridges, river diversion works etc.
- c. Risks involved during transportation of materials including explosive materials and heavy equipment such as girders, turbines, shafts etc.
- d. Risk of chronic air and water pollution due to construction.
- e. Risk of clashes between locals and outsiders and rise of crime rates in area because of in-migration during construction.
- f. Risk of landslides, Humidity and water borne diseases due to creation of reservoirs and rise of water levels in the river during construction and post construction phases.

## 1.4 Examination of Alternatives

The Sunni Dam hydro electrical project is part of The Luhri Project which contemplates construction of three dams in three stages viz. Luhri Hydro-Electric Project Stage-I (210 MW), Luhri Hydro Electric Project Stage-II (172 MW) and Sunni Dam Hydro-Electrical Project (382 MW).

On the downstream of Sunni Dam HEP lies the 800 MW Kol Dam HEP. On the upstream of the Luhri project lies the 412 MW Rampur HEP which in-turn utilizes water discharged from the further upstream 1500 MW Nathpa-Jhakri project.

Conclusively, there are currently 6 HEPs commissioned consecutively on the Satluj river between Nathpa-Jhakri and Kol Dam over a stretch of approximately 250 km. Since the Sunni Dam HEP is part of the Luhri project and lies between the Kol Dam and Luhri Stage-II HEP, therefore, leaving limited scope for any alternative location for the project. However, alternatives regarding the layout of the project was studied in detail to finalize the best location for Dam and power house with minimal displacement and also keeping in mind the engineering parameters.

These alternatives have been discussed in detail below<sup>9</sup>:

- **Alternative 1:** Dam and surface toe Power House at left bank.
- **Alternative 2:** Dam and underground Power house with 2D cover to Power House at right bank.
- **Alternative 3:** Dam and surface toe power house at right bank.
- **Alternative 4:** Dam and underground Power House with 4D cover to Power House at right bank.

### **Alternative 1: Dam and surface toe Power House at left bank.**

<sup>9</sup> (SJVN, Inception for Detailed Project Report of Sunni HEP (382 MW), 2018)

An option of dam  $\pm 400\text{m}$  downstream of proposed dam axis with surface power house at left bank was studied. Since, the slope of left bank is much gentle in comparison to right bank; a possibility of surface power house on left bank has been studied. It was observed that the power house site encompasses the nalla fans and sufficient space will be available after removal of the nalla material. However, the study of catchment of nallas indicates that there will be potential danger of material flowing in the nalla and coming to the power house site. The power house will always be vulnerable from stability of slopes view point. Further, the sheared contact is lying on the downstream of dam axis with upstream dips when interpreted and projected to dam axis is likely to lie very close to assume foundation of dam. *Therefore, Alternative-1 was rejected.*

**Alternative 2: Dam and underground Power house with 2D cover to Power House at right bank.**

An option of dam at present proposed site with underground Power House having 2D cover at right bank was studied. However, after detailed deliberation with CWC it was concluded that cover is not sufficient. *Therefore, Alternative-2 was rejected.*

**Alternative 3: Dam and surface toe power house at right bank.**

An option of dam at present proposed site along with surface toe power house at right bank was studied. This alternative was also discussed with HCD, CWC and was rejected due to massive slope cutting and excavation work.

**Alternative 4: Dam and underground Power House with 4D cover to Power House at right bank.**

An option of dam at present proposed site with underground Power House having 4D cover was studied. The alternative was discussed with HCD, CWC and after detailed deliberation, this alternative was found to be most suitable. GSI, New Delhi also agreed to this alternative. Further this alternative was also studied with temporary as well as permanent diversion tunnel.

It is observed that, to use diversion tunnel as permanent structure, invert level is to be increased up to EL 660m i.e. upto crest level of spillway, which in turn will increase the height of upstream coffer dam by 6-8m. Further, the construction time will also increase as one more season will be required to construct permanent lined tunnel. *Therefore, Alternative-4 with temporary diversion tunnel has been selected.*

## **1.5 Phases of project construction**

Sunni power project is proposed to be completed in 5 years. Phasing of the project is yet not finalized as the DPR is still under process.



## 1.6 Core Design Features and Size and Type of Facilities

### 1.6.1 River Diversion Works

The diversion tunnel is expected to be constructed on the left side of the river valley. 10.0 m dia, horse shoe shaped diversion tunnel is designed to pass diversion flood up to 773 cu.m/s. The height of upstream cofferdam shall be  $\pm 18.80$  m and the height of downstream coffer dam shall be  $\pm 9.20$  m.

### 1.6.2 Dam

A  $\pm 71$ m high, concrete gravity dam from bed level  $\pm 623$ m, with integral 6 nos. gated spillways having size of 8.5m (W) X 16.0m (H) have been proposed. The spillway has been designed to pass design flood corresponding to Probable Maximum Flood of 15473 cu.m./sec The Full Reservoir Level has been kept at 712.0 m and Minimum Draw Down Level at El. 709.50 m. The dam would provide a gross pondage of 82.5MCM and live storage of 7.9MCM. The length of the dam at top shall be 178m. The proposed dam is divided in 11 blocks as tabulated in Table below:

**Table 1-5: Details of Dam Blocks**

Sl. No.	Description	Total length (m)	No. of blocks	Block no.	Remarks
1.	NOF section on left bank	46	2	1 to 2	Total no. of Blocks = 11
2.	Over flow blocks	87	6	3 to 8	
3.	NOF section on right bank	52	3	9 to 11	

\*Source: Inception report for Sunni HEP DPR

### 1.6.3 Intake Structure

Intake structure is proposed on right bank for diverting the design discharge of 744.07cu.m/sec from the reservoir to the underground power house. The center line of intake shall be at 712.0m to 709.50m. Trash screens will be provided to prevent coarse floating or submerged debris being drawn into the pressure shafts. Trash rack cleaning facilities should be provided. The trash screens are so planned that the passing velocities are below 1.5 m/s as mentioned in IS: 9761-1995- Hydropower Intakes- Criteria for Hydraulic Design.

Discharge from intake-1 and 2 (277.84 cu.m/sec each) shall be utilized for main units and discharge through intake-3 (171.27 cu.m/sec) shall be utilized for environment units.

Intake gates with stoplog gates are provided to enable inspection and maintenance whilst the reservoir is impounded and to prevent heavily sedimented water depositing sediment within the pressure shaft entrance area during extreme floods.

### **1.6.4 Pressure Shaft**

For flexibility of operation and maintenance, 3 nos. pressure shaft have been proposed which shall further bifurcated into six to pass total discharge of 729.95 cu.m/sec.

### **1.6.5 Power House and Transformer Hall**

Underground power house having size of 171.0m(L)x22.5m(W)x50.5m(H) shall be provided on right bank with installed capacity of 382MW (4x73MW– Main Units, 1x73MW+1x17MW - Environmental Units). The power house cavern is proposed  $\pm 220$ m inside the hill with as top cover of  $\pm 226$ m. Further, minimum 50.0 m rock cover is available between transformer hall and machine hall.

### **1.6.6 Tail Race Tunnel and Outfall Structure**

Water exiting from the turbines will be discharged through the draft tubes into the 2 nos., 10.5m dia & 9m horse shoe shaped tail race tunnel. The length of tail race tunnel shall be  $\pm 280.0$ m. The TRT outfall gated structure after TRT has been proposed with crest level of El 647.2 m for discharging water from TRT to Satluj River.

### **1.6.7 Access Tunnels**

The access tunnels to the machine hall and transformer hall have been proposed based on the size of the vehicles and equipment required to be transported through them, a maximum slope of 1 in 15 and making them as straight as possible for ease of maneuvering large vehicles.

### **1.6.8 Main Access Tunnel**

The main access tunnel will be approximately 8.5m dia D-shaped  $\pm 590$ m long with a maximum slope of 1 in 16. It is anticipated that an enlarged section will be created at the junction between the tunnel and the machine hall loading and erection bay to form a parking area.

## **1.7 Need for ancillary infrastructural facilities**

For Sunni HEP, requiring body is still in the process of detailing out the requirement of ancillary facilities, however, following ancillary infrastructural facilities are required in any hydro power project during pre-construction, construction and post-construction period of the project for

smooth and uninterrupted execution as per the guidelines prepared by Central Electricity Authority of India:<sup>10</sup>

1. Access roads
  - (i) Roads to the project
  - (ii) Roads in the project area
2. Rail head (as applicable)
3. Port facilities, (as applicable)
4. Construction power requirement
5. Power supply facilities
6. Telecommunication facilities required during construction and after completion of the project
7. Project colonies / buildings
8. Office spaces
9. Workshops
10. Drinking water facilities
11. Others

## 1.8 Work force requirements

For the execution of the project necessary infrastructure needs to be created like construction of bridges and approach roads, office buildings, colonies, workshops, water supply and sewerage disposal system followed by construction of various project components like diversion tunnel, coffer dam, concrete gravity dam, intake structure and penstocks, power house, tail race channel etc.

As a result, the total estimated permanent/regular employment of 310 persons and a temporary employment of 56,57,500 person-days would be generated.<sup>11</sup>

## 1.9 Details of Environmental Impact Assessment and Technical Feasibility Report

No technical feasibility report for the project was made available.

## 1.10 Applicable legislations and policies

### 1.10.1 Preparation of Social Impact Assessment Study

Section 4 of the RTFCTLARR Act, 2015 mandates that whenever the appropriate government intends to acquire land for a public purpose, it shall consult the concerned Panchayat at village level or ward level, in the affected area and carry out a Social Impact Assessment study in

<sup>10</sup> (Authority, 2015)

<sup>11</sup> (Himachal Pradesh Forest Clearance: Ministry of Environment, Forest and Climate Change, 2019)

consultation with them, in such manner and from such date as may be specified by such Government by notification. (Section 4 of Act)

Rule 3 sub-section (1) of the HP RTFCTLARR Rules, 2015 states that the State Government shall, for the purpose of the Act, issue a notification for carrying out Social Impact Assessment in accordance with Part-B of FORM-I of these rules regarding the commencement of Social Impact Assessment and the same shall be made available in both Hindi and English to the concerned Panchayat or Municipality or Municipal Corporation, as the case may be, and in the concerned offices of the District Collector, the Sub-Divisional Magistrate and the Tehsil. A wide publicity will also be made in the affected area through publication in at least two daily newspapers circulated in the area, and also by affixing the notification at conspicuous places within the affected areas. Besides this, the notification shall also be uploaded on the website of the State Government: (HP RTFCTLARR Rules, 2015)

### **1.10.2 Process of land Acquisition<sup>12</sup>**

- The government shall conduct a Social Impact Assessment (SIA) study, in consultation with the gram sabha in rural areas (and with equivalent bodies in case of urban areas).
- After this, the SIA report shall be evaluated by an expert group. The expert group shall comprise two non-official social scientists, two experts on rehabilitation, and a technical expert on the subject relating to the project.
- The SIA report will be examined further by a committee to ensure that the proposal for land acquisition meets certain specified conditions.
- A preliminary notification indicating the intent to acquire land must be issued within 12 months from the date of evaluation of the SIA Report.
- Subsequently, the government shall conduct a survey to determine the extent of land to be acquired.
- Any objections to this process shall be heard by the Collector. Following this, if the government is satisfied that a particular piece of land must be acquired for public purpose, a declaration to acquire the land is made.
- Once this declaration is published, the government shall acquire the land.
- No transactions shall be permitted for the specified land from the date of the preliminary notification until the process of acquisition is completed

<sup>12</sup> (Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 )

### **1.10.3 The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013<sup>13</sup>**

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, (RTFCTLARR Act, 2013) replaces the Land Acquisition Act, 1894, which existed from colonial times. The new RTFCTLARR Act is an attempt to revamp and make the land acquisition process more effective by addressing the major lacunae in the old Land Acquisition Act.

The act seeks to harmonize the interests of land owners, industrialization/ growth of real estate and infrastructure industries and bring in transparency in the process of land acquisition. The objective of the act is thus in line with the requirements of modern times. The act, inter alia, contains provisions pertaining to mandatory rehabilitation and resettlement of those whose lands are acquired and payment of fair compensation to them. Significantly, the act provides for enhanced compensation to land owners in cases of land acquisition by the government for public purposes or for Public Private Partnership (PPP) projects that may aggregate to up to four times the market value in rural areas and up to twice the market value in urban areas. The Act has been hailed as beneficial and necessary to protect the interest of land holders and other affected persons.

#### **1.10.3.1 Key Features of RTFCTLARR Act**

The Act specifies provisions for land acquisition as well as R&R. Some of the major changes from the current provisions are related to (a) The process of land acquisition; (b) Rights of the people displaced by the acquisition; (c) Method of calculating compensation; and (d) Requirement of R&R for all acquisitions.

#### **1.10.3.2 Compensation to Land Owners:**

The compensation for land acquisition shall be determined as per the provisions of the RTFCTLARR Act, 2013.

#### **1.10.3.3 Process of Rehabilitation and Resettlement**

Resettlement and Rehabilitation are two different activities.

- Resettlement is associated with the physical relocation or putting them to a new resettlement colony.
- Rehabilitation is associated with the restoration of the livelihood of the PAPs. Both these aspects put together involves the complete physical, social and cultural restoration.

The RTFCTLARR Act requires R&R to be undertaken in case of every acquisition. Once the preliminary notification for acquisition is published, an administrator shall be appointed. The Administrator shall conduct a survey and prepare the R&R scheme. This scheme shall then be

<sup>13</sup> (Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 )

discussed in the local bodies in case of urban areas. Any objections to the R&R scheme shall be heard by the administrator. Subsequently, the administrator shall prepare a report and submit it to the Collector. The Collector shall review the scheme and submit it to the Commissioner appointed for R&R. Once the Commissioner approves the R&R scheme, the government shall issue a declaration identifying the areas required for the purpose of R&R. The administrator shall then be responsible for the execution of the scheme. The Commissioner shall supervise the implementation of the scheme.

#### **1.10.4 HP RTFCTLARR Rules 2015<sup>14</sup>**

The Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015 were notified vide Notification of dated 09<sup>th</sup>April,2015 and published in the Rajpatra (e-Gazette), Himachal Pradesh as required under section 112 of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (Act No. 30 of 2013).

They extent to whole of the State of Himachal Pradesh

Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015 based on the Central Act, 2013 lays out the procedure for carrying out the social impact assessment study for the purpose of land acquisition in the State of Himachal Pradesh. The highlights of the rules are (A) Conducting SIA and SIMP in accordance with Form II and III (B) Conducting Public Hearings (C) Consent.

##### **1.10.4.1 (A) Conducting SIA and SIMP**

- i. Form II: The Social Impact Assessment Report shall be submitted to the State Government within a period of six months from the date of its commencement and shall include the views of the affected families recorded in writing. This form elaborates the structure and the content of the SIA report.
- ii. Form III: The Social Impact Management Plan enlists the ameliorative measures required to be undertaken for addressing the impact of the project and shall be submitted along with the Social Impact Assessment Report. This form provides a guideline on the content of the SIMP.
- iii. The Form II and Form III are enclosed with this report in Appendix.

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<sup>14</sup> (The Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015 )

### 1.10.4.2 (B) Conducting Public Hearing -

- i. Public hearings shall be organised in the affected areas to bring out the main findings of the Social Impact Assessment, seeking feedback on the findings and to seek additional information and views for incorporating the same in the final report.
- ii. The date and venue of the public hearing will be announced and publicized three weeks in advance through public notifications and posters in all the villages within a radius of five kilo meters of the land proposed to be acquired, by advertisement in local newspapers, broadcasting in radio, and through direct communication with Gram Panchayat or Municipal Ward representatives besides uploading the information on the website of the State Government.
- iii. The Social Impact Assessment report and the Social Impact Management Plan shall be made available in both Hindi and English to the concerned Panchayat or Municipality or Municipal Corporation, as the case may be, at village level or ward level in the affected areas and in the offices of the District Collector, the Sub- Divisional Magistrate, Tehsildars and shall also be uploaded on the website of the State Government.
- iv. Representatives from the Requiring Body, designated Land Acquisition and Rehabilitation and Resettlement Functionaries, Public representatives, Local Voluntary Organisations and media shall also be invited to attend the public hearings.
- v. The proceedings of the public hearing shall be video recorded and transcribed accordingly. This recording and transcription shall be submitted along with the final Social Impact Assessment Report and Social Impact Management Plan.

### 1.10.4.3 (C) Consent

The State Government, through the concerned District Collector shall obtain prior consent of the affected land owners in Part-A of Form-IV. At the same time State Government shall take necessary steps for updating the records relating to land rights, title in the land and other revenue records in the affected areas, so that the names of land owners, occupants of the land and individuals be identified for initiating the prior consent process and land acquisition.

#### 1.10.4.3.1 a) Consent of the Gram Sabha–

- i. The District Collector shall in consultation with the representatives of the Gram Panchayat notify the date, timing and venue for holding the meeting of Gram Sabha in the affected areas three weeks in advance and conduct public awareness campaigns to motivate members of the Gram Sabhas to participate in the said meeting.
- ii. The names and signatures of all the members who attended the meeting shall be taken and kept in the records.

- iii. The quorum shall be the same as prescribed in the Himachal Pradesh Panchayati Raj Act, 1994 (Act No. 4 of 1994), of the total members of the Gram Sabha for considering the consent as valid.
- iv. A resolution shall be passed with majority, in Part-B of Form-IV giving or withholding consent for the proposed acquisition and the resolution shall contain the negotiated terms and conditions for Rehabilitation and Resettlement, compensation, impact management and mitigation that the Requiring Body has committed and which have been signed by the District Collector or by the designated district officer along with the representative of the Requiring Body.

#### **1.10.4.3.2 b) Consent of the Affected Land owners.**

As per RFCTLARR Act,2013 the consent is required in case land is being acquired for public purpose in favour of Public-Private Partnership (PPP) and Private companies (PP). Since the Sunni HEP is being implemented by SJVN which is a government undertaking public sector company, it will not be require for the purpose of this study.

Section 2(2) of the RFCTLARR Act,2013 read as under:

The provisions of this Act relating to land acquisition, consent, compensation, rehabilitation and resettlement, shall also apply, when the appropriate Government acquires land for the following purposes, namely:

- a) For public private partnership projects, where the ownership of the land continues to vest with the government, for public purposes as defined in sub-section (1).
- b) For private companies for public purpose, as defined in sub-section (1).



## 2 Team composition, Approach, Methodology and Schedule of the Social Impact Assessment

### 2.1 Team Details

The composition of Social Impact Assessment team is given in Table 2-1 which is responsible to carry out the Social Impact Assessment Study. Each member of the team is an expert in his field and has undertaken numerous such studies before.

**Table 2-1: SIA Team Details**

S. No	Name	Qualification	Gender	Expertise/Responsibility
1	Er. Tarun Gupta	BE (AG) PGDPM, PGDMM, PG Disaster Management	Male	EIA Expert, Project Manager and Team Leader Overseeing the whole planning & implementation Report finalization & submission
2	Dr. Raman Sharma	Ph.D. Public Health, MA Sociology	Male	Expert in Survey & Data Analysis, Impact Assessment & Community Mobilization
3	Mangat Chauhan	PG PM&IR, PG Marketing Management	Male	Report Writing Overseeing the whole planning & implementation Coordination and Communication
4	Sangeeta Thakur	MA	Male	Investigator & Gender Specialist
5	Sangeeta	M.A	Female	Survey & Statistical Researcher

Following is the list of field surveyors who participated in the primary survey:

**Table 2-2: List of Surveyors**

S. No	Name	Qualification	Gender	Designation
1	Labh Singh	MSW	Male	Surveyor
2	Parveen	MSW	Male	Surveyor
3.	Nitesh Sharma	Graduate	Male	Surveyor
4.	Arun Sharma	Graduate	Male	Surveyor
5.	Sandeep Rana	Graduate	Male	Surveyor
6.	Manoj	Graduate	Male	Surveyor
7.	Vikram	Graduate	Male	Surveyor
8.	Virender Sharma	Graduate	Male	Surveyor

## 2.2 Description and Rationale for the Methodology and Tools Used

### 2.2.1 Aim

The aim of the study is to conduct a social impact assessment study in accordance to Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015.

### 2.2.2 Objective

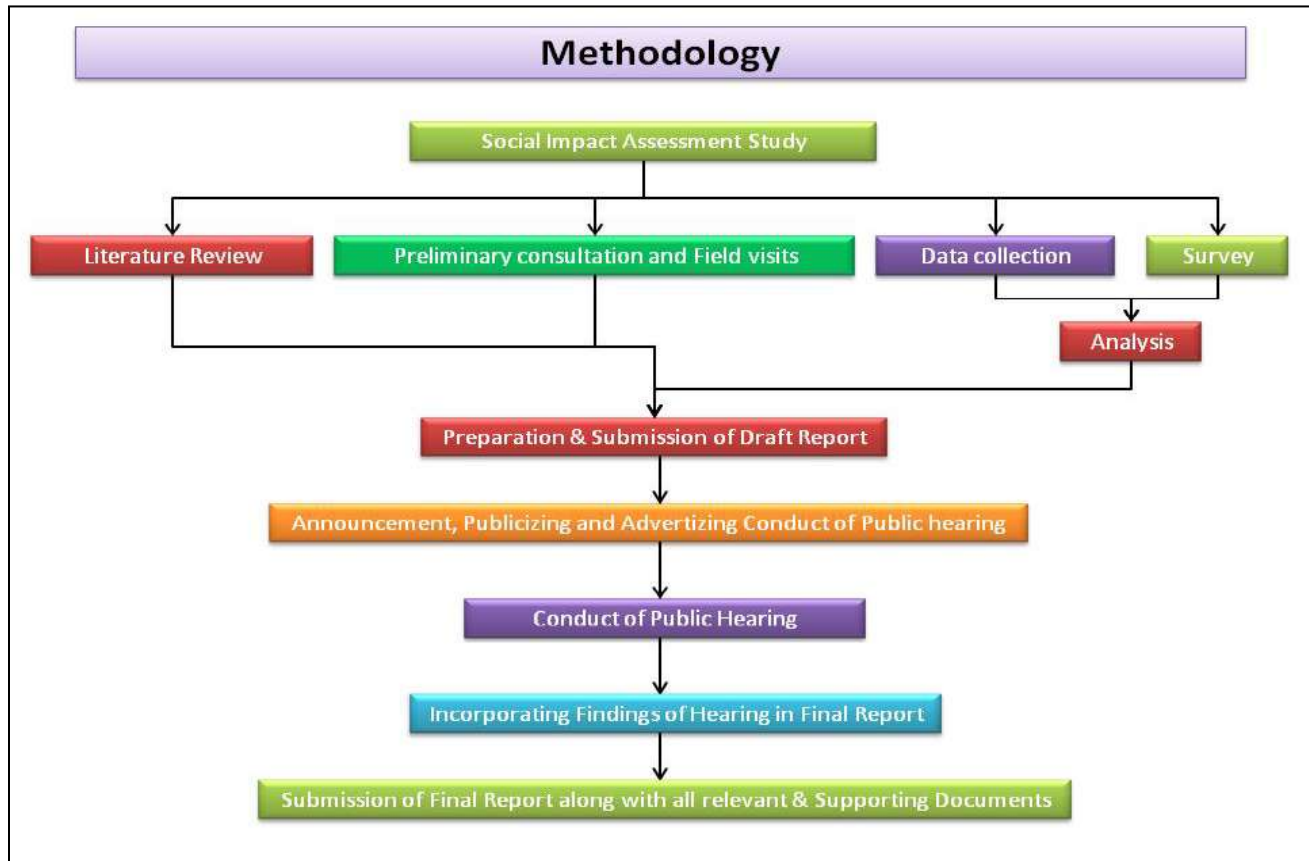
The following are the objectives of the Study:

1. Assessment as to whether the proposed acquisition serves the public purpose as per the criteria listed under section 2 of RTFCTLARR Act, 2013.
2. Estimation of affected families and the number of families among them likely to be displaced.
3. Extent of land, public and private, houses, settlements and other common properties likely to be affected by the proposed acquisition.
4. Whether the extent of land proposed for acquisition is the absolute bare minimum extent needed for the project.
5. Whether land acquisition at alternate place has been considered and found not feasible.
6. Study of social impacts of the project, and nature and cost of addressing them and the impact of these cost on the overall costs of the project vis-à-vis the benefits of the project.
7. Preparation of socio-economic and cultural profile of the affected area and resettlement site (if any) as per FORM-II of the HPRTFCTLARR rules,2015.
8. Preparation of a Social Impact Management Plan as per Form III of HPRTFCTLARR rules,2015.

### 2.2.3 Approach and Methodology

The methodology adopted to conduct social impact assessment and to prepare SIMP is described below. The SIA was prepared in accordance with the RTFCTLARR Act 2013 and HP RTFCTLARR Rules, 2015. Figure below presents the approach and methodology of SIA study in the form of flow chart.

Figure 2: Study Methodology



\*Source: Team SIA

Given below is the detailed methodology that will be adopted to carry out the study.

### 1. Analyze Project Context

- Literature Review
- Secondary data

### 2. Identification and Analysis of Stakeholders

- Secondary data
- Primary data
- ✓ Site Analysis
- ✓ Primary Survey (Qualitative and Quantitative Analysis of Various Social, Economic and Environmental Parameters through Indicator Analysis)

### 3. Identify Social factors and variables

- Primary Survey (Qualitative and Quantitative Analysis)

- Focus Group Discussion (Stakeholder Representatives, Concerned Authorities/ Officers)
- Stakeholder Consultation
- 4. Data Analysis and Priority Assessment**
- Analysis of Primary and Secondary Data Collected
- Inferences drawn from Focus Group Discussions
- Inferences drawn from Stakeholder Consultation
- Observations from Site Survey
- 5. Consult Stakeholders and Develop Mitigation Plans**
- Conducting FGDs and Public Hearings
- Development of Mitigation Plans in pursuance of findings and inferences from FGDs and Public Hearings
- 6. Implement Mitigation Plans and Public participation.**
- In coordination with implementing agency, concerned authorities/ officers and public participation
- 7. Ensure Monitoring with Active Stakeholder Participation and Modify It**

### **2.2.4 Rationale for The Methodology**

Carrying SIA is a time bound study and concerns interest of people who are financially, economically, socially dependent on the land getting acquired for the upcoming project. Above methodology is adopted to carry out the study and ensure, in consultation with institutions of local self-governance and Gram Sabhas established under the Constitution, a humane, participative, informed and transparent process for land acquisition for the upcoming Sunni Hydro Power Project and provide just and fair compensation to the affected families whose land has been proposed to be acquired or are affected by this acquisition and make adequate provisions for such affected persons for their rehabilitation and resettlement and for ensuring that cumulative outcome of the acquisition should be that affected persons become partners in development leading to an improvement in their post-acquisition social and economic status.

### 2.2.4.1 Identification of the Stakeholders to be Consulted for SIA

A list of all major stakeholders was prepared who would directly or indirectly be affected by the project. The list was then finally divided into three broad categories namely:

- 1) **Primary Stakeholders:** These included the titleholders of the land to be acquired, their families, those who claim their partnership in the property and those having any kind of livelihood/dependency on the land being acquired.
- 2) **Secondary Stakeholders:** These include business entities, civil societies/political/religious/NGOs, Yuvak and Mahila Mandals and local residents of the area. These stakeholders would not be affected by the acquisition directly but there may be an indirect impact on them due to the project.
- 3) **Institutional Stakeholders:** They include Government; Semi-Government institutes such as Panchayats, DC Office, Police etc. which may directly or indirectly be involved or be impacted by this project.

Identification of the stakeholders is followed by Desk Review. Documents such as RTFCTLARR Act 2013 and HP RTFCTLARR Rules, 2015, R&R Policy, Revenue Maps, District Census Hand Book, District Gazetteer, Maps, Government Employment Schemes and service sectors in which people in the project area are involved were collected from government and non-government sources and reviewed. Collection and review of such pertinent data was primarily to develop understanding about the socio-economic conditions of the concerned area and availability of infrastructure facilities and service delivery system.

## 2.3 Tools to Collect Information for The Social Impact Assessment

Information to carry out the study was collected from both Primary and Secondary Sources. These sources are discussed in detail in following section:

- **Data from Secondary Sources**

Secondary sources information was collected from a number of quarters such as from Census data, Statistical hand books, concerned departments and other literature. These sources of information complemented the primary data which was elicited through field survey from the affected people

and other stakeholders. An understanding was created about the physical, social, economic and cultural set-up of the project area before undertaking detailed field investigations.

- **Primary Source**

Primary data was collected through house hold surveys, field visits and FGDs. Questionnaires and schedules for household survey and focused group discussions were prepared by SIA team and pre tested before finalization to check any possible gap. The questionnaire was administered by professional surveyors/enumerators who were imparted with training by the team leader of SIA. They were taken to the project site for a day for knowing the project area. The emphasis was laid on quality of the data so that the conclusion arrived at would be authentic and reliable. Data collected from the survey was digitized after due scrutiny and logical checks for processing and production of output tables.

- **Preparation of Study tools**

In order to collect authentic information about the primary stakeholders and intensity of impact on them a structured questionnaire was prepared. The questionnaire covered wide range of qualitative and quantitative information. A draft questionnaire was developed and submitted to the HP SIAU for suggestions and modification. The questionnaire was finalized after pre-testing in the field. Schedules were prepared to conduct Focused Group Discussions with various stakeholders at Panchayat level to collect information regarding status of available social and physical infrastructure in villages, loss of any common property due to acquisition, education status, health status, employment status, role of women in decision making, etc. including positive and negative project impacts perceived by various stakeholders, their suggestions to enhance the positive impacts and mitigate the negative impacts.

- **Primary Survey**

A survey of primary stakeholders was carried out with the help of a pre structured questionnaire. The aspects covered in the questionnaire were identification particulars of PAFs, social profile, family details, occupation, source of income, family expenditure, household assets, information on affected structure, commercial/self-employment activities, employment pattern, opinion and



views of PAFs on project and resettlement and rehabilitation. Most part of the questionnaire has been pre-coded except those reflecting the opinion and views of PAFs, which have been left open-ended.

- **Focused Group Discussion**

One of the aspects of the study was consultations with stakeholders, people's representatives and community leaders. Consultations opened up the line of communication between the stakeholders and the SIA Team. This helped in identifying the impacts perceived by the community.

**Figure 3: Pictures Taken During Focused Group Discussions**



- **Supervision of Data Collection and Ground Verification**

Supervision of data collection was undertaken by the Core team members and simultaneously ground verification was conducted for five percent of the households covered under socio-economic survey.

## 2.4 Sampling methodology

For the study, the team aimed to cover all the PAFs as per the list obtained from the Revenue Department. The primary data was generated using both quantitative and qualitative techniques:

- **Quantitative Techniques:** Pre-tested structured questionnaires for HH Survey among primary stakeholders.
- **Qualitative Techniques:** The qualitative techniques included Participatory Rural Appraisal (PRA), Livelihood Analysis, Preference Ranking, Focus Group Discussion (FGD) and Public Consultations.

## 2.5 Overview of information and data sources used

SIA and SIMP was prepared based on following data and statistics, information collected through field visits and stakeholder consultations as per FORM-II of Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement (Social Impact assessment and Consent) Rules, 2015. Given below are the detail of data sources used to collect the necessary data:

**Table 2-3: Overview of information and data sources used**

S. No	Information	Primary Source	Secondary Source
<b>A</b>	<b>Socio-economic and cultural parameters</b>		
1.	Demographic details of the population in the project area		Census,2011
	Age, gender, caste, religion	Primary Survey	Census,2011
	Literacy, health and nutritional status	Primary Survey	Census,2011
2.	Poverty levels	Primary Survey, FGDs	
3.	Vulnerable groups	Primary Survey	
4.	Kinship patterns and women's role in the family	Primary Survey	
5.	Social and cultural organization.	FGDs	



S. No	Information	Primary Source	Secondary Source
6.	Administrative organization.	FGDs	Concerned Government Departments
7.	Political organization.	FGDs	Concerned Government Departments
8.	Civil society organizations and social movements.	FGDs	Concerned Government Departments
9.	Land use and livelihood	Primary Survey, Field survey	Land Records, Jamabandi Documents
	Agricultural and non-agricultural use	Primary Survey, Field survey	Land Records, Revenue Maps, Jamabandi Documents
	Livestock	Primary Survey	
	Formal and informal work and employment.	Primary Survey, FGDs	SECC data
	Household division of labour and women's work	Primary Survey	
	Migration	Primary Survey, FGDs	
	Household income levels	Primary Survey	
	Livelihood preferences	Primary Survey, Stake holder consultation	
Food security	Primary Survey, Stake holder consultation, FGDs		
10.	Local economic activities	Primary Survey, Stake holder consultation, FGDs	
	Formal and informal, local industries	Primary Survey, Stake holder consultation, FGDs	
	Access to credit	Primary Survey, Stake holder consultation, FGDs	
	Wage rates	Primary Survey, Stake holder consultation, FGDs	
	Specific livelihood activities women are involved in	Primary Survey, Stake holder consultation, FGDs	
11.	Factors that contribute to local livelihoods	Stake holder consultation, FGDs	
	Access to natural resources	Stake holder consultation, FGDs, Field Survey	

S. No	Information	Primary Source	Secondary Source
	Common property resources Private assets	Stake holder consultation, FGDs, Field Survey	
	Roads, transportation	Stake holder consultation, FGDs, Field Survey	
	Irrigation facilities	Stake holder consultation, FGDs, Field Survey	
	Access to markets	Stake holder consultation, FGDs, Field Survey	
	Livelihood promotion programmes	Stake holder consultation, FGDs, Field Survey	
	Co-operatives and other livelihood-related associations	Stake holder consultation, FGDs, Field Survey	
	Quality of the living environment	Stake holder consultation, FGDs, Field Survey	
	Perceptions, aesthetic qualities, attachments and aspirations	Primary Survey, Stake holder consultation, FGDs	
	Settlement patterns	Primary Survey, FGDs	Land Records, Revenue Maps, Jamabandi Documents
	community and civic spaces	FGDs, Stake holder consultation	
12.	Sites of religious and cultural meaning	FGDs, Field Survey	
	Physical infrastructure (including water supply sewerage systems etc.)	Stake holder consultation, FGDs, Field Survey	
	Public service infrastructure (schools, health facilities, anganwadi centers, public distribution system)	Stake holder consultation, FGDs, Field Survey	
	Safety, crime, violence	Stake holder consultation, FGDs, Field Survey	
	Social gathering points for women.	Stake holder consultation, FGDs, Field Survey	
<b>B</b>	<b>Key impact areas</b>		
<b>1</b>	Impacts on land, livelihoods and income	Primary Survey, FGDs	
	Level and type of employment	Primary Survey, FGDs	
	Intra-household employment patterns	Primary Survey, FGDs	
	Income levels	Primary Survey, FGDs	

S. No	Information	Primary Source	Secondary Source
	Food Security	Primary Survey, FGDs	
	Standard of living	Primary Survey, FGDs	
	Access and control over productive resources	Primary Survey, FGDs	
	Economic dependency, or vulnerability	Primary Survey, FGDs	
	Disruption of local economy	Primary Survey, FGDs	
	Impoverishment risks	Primary Survey, FGDs	
	Women's access to livelihood alternatives	Primary Survey, FGDs	
2	Impact on physical resources	Stake holder consultation, FGDs, Field Survey	
	Impacts on natural resources, soil, air, water, forests	Stake holder consultation, FGDs, Field Survey	
	Pressure on land and common property natural resources for livelihoods	Stake holder consultation, FGDs, Field Survey	
3	Impacts on private assets, public services and utilities	Stake holder consultation, FGDs, Field Survey	
	Capacity of existing health and education facilities	Stake holder consultation, FGDs, Field Survey	
	Capacity of housing facilities	Stake holder consultation, FGDs, Field Survey	
	Pressure on supply of local services.	Stake holder consultation, FGDs, Field Survey	
	Adequacy of electrical and water supply, roads, sanitation and waste management system	FGDs, Field Survey	
	Impact on private assets such as bore wells, temporary sheds etc.	Primary Survey, FGDs	
4	Health impacts	Primary Survey, FGDs, Stakeholder Consultation	
	Health impacts due to project activities with a special emphasis on: (i) Impact on women's health (ii) Impact on the elderly	Primary Survey, FGDs, Stakeholder Consultation	
5	Impacts on culture and social cohesion	Primary Survey, FGDs, Stakeholder Consultation	
	Demographic changes		Census Data

S. No	Information	Primary Source	Secondary Source
	Shifts in the economy-ecology balance	Primary Survey, FGDs, Stakeholder Consultation	
	Impacts on the norms, beliefs, values and cultural life	Primary Survey, FGDs, Stakeholder Consultation	
	Crime and illicit activities	Primary Survey, FGDs, Stakeholder Consultation	
	Stress of dislocation	Primary Survey, FGDs, Stakeholder Consultation	
	Impact of separation of family cohesion	Primary Survey, FGDs, Stakeholder Consultation	
6	Impact at different stages of the project cycle.	Primary Survey, FGDs, Stakeholder Consultation	
	Pre-construction phase <ul style="list-style-type: none"> <li>• Interruption in the delivery of services</li> <li>• Drop in productive investment</li> <li>• Land speculation</li> <li>• Stress of uncertainty</li> </ul>	Primary Survey, FGDs, Stakeholder Consultation	
	Construction phase <ul style="list-style-type: none"> <li>• Displacement and relocation</li> <li>• Influx of migrant construction workforce</li> <li>• Health impacts on those who continue to live close to the construction site</li> </ul>	Primary Survey, FGDs, Stakeholder Consultation	
	Operation phase <ul style="list-style-type: none"> <li>• Reduction in employment opportunities compared to the construction phase</li> <li>• Economic benefits of the project</li> <li>• Benefits on new infrastructure</li> </ul>	Primary Survey, FGDs, Stakeholder Consultation	

S. No	Information	Primary Source	Secondary Source
	De-commissioning phase <ul style="list-style-type: none"> <li>Loss of economic opportunities</li> <li>Environmental degradation and its impact on livelihoods</li> </ul>	Primary Survey, FGDs, Stakeholder Consultation	
	Direct and indirect impacts	Primary Survey, FGDs, Stakeholder Consultation	
	Differential impacts <ul style="list-style-type: none"> <li>Vulnerability mapping and impact on women, children, the elderly and the different abled</li> </ul>	Primary Survey, FGDs, Stakeholder Consultation	
	Cumulative impacts <ul style="list-style-type: none"> <li>Measurable and potential impacts of other projects in the area along with the identified impacts for the project in question</li> <li>Impact on those not directly in the project area but based locally or even regionally.</li> </ul>	Primary Survey, FGDs, Stakeholder Consultation	

*\*Source: Team SIA*

## 2.6 Schedule of consultations with key stakeholders and brief description of public hearings conducted

Public hearings will be conducting as per act

### 3 Land Assessment

This chapter focuses on the details of additional land to be acquired by the Sunni Dam HEP including the location, total land requirement for various activities under the project and intended use of the land to be purchased under different panchayats. Available maps and primary sources including the primary survey has been used to explore the nature, present use and classification of the land. A brief description on the ownership pattern, transfer and use of land for the last three years was also assessed.

#### 3.1 Information from the Land Inventories and Primary Sources

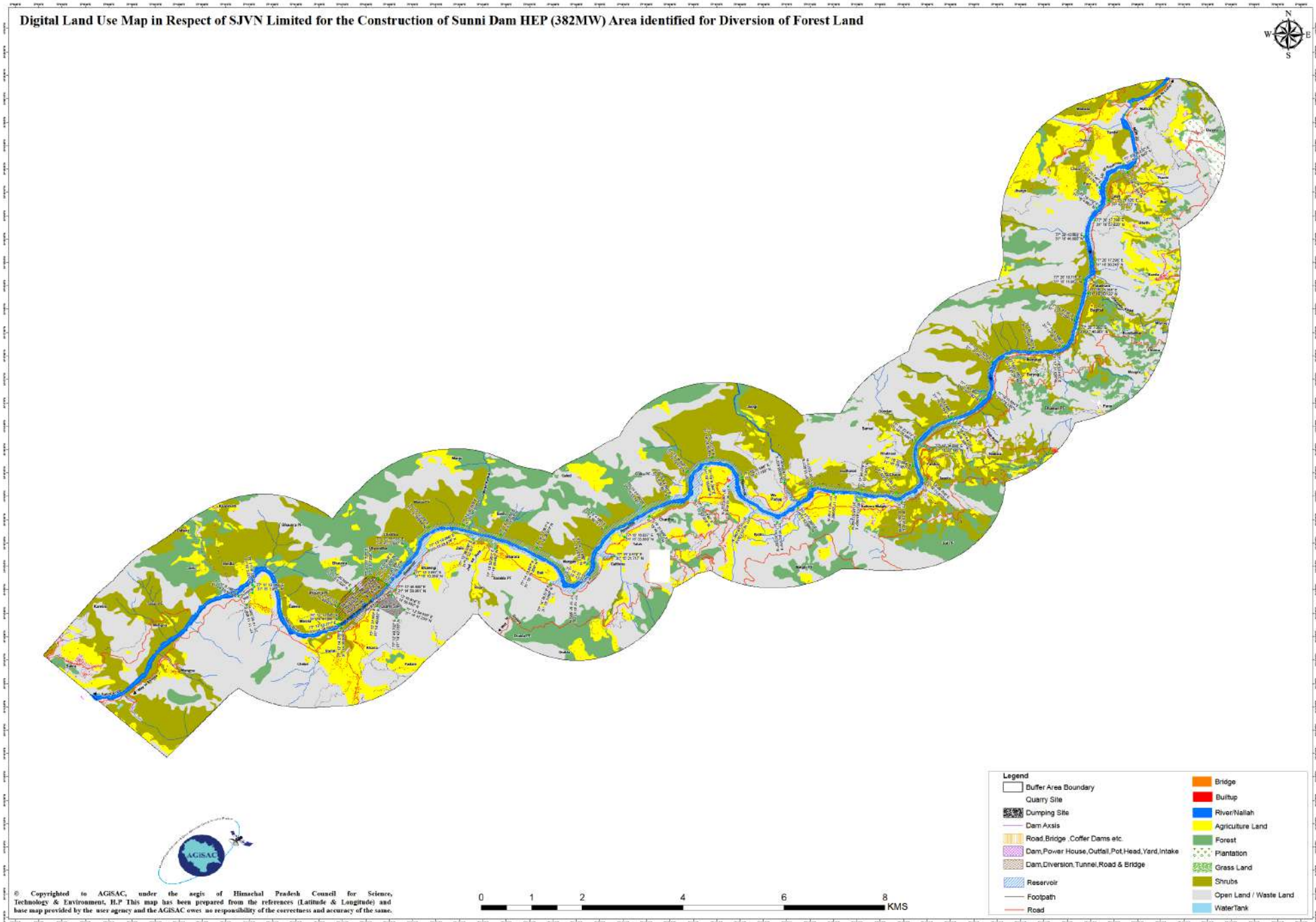
The details of the purpose or intended use of the land to be acquired under Sunni HEP in different panchayats across Shimla and Mandi district is given in the below table:

**Table 3-1: Land Inventories**

Name of Distt.	Name of Panchayat	Name of Village	Total Private Land (ha)	Intended Use	No. of Title Holders
Shimla	Chebri	Lunsu	01-99-43	Dumping	130
		Moongna	3-25-83	Dumping	64
	Bharara	Jaishi	00-16-41	Reservoir	24
		Bharara	00-00-76	Reservoir	2
	Mogra	Majrog	00-01-33	Reservoir	9
<b>Total in Shimla Distt.</b>			<b>5-43-76</b>		<b>229</b>
	Bindla	Bhoura	00-63-04	Reservoir	67
	Sartyola	Jakleen	00-17-67	Reservoir	5
		Mangan	00-08-98	Reservoir	1
	Parlog	Fafan	01-16-46	Reservoir	51
		Parlog	00-27-15	Reservoir	47
		Beludhank	00-44-87	Reservoir	59
	Shout	Kharyali	00-89-06	Reservoir	37
<b>Total in Mandi Distt.</b>			<b>3-67-23</b>		<b>267</b>
<b>Grand total</b>			<b>9-10-99</b>		<b>496</b>

\*Source: Department of Land Records & Revenue

## Map 2.1: Land use Map of Project Area





### 3.2 Entire area of impact under the influence of the project

The total additional land requirement for the Sunni HEP is **9-10-99** Hact. Which is proposed under current land acquisition. This is total private land and 496 are titleholders. Table given below shows the total government and private land under impact and its intended use:

**Table 3-2:Area requirement Under Various Project Components**

S No.	Component	Govt Land	Private Land (Ha)	Total (Ha)
1	Reservoir Area	-----	3-75-73	3-75-73
2	Dumping site	-----	5-25-26	5-25-26
	<b>Total</b>		<b>9-10-99</b>	<b>9-10-99</b>

**Map 3-1: Area Under Impact of Project**



### 3.3 Total Land requirement for the project

The selected land measures 9-10-99 Ha in total. It covers a total of 12 villages across two districts namely Shimla and Mandi accommodating 496 families. Given below is the breakup of the land being acquired under different heads in both the districts: Table 3-3: Land requirement for project

S. No.	Component	District Shimla (Ha)	District Mandi (Ha)
1	Dumping	5-25-26	00
6	Reservoir	0-18-50	<b>3-67-23</b>
	<b>Total</b>	<b>5-43-76</b>	<b>3-67-23</b>

\*Source: Satluj Jal Vidyut Nigam (SJVN)



### 3.4 Land Already Purchased, Alienated, Leased/Acquired, And the Intended Use for Each Plot of Land Required for The Project

The Requiring Body has not purchased or taken lease of any land for the project activities.

However, the intended use of the proposed land for acquisition is provided in the table below:

**Table 3-4: Use of Acquired Land**

Name of Distt.	Name of Panchayat	Name of Village	Total Private Land (ha)	Intended Use
Shimla	Chebri	Lunsu	01-99-43	Dumping
		Moongna	3-25-83	Dumping
	Bharara	Jaishi	00-16-41	Reservoir
		Bharara	00-00-76	Reservoir
	Mogra	Majrog	00-01-33	Reservoir
	<b>Total in Shimla Distt.</b>			<b>5-43-76</b>
Mandi	Bindla	Bhoura	00-63-04	Reservoir
	Sartyola	Jakleen	00-17-67	Reservoir
		Mangan	00-08-98	Reservoir
	Parlog	Fafan	01-16-46	Reservoir
		Parlog	00-27-15	Reservoir
		Beludhank	00-44-87	Reservoir
	Shout	Kharyali	00-89-06	Reservoir
<b>Total in Mandi Distt.</b>			<b>3-67-23</b>	
<b>Grand total</b>			<b>9-10-99</b>	

\*Source: Satluj Jal Vidyut Nigam (SJVN)

### 3.5 Quantity and location of land proposed to be acquired for the project

Sunni Dam HEP requires acquisition of 9-10-99 Ha of additional private land across 12 villages of Shimla and Mandi districts comprising a total of 90 khasras. Given below is a detailed list of quantity and location of the land proposed for acquisition:

**Table 3-5: Quantity of Land Under Acquisition**

Name of Distt.	Name of Panchayat	Name of Village	S.N.	Total Private Land (ha)	Total number of Khasra
Shimla	Chebri	Lunsu	1	01-99-43	24

Name of Distt.	Name of Panchayat	Name of Village	S.N.	Total Private Land (ha)	Total number of Khasra
	<b>Bharara</b>	Moongna	2	3-25-83	1
		Jaishi	3	00-16-41	4
		Bharara	4	00-00-76	3
	<b>Mogra</b>	Majrog	5	00-01-33	1
	<b>Bindla</b>	Bhoura	6	00-63-04	7
<b>Mandi</b>	<b>Sartyola</b>	Jakleen	7	00-17-67	3
		Mangan	8	00-08-98	1
	<b>Parlog</b>	Fafan	9	01-16-46	12
		Parlog	10	00-27-15	5
		Beludhank	11	00-44-87	14
	<b>Shout</b>	Kharyali	12	00-89-06	15
<b>Grand total</b>				<b>9-10-99</b>	<b>90</b>

\*Source: Satluj Jal Vidyut Nigam (SJVN)





### 3.6 Nature, Present Use and Classification of Land

Out of the total private land of 9-10-99 Ha which is getting acquired across both the districts of Mandi and Shimla under the project, 4-87-75 ha is cultivated and 4-13-24 Ha is uncultivated. In Shimla district out of the total land 5-43-76 Hac under acquisition 2-88-30 Ha of land is cultivated and 2-55-46 Ha of land is uncultivated. Similarly, in Mandi district out of the total land 3-67-23 under acquisition, 1-99-45Ha of land is cultivated and 1-77-78 Ha of land is uncultivated.

#### 3.6.1 Irrigation Pattern

Out of total 9-10-99 Ha of land under acquisition, only 2-85-97 Ha of land is irrigated and rest 2-01-78 Ha is Unirrigated. Table given below shows distribution of irrigated and Unirrigated land in villages under acquisition across Shimla and Mandi district:

**Table 3-6: Irrigation Pattern of the land under acquisition**

S. No	District	Irrigated land (Ha)	Unirrigated Land (Ha)	Total Land (Ha)
1	Shimla	2-13-99	0-74-31	5-43-76
2	Mandi	0-71-98	1-27-47	3-67-23
	Total	2-85-97	2-01-78	9-10-99

*\*Source: Primary Survey*

### 3.7 Size of Holdings, Ownership Patterns

Out of total 496 title holders in district Shimla and Mandi whose land/property is getting acquired for the project, 6 are single title holders and remaining 490 are joint holders. Table given below shows a distribution of village wise khasras having single and joint owners:

**Table 3-7: Holding Size and Pattern**

Name of Distt.	Name of Panchayat	S. No.	Name of Village	Total No of Khasras	Total area of Khasras (Ha)	No of Khasras with Single Owners	No of Khasras with Joint owners	Total No of Title Holders
Shimla	Chebri	1.	Lunsu	24	01-99-43	2	128	130
		2.	Moonga	1	3-25-83	0	64	64
	Bharara	3.	Jaishi	4	00-16-41	0	24	24
		4.	Bharara	3	00-00-76	0	2	2
	Mogra	5.	Majrog	1	00-01-33	0	9	9
Mandi	Bindla	6.	Bhoura	7	00-63-04	0	67	67
	Sartyola	7.	Jakleen	3	00-17-67	0	5	5
		8.	Mangan	1	00-08-98	1	0	1
	Parlog	9.	Fafan	12	01-16-46	2	49	51
10.		Parlog	5	00-27-15	0	47	47	

Name of Distt.	Name of Panchayat	S. No.	Name of Village	Total No of Khasras	Total area of Khasras (Ha)	No of Khasras with Single Owners	No of Khasras with Joint owners	Total No of Title Holders
		11.	Beludhank	14	00-44-87	0	59	59
	Shout	12.	Kharyali	15	00-89-06	1	36	37
<b>Total</b>				<b>90</b>		<b>6</b>	<b>490</b>	<b>496</b>

\*Source: Land Records, Revenue Department

**Table 3-8: Ownership Pattern**

S. No	District	Total Owners	Joint Ownership	Single ownership
1	Shimla	229	227	2
2	Mandi	267	263	4
<b>Total</b>		<b>496</b>	<b>490</b>	<b>6</b>

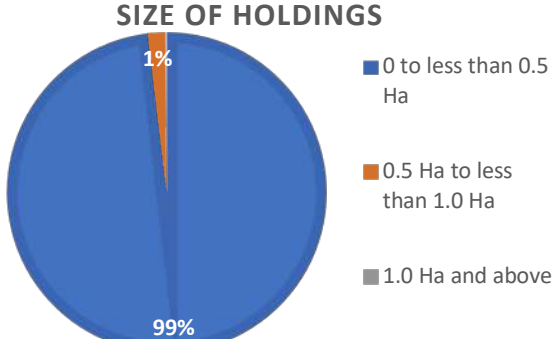
\*Source: Land Records, Revenue Department

Out of total 496 titleholders, 490 (98.79%) are joint owners and 6 (1.21%) are single owners.

There is a preponderance of small land holdings in the entire project area. The average size of the holding is 0.0183 Ha. Out of total 90 khasras, 99% have area less than 0.5Ha, only 1% have area between 0.5Ha to 1.0Ha and only one khasra has area more than 1.0 Ha which is getting acquired for the project.

**Table 3-9: Size of Holdings**

Category	No. Of Holdings (%)
0 to less than 0.5 Ha	99%
0.5 Ha to less than 1.0 Ha	1 %
<b>Total</b>	



**SIZE OF HOLDINGS**

- 0 to less than 0.5 Ha
- 0.5 Ha to less than 1.0 Ha
- 1.0 Ha and above

\*Source: Department of Land Records & Revenue

### 3.8 Land Distribution and Number of Residential Houses Being Acquired

There is total 229 and 267 titleholders in Shimla and Mandi districts respectively. Total 33 Khasras having a total area of 5-43-76 Ha from district Shimla and 57 Khasras having a total area of 3-67-23 Ha from district Mandi are getting additionally acquired for the Sunni Project. Only 3 Gharats are being affected and no PAFs are being displaced from the proposed acquisition.

Table given below gives a detailed distribution of land (village wise) in both the districts:

**Table 3-10: Land Distribution and Number of other Structures being acquired**

S. No	District	Village	Total No of Khasras	Total No of Titleholders	Other structures under acquisition	Total Land (Ha)
1	Shimla	Lunsu	24	130	0	01-99-43
2		Moongna	1	64	0	3-25-83
3		Jaishi	4	24	1	00-16-41
4		Bharara	3	2	1	00-00-76
5		Majrog	1	9	0	00-01-33
<b>Total in Shimla</b>			<b>33</b>	<b>229</b>	<b>2</b>	<b>5-43-76</b>
1	Mandi	Bhaunra	7	67	0	00-63-04
2		Jakleen	3	5	0	00-17-67
3		Mangan	1	1	0	00-08-98
4		Fafaan	12	51	0	01-16-46
5		Parlog	5	47	0	00-27-15
6		Beludhank	14	59	1	00-44-87
7		Kharyali	15	37	0	00-89-06
<b>Total in Mandi</b>			<b>57</b>	<b>267</b>	<b>1</b>	<b>3-67-23</b>
<b>Total</b>			<b>90</b>	<b>496</b>	<b>3</b>	<b>9-10-99</b>

\*Source: Satluj Jal Vidyut Nigam (SJVN)

### 3.8.1 Types of assets losers

For the purpose of the project, out of total title holders, 493 Titleholders are losing land as an asset while only 3 titleholders are losing both land and structures (Gharats). No owner was found to lose only structure during the survey. No PAFs will be getting displaced from the proposed acquisition.

## 3.9 Land Prices and recent changes in ownership and transfers

The circle rates for the last three years (2016-17, 2017-18 and 2018-19) were obtained from the Revenue Department for the below mentioned categories:<sup>15</sup>

1. **Category-I (0-25 mtr):** Property/Land in which any point of the concerned Khasra Number or part thereof is land up to a distance of 25 meters from a road.
2. **Category-II(20% < Base Rate)(25-50 mtr):** Property/Land in which no point of the concerned Khasra Number or part thereof is 25 to 50 meters from such road.
3. **Category-III(40% < Base Rate)(50-100 mtr):**Property/Land in which no point of the concerned Khasra Number or part thereof is 50 to 100 meters from such road.
4. **Category-IV(50% < Base Rate)(100-1000 mtr):** Property/Land in which no point of the concerned Khasra Number or part thereof is 100 to 1000 meters from such road.
5. **Category-V(60% < Base Rate)(>1000 mtr):** Property/Land in which no point of the concerned Khasra Number or part thereof is 1000 meters or more from such road.

The various rates are available for each sub-category of cultivated and non-cultivated lands situated at varied distance from the National Highway, State Highway or Other Roads.

The prices for cultivated and non-cultivated lands in different villages under the respective Patwar Circle are presented in the below table. The presented circle rates are highest among the prevailing rates over the last three years.

**Table 3-11: Circle rates of project area for period 1-04-2018 to 31-03-2019**

<sup>15</sup> (Himachal Pradesh Department of Revenue, n.d.)

S.No.	District	Patwar Circle	Panchayat	Village	Area Unit	Road Type	Category-I (0-25 mtr)		Category-II(20% < Base Rate)(25-50 mtr)		Category-III(40% < Base Rate)(50- 100 mtr)		Category-IV(50% < Base Rate)(100- 1000 mtr)		Category-V(60% < Base Rate)(>1000 mtr)	
							Cultivated	UnCultivated	Cultivated	UnCultivated	Cultivated	UnCultivated	Cultivated	UnCultivated	Cultivated	UnCultivated
1		Talehad	Bindla	Bhaunra	Sq. Metre	National Highway	0	0	0	0	0	0	0	0	0	0
						State Highway	0	0	0	0	0	0	0	0	0	0
						Other Road	1532	1277	1226	1022	919	766	766	638	613	511
3		Parlog	Parlog	Fafaan	Sq. Metre	National Highway	0	0	0	0	0	0	0	0	0	0
						State Highway	0	0	0	0	0	0	0	0	0	0
						Other Road	863	719	690	575	518	431	431	360	345	288
4		Parlog	Parlog	Parlog	Sq. Metre	National Highway	0	0	0	0	0	0	0	0	0	0
						State Highway	0	0	0	0	0	0	0	0	0	0
						Other Road	863	719	690	575	518	431	431	360	345	288
5		Parlog	Parlog	Beludhank	Sq. Metre	National Highway	0	0	0	0	0	0	0	0	0	0
						State Highway	0	0	0	0	0	0	0	0	0	0
						Other Road	583	486	467	389	350	292	292	243	233	194
6		Parlog	Shout	Kharyali	Sq. Metre	National Highway	0	0	0	0	0	0	0	0	0	0
						State Highway	0	0	0	0	0	0	0	0	0	0
						Other Road	558	465	446	372	335	279	279	232	223	186
7	Mandi	Sartyola	Sartyola	Jakleen	Sq. Metre	National Highway	0	0	0	0	0	0	0	0	0	0
						State Highway	0	0	0	0	0	0	0	0	0	0



S.No.	District	Patwar Circle	Panchayat	Village	Area Unit	Road Type	Category-I (0-25 mtr)		Category-II (20% < Base Rate)(25-50 mtr)		Category-III (40% < Base Rate)(50-100 mtr)		Category-IV (50% < Base Rate)(100-1000 mtr)		Category-V (60% < Base Rate)(>1000 mtr)	
							Cultivated	UnCultivated	Cultivated	UnCultivated	Cultivated	UnCultivated	Cultivated	UnCultivated	Cultivated	UnCultivated
						Other Road	1122	935	898	748	673	561	561	468	449	374
8	Shimla	Karyali	Bharara	Bharada	Sq. Metre	National Highway	1692	1410	1354	1128	1015	846	846	705	677	564
						State Highway	1410	1175	1128	940	846	705	705	588	564	470
						Other Road	1128	940	902	752	677	564	564	470	451	376
9		Karyali	Jaishi	Sq. Metre	National Highway	1692	1410	1354	1128	1015	846	846	705	677	564	
					State Highway	1410	1175	1128	940	846	705	705	588	564	470	
					Other Road	1128	940	902	752	677	564	564	470	451	376	
10		Kangal	Mogra	Majrog	Sq. Metre	National Highway	857	714	685	571	514	428	428	357	343	286
						State Highway	714	595	571	476	428	357	357	298	286	238
						Other Road	571	476	457	381	343	286	286	238	228	190
12	Chebri	chebri	Lunsu	Sq. Metre	National Highway	1692	1410	1354	1128	1015	846	846	705	677	564	
					State Highway	1410	1175	1128	940	846	705	705	588	564	470	
					Other Road	1128	940	902	752	677	564	564	470	451	376	

\*Source: Department of Revenue and Land Records

The SIA team did not come across any changes in the ownership over a period of last three years. As compared to the list provided by the HP SIAU, the only exception is in case of death of any landowner, the ownership of land has got automatically transferred to their legal heirs. These changes in ownership have not been recorded with the Revenue Department till date.

Many of the current landowners shared that after the marriage of their sister/s, the brothers are the practical owners of the land as they are protecting the land and also producing agricultural products. According to many respondents, it is one of main sources of their livelihoods and dividing the land further would leave them economically vulnerable. They also shared that the sisters are engaged in farming on the land of their marital family. Although in many cases, the sisters have verbally transferred the ownership to their brothers, none of the transfers are registered with the Revenue Department.

## 4 Estimation and Enumeration of Affected Families and Assets

### 4.1 Directly affected persons

The proposed acquisition of 9-10-99 Ha private land is directly affecting 496 people across 12 villages of Shimla and Mandi districts. Given below is a list of numbers of people getting directly affected by the acquisition in each village:

**Table 4-1: Directly Affected PAPs**

Name of Distt.	Name of Panchayat	S. No.	Name of Village	Total No of Title Holders	Total area of Khasras (Ha)	No of Landowner Contacted
Shimla	Chebri	1.	Lunsu	130	24	54
		2.	Moongna	64	1	36
	Bharara	3.	Jaishi	24	4	18
		4.	Bharara	2	3	1
	Mogra	5.	Majrog	9	1	4
Mandi	Bindla	6.	Bhoura	67	7	28
	Sartyola	7.	Jakleen	5	3	3
		8.	Mangan	1	1	1
	Parlog	9.	Fafan	51	12	22
		10.	Parlog	47	5	32
		11.	Beludhank	59	14	26
	Shout	12.	Kharyali	37	15	26
<b>Total</b>				<b>496</b>	<b>90</b>	<b>251</b>

### 4.1.1 Tenants/ Occupiers

No tenants in the land proposed for acquisition were reported during survey. All the affected families use their houses themselves with their families and the land is cultivated by themselves.

### 4.1.2 Schedule tribes and traditional forest dwellers

There is no affected family falling in the ST category or traditional forest dwellers who have lost any of their forest rights.

### 4.1.3 Dependence on common property resources

During interviews and FGDs it was found that most of the villagers had dependency on the nearby forest land, however no such additional forest land is being acquired.

There are no people who have been assigned land by the State Government under any of its schemes and such land is under acquisition

### 4.1.4 Dependence on land for livelihood

Out of the total 9-10-99 Ha land proposed under acquisition, 4-87-75 Ha land is cultivated and only 2-85-97 Ha (18%) land is irrigated. All owners of this cultivable land shared that they have been earning part of their livelihoods from agriculture for more than 3 years prior to acquisition.

## 4.2 Inventory of Productive Assets and Significant Land

During the primary survey a detailed inventory of available assets with PAPs was prepared by SIA team like vehicles, house hold equipment, utilities on their land, livestock, trees, etc. Status of available assets not only indicates standard of living in the area but is also an indicator of affordability of the PAPs. Given below is a detailed inventory of various available assets with 251 (survey sample) respondents who are getting affected by the project were surveyed:

**Table 4-2: Inventory of Productive Assets**

S. No	Category	Description	No. Of PAPs
3.		Car	13
4.		Bike/ Scooter	17
5.	House Hold Equipment	Refrigerator	213
6.		Washing Machine	45
7.		Ceiling Fan	168
8.		Air Conditioner	0
9.		Room Heater	112
10.		Table Fan	13
11.		TV	248
12.		Radio	43
13.		Computer	0

S. No	Category	Description	No. Of PAPs
14.		Mobile Phones	243
15.		Microwave/ Oven	4
16.		Geyser	8

\*Source: Primary Survey

**Table 4-3: Inventory of Assets on Land**

S. No.	Utilities on Land	Under Impact (In Nos.)
1.	No. of Fruit Bearing Trees	43
2.	Number of Non-Fruit Bearing Trees	23
3.	cowsheds	0
4.	Gharats	3
5.	Water tank	0
6.	store	0
7.	Water supply Pipeline	0
8.	Electric pole transmission Line	0
9.	Toilets/bathrooms	0
10.	Kitchen	0

\*Source: Primary Survey

Table given below lists down all the livestock owned by the PAPs in the project area.

**Table 4-4: Inventory of Livestock**

Livestock	Count
Cow	211
Buffalo	3
Sheep	24
Goat	18
Poultry Birds	22
Ox/Bull	18
Khacchar	4

\*Source: Primary Survey

## 5 Socio-Economic And Cultural Profile

### 5.1 Demographic details of the population in project villages

As per Census of India 2011, the total population in the 7 panchayats where land is being acquired for upcoming Sunni HEP is 8242 and the total number of households is 1713. Out of the total population in these villages there are 4171 (50.60%) are females and 4071 (49.40%) are males. Detailed distribution of households and population is given in the table below:

**Table 5-1: Demographic Details of Project Area**

District	S.No	Panchayat	No of villages	Total Males	Total Females	Total Population	Total House Holds
Shimla	1	Chebri	6	659	640	1299	278
Shimla	2	Bharara	5	562	530	1092	292
Shimla	3	Mogra	5	528	551	1079	234
Mandi	4	Bindla	6	513	494	1007	172
Mandi	5	Parlog	9	348	302	650	156
Mandi	6	Sartyola	13	435	411	846	161
Mandi	7	Shout	12	1126	1143	2269	420
<b>Grand Total</b>			56	4171	4071	8242	1713

\*Source: Census, 2011. Primary Survey.

#### 5.1.1 Sex Ratio

According to Census 2011, sex ratio across 7 panchayats is 968 females per thousand males which is slightly less than the state average of 972 and State's Rural sex ratio of 986.

**Table 5-2: Child Population in Project Area**

District	S.No	Panchayat	No of villages	Males	Females	Total	
Shimla	1.	Chebri	6	82	64	146	
Shimla	2.	Bharara	Panchayat was formed after 2011 so census data is not available				
Shimla	3.	Mogra	5	47	64	111	
Mandi	4.	Bindla	6	76	72	148	
Mandi	5.	Parlog	9	41	35	76	
Mandi	6.	Sartyola	13	45	47	92	
Mandi	7.	Shout	12	138	165	303	
<b>Grand Total</b>			51	429	447	876	

\*Source: Census, 2011.

Whereas Child sex ratio in these panchayats is 1041 which is more than the state's child sex ratio of 909 and the state's rural average of 986.

## 5.1.2 Social Groups

According to Census 2011, there are total 1112 schedule cast persons in the 9 affected panchayats out of which 576 are males and 536 are females. There is total 8 schedule tribe persons in these panchayats out of which 4 are males and 4 are females.

**Table 5-3: Scheduled Castes population in Project Area**

District	S.No	Panchayat	No of villages	SC Males	SC Females	SC Population	ST Males	ST Females	ST Population
Shimla	1	Chebri	6	48	46	94	0	0	0
Shimla	2	Bharara	Panchayat was formed post 2011 so data is not available						
Shimla	3	Mogra	5	52	50	102	0	0	0
Mandi	4	Bindla	6	201	186	387	0	0	0
Mandi	5	Parlog	9	98	86	184	0	0	0
Mandi	6	Sartyola	13	7	7	14	4	4	8
Mandi	7	Shout	12	170	161	331	0	0	0
<b>Grand Total</b>			<b>51</b>	<b>576</b>	<b>536</b>	<b>1112</b>	<b>4</b>	<b>4</b>	<b>8</b>

\*Source: Census, 2011.

## 5.1.3 Literacy

As per the census of India 2011, literacy rate of Himachal Pradesh is 83% and literacy rate of Himachal Pradesh Rural is 82%. Out of the total population of 7150 in project affected panchayats 5014 (70.12%) of population is literate. Out of this 5014 literate population 2819 (56.25%) are male and 2195 (43.77%) are female. Among the remaining illiterate population of 2136, 790 (36.98%) are male and 1346 (63.01%) are female<sup>16</sup>. Given below in the table is a detailed village wise distribution of literacy status:

**Table 5-4: Literacy Status in Project Area**

District	S.No	Panchayat	No of villages	Literates			Illiterates		
				Males	Females	Total	Males	Females	Total
Shimla	1	Chebri	6	531	420	951	128	220	348
Shimla	2	Bharara	Panchayat formed after 2011 so no data available						
Shimla	2	Mogra	5	437	363	800	91	188	279
Mandi	3	Bindla	6	400	319	719	113	175	288
Mandi	4	Parlog	9	278	177	455	70	125	195
Mandi	5	Sartyola	13	329	240	569	106	171	277
Mandi	6	Shout	12	844	676	1520	282	467	749
<b>Grand Total</b>			<b>51</b>	<b>2819</b>	<b>2195</b>	<b>5014</b>	<b>790</b>	<b>1346</b>	<b>2136</b>

\*Source: Census, 2011.

<sup>16</sup> (Census, 2011)

## 5.2 Economic Profile

As per the Census 2011, out of total 7150 people in project panchayats, 4691 (65.60%) is the total work force (Main + Marginal). Out of this workforce of 4691, 2430 (51.80%) are males and 2261 (48.19%) are females.<sup>17</sup>

**Table 5-5: Work Force in Project Area**

District	S.No	Panchayat	No of villages	Total Population	Total Work Force		
					Male	Female	Total
Shimla	1.	Chebri	6	1299	429	417	846
Shimla	2.	Bharara	Panchayat formed after 2011 so no data available				
Shimla	3.	Mogra	5	1079	362	372	734
Mandi	4.	Bindla	6	1007	349	321	670
Mandi	5.	Parlog	9	650	233	192	425
Mandi	6.	Sartyola	13	846	270	241	511
Mandi	7.	Shout	12	2269	787	718	1505
Grand Total			51	7150	2430	2261	4691

\*Source: Census, 2011.

## 5.3 Income and Poverty Levels

Main source of income in the project area is Primary Sector. As per the primary survey, out of total 496 project affected households, 111 have annual house hold income less than 2.5 lakhs rupees. Almost 48 have house hold income between 2.5 lakh to 5 lakh rupees annually. 22 of them have their house hold income between 5 lakh to 7.5 lakh annually, almost 15 have it between 10 lakh to 12.5 lakh.

## 5.4 Vulnerable groups

Vulnerable groups are the groups which would be vulnerable under any circumstances (e.g. where the adults are unable to provide an adequate livelihood for the household for reasons of disability, illness, age, gender or some other characteristic), and groups whose resource endowment is inadequate to provide sufficient income from any available source.<sup>18</sup>

The vulnerable groups that face discrimination include- Women, old age, physical and mental disability, People suffering from some major illness etc. Sometimes each group faces multiple barriers due to their multiple vulnerabilities. For example, in a patriarchal society, disabled women face double discrimination of being a woman and being disabled.

<sup>17</sup> (Census, 2011)4.

<sup>18</sup> (Aggarwal)



## 5.5 Land use and livelihood

Out of the total land of 09-10-99 Ha under acquisition, 4-87-75 of land is cultivated and 4-13-24 Ha of land is uncultivated. Only 2-85-97 of the total land under acquisition is irrigated and rest 2-01-78 Ha is unirrigated. In the table given below is the district wise distribution of cultivated/uncultivated and irrigated/unirrigated land under acquisition:

**Table 5-6: Land use in Project Area**

S. No	District	Irrigated land (Ha)	Unirrigated Land (Ha)	Cultivated	Un Cultivated	Total Land (Ha)
1	Shimla	2-13-99	0-74-31	2-88-30	2-55-46	5-43-76
2	Mandi	0-71-98	1-27-47	1-99-45	1-67-78	3-67-23
	Total	2-85-97	2-01-78	4-87-75	5-43-24	9-10-99

*\*Source: Primary Survey*

Cropping pattern of an economy indicates the relative importance given by the farmers, to various crops, at a given point of time. The cropping pattern in a region changes in accordance to changes in economic, institutional, infrastructural and technological factors along with limited land resources. Out of the total PAPs in the project area, almost 91% are using their land for cultivation which is one of their sources of livelihood as well. Out of these 91%, almost 93% of them are involved in multi-cropping as per the season. Given below are details of various crops grown by the PAPs in various seasons:

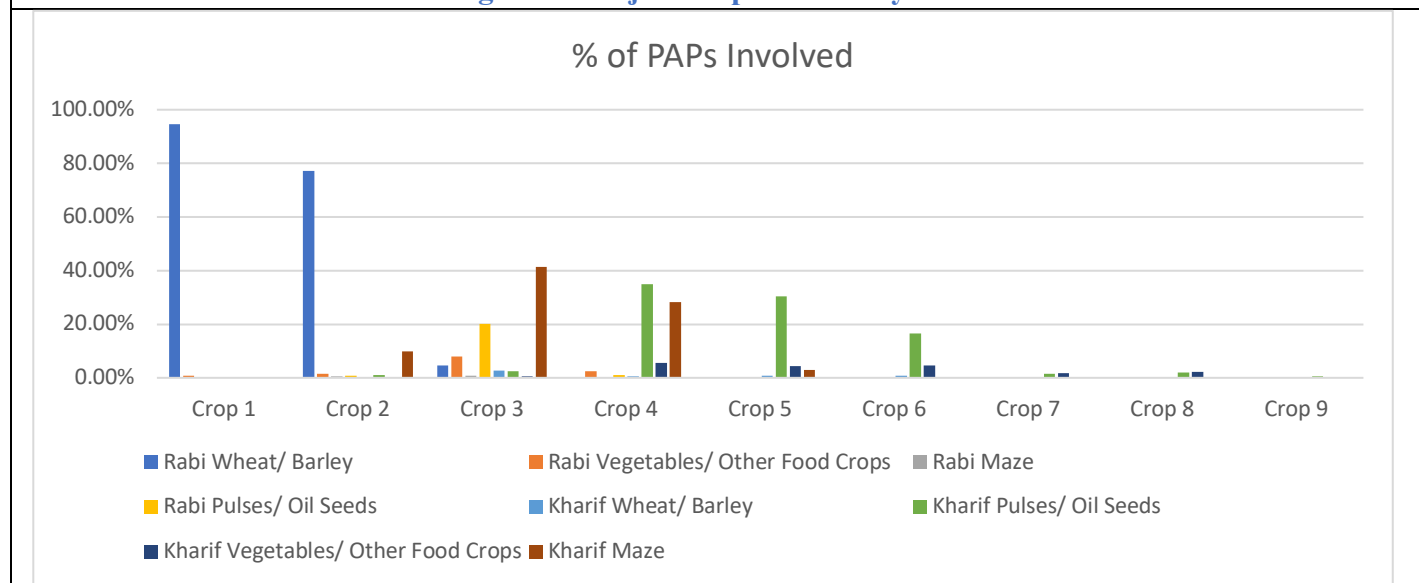
**Table 5-7: Major Crops in Project Area**

S. No	Season	Name of Crop	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5	Crop 6	Crop 7	Crop 8	Crop 9
			% of PAPs Involved								
<b>Agriculture</b>											
1	Rabi	Wheat/ Barley	94.64%	77.16%	4.50%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%
2		Vegetables/ Other Food Crops	0.78%	1.56%	8.05%	2.34%	0.00%	0.09%	0.00%	0.00%	0.00%
3		Maze	0.00%	0.52%	0.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4		Pulses/ Oil Seeds	0.00%	0.87%	20.24%	0.95%	0.00%	0.00%	0.00%	0.00%	0.00%
5	Kharif	Wheat/ Barley	0.00%	0.17%	2.60%	0.61%	0.69%	0.78%	0.00%	0.09%	0.00%
6		Pulses/ Oil Seeds	0.09%	0.96%	2.43%	34.86%	30.28%	16.44%	1.56%	1.90%	0.52%

7		Vegetables/ Other Food Crops	0.00%	0.00%	0.43%	5.62%	4.33%	4.50%	1.64%	2.25%	0.35%
8		Maze	0.00%	9.95%	41.44%	28.20%	3.03%	0.17%	0.00%	0.00%	0.00%
<b>Horticulture</b>											
1.	Horti culture	Apple	0.00%	0.00%	0.09%	0.00%	0.52%	0.78%	0.78%	0.17%	0.00%
2.		Palam	0.00%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%	0.35%
3.		Guava	0.00%	0.00%	0.09%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%
4.		Pomegranate	0.00%	0.00%	0.43%	0.09%	0.00%	0.17%	0.87%	0.43%	0.09%
5.		Mango	0.00%	0.00%	0.00%	0.26%	0.09%	0.09%	0.17%	0.52%	0.35%
6.		Lemons	0.00%	0.00%	0.61%	0.69%	0.61%	0.09%	0.35%	0.35%	0.52%
7.		Peach	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%

\*Source: Primary Survey

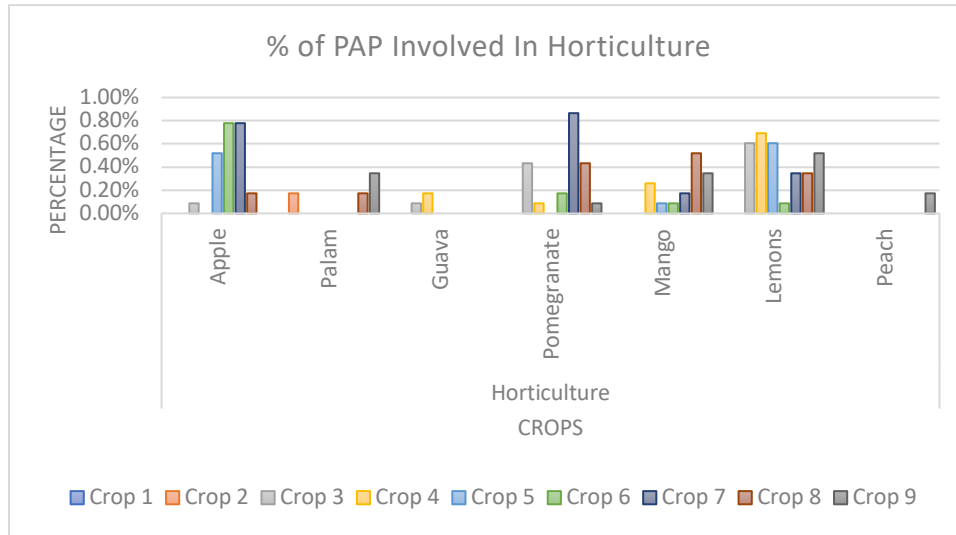
**Figure 7: Major Crops Grown by PAPs**



\*Source: Primary Survey

Major crops of Rabbi season (October to February) are Wheat and Oil seeds. In Kharif season (July to September) corns, pulses, oil seeds and vegetables are grown mostly.

Figure 4: PAPs Involved Growing Horticulture Crops



\*Source: Primary Survey

Less than 1% of the PAPs are involved in Horticulture with Apple, Guava, Plum, Pomegranate, Mango as main products.

## 5.6 Local economic activities

Out of total 4691 PAPs, 4602 are working. Majority of people are involved in agriculture and allied activities. Out of this 2433 are farmers, 503 are government servants, 1364 are working under MGNREGA scheme, 972 are doing private jobs, 228 are day labourers and remaining 251 are doing some other work including shopkeepers, drivers, factory workers, vendors, construction workers.

## 5.7 Factors that contribute to local livelihoods

Many social and natural factors contribute to the choices and availability of livelihood options like education, sex ratio, social status of women, availability of infrastructure, including agro-climatic conditions, institutional conditions of an area, availability of natural resources, connectivity to neighboring areas, location and topography.

The agrarian structure of a region describes the relative position of different category of farmers with respect to ownership and operation of land. Since land constitutes as an important income-generating asset of the PAPs, a change in the agrarian structure due to land holding pattern would reflect relative prosperity or destitution of different sections of project villages.

Most of PAPs are farmers therefore climatic conditions and factors affecting agriculture hold key factor affecting the local livelihood. Climatic conditions are the primary influents controlling the distribution of agricultural patterns. The influences of climate on human activity are so vital and varied that farmers have consciously sought to know and understand it for the sake of their survival.

In a situation when land area is more or less fixed but population is growing and the development process does not lead to a proportionate transfer of growing population from agriculture to non-agriculture, then the absolute number of persons and households dependent on agriculture will inevitably increase. This will lead to an increase in the number of marginal farmers and landless agricultural labourers proportionately during the course of development. In fact, the given structure sets a precondition to the manner in which the productive resource would be utilized in a region. The rate of adoption of technological innovations is markedly influenced by the existing structure of land holdings. In turn, the structure itself gets transformed under the effect of technology.

In rural Himachal Pradesh, the land ownership distribution presents a typical character, in that a vast majority of farmers are marginal and a very few can be regarded big by any standard. The distribution follows a skew pattern. Such a pattern gives a picture of uneven distribution of land holdings among different strata and indicates a high degree of inequality. An important feature of Himachal Pradesh's agrarian structure is the continuing predominance of the small level peasantry, both in number and area.

It is generally agreed that agricultural growth depends upon rural infrastructure such as the spread and quality of irrigation, land development, extent of rural electrification and the spread of rural roads. As with the level of human skills, good infrastructure not only increases the productivity of existing resources going into production and therefore helps growth, it also helps to attract more investment, which can be expected to increase growth further.

## 5.8 Kinship patterns

In Himachal Pradesh, land rights are only passed onto from one generation to the next. As per the state rules, any migrant cannot buy a land in Himachal Pradesh. Therefore, the land here is an ancestral property and it only gets distributed to the children/wife equally unless their Will says otherwise.

In many cases, it is observed that the names of the present land owners not yet updated with the Revenue Department even after the demise of the original landowner. In case of death of any landowner, the ownership of land gets automatically transferred to their children/wife.

During the primary survey, many of the current landowners in project area shared that after the marriage of their sister/s, the brothers are the practical owners of the land as they are protecting the land and also producing agricultural products. According to many respondents, it is one of

major sources of their livelihoods and dividing the land further would leave them economically vulnerable. They also shared that the sisters are engaged in farming of the land of their marital family. Although in many cases, the sisters have verbally transferred the ownership to their brothers, none of the transfers are registered with the Revenue Department.

## 5.9 Administrative, political and civil society organizations

The following organizations were found to have their footprint in the project area

### Administrative Organization

1. Panchayat
2. Patwar office
3. Jal Shakti Vibhag
4. Electricity Department
5. Agriculture Department
6. Public Works Department (PWD)

### Political Organization

1. BJP
2. Congress
3. CPM

### Community based and Civil Society Organization

1. Temple Committees
2. Mahila mandals
  - a) Durga Mahila Mandal Jaishi
  - b) Jagriti Mahila Mandal Beludhank
  - c) Mahila Mandal Kharyali
3. Yuva Jagran Manch and Yuvak Mandal
  - a) Yuvak Mandal Kharyali
  - b) Yuvak Mandal Jaishi
  - c) Yuvak Mandal Beludhank

There are few another Mahila Mandlas and Yuvak Mandals beig formed in area.

## 5.10 Regional Dynamics and Historical Change Processes

In order to understand the regional dynamics and historical change processes of the project area, we need to understand the history and dynamics of the two districts i.e Shimla and Mandi.

### District Shimla

The present Shimla district comprises of the 19 small erstwhile Shimla Hill States which were merged with Himachal Pradesh in 1948 and constituted part of the Mahasu district. Apart from these states,

the hilly areas of erstwhile Patiala State and areas of Kotkhai, Kotgarh, Shimla town and Jutogh Cantonment

of the provincial government were also included in the district after independence at different stages.

Almost all the erstwhile princely states of Shimla district were subjected to the Gorkha invasions during the beginning of the 19th Century and there were free in the year 1815 when the Gorkha were defeated by the Britishers and driven out to Nepal. Consequently, the areas belonging to the respective rulers were restored to them under specific terms. As all the states were of small size both in terms of area and population, these remained under the direct control of the then Superintendent of Punjab Hills States. These rulers were free in the internal affairs of their states. Almost all the states were founded by the adventurers from plains after the 8th century A.D.

The nearest Urban local body i.e Sunni was created as Notified Area Committees in 1991 Census along with Narkanda, Jubbal, Kotkhai and Chaupal.

### **District Mandi**

Mandi district was formed by the amalgamation of the erstwhile princely states of Mandi and Suket on the formation of Himachal Pradesh on 15th April, 1948. Dr. J. Hutchinson and Dr. Vogel have accounted in the political history of the states that like most of the other hill states, Mandi takes its names from its capital which is situated on the left bank of the Beas. Mandi is a Hindi word, meaning market and it may possibly be connected with the Sanskrit word ‘mandapika’ meaning an open hall or shed and might have been derived from Sanskrit root ‘mand’ meaning to adorn or distribute.

Sunni is the nearest municipality to the project area located about 25 km from Khaira village (dam site). The State capital Shimla is located 44 km from the project area. The area is connected via MDR 22 which runs parallel to the river.

### **5.11 Quality of the living Environment**

The project area lies on a mountainous topography of the lower Himalayan belt. The region is blessed with rich green environment with deciduous pine forests and rural background. The main economy of the project area is agrarian. Being in the lower Himalayan belt, the area does not face any extremes of temperature in summers nor winters. The average annual temperature ranges from 22-26° C with peak summer temperature reaching around 35-40 °C and the peak minimum temperature reaching 2-5°C during winters. The area also harbors a good amount of wildlife. During the surveys it was observed that the area frequently witnesses sightings of wild animals like leopards, wild bores, Himalayan Monals, red jungle fowl (Jungli murga), foxes, rabbits etc. Conclusively, the overall the quality of living environment as per rural standards of the state can be categorized as good with ample resource of water from Satluj, clean air and thick forest cover.



## 6 Social Impacts

### 6.1 Framework and approach to identify impacts

SIA seeks to assess, in advance, the social repercussions that are likely to follow from projects undertaken to promote development, such as dams, mines, industries, highways, ports, airports, urban development and power projects. It is a tool that can help decision-makers to foresee the likely negative impacts of their actions so that steps necessary to prevent or at least to contain them could be taken in time. As an aid to the decision-making process, SIA provides information on social and cultural factors that need to be taken into account in any decision that directly or indirectly affects the lives of people in the project area.

According to Inter-Organizational Committee on Principles and Guidelines for Social Impact Assessment (IOCPGSA 2003), a conventional way of conceptualizing social impacts changes to the following:

- People's way of life – that is, how they live, work, play and interact with one another on day to day basis;
- Their culture – that is, their shared beliefs, customs, values and language or dialect;
- Their community – its cohesion, stability, character, services and facilities;
- Their political system – the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose;
- Their environment – the quality of the air and water people use; the availability and quality of food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
- Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of diseases or infirmities;
- Their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties;
- Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and future of their children;
- The process of conducting Social Impact Assessment was designed in a manner which involved all stakeholders in systematic approach to assess the impact of proposed acquisition. The framework & approach to identifying the impacts is shown in following steps.
  - Step 1: Background study and case studies
  - Step 2: Identification of different PAPs
  - Step 3: Preparation of primary survey questionnaire
  - Step 4: Conduction of primary survey and FGDs with various Stakeholders
  - Step 5: Analysis of data collected
  - Step 6: Identifying various impacts and their intensity in project area.



## 6.2 Description of impacts at various stages of the project

Acquisition of land proposed for the hydro-electric project will have a direct and indirect bearing on livelihood, employment, income, production, health & well-being and quality of life of the community, socio-cultural systems and environment. It may raise doubts and fears about property rights and aspirations. Development projects affect different groups differently.

Many people tend to benefit while some lose. Often, impacts are particularly severe for vulnerable groups viz. women-headed households, widows, persons with physical or mental disability, BPL families, people belonging to reserved categories and elderly persons.

There is a general optimism for the upcoming Sunni HEP project in the area. The study found that 91% of the primary stakeholders were willing to surrender their land for acquisition provided appropriate compensation is paid and only 8% resisted the acquisition process. During the FGDs with Panchayats, the villagers and secondary stakeholders were also found to have a very positive opinion towards the project as it would bring an overall development to the entire area in terms of infrastructure development (both Social and Physical) and increase in employment and business opportunities. Also, they anticipated the increase in land prices of the area which would be a beneficial factor for them.

However, they were also apprehensive about the negative impacts that may rise from the project if not properly mitigated. There were concerns regarding the rise in disputes among stakeholders for receiving the compensation and that the vulnerable groups may be left out or be cheated. Also, since on receiving the compensation amount, there would be a change in the financial condition of the PAFs which in turn would alter their purchasing capacity and would also increase the risk of fund miss-management as many of the landowners are not properly educated, especially regarding financial management. The project area may also experience rise in cases of frauds and cheats once the compensation amount is distributed. There are also chances of changes in cultural practices and traditions because of changes in the spending pattern.

A total 3 Gharats are coming under the acquisition as private structures. Few kuhals will be affected by proposed acquisition.

The details of the loss to infrastructure and assets has been discussed in chapter 4. The PAPs as well as the villagers were concerned about how alternates would be provided to them by the acquiring body such that it would not hamper their daily routine. The villagers have dependency on the adjoining grazing land and forest for cattle fodder and firewood.

During the construction phase of the project, the stakeholders had a positive outlook towards the project as it would generate good direct and indirect employment and business opportunities for

them. Due to in migration they would witness increased consumption of goods which would benefit the local economy. However, they also showed concerns regarding the in migration of labour for the project as it would raise the pressure on existing infrastructure like health facilities, educational facilities, roads etc. There may be chances of rise in conflicts among the locals and the in-migrants and the stakeholders also opined that there are chances in rise in crime rates and anti-social activities in the area because of migration. The area may also witness cultural mixing. Further, there would also be problem of traffic, air and noise pollution because of the heavy transport vehicles, material transport and construction. The area may also witness rise in health problems due to construction activities and quarrying.

During the post construction phase, the stakeholders opined that the area may witness reduced pollution and better living environment. Due to funds like LADA the area would also witness further development. A cultural stability may also be witnessed during this stage. However, they also highlighted some negative impacts which may arise during this phase such as, due to drop in construction activities there would be less employment and business opportunities for locals and may also lead to unemployment to the temporary work force involved in the project.

The area may witness sudden fall in local economy and low consumption of goods and services due to out migration of the temporary workers involved in construction stage. Consequently, People may face difficulty in maintaining the living standards set forth due to the increased income level during construction phase.

Table below summarizes various possible social, economical and cultural impacts found by the study at different stages of project cycle:

**Table 6-1: Impacts During Various Stages of Project**

Stage	Social Impacts	Economic Impacts	Cultural Impacts
Pre-Construction Stage	<ul style="list-style-type: none"> <li>• Disputes among stakeholders for receiving compensation may arise.</li> <li>• Doubts and fear of the upcoming changes such as rise in water levels, humidity, increased landslides etc.</li> <li>• Loss of cremation grounds</li> <li>• Loss of common property such as drinking water resources, gharats, etc will have adverse effect on quality of life.</li> </ul>	<ul style="list-style-type: none"> <li>• Prices of land in surrounding area may increase due to upcoming project.</li> <li>• Sudden change in financial condition of the PAFs due to the compensation awarded, their purchasing capacity may change and would also increase the risk of fund miss-management.</li> <li>• Loss of infrastructure such as ropeways, existing irrigation facilities, etc will have negative impact on the economy of project affected and surrounding areas. The acquisition of forest land will negatively impact the villagers since</li> </ul>	With change of spending pattern of people getting benefitted due to upcoming project, there would be an impact on cultural practices and traditions.

Stage	Social Impacts	Economic Impacts	Cultural Impacts
		they have high dependency for collection of fodder and firewood.	
Construction Stage	<p>In-migration of construction workers and technical staff will increase burden on existing health care centers, hygiene.</p> <p>Migration may increase pressure on the existing Educational Institutes also.</p> <p>Social divide may be created between people who are getting benefitted from the project and people who remain unaffected.</p> <p>Living standards of the habitants may improve due to the overall development of the area because of the upcoming project.</p> <p>A sense of safety and security may decrease among locals as a result of in-migration.</p> <p>Conflict may rise with outsiders and area may see rise in crime and anti-social activities.</p> <p>The area may witness rise in health problems and diseases due to construction, quarrying etc.</p> <p>Heavy transportation during construction phase may lead to increased air, land and noise pollution in the adjoining villages.</p>	<p>Increased employment and business opportunities for the locals and PAFs.</p> <p>Increased disposable income with the locals.</p> <p>Increased economic activities and consumption patterns.</p> <p>Due to in-migration the area would witness increased consumption of goods and services thereby benefitting the local business.</p>	<p>Due to In-migration people will come from other states and bring their own culture, beliefs, religious practices, clothing patterns etc. which may impact existing cultural practices and traditions of the local habitants.</p>
Post-Construction Stage	<p>Pollution caused by construction activities will reduce and the area may witness better living environment.</p> <p>People may face difficulty in maintaining the living standards set forth due to the increased income level during construction phase.</p>	<p>Due to drop in construction activities there would be less employment and business opportunities for locals and may also lead to unemployment to the temporary work force involved in the project.</p> <p>The area may witness sudden fall in local economy due to out migration of the temporary workers involved in construction stage.</p>	<p>Cultural stability maybe seen during this phase.</p>

Stage	Social Impacts	Economic Impacts	Cultural Impacts
		Due to funds like LADA area may witness further improvement in infrastructure development even after construction phase.	

\*Source: Primary Survey

### 6.3 Indicative list of impacts areas

The impacts can be positive or negative. In this project it has been found through surveys and discussions that people expect land acquisition will give them better monetary compensation which in turn would help them in improving their well-being. Though the affected families felt that the loss of land and livelihood etc. would be irreparable. The objective of the household survey was to generate an inventory of social impacts on the project affected families, type and ownership of property, type of impact and its magnitude and details of affected property. The major findings and magnitude of impacts are discussed in the following sections.

#### 6.3.1 Impacts on Landowners

The proposed project requires land for dumping area, There are 3 Gharat structures coming under acquisition. 96% have reported to practice agriculture/horticulture on the land being acquired with varying intensity. The anticipated impacts will be loss of land which will deprive the affected families of their agricultural income and alter the way of life. Further, the project involves construction work which will affect the adjacent landowners and others due to air, land and water pollution. They also worried that if natural drainage channels are disturbed they will pose danger to the surroundings and resulting flooding and landslides.

#### 6.3.2 Impacts on livelihoods and income

The primary livelihood activity on the land being acquired is agriculture and horticulture. Although none of the stakeholders are completely dependent on agriculture as their main income source. The study found that most of the stakeholders have at least one family member working in the service sector which serves as their main source of income. However, 206 of the total landowners reported that agriculture does play crucial role in maintaining their overall family income. Details of income of PAFs have already been discussed in above chapter.

Also, no tenants/lessees were found during the survey. the stakeholders reported that since the landholding size is small, all agriculture/horticulture work is carried out by the family itself. Seasonally agriculture labour is also employed for a short duration but this labour is temporary and often migrating.

### 6.3.3 Impacts on physical resources

#### 6.3.3.1 Loss of Private Assets

No Residential structures located near the river channel would be affected due to the proposed construction activity or submergence. Beside the land, total of 3 Gharats are also coming under the acquisition as independent structures.

The table below gives the village wise details of the residential structures and assets attached to it being lost due to the proposed acquisition.

It should be noted that the figures of fruit and non-fruit bearing trees is as per respondents. However, the actual number of the trees will be enumerated and the actual value will be assessed by the competent authorities

**Table 6-2: Loss of structures**

District	Village	Residential Structures	Independent toilet structures	Independent Kitchen structures	cowshed	Gharats
Shimla	Lunsu	NO	NO	NO	NO	NO
Shimla	Moongna	NO	NO	NO	NO	NO
Shimla	Jaishi	NO	NO	NO	NO	Yes
Shimla	Bharara	NO	NO	NO	NO	Yes
Shimla	Majrog	NO	NO	NO	NO	NO
Mandi	Bhoura	NO	NO	NO	NO	NO
Mandi	Jakleen	NO	NO	NO	NO	NO
Mandi	Mangan	NO	NO	NO	NO	NO
Mandi	Fafan	NO	NO	NO	NO	NO
Mandi	Parlog	NO	NO	NO	NO	NO
Mandi	Beludhank	NO	NO	NO	NO	Yes
Mandi	Kharyali	NO	NO	NO	NO	NO
<b>Total</b>						

*\*Source: Primary Survey*

### 6.3.4 Impact on Biodiversity and Environment

Biological resources are among the most important resources impacted by such huge projects. A detailed baseline study of these resources is essential to estimate the magnitude of potential impacts and to avoid or mitigate any loss caused by the proposed project. It is necessary to have separate detailed Environment Impact Assessment (EIA) done to identify the specific impacts on the flora and fauna in the forest areas of the proposed project.

### **6.3.5 Impacts on public services and utilities**

Since the private land is proposed to be acquired Loss of access to commonly owned assets (forestlands, water bodies, grazing lands, gharats, cremation grounds and so on) is often overlooked and uncompensated, particularly for the asset less as they are considered to be providing indirect benefits to the community which could not be quantified. But absence of the same do affect the quality of life of the community.

Since the acquisition of land is additional part of earlier acquisition which will not create a massive impact on livelihood of people. The study found that the villagers have dependency on forests for collection of cattle fodder and collection of firewood.

Besides this, there will be increased movement of people, material, equipment and in-migration during the construction phase which will create an extra load on the available infrastructure such as roads, existing health and educational facilities etc. which therefore need to be strengthened beforehand. The table below gives the village wise details of the loss of public services and utilities due to the proposed acquisition.

### **6.3.6 Impacts on health, culture and social cohesion**

The study found that there may occur impact on health of villagers in the project area due to increased humidity, vulnerability to water borne diseases, increased air and noise pollution, increased stress on existing health facilities.

The respondents were also apprehensive about chances of rise in conflicts among the locals and the in-migrants. They opined that there are chances in rise in crime rates and anti-social activities in the area because of migration. The area may also witness cultural mixing. However, due to in migration the area would also witness increased consumption of goods which would benefit the local economy

### **6.3.7 Gender based impacts**

**Gender Equality:** Since the project area is agrarian based, livelihood activities of villagers are dependent on land. One of the possible impacts of proposed acquisition of land can be unavailability of work opportunities to the females in project area due to the loss of land. Even if the females are educated, they do not prefer to go out of the village to earn livelihood. Another impact possible is degradation of economic status of females since many of them don't have any legal claim on papers over the land hence they might will not qualify for compensation of land-loss and they fall in the category of indirectly affected PAPs. Table given below gives a gender wise distribution of PAPs in the project area:

Since the project area is mainly agrarian, one of the sources of livelihood activities are land dependent. During the study it was observed that women of the household too participate in carrying out the agricultural activities in the area along with men. Apart from agriculture, during the day women were found to be more involved in carrying out other activities such as maintenance of cattle and poultry, collection of cattle fodder and firewood for the household etc. Although these activities play a crucial role towards the economic wellbeing of any household, however to quantify the same becomes difficult.

## **6.4 Impacts as Perceived by the PAPs**

Consultation with the affected landowners was the starting point to address involuntary issues, concerning resettlement. People affected by this project have apprehensions regarding their loss due to land acquisition.

During the Primary Survey, the respondents shared that there would be some positive impacts due to the Sunni HEP activities. These includes an increase in the employment and income opportunities- within the project and in the ambit of the forward and backward linkages. The increase in the value of land is another big positive according to the respondents. Majority of them also believed that it will create scope for increase in business opportunities. Also, some of them are hopeful that due to a better road network there would be an increase in the average vehicular

speed and increased frequency of transportation services. Most of the PAPs were also positive about the overall development especially infrastructural development (social and physical) that would occur in the project villages due to the upcoming HEP.

The respondents also seemed to be worried about some of the negative impacts. The main among these was the loss of land. This in itself carries a huge impact on their livelihoods, way of life and social relationships. Next impacts are related to the influx of in-migrants from different parts of the state or from different states- that may instigate conflict between the locals and the outsiders, an intrusion to their culture and social life, more pressure on the existing natural resources and on the infrastructure.

**Table 6-3: Impacts Perceived by the PAPs**

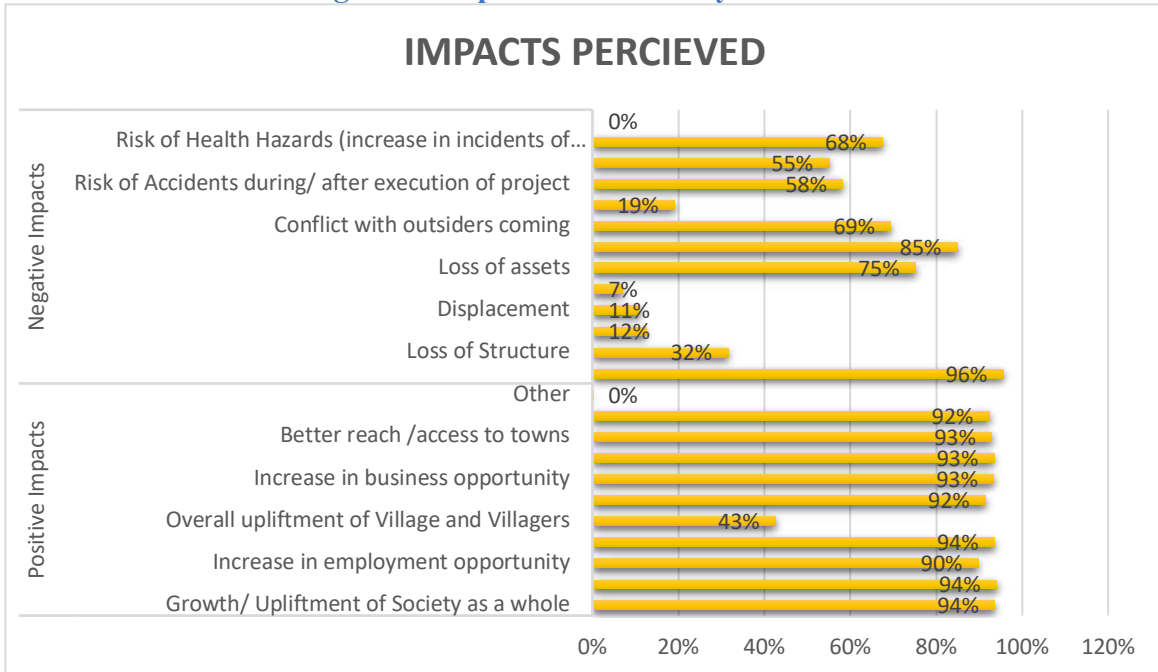
S. No	Type of Impact	Description	% of Responses
1	Positive Impacts	Growth/ Upliftment of Society as a whole	94%
2		Better utilization of existing natural resources for public	94%
3		Increase in employment opportunity	90%
4		Betterment of economic Status	94%
5		Overall upliftment of Village and Villagers	43%
6		Availability of Better Services	92%
7		Increase in business opportunity	93%
8		Increase in land price	93%
9		Better reach /access to towns	93%
10		Better Quality of Life	92%
11		Other	0%
12	Negative Impacts	Loss of Land	96%
13		Loss of Structure	32%
14		Loss of Livelihood	12%
15		Displacement	11%
16		Risk of Financial Safety	7%
17		Loss of assets (both private and public)	75%
18		Increased Pollution	85%
19		Conflict with outsiders coming	69%
20		Degradation of quality of Life	19%
21		Risk of Accidents during/ after execution of project	58%



S. No	Type of Impact	Description	% of Responses
22		Pressure on existing infrastructure	55%
23		Risk of Health Hazards (increase in incidents of HIV/AIDS and Trafficking etc.)	68%
24		Other	0%

\*Source: Primary Survey

**Figure 9: Impacts Perceived by the PAPs**



\*Source: Primary Survey

Apart from the negative impacts, people are also optimistic about the positive impacts that the project will bring along with. They are hopeful to get better job opportunities because of the upcoming project, growth/ upliftment of society as a whole, better utilization of existing natural resources for public, betterment of economic status, increase in business opportunity and land prices, better connectivity with neighboring towns and better quality of life overall.

Apart from loss of land, structure and assets, people showed their concern for increased level of pollution due to construction activities, loss of livelihood, risk on financial safety, conflicts with outsiders coming to their villages for construction work, risk of health hazards, pressure on existing infrastructure and risk of accidents during construction period.

## 6.5 Awareness about the Sunni Dam Hydro Electrical Project

During the primary survey, on an average, 87% respondents that they were partially aware about the upcoming Hydro Electric Project, its purpose and compensation they are eligible for. 8% said they are completely aware and 5% told that they are not at all aware about the project, its purpose and eligible compensation they are eligible for.

**Table 6-4: Awareness about the Sunni Dam Hydro Electrical Project**

Awareness	Awareness about the Hydro Electric Power Project	Awareness about project purpose	Awareness regarding eligible compensation
Completely	8%	8%	5%
Partially	87%	87%	87%
Not at All Aware	5%	5%	8%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*\*Source: Primary Survey*

During the survey 99.5% of respondents expressed their interest in getting to know more about the project, its purpose, benefits to individuals/ families/village on whole, compensation they are eligible for and possible positive/ negative impacts on the individuals/ families/village.

**Table 6-5: Major Source of Information About the Project for PAPs**

Source of Information	
Radio	2%
Newspaper	2%
Govt Officials	17%
Other Villagers	78%
Other	1%

*\*Source: Primary Survey*

It was also found during the primary survey that 78% of PAPs got to know about the project through other villagers, 17% got to know about it through some government officials, 2% got the information about the project and proposed acquisition through radio and newspaper each.

## 6.6 Consent for the Project

During the survey, 91% people said that they have no objection over the upcoming Sunni HEP project or proposed acquisition, 8% on the other hand expressed their objection over the proposed acquisition of the land for HEP project and remaining 1% were not sure about it.

**Table 6-6: Any objection regarding acquisition By PAPs**

Yes	8%
No	91%
Can't Say	1%
<b>Total</b>	<b>100%</b>
<i>*Source: Primary Survey</i>	

## 6.7 Compensation Preferences

During the survey majority of the PAP demanded cash compensation against land acquisition.

## 6.8 Use of Cash Compensation Received

During the primary survey, almost 61% PAPs said that they will use the cash compensation received to buy a land for agriculture or new house, almost 25% said that they will save it in bank for future use, 2 % responded that they would like to invest it in some other business, almost 12% people said that they are not yet sure how they will use the compensation received and less than 1% expressed their interest in buying a new house with compensation amount received.

**Table 6-7: Use of Compensation Received**

Use of Compensation Received	% of Responses
1. By buying a land for agriculture/ shelter	61.41%
2.By buying a house	0.23%
3.By saving it for future in bank	24.52%
4.By investing it in some other business	1.93%
5. Not decided	11.92%
<i>*Source: Primary Survey</i>	

## 7 Analysis of Costs and Benefits and Recommendations on Acquisition

In this chapter final conclusions regarding assessment of public purpose, less displacing alternatives, minimum land requirements, viability and extent of mitigation measures are discussed along with nature and intensity of social impacts. Finally, the chapter aims to capture the tentative overall benefits of the proposed project and the proposed acquisition and compared with the impacts being inflicted on the direct stakeholders of the project area like PAPs, project affected panchayats and adjoining area, thereby giving a final recommendation of whether the acquisition should go through or not.

### 7.1 Assessment of Public Purpose

The strategy followed in Himachal Pradesh for exploitation of hydroelectric power is to produce as much energy as possible with minimum cost and with minimum environment negative impacts. The speedy exploitation of hydroelectric power potential will definitely improve the economic health of the State because 12 percent free power plus 1.5% LADF (Local Area Development Fund) of the project cost, on all new installations will increase the resources of the state to a significant extent. Also, 1% free power out of revenue generated will be distributed among the residents of the affected 12 villages under LADA for the entire life span of the project plus 100 units free electricity power in terms of cash will be given to the project affected families for 10 years after electricity generation. There is also an entitlement to compensation in terms of cash at market rate on account of damage to standing crops at the time of taking possession. The need for hydroelectric projects also arises from the need, to fulfill a steady increase in peak electricity demand and the growing energy deficit in the Northern Region.<sup>19</sup>

The Sunni Dam Hydro Electrical Project (382MW) is a run of river type development proposed scheme in order to harness optimal hydel potential river of Satluj. SJVN Limited is the implementing agency for the same. The project is aimed at bridging the gap in power supply in the Northern Region and increasing the State's revenue by exploiting maximum energy resources with minimum hazardous and minimum social-environmental impacts on the local habitants.

Expected power generation of Sunni HEP would be 1381.77 GWH per year. The total project cost is estimated to be 2,911.85 crores. The expected revenue from the project in its first year of commencement would be 648 crores in the first year and 608 crores in subsequent years. The project is estimated to generate a total of permanent/regular employment of 310 persons and a temporary employment of 56,57,500 person-days during its pre-construction phase, construction phase and after the commencement of the project. This employment would be generated for skilled, semi-skilled and unskilled labourers. As per the HP govt. rules, 70% of the employment should be

<sup>19</sup> (Department of MPP and Power, 2019)

reserved for the residents of Himachal Pradesh. In this case, PAFs would be given priorities for the employment generated at the project level.

As per Section 2 sub-section 1(b) of the RTFCTLARR Act, 2013 the Sunni Dam Hydro-Electrical Project (382 MW) is well justified under the definition of infrastructure projects (energy generation) for public purpose.

## 7.2 Less Displacing Alternatives & Minimum Land Requirement

The Sunni Dam hydro electrical project is part of The Luhri Project which contemplates construction of three dams in three stages viz. Luhri Hydro-Electric Project Stage-I (210 MW), Luhri Hydro Electric Project Stage-II (172 MW) and Sunni Dam Hydro-Electrical Project (382 MW).

On the downstream of Sunni Dam HEP lies the 800 MW Kol Dam HEP. On the upstream of the Luhri project lies the 412 MW Rampur HEP which in-turn utilizes water discharged from the further upstream 1500 MW Nathpa-Jhakri project.

Conclusively, there are currently 6 HEPs commissioned consecutively on the Satluj river between Nathpa-Jhakri and Kol Dam over a stretch of approximately 250 km. Since the Sunni Dam HEP is part of the Luhri project and lies between the Kol Dam and Luhri Stage-II HEP, therefore, leaving limited scope for any alternative location for the project.

However, alternatives regarding the Layout of the project has been studied in detail to finalize the best location for Dam and power house. After studying the alternative proposals with different geotechnical aspects, location, capacity, and nature, the present proposal with a capacity of 382 MW and the Dam site at Khaira village has been selected. The current project design was chosen after a critical consideration of minimum requirement of land acquisition and most viable engineering design..

## 7.3 Nature and Intensity of Social Impacts

An impact, if permanent in nature, will have same intensity during post construction phase as during pre-construction/ construction stage on the other hand temporary impacts will show a continuous decrease in intensity during following stages of project cycle. Any impact lasting even after the construction phase is considered as long-term impact and if it lasts only till the construction phase is going on, it is considered as short-term impact.

The table given below shows the nature and intensity of various identified impacts during different stages of project cycle:

**Table 7-1: Nature and Intensity of Impacts**

<b>Impact Area</b>	<b>S. No.</b>	<b>Impact Identified</b>	<b>Stage of Project cycle</b>	<b>Nature of Impact</b>	<b>Intensity of Impact</b>
Social	1.	Disputes among stakeholders for receiving compensation	Pre-Construction	Temporary	Short term
	2.	Social divide created between people who are getting benefitted from the project and people who remain unaffected.		Temporary	Short term
	3.	Impact on existing cultural practices and traditions of the local habitants due the in-migration.	Construction Phase	Temporary	Long term
Land/ Structure	4.	Loss of agricultural land	Construction phase	Permanent	Long term
	5.	Landlessness among PAPs		Permanent	Short term
	6.	Loss of shelter for PAPs		Permanent	Short term
	7.	Loss of public infrastructure like ropeways, bridges, gharats, roads, water pipelines, pumphouses, schools, etc.		Temporary	Short term
	8.	Loss of common property		Temporary	Short term
Livelihood/ Income	9.	Loss of agricultural income	Pre-Construction Phase	Permanent	Long term
	10.	Loss of livelihood option for people indirectly dependent on land being acquired. For eg: agricultural labourers, vendors, etc.		Temporary	Short term
	11.	Increased consumption of goods due to in migration benefitting the local economy.	Construction Phase	Temporary	Short term
	12.	Job opportunity for local villagers and PAPs in construction work.	Construction Phase	Temporary	Short term
	13.	Increase in land prices	Construction and Post Construction Phase	Permanent	Long term
	14.	Sudden change in financial condition of the PAFs due to the compensation awarded, their purchasing capacity will change and would also increase the risk of fund mismanagement.	Pre construction	Temporary	Short term
Physical Resources	15.	Loss of private assets like trees, water tanks, toilets and kitchens.	Construction Phase	Temporary	Short term
	16.	Increased pressure on existing infrastructure such as PHC, educational institutes, roads, etc.	Construction Phase	Temporary	Short term
Biodiversity/ environment	17.	Loss of forest land serving as primary source for fodder and firewood collection for people living in affected villages and neighboring areas.	Construction Phase and Post Construction	Permanent	Long term

	18.	Increased humidity due to construction of reservoir.	Construction Phase and Post Construction	Permanent	Long term
	19.	Increased level of air, water and noise pollution due to construction activity and quarrying.	Construction Phase	Temporary	Short term
Health	20.	Risk of water borne diseases due to increased pollution level.	Construction Phase	Temporary	Short term
	21.	Risk of Accidents during/ after execution of project	Construction Phase	Temporary	Short term
	22.	Risk of Health Hazards (increase in incidents of HIV/AIDS and Trafficking etc.)	Construction Phase	Temporary	Short term
Quality of life	23.	Rise in traffic esp. heavy vehicular traffic	Construction Phase	Temporary	Short term
	24.	Possible disputes among local villagers and migrants.	Construction Phase	Temporary	Short term
	25.	Compromised connectivity among various villages.	Construction Phase	Temporary	Short term
	26.	Degradation of irrigation facility.	Construction Phase	Temporary	Short term
	27.	Degradation in availability of drinking water due to loss of natural spring and pumphouses.	Construction Phase	Temporary	Short term
	28.	Loss in sense of social security due to in-migration.	Construction Phase	Temporary	Short term
	29.	Overall development of village.	Post construction	Permanent	Long term
<i>*Source: Team SIA</i>					

As shown in the table above, most of the impacts are temporary and short term which if properly mitigated can be minimized.

## 7.4 Viability of the Suggested Mitigation Measures

The Mitigation measures suggested by the study have been discussed in details under the Social Impact Management Plan (SIMP). Based on the opinions and demands of the affected families, Panchayats and community as a whole and considering different aspects of the project and the involvement of the State Government, there are both positive as well as negative impacts of the project. While there is hope of development of the area due to the upcoming HEP, there are also visible fears and apprehensions in the community regarding the project.



The expected negative impacts by the Landowners include loss of land, increase in pollution levels, sudden drop in activities dependent on the private and forest land, influx of outside population resulting in rise of safety-security concerns, social conflicts etc. Due to project activities and loss of public utilities, the residents of project affected villages and nearby area would face a difficulty in access to road communication, which will in turn affect the social relations between people of different Panchayats/villages and the families which will be displaced due to submergence. However, the suggested infrastructural mitigation measures if followed in a planned manner would almost negate these impacts to a bare minimum.

There is a general optimism about the positive impacts that would come through the implementation of this project such as increase in employment opportunities, land price, and increased scope for small and medium business ventures. better road network including better connectivity across both banks of the river, higher frequency and better-quality transportation services. The infrastructural facilities especially irrigation, drinking water, health, education, electricity and drainage will also be improved and the area will become a landmark in the HEP Map of Himachal Pradesh.

In addition, the expected revenue to the State from implementation of this project is about 604 crores per year thereby increasing the overall economic health of the State. Furthermore, due to the availability of funds like LADA and CSR, the project area would witness accelerated development during construction and post construction phases of the project.

Land acquisition and involuntary resettlement has been minimized due to the selection of best available alternative site and project design among the possible alternatives. The current proposed acquisition will have the least adverse impact on the PAFs and communities in the project area. Where the households (including communities) are losing assets, livelihoods or resources will be fully compensated and assisted so that they can improve, or at least restore to their former economic and social conditions.

Compensation, rehabilitation and resettlement support will be provided to the PAFs, that is, any person or household or business which on account of proposed project implementation would have theirs:

- (a) Standard of living badly affected;
- (b) Right, title or interest in any house, interest in, or right to use, any land including premises, agricultural and grazing land, commercial properties, tenancy, or right in annual or perennial crops and trees or any other fixed or moveable assets, acquired or possessed, temporarily or permanently;
- (c) Income earning opportunities, business, occupation, work or place of residence or habitat adversely affected temporarily or permanently; or,
- (d) Social and cultural activities and relationships affected or any other losses that may be identified during the process of resettlement planning.

All PAFs residing, working, doing business and / or cultivating land within the proposed project impacted areas including inventory of lost assets, are entitled to compensation proportionately for their lost assets (both land and non-land assets) and restoration of income and businesses; and will be provided with rehabilitation measures sufficient to assist them to improve or at least maintain their pre-project living standards, income-earning capacity and production levels.

The resettlement plans will be designed in accordance with the RTFCTLARR Act, 2013 and the HP RTFCTLARR Rules 2015 and the latest R&R policy.

Adequate budgetary support will be fully committed and made available by the project authorities to cover the costs of land acquisition (including compensation and income restoration measures) within the agreed implementation period.

Displacement would not occur before making provisions of compensation and of other admissible assistance required for relocation. Acquisition of assets, payment of compensation, and the resettlement and start of the livelihood rehabilitation activities of PAFs, will be completed prior to project construction activities. Livelihood and income restoration measures must also be in place but as these may take time, not necessarily completed prior to construction activities.

Having said that if requiring body and state government take appropriate measures to mitigate the various losses of the PAPs and the community at large and, considering the positive development and interests of the state, the project benefits will largely overshadow the adverse social cost of the project.

### **7.4.1 Final Recommendation**

From the above analysis it is clear that the project benefits will be extended not only to the people of the affected area but also to the entire district and state. Infact the entire northern region stands to be benefited from this upcoming project. Implementation of the Sunni HEP project will bear both positive and negative impact on the project. However, If the proposed Mitigation Plan is followed, it will help mitigate the social impacts by minimizing the negative impacts and amplify the positive impacts, thereby overshadowing the adverse social costs.

Therefore keeping in mind the macro picture of this project which will benefit and contribute towards the development of the State and consequently the country as a whole, the study recommends that the proposed land acquisition for the Sunni Dam hydro-electrical project (382 MW) should be carried out, provided that all measures suggested mitigate the various identified impacts are followed judiciously.

## 8 Social Impact Management Plan

### 8.1 Approach to mitigation

This Social Impact Management Plan (SIMP) has been prepared in accordance to the RFCTLARR Act, 2013 and the HP RTFCTLARR Rules, 2015 with the aim to mitigate negative social impacts and enhance the positive impacts of Sunni HEP (382 MW). It consists of a set of mitigation, monitoring and institutional measures that needs to be taken during the design, construction and operational phases of the project to eliminate adverse social impacts or to reduce them to acceptable levels. The SIMP may be implemented during the various stages of the project viz. pre-construction stage, construction stage and operational stage. A description of the various management measures suggested during different stages of the project is provided in following section.

### 8.2 Measures to Avoid, Mitigate and Compensate Impacts

#### 8.2.1 Social measures

1. If there is any dispute between the stakeholders, then this dispute should be resolved first and made sure that the compensation is given to the legal owner.
2. Provide funds for Construction/ upgradation of temples of local deities in the villages
3. Construction of Community halls in all villages and Panchayats of the project area
4. Construction, repair and up gradation of building/structures used as Mahila Mandal, Yuvak Mandal and Gram Panchayat Offices.
5. Efforts should be made for the upliftment of women and marginal sections by enhancing their traditional skills and developing new skills.
6. Project affected persons and families have requested for updation and increase of circle rates before calculation of compensation from the market value.
7. Jobs to PAPs and PAFs should be provided as per the provisions of the RFCTLARR Act, 2013
8. After commissioning of the project PAFs may be provided with Special Subsidised Tariff rates or provide few free units per month or both.
9. **Street lighting-** Almost all panchayats and villages have requested to be provided with streetlights.
10. **Promotion of sports** – In order to promote physical fitness and sports, youths engaged in sports should be encouraged. The requiring body can organize Sports Competition in the affected panchayats and provide sports kits to the local Sports/Youth Clubs. Promising athletes can further be endorsed and provided employment opportunity in the project.

11. Sports complex can also be developed by converging with the district administration and concern departments, which may promote bright athletes and create employment for the locals.

1. **Drinking Water Supply** – From the discussion with the villagers and observation during FGDs, it was found that the villagers are using Bavdis and natural spring/aquifer water as drinking water or have made some arrangements to pump water from the river or nearby rivulet.

2. **Health Facilities** - As per the discussion with the villagers of the affected area, there are few government health facilities/centres established of different levels but the services offered are inadequate and the distances are huge.

In Mogra Panchayat, project affected villages Majrog and Jhun-Jhun are backward villages lying at a distance of 50km from the main Panchayat. The villagers here have demanded to provide them an upgraded health clinic, an ambulance road to connect both villages to Sunni and a dedicated toll-free ambulance service. Similarly, all Panchayats have complaints regarding inadequate health facilities and have requested to upgrade health facilities in all villages of the project area.

Hence, the existing government facilities may be upgraded in order to provide adequate medical and health facility. The requiring body may open a Level 3 health facility at a convenient location which is well connected to the affected villages and is equipped to cater the needs of the affected area. A Mobile Medical Van can also be started in the area scheduled to visit on fixed days with essential test equipment and referral system. Apart from that, an ambulance service with toll free number (like 108 service of NHM) can be started.

3. **School and Scholarships** – To impart quality education for the children in the affected area, schools can also be started where the children of affected families may get the first priority during admission. These Children may also be considered for fee concession. The requiring body may also provide scholarships to bright and meritorious students.

Requiring body may also help these students in opting for higher education/ professional trades such as Engineering, Medical, Law and CA/CS etc. for which they can share a percentage of fees/accommodation cost of the student and later may absorb them in the organization as per their skill sets. This could prove to be a long-term investment for the requiring body as well as a great help to the affected families who are making efforts for their children's higher education.

Also, Since the Requiring body is PSU, it may officially have an MOU with the education department of the State to adopt/partly sponsor/upgrade the existing infrastructure of

government schools and may even consider to operate these schools in the project affected villages.

4. **Technical Institution** - Technical institutions can be established in the area or collaborated with existing technical institution, to offer courses like Food Preservation and Processing, Civil Construction, Vehicle Repair and related to Electrical fields. An independent survey can be conducted to understand the future needs of the area, available resources and interest of the project affected families before finalizing the trades offered by the technical institution.

## 8.2.2 Rehabilitation and Resettlement Measures

1. **Promotion of Horticulture and Herbal Plants:** The agro-climatic conditions of Project area are quite suitable for tropical and sub-tropical fruits. The places at higher altitudes produce apple, cherry, plums, apricot and lower areas produce mangoes, litchis, guava and citrus fruits. Citrus fruits like Kagzi Lemons, Kinnu and Orange can be propagated in the area. Herbal Plants may also be promoted in the area with support from the concern department.
2. **Promotion of Tourism:** If adequate attention is paid by the administration, this area can be developed as a tourist destination as well as hub for water related activities /sports. River side camps and rafting can be promoted in the PPP mode which might generate regular income for the affected families. Also Ferrying and boat activities may be permitted to increase connectivity between both banks.
3. **Promotion of Fisheries:** The project will provide congenial conditions for development of fisheries. Training can be imparted in Pisciculture to the interested persons in the affected area. Interested people and fishermen (from the affected families) can be supported by granting fishing license from the concerned department.
4. **Animal Husbandry:** Livestock is also owned by the population in the affected areas. Animal husbandry, which is helpful to small and marginal farmers for increasing their income, can be commercialized. A milk cooperative can be promoted in the area which will benefit not only the project affected families but also the entire area.
5. **Forming and Strengthening Self-Help Groups (SHGs):** The requiring body may provide opportunities for women to come together and form SHGs and strengthen the existing ones with proper training and to earn their livelihoods through credit offered under various

schemes. Handicraft, diary, shawl making, stitching and embroidery etc. can also be introduced.

6. **Institutional linkages and skill upgradation for income restoration:** Requiring body can play a proactive role to mobilize affected family members to get some vocational/ skills training opportunities and also support in establishing forward and backward linkages for raw materials, inputs, besides marketing and credit facilities. District administration and other stakeholders in institutional financing and marketing may prepare micro-plans for undertaking such activities. In case of creation of alternative livelihoods schemes, needs of the target population will be studied and prioritized in a participatory manner. Various poverty alleviation and income generation schemes sponsored by the state govt. and GOI shall be converged for offering income restoration options to the affected population.
7. **Project-based Employment:** Preference to Project-related employment opportunities such as work under the project construction, maintenance, supply and transportation contracts can be given to the affected families.
8. The compensation for the damage of the crops and horticulture activities including fruit bearing and non-fruit bearing trees during the project should be appropriately compensated.
9. The requiring body may also run skill development programs for upgradation of skills of individuals for them to be able to receive better employment opportunity in the project.
10. During the operational and other stages of this project the preference should be given to award petty contracts in construction, supply and transportation to PAPs and PAFs and also to Locals of the Affected Gram Panchayats.

### 8.2.3 Environmental Measures

**D) Afforestation** – Due to the proposed project forest cover will be adversely affected. To restore the ecosystem and mitigate the ecological losses, afforestation can be undertaken in the government land. The process should involve the forest department, requiring body and the community. These efforts will not only help in restoring the losses but also provide employment opportunity to local people.

Apart from that, plantation may be done in the susceptible area for check on soil erosion in the private land. It will check the loss of fertility of the soil and minimize associated risks. Furthermore, Plantations along the river banks would effectively reduce the risk of landslides due to rise in water levels and during monsoons.

## II) Noise pollution and vehicular traffic

Noise pollution and traffic may be minimized by:

- a) Defining specific hours of the day for entry of heavy transport vehicles.
- b) Regulating the number of heavy vehicles that can enter/leave the project site in one day.
- c) Strict instructions to the drivers to minimize the use of horns.
- d) Complete ban on pressure horns on transport vehicles.
- e) Staggering the timings of transport vehicles evenly throughout the day in order to avoid unnecessary overload on the roads and traffic situations.
- f) Strict instructions to drivers of heavy vehicles to give regular overtake passes on priority to small vehicles and adhering to speed limits.

## III) AIR Pollution

Air pollution arising due to dust during transportation, construction, excavation, mining and dumping may be mitigated by affectively covering the construction site, transport vehicles such as trucks, tippers etc. mining & dumping sites. Also, regular water spray throughout the day in the project area will also helps in reducing air pollution.

## IV) Water Pollution, Water borne Diseases and increased humidity.

1. Water pollution may be minimized by strictly assuring that during excavation and mining minimalistic dumping occurs in the river.
2. The dumping site should be created away from the river banks in order to avoid the dump entering the river especially during rains and monsoons.
3. The storage units of construction material especially sand and aggregate should also be place away from the river banks.
4. The dumping site should have proper drainage arrangements and garland drain should be provided for safe passage of storm water. The garland drain should be properly cascaded to check the erosive velocity to avoid any channel erosion.
5. After the exhaust of the dumping capacity of the sites, the dumping site should be developed as public utility site such as parks, parking sites or any other public utility sites.
6. The excavated top soil should be stored in separated heaps and should be utilised in rehabilitating / developing the sites.
7. Increased humidity due to the reservoir may be minimized by Afforestation. However special care should be taken to plant Local trees instead of alien decorative trees. Also, only those varieties of trees should be planted that reduce humidity and help keep surroundings comparatively cooler



## V) Risk of Land Slides Due to increase in Water Levels

The competent authorities may make sure to build embankment walls/retaining walls etc. at vulnerable locations in order to check the river course and minimize risk to landslides due to increased water levels in the river.

Drainage System- There is a need for developing proper drainage systems in the affected villages. The feasibility of the drainage pipes along the roads should be explored in the given terrain conditions.

### 8.2.4 Other measures:

1. Compensation should be given in fixed time frame to Project Affected People.
2. Project Affected People should be given technical and financial counselling for the productive usage and safe investment of compensation money.
3. To device proper phasing plan for distribution of compensation for PAPs and PAFs who want to opt for compensation in phasing.
4. **Local Area Development Committee** LADF Contribution is 1.5% of the project cost during construction period of the project. Thereafter 1% shall be earmarked for the LADF to provide a regular stream of income generation and welfare schemes on a sustained and continued basis over the life of the project. The Govt. of HP may also provide matching 1% from its share of 12% free through plan/budgetary provisions to the LADF. These provisions need to be widely discussed with project affected families and for that, a Local Area Development committee (LADC) can be formed comprising various stakeholders such as government departments, members from project affected families and requiring body officials.
5. **Revision of Circle rates** Many of the PAPs and PAFs feel that the existing circle rates of their land is very low. They have therefore requested to revise and increase the circle rates. The applicable circle rates for 12 villages fall anywhere between Rs 250-Rs 800 per sq. m. for cultivable land and Rs 250-Rs 550 for non-cultivable land. The concerned authorities may look into this issue and revise the circle rates of the Panchayats appropriately in accordance to the relevant laws.
6. **Awareness & Financial Literacy Camps**—Various awareness programs related to health, hygiene, nutrition, social rights etc. may be organized frequently in the area. This will help the affected villagers to cope with the social changes brought in by the huge influx of population and anticipated changes in the pattern of health issues.

Also, Special financial Literacy camps may be organized to educate villagers about safe investments, investment plans, money management etc since many would be receiving heavy compensations.

It has been observed in many land acquisition projects that whenever bulk money has been disbursed to families, that money is not utilized judiciously by the family members and is generally spent on luxuries and unnecessary items and also changes the spending pattern and lifestyle of the individual/families. Sometimes, this also causes loss of traditional and cultural practices prevalent in the society. Many families are not aware of the financial management as a whole, hence concern here is compensation money will not last for long and ultimately adversely affect the families as well as society in the long run.

Moreover, there are many cases of frauds and cheats with the uneducated villagers and vulnerable groups once they have received the compensation. Therefore, the requiring body may organize Financial Literacy Camps in Affected Project area with the help of specialized external agency.

### 8.3 Measures included in R&R and compensation as per Act 2013

This SIA report will be beneficial for the requiring body to undertake land acquisition process and also to prepare a Plan of Action according to the aspiration conveyed by the project affected families and other stakeholders during public consultations and surveys. In the light of the findings of the study, the following steps may be taken for mitigation of expected social impacts.

**Table 8-1: Impacts identified and corresponding mitigation measures**

S. No	Assessed Impacts	Suggested mitigation Measures
1	Loss of Private Land (53.1964 Ha)	Appropriate Compensation to title holders and stakeholders as per the provisions of RTFCTLARR Act, 2013
2	Loss of Private Assets due to Acquisition such as Residential and commercial Structures, boundary walls, Crops, Fruit Bearing and non-fruit bearing trees. List of private assets being acquired is mentioned in Table 6-3 and 6-4	Appropriate Compensation to Owners and stakeholders as per the provisions of RTFCTLARR Act, 2013
	Revision of Circle Rates	As per the decision of District Collector and requiring body
3	Inconvenience caused due to acquisition for displaced Families and individuals	Appropriate Compensation to Owners and stakeholders as per the provisions of RTFCTLARR Act, 2013 for relocating to new location and construction of new houses

4	Loss of employment/income/livelihood dependent on land.	<p>Appropriate Compensation to Individuals as per the provisions of RTFCTLARR Act, 2013.</p> <p>2) the Requiring body may ensure employment of these individuals in the project during its construction and post construction phase depending on their skill set, qualification, age and existing income.</p> <p>3) the requiring body may also run skill development programs for upgradation of skills of these individuals for them to be able to receive better employment opportunity in the project.</p> <p>4) During the operational and other stages of this project the preference should be given to award petty contracts in construction, supply and transportation to PAPs and PAFs and also to Locals of the Affected Gram Panchayats.</p>
5	Impact on Food Security and animal husbandry: Loss of Cultivable land and grazing grounds will lead to negative impact on agriculture and animal husbandry.	<p>Agriculture Department is advised to assist the affected families to undertake intensive cultivation in the remaining land or alternate land provided.</p> <p>Similarly, they should be assisted and promoted to carry on animal husbandry practices</p>
6	Noise pollution and vehicular traffic	<p>1) Development and implementation of a management plan to mitigate the increased levels of noise, traffic, dust within the permissible limit may be taken up in consultation with local people,</p> <p>3) noise pollution and traffic may be minimized by:</p> <p>a) defining specific hours of the day for entry of heavy transport vehicles.</p> <p>b) regulating the number of heavy vehicles that can enter/leave the project site in one day.</p> <p>c) Strict instructions to the drivers to minimize the use of horns.</p>

		<p>d) complete ban on pressure horns on transport vehicles.</p> <p>e) staggering the timings of transport vehicles evenly throughout the day in order to avoid unnecessary overload on the roads and traffic situations.</p> <p>f) strict instructions to drivers of heavy vehicles to give regular overtake passes on priority to small vehicles and adhering to speed limits.</p>
7	Air pollution	<p>Air pollution arising due to dust during transportation, construction, excavation, mining and dumping may be mitigated by affectively covering the construction site, transport vehicles such as trucks, tippers etc. mining &amp; dumping sites. Also, regular water spray throughout the day in the project area will also help in reducing air pollution.</p>
8	Water Pollution, Water borne Diseases and increased humidity.	<p>1) water pollution may be minimized by strictly assuring that during excavation and mining minimalistic dumping occurs in the river.</p> <p>2) the dumping site should be created away from the river banks in order to avoid the dump entering the river especially during rains and monsoons.</p> <p>3) the storage units of construction material especially sand and aggregate should also be place away from the river banks.</p> <p>4)standing water especially after creation of reservoir should be sprayed regularly to avoid water borne diseases.</p> <p>5) increased humidity due to the reservoir may be minimized by Afforestation.</p>
9	Risk of Land Slides Due to increase in Water Levels	<p>The competent authorities may make sure to build embankment walls/retaining walls etc. at vulnerable locations in order to check the river course and minimize risk to landslides due to increased water levels in the river.</p>

		2) Afforestation and plantations along the river banks, especially on vulnerable and susceptible sites would also affectively reduce the risk of landslides.
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\*Source: Team SIA

### 8.3.1 Outlay for SIMP Implementation

The entitlement framework and the process of rehabilitation and resettlement have been furnished below in the backdrops of the legal provisions applicable for the project affected families.

An Entitlement Matrix has been developed in compliance with Laws, Rules and Policies framed by the Government of India and Government of Himachal Pradesh. The entitlement matrix summarizes the types of losses and corresponding nature and scope of entitlements.

**Table 8-2: Entitlement Matrix**

S. No	Impact Category	Unit of entitlement	Details of entitlement	Remarks
Loss of Assets- titleholders				
1	Private Land	Land Owner(s)/titleholders	(a) Cash compensation for the land at market value, which will be determined as per provisions of RFCTLARR Act, 2013 b) Amount equivalent to current stamp duty on compensation amount for replacement of lost assets. Training Assistance c) Loss of perennial and non-perennial crops and trees will be compensated in accordance with the provisions of Horticulture and Agriculture Department as applicable.  (d) A Grant of Rs 25,000 for	

			replacement of cattle shed or petty shops.	
2	Loss of structure (Residential or Commercial or Res-cum-Commercial)	Land Owner/Titleholder	<p>a) Cash compensation determined on the basis of current rates as per admissible norms</p> <p>(b) Shifting allowance of Rs 50000 as per provisions of RFCTLARR Act, 2013 for the displaced families</p> <p>(c) Provision of free house as per RFCTLARR Act 2013, for completely displaced residential/commercial or Equivalent cost of the house may be offered in lieu of the constructed house</p> <p>(d) Subsistence allowance of Rs 36,000 for the displaced families (RFCTLARR Act 2013)</p> <p>(e) Resettlement allowance of Rs 50,000 for the displaced families (RFCTLARR Act 2013)</p>	
3	Tenants and Leaseholders	Tenants and lease holders	Registered lessees will be entitled to an apportionment of the compensation payable to structure owner as per applicable local laws.	
<b>Loss of Residential and Commercial Structures - Non-Titleholders</b>				
4	Encroachers	Affected Person (Individual/	(a) Encroachers shall be given advance notice of 2	

		Family)	months in which to remove assets/crops.  (b) Right to salvage materials from affected structure	
<b>Loss of livelihood – Title and Non-Titleholders</b>				
5	Loss of livelihood – Title holders, Agriculture labour and commercial squatters	(Individual/ Family)	One-time grant of Rs 25,000 (value prescribed under RFCTLARR Act 2013)	For commercial squatters, the eligibility will become from the date of Census Survey
6	Foreseeable and unforeseen impacts likely during the construction stage	Owner, affected person	Payment of damages if any to Structures  Temporary access would be provided, wherever necessary	Such as temporary impacts on structures, temporary disruption to access or passage
7	Temporary loss of income of mobile kiosks, if any	Kiosk owner	Two months advance notice to vacate the area	
8	SC, ST		Assistance to include in government welfare schemes if not included, if eligible as per Government criteria; and  Additional benefits to SC and ST as per the provisions of RFCTLARR Act 2013 Second	

			Schedule	
9	Unforeseen impacts		Any unforeseen impacts shall be documented and mitigated in accordance with the principles and objectives of the Act.	

*\*Source: Team SIA*

Details of Cost of Resettlement and Rehabilitation has been worked out and given in tables in following section.

The entitlement framework and the process of rehabilitation and resettlement have been furnished earlier in the backdrops of the legal provisions applicable for the project affected families. Details of Cost of Resettlement and Rehabilitation has been worked out and given in tables 8.3 to 8.6.

## 8.4 Measures stated Requiring Body

No Measures have been shared by the Requiring Body. However, it was stated that separate R&R plan for this project shall be prepared in consultation with the Government in accordance to relevant laws and policies.

## 8.5 Institutional Arrangement for implementation of Rehabilitation and Resettlement Plan

As per the act 2013, where land proposed to be acquired is equal to or more than 100 acres, the government shall constitute a “Rehabilitation and Resettlement Committee” under the chairmanship of the Collector. This committee would aim to review the progress of implementation of Rehabilitation and Resettlement Schemes or plan and to carry out the post-implementation Social Audit in consultation with the Gram Sabha.

The members to be involved in the process of implementation and social audit thereafter, may be as follows:

1. A representative of women residing in the affected area.
2. A Representative of SC population residing in the affected area.
3. A Representative of a voluntary organization (NGO) working in the area.
4. The Land Acquisition Officer of the Project.
5. The Chairperson of the Panchayat/s of the affected area or their nominee/s.



6. Member of Parliament and Member of Legislative assembly of the concerned area or their nominee. (GP Pradhan)
7. A Representative of Requiring Body.
8. Administrator for R&R as the Convener.

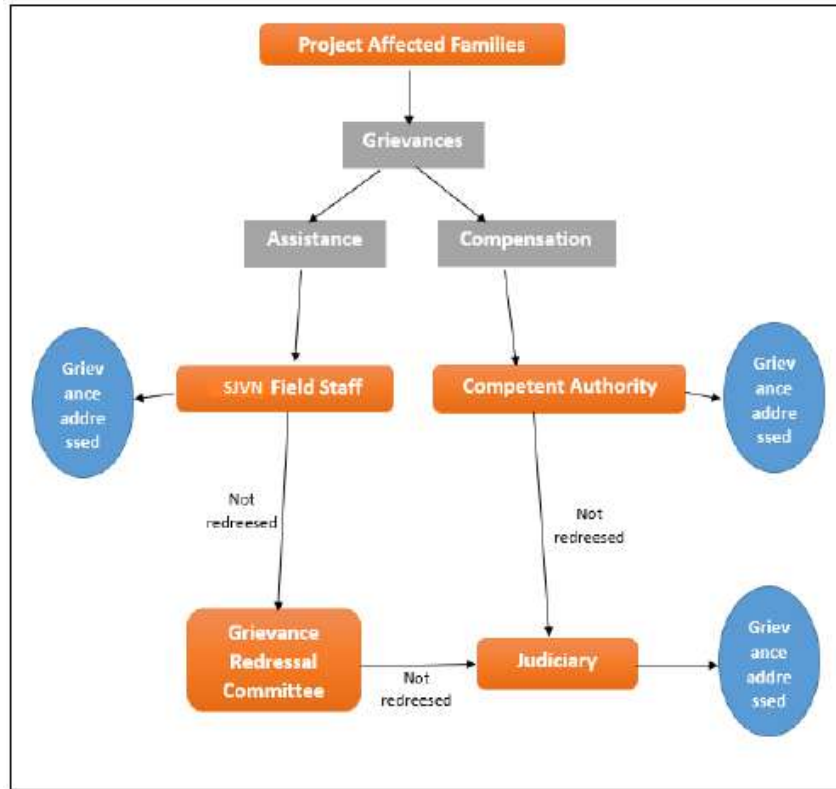
### **8.5.1 Grievance Redressal Committee (GRC)**

Efficient grievance redressal mechanism shall be developed to assist the PAFs to resolve their queries and complaints. Grievances of PAFs shall be first brought into the attention of field level functionaries of the project. Grievances not redressed by then will be brought to the Grievance Redressal Committee (GRC). The composition of the proposed GRC may be the same as R&R Committee. This Committee may meet on the monthly basis or the case may be defined by the state Government.

The main responsibilities of the GRC may be:

- i. Provide support to PAFs on problems arising from land / property acquisition;
- ii. Record PAFs grievances, categorize and prioritize grievances and resolve them; and
- iii. Report to PAFs on developments regarding their grievances and decisions of the GRC.

Other than disputes relating to ownership rights under the court of law, GRC will review grievances involving all resettlement benefits, compensation, relocation, replacement cost and other assistance. When any grievance is brought to the field level functionaries, it should be resolved within 15 days from the date of complaint. The GRC will meet every month (if grievances are brought to the Committee), determine the merit of each grievance, and resolve grievances within a month of receiving the complaint, failing which, the grievance will be referred to appropriate Court of Law for redress. Records will be kept of all grievances received including: contact details of complaint, date of the complaint, nature of grievance, corrective actions taken and the date these were affected, and final outcome. A flow chart of grievance redressed mechanism is indicated in Figure below:

**Figure 10: Grievance redressal mechanism**

\*Source: Team SIA

## 8.5.2 Stages of Grievance Redressal

### 8.5.2.1 Monitoring and Evaluation

Monitoring and Evaluation of the SIMP implementation is necessary as activities are to be executed by many agencies in a time bound manner. Monitoring involves periodic checking to ascertain whether activities are progressing as per the schedule whereas Evaluation is to assess the performance of the SIMP. For this purpose, a Monitoring and Evaluation plan needs to be developed to provide feedback to the project authorities. Monitoring and Evaluation of R&R gives an opportunity to reflect on the success of the R&R objectives, strategies and approaches and to assess the efficiency and efficacy in implementation of R&R activities, their impact and sustainability. Monitoring will give particular attention to the project affected vulnerable families and groups such as Scheduled Castes, Scheduled Tribes, BPL families, women headed households,

widows, old aged and the physically or mentally challenged persons. An independent evaluation through third party is also necessary for mid and end term evaluation of SIMP implementation.

#### 8.5.2.1.1 Internal monitoring

The internal monitoring for SIMP implementation will be carried out by the project authorities where main objectives will be to report progress against the SIMP schedule; check that agreed entitlements are delivered in full to affected families and people; identify any problems, issues or hardship resulting from the SIMP implementation and to take corrective actions; monitor the effectiveness of the grievance system and measure the satisfaction of PAFs. Internal monitoring will focus on measuring progress against the schedule of actions defined in the SIMP. Activities to be undertaken by the project authorities will include liaison with the Land Acquisition team, construction agencies and project affected communities to review and report progress; verification of land acquisition compensation delivery against entitlements in accordance with the SIMP; verification of implementation of agreed measures to restore income and living standards of PAFs; identification of any problems, issues, or hardship resulting from resettlement process; assess project affected families and peoples' satisfaction with resettlement outcomes; and redress grievances of PAFs to follow up that appropriate corrective actions. Field level officers of SJVN, in charge of SIMP implementation will track the R&R progress. For this purpose, the indicators suggested are as given in table 8.7.

**Table 8-3: Indicators for monitoring of SIMP progress**

Physical	Extent of land acquired, number of structures dismantled, number of families affected, number of families purchasing land and extent of land purchased, number of PAFs receiving assistance/compensation, number of PAFs provided transport facilities/ shifting allowance, extent of government land identified for house sites, number of land users and private structure owners paid compensation.
Financial	Amount of compensation paid for land/structure, cash grant for shifting, amount paid for training and capacity building of PAFs.
Social	PAFs knowledge about their entitlements, communal harmony, morbidity and mortality rate, taking care of vulnerable population etc.
Economic	Number of Jobs provided to the entitled families, number of business reestablished, utilization of compensation, house sites/business sites purchased successful implementation of Income Restoration Schemes implemented
Grievance	Number of community level meeting, number of grievance redressal meetings held, number of cases disposed by Project authorities to the satisfaction of PAFs, number of grievances referred and addressed by the concerned Authorities

\*Source: Team SIA

### 8.5.2.1.2 Independent Evaluation

An Independent Evaluation Agency may be hired by the Project for mid and end term evaluation to achieve the following: (a) verify results of internal monitoring; (b) assess whether resettlement objectives have been met, specifically, whether livelihoods and living standards have been restored; (c) assess resettlement efficiency, effectiveness, impact and sustainability; (d) ascertain whether the resettlement entitlements were appropriate to meeting the objectives and (e) this comparison of living standards will be in relation to the baseline information available. The following table 8.8 should be considered as the basis for indicators in external evaluation of the SIMP.

**Table 8-4: Indicators for Project Outcome Evaluation**

S. No.	Objectives	Risks	Outcomes
1	The negative impact on the persons affected by the project will be minimized	Resettlement Plan implementation may take longer time than anticipated	Satisfaction of the landowners with the compensation and assistance paid. Type of use of compensation and assistance by the land owners Satisfaction of structure owners with compensation and assistance Type of use of compensation and assistance by the structure owners
2	Persons and families losing assets to the project shall be compensated as per the Act and Rules	Institutional arrangement may not function as efficiently as expected	Percentage of PAFs adopted the skills acquired through training as only economic activity Percentage of PAFs adopted the skills acquired through training as secondary economic activity
3	Affected persons and families will be assisted in improving or regaining their standard of living	Authorities implementing SIMP may not perform the task as efficiently as expected	Percentage of PAFs reported increase in income due to training Percentage of PAFs got trained in the skill of their choice Role of project authorities in helping PAFs in selecting trade for skill improvement Use of productive assets provided to PAFs under one-time economic rehabilitation grant
4	Vulnerable groups will be identified and assisted in	Unexpected number of grievances may arise PAFs	Type of use of additional assistance money by vulnerable group Types of grievances received Number of grievances forwarded to

<b>S. No.</b>	<b>Objectives</b>	<b>Risks</b>	<b>Outcomes</b>
	improving their standard of living	falling below their existing standard of living	Grievance Redressal Committee (GRC) and the time taken to solve them Percentage of PAFs aware about the GRC mechanism Percentage of PAFs aware about the entitlement framework Opinions of PAFs about the approach and accessibility of the project authorities

*\*Source: Team SIA*

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SIA study report of Sunni Dam HEP

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# 10 Annexures