

SOCIAL IMPACT ASSESSMENT STUDY FOR THE PROPOSED LAND ACQUISITION IN DISTRICT HAMIRPUR AND KANGRA FOR DHAULASIDH HYDRO ELECTRIC PROJECT (66 MW)

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

Concise Report

PREPARED BY



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1 Summary

1.1 Project and Public Purpose

M/s Satluj Jal Vidyut Nigam Ltd. Intends to develop the Dhaulasidh Hydroelectric Project (66 MW) on Beas river in Himachal Pradesh as a run of river type scheme and is planned to be operated as a peak power station where power evacuation will be done through Dhaulasidh HEP- Hamirpur power grid 220 Kv D/C line.. The project is located in the Indus basin in Hamirpur and Kangra district and has been conceived by the Govt. of HP long back. The studies regarding alternatives using discharge data at Sujampur Tihra and Nadaun, preparation of DPR, EIA & Socio-economic studies etc. have already been conducted. Two alternatives of 50 MW and 80 MW with different dam heights in the preliminary feasibility studies have been considered. The project was awarded to SJVN on 27th October, 2008 for investigation, DPR preparation, land acquisition, design, construction, operation and maintenance of Dhaulasidh HEP.

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 Dhaulasidh HEP would be 258.31 GWH per year. The total project cost is estimated to be 789.64 crores. The expected revenue from the project would be approximately 108 crores annually in a 90% dependable year. The project is estimated to generate a total of employment of 600 persons during its peak construction phase which would include 500 workers and about a 100 technical staff. This employment would be generated for skilled, semi-skilled and unskilled labourers. As per the HP govt. rules, 70% of the employment should be reserved for the residents of Himachal Pradesh.

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. 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.

As per Section 2 sub-section 1(b)(i) of the RTFCTLARR Act, 2013 the Dhaulasidh Hydro-Electrical Project (66 MW) is well justified under the definition of infrastructure projects (energy generation) for public purpose.

1.2 Location

The dam site is proposed to be located about 12 km downstream of the PWD bridge over river Beas at Sujampur-Tihra. Further the dam site and power house are about 4 km Sujampur-Tihra-Nadaun road MDR 36. It is further approachable on foot from the left abutment of the bridge over Salasi Khad via village Amla. The project site is located at a distance of about 90 km from Una, which is the nearest broad gauge railway station.

The nearest rail head is at Una. Likewise, nearest airport is at Chandigarh located about 200 km from the project site. A metalled road of about 4 km has to be constructed to approach the project site from RCC Bridge on Salasi Khad near Jihan Village.

The dam site is located at longitude 76°26'30.7" E and latitude 31°48'23.1"N. The existing approach to the damsite is through a small forest kucha footpath from the RCC bridge on the Salasi Khad near Jihan Village. The site is located about 4 km from the bridge. Presently there are no existing facilities at or near the site. This forest route is proposed to be developed into the approach road for the project.

1.3 Size and attribute of land acquisition

Out of total 332.87 hectare of land require for project, 246.8062 hectare (74%) is private land, 28.32 hectare (9%) is government land and 57.74 hectare (17%) is forest land. It covers a total 47 villages under project impact out of which private land is being acquired in 40 villages.

The details of the 40 villages where Private land is being acquired are: village Balehu, Mathaan, Laungan, Bhadariana Bhalet, Ropa. Miharpir, Gahllian. Chauki. Haar, Gurauru Boohla, Tihra. Birh Khas, Kaachh, Miana. Suiampur. Rivah, Bharmarh, Bhgerha Buhla, Pargana, Ball Ghirthan, Palahi, Gaagla, Darhla, Samona, Sarohal, Tehsil Sujampur & Jangle Mehfuja Mehduda Jeehan. Tehsil Naduan. District Hamirpur and village Bulli, Tipri, Kiyorh. Chorwki, Sub Tehsil Majheen, Dalli, Bhalunder, Daadu. Bherhi Nichali, Paprola, Baag, Birh, Liyunda, Sai, Alampur Sub-Tehsil Alampur. Distt Kangra. They fall in 19 Gram Panchayats under two districts namely Hamirpur and Kangra, three Tehsils namely Sujampur, Nadaun, Alampur and Khundian.

Total 3990 titleholders are losing their land under acquisition out of which 2634 are from district Hamirpur and 1356 are from district Kangara. 1 PAF from Sujampur, 7 from Pargana are getting displaced due to acquisition.

1.4 Alternatives considered

The Alternates for various components of the project have been discussed in detail in chapter 1 under examination of Alternatives. The location of the dam and power house and its basic design features have been finalized considering optimum power generation, topographical and geotechnical features, existing projects on the upstream, economy, submergence and other relevant factors such as displacement and land acquisition.

Out of the total land requirement 332.87 Ha for the project 246.8062 Ha (74%) is private land which is to be acquired while the remaining 86.06 Ha (26%) is Government and Forest Land. Although the share of private land seems to form the majority of the total land requirement it is mainly because the PAFs are having ownership of land right on the river banks and in many areas on the river bed itself. Most of the private land being acquired is coming under submergence of the proposed reservoir. Moreover only 8 PAFs are getting displaced from the proposed acquisition which comparatively a very low figure considering the scale and magnitude of the project and acquisition. On further Analysis out of the total private land of 246.8062 Ha being acquired only 9% land is cultivable and the remaining 91% land is uncultivable.

Conclusively, the proposed acquisition is the least displacing alternative for the project. Furthermore, only 1% (approx.) of the total land required for the project would be used to construct all ancillary facilities for the project during its construction and post construction phases. The remaining 99% of the land would be coming under submergence. Hence all the efforts have been made to minimize acquisition of private land as well as minimal displacement due to the project activities.

1.5 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 Dhaulasidh HEP project in the area. The study found that 93% of the primary stakeholders were willing to surrender their land for acquisition provided appropriate compensation is paid and only 7% 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. 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 mismanagement 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.

Due to the acquisition, there would also be loss of public infrastructure like cremation grounds, existing irrigation facilities including IPH Infrastructure and also loss of common property resources like drinking water sources, Gharats, forests, grazing grounds etc. A total of 19 private structures are getting lost under the proposed acquisition which will result in displacement of 8 PAFs and a livelihood loss for 10 PAFs. In these structures there are 5 residential houses, 18 Shops, 1 office, 5 independent toilet structures, 1 independent kitchen structure, 1 independent store and 1 cowshed. Among other assets attached to the land under acquisition, a total of 7,724 fruit bearing trees, 17,280 non-fruit bearing trees are also getting impacted due to the proposed acquisition.

Similarly 77 public assets are getting lost under the proposed acquisition for the DSHEP. These include 2 temples, Sewerage system of Sujampur, 29 cremation grounds, 25 water supply infrastructure including IPH Schemes, pumphouses and tubewells, 1 Gharat, 2 Bauris, 1 well and 15 electric poles, village footpath. The details of the loss to infrastructure and assets has been discussed in chapter 4. The PAFs as well as the villagers were concerned about how alternates to public infrastructure and common property resources 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 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.

Migration

The construction phase of any project is rather an unsettled stage characterized by uncertainties and often disorders. The basic problem relates to management of large population which migrate to the construction area in search of jobs. The project is estimated to generate a total employment of 600 which would include 500 workers and about a 100 technical staff during its peak construction phase. Taking an average household size of 4 it is estimated that about 2400 persons will inhabit the area during the construction phase, which is expected to last for about 3-4 years.

Those who would migrate to this area are likely to come from various parts of the country having different cultural, ethnic and social backgrounds. Such a mixture of population has its own advantages and disadvantages. The advantages include exchange of ideas and cultures between various groups of people which would not have been possible otherwise. Due to longer stay of this population in one place, a new culture, having a distinctive socio-economic similarity would develop which will have its own entity.

The benefits however, are not certain and depend on several factors. Often, they are directly related to the way construction phase is handled by the project authorities and their sensitivity to various socio-economic problems that could develop during this phase.

Aggregation of labour: Most of the labour would live in dormitories provided by contractor. Improperly planned labour camps generally tend to become slums, with inadequate facilities for potable water supply and sewerage treatment and disposal. This could lead to outbreak of epidemics of water borne diseases. Proper sanitary facilities needs to be provided in these camps. A proper surveillance and immunization schedule needs to be developed for the labour population migrating into the project area.

The locals and PAPs 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.

Increased Incidences of water related diseases: The construction of the proposed reservoir would enhance the potential breeding sites for various diseases vectors. There are chances that incidence of

malaria may increase as a result of the construction and operation of the proposed project. In addition to the construction of the reservoir, factors such as Aggregation of Labour, Excavation, Inadequate facilities in labour camp, muck disposal sites, too may lead to the increased incidence of malaria in and around the project area if not properly mitigated.

Muck Disposal: Normally muck disposal is done at low lying areas, which get filled up due to stacking of muck. This can sometimes affect the natural drainage pattern of the area leading to accumulation of water or partial flooding of some area which can provide ideal breeding habitat for mosquitoes. Moreover, muck disposal sites are vulnerable to dust/air pollution and also prone to unchecked open dumping of waste from the vicinity, thereby degrading the local environment.

Soil Erosion/increased Siltation: Heavy siltation may reduce the photosynthetic activity to some extent. This is likely to have an adverse impact on the primary productivity of the affected stretch of river Beas and its tributaries. Since river Beas has sufficient flow the impact on this account are not expected to be significant. However, some adverse impacts are anticipated on the streams and nallahs which have flow during lean season.

Impact of fog

Due to construction of reservoir there would be considerable rise in humidity levels during summers and increased frequency and lasting hours of fog during winters. Consequently, this would alter the productivity of crops and fertility of soil in the area. This will have more severe effect in some villages like Bulli, Laungani, Balehu, Mathan, Dalli, Gaagla and Bhulander. The fog may also impact the health of the locals and consequently would increase expenditure on human and animal health on account of increased fog & infestation of diseases and pest. However, during summer people may get relief from heat due to cool climate.

Impact on bridges, roads and culverts

As per the requiring body no bridges are going to be impacted from the proposed dam-reservoir as the water level in the reservoir is going to remain well below the safe limits. As per the study there are 6 bridges, 1 culvert and 1 road which fall in close vicinity of the reservoir area and are vulnerable to impact.

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 fog, construction and quarrying activities.

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 1-1: Impacts During Various Stages of Project

Stage	Social Impacts	Economic Impacts	Cultural Impacts
Pre-Construction Stage	<ul style="list-style-type: none"> • Disputes among stakeholders for receiving compensation may arise. • Doubts and fear of the upcoming changes such as rise in water levels, humidity, increased landslides etc. • Loss of cremation grounds • Loss of temples • Loss of common property such as water resources, gharats, etc will have adverse effect on quality of life. 	<ul style="list-style-type: none"> • Prices of land in surrounding area may increase due to upcoming project. • 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. • Loss of infrastructure such as existing irrigation facilities, etc will have negative impact on the economy of project affected and surrounding areas. <p>The acquisition of forest land will negatively impact the villagers since they have high dependency for collection of fodder and fuelwood.</p>	<p>With change of spending pattern of people getting benefitted due to upcoming project, there would be an impact on cultural practices and traditions.</p>
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.</p> <p>Heavy transportation during construction phase may lead to increased</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>Negative Impact on productivity of crops and fertility of land due to increased humidity and fog.</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>

Stage	Social Impacts	Economic Impacts	Cultural Impacts
	air and noise pollution in the adjoining villages.		
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>Apprehensions about the substantial increase in the population of snakes and other dangerous reptiles, the insect-pests; etc after the construction of dam and persistent fog.</p> <p>Impact on health and health expenditure on humans and animals due to increased humidity and persistent fog</p> <p>Change in micro-climate of the area due to fog and humidity.</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>Due to funds like LADA area may witness further improvement in infrastructure development even after construction phase.</p> <p>Risk of accidents and landslides.</p> <p>Decrease in productivity of crops and fertility of soil due to persistent fog.</p>	<p>Cultural stability maybe seen during this phase.</p>

**Source: Field Survey*

** Special Note: During the field survey, people from village Jol (Jangal Panchayat, district Kangra) and village Chowki (Tipri Panchayat, District Kangra) approached Team SIA and shared their concern about their lands and structures getting impacted by the upcoming DSHEP project. According to them, during the survey conducted by Department of Agricultural Economics, CSK HP Krishi Vishvavidyalaya, Palampur in 2010 for SIA of DSHEP, they were told that their houses may come under acquisition for the upcoming scheme and they should move to some other location.*

Since during monsoons, rivulet water reaches their residential structures therefore the villagers are concerned that after construction of Dam the water would definitely reach their lands and structure leaving them vulnerable with increased risk of submergence.

It is therefore suggested that the project authorities relooks into this situation.

2 Approach and Methodology

2.1 Description and Rationale for the Methodology and Tools Used

2.1.1 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.

2.1.2 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.

2.1.3 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.

Given below is the detailed methodology which was 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**

2.1.4 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 Dhualasidh 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.

Identification of the Stakeholders to be Consulted for SIA

A list of all major stakeholders was prepared which 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.

2.2 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.

Figure 1: Pictures Taken During Primary Survey



Figure 1: Pictures Taken During Primary Survey



- **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 2: 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.

2.3 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.

3 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.

The estimated compensation for the proposed acquisition of 246.8062 Ha land works out to Rs 300.3 crores. For 7,724 fruit bearing trees and 17,280 non-fruit bearing trees under impact of acquisition, a total compensation of Rs 9.04 crores is estimated. Rehabilitation and resettlement cost of Rs.4.28 crores is estimated, which includes 8 PAFs living in residential structures going under acquisition and 10 PAFs whose livelihood losers. Thus, after including 10% miscellaneous cost, the total cost for land acquisition including R&R is estimated around Rs. 345 crores.

3.1 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. 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.¹

Hydropower has certain advantages, principle among them being the ability to start and stop quickly and instantaneous load acceptance/rejection. This makes it particularly suitable to meet peak demand and for enhancing system reliability and stability. The long life of the hydro power plants, the renewable nature of the energy source, very low operating and maintenance costs, absence of inflationary pressures experienced by the fossil fuels are some of the other advantage

Demand Projection

The National Electricity Policy aims at achieving “Power for all by 2012” and per capita consumption of electricity energy is required to be increased from 704.2kWh in 2007-08 to over 1000 kWh by 2011-12. According to the 17th EPS, the latest in the series of Electric Power Survey of India, conducted by the Central Electricity Authority, the total energy requirement on all India basis at the end of 11th and 12th Plan would be 9,68,658 MU and 13,92,066 MU respectively. Actual energy available at the end of 10th Plan was 6,90,587 MU. The peak load requirement on all India basis at the end of 11th and 12th Plan would be 1,52,746 MW and 2,18,209 MW respectively. Actual peak demand met at the end of 10th Plan is 1,00,715 MW.

Accordingly, it has been proposed to add a generation capacity of about 78,500 MW, 82,000 MW in the 11th and 12th Plan respectively. Over the period, change in life style and economic growth would

¹ (Department of MPP and Power, 2019)

result in increase of annual per capita power consumption. The projected per capita energy consumption by 2011-12 is over 1000 kWh. The per capita power consumption of Himachal Pradesh is around 765 kWh/year as compared to the national average of 704 kWh/year.

Power Supply Position

In the recent years, the Govt. of India has made a quantum jump in the financial allocation and also by way of other supports so that hydroelectric projects not only get right priorities but also contribute in an increased way to the future capacity addition programmes of the country. Accordingly, in the 11th Five Year Plan (year 2007-2012), the target for hydroelectric capacity has been placed at 14,393 MW, which is more than the total installed capacity (13,666 MW) created in the last 20 years. The thrust is on hydroelectric development. About 14,000 MW of additional capacity in the period 2002-2007 and 50,000 MW of additional capacity planned during the period 2002-2017. Not only has the capacity to be added but also the present hydro-thermal imbalance of 25:75 has to be corrected and brought to 40:60 to meet the peak load requirements and achieve frequency and voltage stability and provide system operating flexibility under changing seasonal and diurnal load patterns.

In India, though over 1,44,000 MW of capacity has been added in the last over 60 years, there is a huge gap between the demand and supply of power. While in the last few years it has marginally reduced, the peaking shortage continues to be over 14% to 15% and the average energy shortage is about 10.1%.

The Northern region has an energy deficit of around 24.3 BU and a peak deficit of around 3.5 GW. The situation varies throughout the year and the worst situation is seen in the summer. Uttar Pradesh is the largest deficit state in the Northern region followed by Jammu & Kashmir, Punjab, Haryana, Rajasthan and Delhi. The region has states like Himachal Pradesh and Uttarakhand, which have enormous hydro potential, and can be tapped to meet the region's demand for power.

Hydro Power Potential in Himachal Pradesh

The total potential in Himachal Pradesh is 12235.24 MW at 60% load factor, with an installed capacity of 20392.07 MW. The great Indus Basin in Himachal Pradesh has a huge hydro power potential with its tributaries/river in the basin. Among these are Beas River: 4597MW, Ravi River: 2294MW, Chenab River: 2748MW, Yamuna: 591.52MW which are part of the same basin and pass through Himachal Pradesh, Satluj basin has a hydropower potential of 9443.75 MW, which represents approximately 50% of its likely installed capacity. In addition to the Satluj, other rivers also contribute to the power potential of the state. The huge hydro potential of the State can play a major role in power development programmes in the northern region which will provide an economic base for the overall development of Himachal Pradesh. At present, out of the total available hydropower potential of 20392 MW, only 6060 MW has been exploited by various State and Central Sector agencies.

The Dhaulasidh Hydro Electric Project (66 MW) is a run of river type development proposed scheme in order to harness optimal hydel potential river of Beas. 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.

The project has been planned to be operated as a Peak Power Station. Incoming water will be stored in the reservoir during lean period flows and released at full load when the reservoir is filled up. It generates high energies while operated as a peaking plant as compared to the Run-of-the River scheme. Further, this will also help in catering to the high peak power demand in Himachal Pradesh.

Expected power generation of Dhaulasidh HEP would be 258.31 GWH per year. The total project cost is estimated to be 789.64 crores. The expected revenue from the project would be approximately 108 crores annually in a 90% dependable year. The project is estimated to generate a total of employment of 600 persons during its peak construction phase which would include 500 workers and about a 100 technical staff. This employment would be generated for skilled, semi-skilled and unskilled labourers. As per the HP govt. rules, 70% of the employment should be 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)(i) of the RTFCTLARR Act, 2013 the Dhaulasidh Hydro-Electrical Project (66 MW) is well justified under the definition of infrastructure projects (energy generation) for public purpose.

3.2 Less Displacing Alternatives & Minimum Land Requirement

The Alternates for various components of the project have been discussed in detail in chapter 1 under examination of Alternatives. The location of the dam and power house and its basic design features have been finalized considering optimum power generation, topographical and geotechnical features, existing projects on the upstream, economy, submergence and other relevant factors such as displacement and land acquisition.

Out of the total land requirement 332.87 Ha for the project 246.8062 Ha (74%) is private land which is to be acquired while the remaining 86.06 Ha (26%) is Government and Forest Land. Although the share of private land seems to form the majority of the total land requirement it is mainly because the PAFs are having ownership of land right on the river banks and in many areas on the river bed itself. Most of the private land being acquired is coming under submergence of the proposed reservoir. Moreover only 8 PAFs are getting displaced from the proposed acquisition which comparatively a very low figure considering the scale and magnitude of the project and acquisition. On further Analysis out of the total private land of 246.8062 Ha being acquired only 9% land is cultivable and the remaining 91% land is uncultivable.

Conclusively, the proposed acquisition is the least displacing alternative for the project. Furthermore, only 1% (approx.) of the total land required for the project would be used to construct all ancillary facilities for the project during its construction and post construction phases. The remaining 99% of the land would be coming under submergence. Hence all the efforts have been made to minimize acquisition of private land as well as minimal displacement due to the project activities.

3.3 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 3-1: Nature and Intensity of Impacts

Impact Area	S. No.	Impact Identified	Stage of Project cycle	Nature of Impact	Intensity of Impact
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 gharats, footpath, IPH/pumphouses/water tanks, schools, aanganwadi, temples, baidis, sewerage system, cremation ground and electric poles.		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, shopkeepers, 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 miss-management.	Pre construction	Temporary	Short term
Physical Resources	15.	Loss of private assets like trees, cowsheds, shops, toilets, kitchens, stores, etc.	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 and Post Construction	Permanent	Long term
	18.	Increased humidity and fog due to construction of reservoir.	Construction 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
*Source: Team SIA					

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

3.4 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 108 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.

According to the present R&R plan proposed by the requiring body land for resettlement has already been identified for the 4 PAFs being displaced within the same Gram Panchayat. Further, 25 amenities are proposed to be developed in the resettlement colony. In this line, some basic amenities are proposed to be developed on the resettlement area for the 4 displaced PAFs which may include roads, drainage facility, drinking water, electricity facility, playground community center etc. and provision of Rs. 28,57,000 is proposed for these works. Additionally, 13 IPH Schemes are also proposed to be developed in the project area with a total budget provision of Rs 65 Lacs. The total budget for carrying out R&R activities excluding land compensation has been proposed at Rs 3.12 crore including Rs 1 crore miscellaneous expenditure for implementation under the proposed R&R plan by the requiring body. However, the study found that there are 8 PAFs being displaced including the 4 PAFs already identified by the requiring body.

The final R&R 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.

3.4.1 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 Dhaulasidh 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.

Also, it is recommended that the project authorities relook into the case of village Jol of Jangal Panchayat and village Chowki of Tipri Panchayat both in District Kangra as whether these villages will be impacted by the reservoir or not..

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 Dhaulasidh hydro-electrical project (66 MW) should be carried out, provided that all measures suggested mitigate the various identified impacts are followed judicially.

4 Social Impact Management Plan

4.1 Approach to mitigation

This Social Impact Management Plan (SIMP) has been prepared in accordance to the RFTLARR Act, 2013 and the HP RFTLARR Rules, 2015 with the aim to mitigate negative social impacts and enhance the positive impacts of Dhaulasidh Dam HEP (66 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.

4.2 Measures to Avoid, Mitigate and Compensate Impacts

4.2.1 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 of the temples being impacted under acquisition at Alampur and Jangal Jeehan of Choru Panchayat (District Hamirpur)
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. After commissioning of the project PAFs may be provided with Special Subsidised Tariff rates or provide few free units per month or both.
7. **Street lighting-** Almost all panchayats and villages have requested to be provided with streetlights.
8. **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.
9. 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.

4.2.2 Infrastructure measures

1. **All weather Roads** – As per the SIA team’s observation and demand of the villagers, all village roads and link roads may be upgraded to all weather pucca roads throughout the gram Panchayats of the project area to ensure better connectivity that has a direct impact on the development of this region.
2. **Bridge along the river** It is suggested that the requiring body undertakes a proper structural stability study of the following mentioned roads, culverts and bridges as whether they would be able to withstand the rise in water levels and consequently plan alternatives to restore the connectivity in the area if the need arises:
 - Hamirpur-Sujanpur bridge near Sankat Mochan temple
 - Bhaleth-Syor bridge
 - Main bridge connecting Sujanpur Tihra with Alampur

- Sandhol Sujanpur culvert at about 1 km from Tihra bridge
- Bridge on Sandhol sujanpur road about 2 km from Tihra bridge
- Bridge connecting Palahi with Puar
- Bridges connecting Puar with Jangal behri and Jangal Beri with Kheri
- Buli Tipri Road

Hence, all alternative and suitable arrangements may be made for the affected panchayats/ villages to restore the social connection and accessibility.

3. Construct proper drainage facilities to all Panchayats of the project area
4. Proper Fencing to be provided around the complete reservoir periphery for safeguard.
5. Provide Irrigation facilities such as lift irrigation in all villages and Panchayats of the project area
6. **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.

7. **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.

Many of these natural water resources would be submerged/finished as per the proposed project Hence, before commencing the project activities, the villagers must be provided with alternate source/system for drinking water supply.

Similarly, there are about 25 government water pumping station/IPH water Schemes close to the river bank in which will also be submerged. It therefore becomes imperative that all necessary arrangements are made prior to the construction phase of the project to ensure regular supply of safe drinking water in all the affected villages.

All Panchayats of the project area have unanimously demanded to provide clean Drinking water Facility in all villages of the project area.

8. **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.

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.

9. **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.

10. **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.
11. **Cremation grounds** - Cremation grounds are mostly located on river banks in the project area. Even in the project affected area most of the Panchayats are losing their cremation grounds due to the project. Hence, electronic/alternative crematories may be built in consultation with the residents of affected Panchayats.

4.2.3 Rehabilitation and Resettlement Measures

1. For PAFs getting displaced and also for land looser who opt for land as compensation for acquired land, the requiring body should provide land preferably in the same Gram Panchayat or in neighbouring Gram Panchayat.
2. Appropriate compensation to be provided to PAFs whose houses are being acquired and additional compensation in form of subsistence and transportation allowance for the inconvenience caused due to relocation under relevant sections of the act.
3. For PAFs losing structures other than residential houses should be paid appropriate compensation
4. For the 10 PAFs whose livelihoods are getting affected, measures to restore their livelihood to the existing level or better should be taken.
5. **Promotion of Horticulture and Herbal Plants:** The agro-climatic conditions of Project area are quite suitable for tropical and sub-tropical fruits. Mango (Indigenous and improved varieties) was more common followed by citrus, guava, papaya, indigenous banana and amla were other fruits found to grown in the area. Herbal Plants may also be promoted in the area with support from the concern department.
6. **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.
7. **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.
8. **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.

9. **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.
10. **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.
11. **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.
12. 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.
13. 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.
14. During the operational and other stages of this project the preference should be given to PAPs and PAFs for award of petty contracts arising during and after the commissioning of the project such as boating and steamers, petty shops and Dhabas, construction, transport vehicles and taxis, fisheries, supply of goods and vegetables etc.

4.2.4 Environmental Measures

I) Aforestation – 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. Standing water especially after creation of reservoir should be sprayed regularly to avoid water borne diseases.
5. 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.

4.2.5 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. **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.

4.3 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 4-1: Impacts identified and corresponding mitigation measures

S. No	Assessed Impacts	Suggested mitigation Measures
1	Loss of Private Land (246.8062 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.	Appropriate Compensation to Owners and stakeholders as per the provisions of RTFCTLARR Act, 2013
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.	Appropriate Compensation to Individuals as per the provisions of RTFCTLARR Act, 2013. 2) the Requiring body may ensure employment of these individuals in the project during its construction and

		<p>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	Loss of Community Assets such as Gharats, Cremation grounds, bavdis, grazing land, temples etc.	All cultural and community Assets being impacted should either be relocated or provided with an equivalent/upgraded alternate with prior consent of the concerned community before starting of construction.
6	Loss of Common properties such as Water Resources including Drinking water resources such as springs/& bavdis. Loss of pastures/grazing lands, forests for collection of firewood.	All common properties being impacted should be provided with an equivalent/upgraded alternate with prior consent of the concerned community before starting of construction.
7	Impacts on vulnerable groups: the survey reveals there are 857 Women headed HH, 8 divorcees, 763 widows, 82 physically/mentally challenged PAPs.	<p>1) Provide Appropriate Compensation to Individuals as per the provisions of RTFCTLARR Act, 2013.</p> <p>2) In addition, they may be provided with special assistance like providing additional support in terms of skill development and income restoration to at least one member from each vulnerable family.</p> <p>3) the authorities may make sure that the relevant share of compensation is transferred directly to the vulnerable individuals in order avoid chances of frauds and cheat.</p>
8	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>
9	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>
10	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.
11	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>
12	Risk of Land Slides Due to increase in Water Levels	<p>1) 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> <p>2) Afforestation and plantations along the river banks, especially on vulnerable and susceptible sites would also affectively reduce the risk of landslides.</p>

*Source: Team SIA

4.4 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 4-2: 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.	Compensation for land includes compensation for all assets attached to the land
2	Loss of structure (Residential or Commercial or Res-cum-Commercial)	Land Owner/Titleholder	a) Cash compensation determined on the basis of current rates as per admissible norms (b) Shifting allowance of Rs 50,000 as per provisions of RFCTLARR Act, 2013 for the displaced families (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 (d) Subsistence allowance of Rs 36,000 for the displaced families (RFCTLARR Act 2013) (e) Resettlement allowance of Rs 50,000 for the displaced families (RFCTLARR Act 2013)	
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.	
Loss of Residential and Commercial Structures - Non-Titleholders				
4	Encroachers	Affected Person (Individual/Family)	(a) Encroachers shall be given advance notice of 2 months in which to remove assets/crops. (b) Right to salvage materials from affected structure	
Loss of livelihood – Title and Non-Titleholders				

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.	

4.5 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.

4.6 Grievance Redressal Committee (GRC)

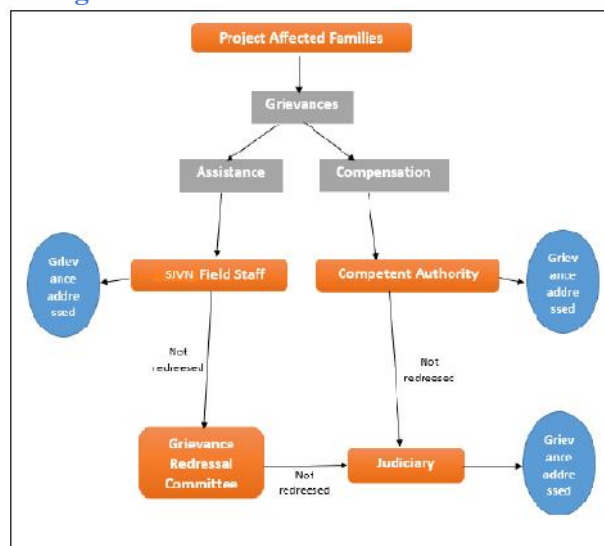
Efficient grievance redressal mechanism shall be developed to assist the PAFs to resolve their queries and complaints. Grievances of PAFs shall be first brought into the attention of field level functionaries of the project. Grievances not redressed by then will be brought to the Grievance Redressal 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 11 below:

Figure 3: Grievance redressal mechanism



4.6.1 Stages of Grievance Redressal

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.

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 Below.

Table 4-3: 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*

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 should be considered as the basis for indicators in external evaluation of the SIMP.

Table 4-4: 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 improving their standard of living	Unexpected number of grievances may arise PAFs falling below their existing standard of living	Type of use of additional assistance money by vulnerable group Types of grievances received Number of grievances forwarded to 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*