

## HYDRO POWER PROJECTS- BOON OR BANE FOR THE RURAL COMMUNITIES OF WESTERN HIMALAYAS

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**Key words:** Perception, Western Himalayas, Rural Community, Hydro Power Project, GHNPFA, Forest resources

**Abstract:** A survey based questionnaire research was conducted in Sainj Valley, Himachal Pradesh. The survey was conducted in June-July 2015 in an area affected due to hydro power projects (HPPs). A total of 48 individuals participated in the survey. Based on survey questionnaire, it was found that native rural people perceived that HPPs had significantly brought positive change in life of native people and were therefore in favour of HPPs. However, large section of native people had not been benefited of HPPs. The decline in agriculture production, change in cropping pattern and poor access of water to native people were some of the negative implications of these projects. The dependence of native people on forest resources has not declined much and still number of local individuals depends on forest resources to supplement their income. Though, in current scenario people has benefited from such projects, however it is not known if it will be sustained for long time due to current unsustainable agriculture practices and limited employment opportunities. Moreover, Government should provide adequate compensation to the affected individuals by either providing a suitable land for agriculture or employment under various rural sector schemes.

### Introduction

People perception plays an important role in democratic countries. Their perception decides the fate of Government during elections. Thus, it is imperative for elected Government to pay special attention to people perception about how people perceive towards Government Policies (Kumar et al. 2015). A policy which is not in interest of people will be rejected and people respond to these policies by giving or not giving mandate to ruling Government (Handerson

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2014; ANI 2009). Pro poor Government policies which include initiating development projects help Government to win trust of people (Dasgupta 2014). The development projects are tool in the hands of Government through which it uplift regions previously deprived of socio-economic development. The development projects provide new employment opportunities, increased access to outside world through road network, provision of health and education facilities which ultimately developed a whole region and bring social change in the society (Broody, 1999). However, the development of these projects often comes at the cost of environment (Grumbine and Xu 2011).

Development projects are meant to harness natural resources for the betterment of human society, these resources are often located in areas which are minimally disturbed and have natural vegetation cover and wildlife. The building of projects involved clearing of forest, road cutting, establishment of labour colonies, influx of labours, and installation of heavy machineries for the construction of building. It leads to deforestation, forest fragmentation, habitat loss, submergence of forest. Dam building alters routes of streams and tributaries of river and thus has downstream effect on the agriculture, and fishery production (McAllister 2000).

As large numbers of dam building activities are underway in upper Beas Valley (Mahar 2014), therefore, it is essential to know how people perceive to these projects. Therefore to know people perception regarding the impact hydro power projects on native rural people a survey was conducted.

### Study Area

Sainj Valley is located in Kullu District of Himachal Pradesh and is drained by Sainj River an upstream tributary of River Beas. The large area of Sainj

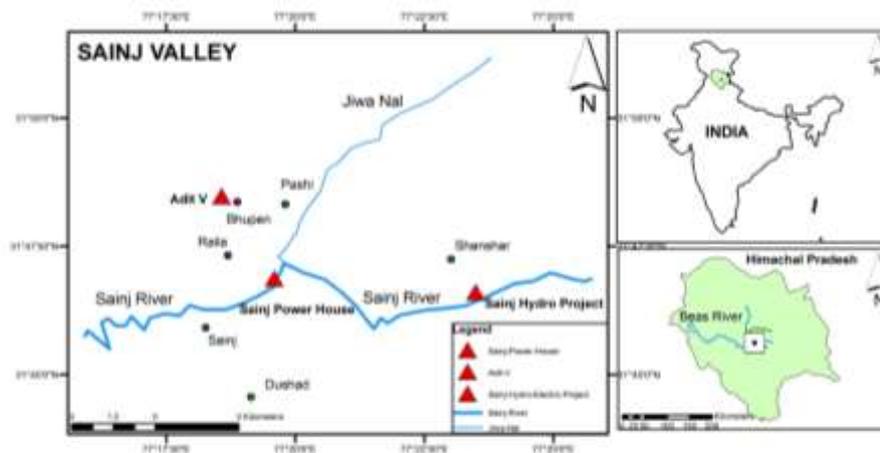


Figure 1: Location map of sampling sites for survey of hydro power projects (June-July 2015).

Valley comes under Great Himalayan National Park Conservation Area (GHNPCA). The valley has Pravati Hydro Electric Project, Sainj Hydro Project and Larji Hydro Electric Project. Out of these PHEP and Sainj HEP is under construction. The survey was carried out in Raila, Sainj, Dushad, Shanshar, and Pashi Villages (Fig. 1).

### Methods

A random household survey was carried out to collect primary data in the month of June and July 2015 in Sainj Valley. A targeted approach was followed in which villages which had been affected due to HPPs were considered for survey. Questionnaire containing a total of 12 questions was prepared to know people perception about HPPs. Likert scale was used in survey questionnaire research (Likert 1932) as it is most useful in behavioural research (Kerlinger 1986) Local surveyors (volunteers/students) who were previously trained to ask questions were used in this survey.

### Results

*Demography.* A total of 48 individuals of which, 14 were females and 34 males were surveyed. The individual age group ranged between 15 to 55 years. Majority of the surveyed individuals (72%) age ranged between 25-45 years. Around 17% of individuals were of the age group of 45-50 (Fig. 2a). Thus, the sample size represented the age group which in their life time was likely to be most affected due to dam building activity.

*Income Level.* 58% surveyed individuals had monthly income within the range of Rs 1000-5000 while 22% had income group of 5000-10000. Thus 80 % of the surveyed individual came within low income group. Apart from this 9% had income between 10000-15000 and 9% had 15000-20000. Only 2% of them had income greater than 20000 (Fig. 2b)

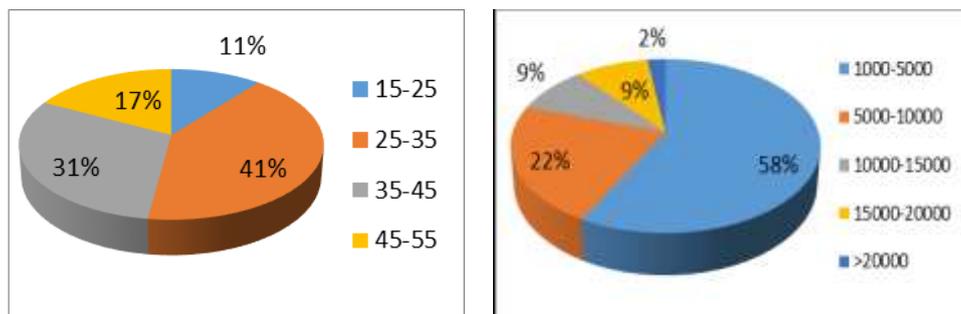
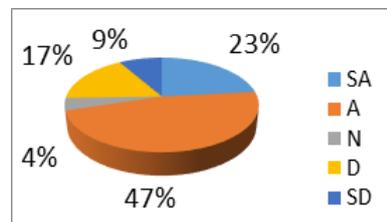


Figure 2 (a) (right) Age group (in years) of participated individuals in the survey Jun-July 2015. (b) (left) Monthly income group of participants in the survey June-July 2015.

*Impact of Hydro Power Projects on Native Rural Communities*

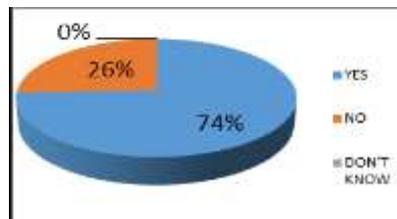
Q 1. Are you in favour of construction of Hydro Power Projects in Himalayas?

Around 23% were strongly in favour of building of HPPs in Himalayas and 47% agree with these projects. Only 4% of them remained neutral. However 17% disagreed while 9% were strongly disagree with these projects. Thus, 70% individuals were in favour of HPPs and 26% responded negatively.



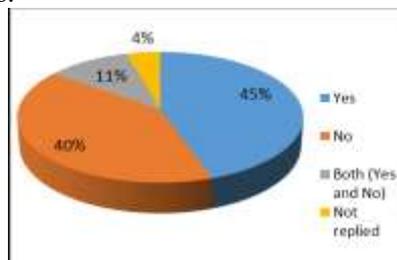
Q 2. Do Hydro Power Projects in your area have improved your standard of living?

74% of individuals were of the opinion that HPPs had improved their standard of living while 26% disagreed with this.



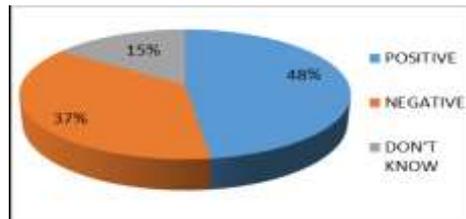
Q 3 Have you got any direct or indirect benefits from these projects?

On the question of direct or indirect benefits, 45% believed in it, out of which 26% think they got access to roadways network and 25% think they got temporary employment in projects. 40% believed they did not get any benefit from these projects. Around 11% individuals think they got benefit as well as loss from these projects.



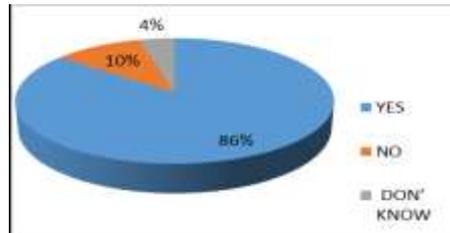
Q 4 What kind of effect it will have on you?

48% individuals were of the opinion that HPPs would have positive impact on them while 37% feel it would have negative impact on them. Around 15% of them didn't know if it would have any impact on them.



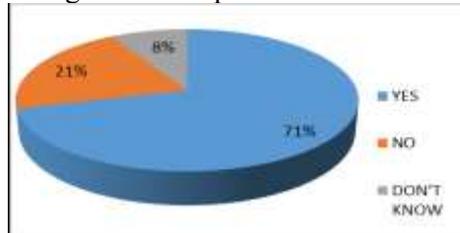
Q 5 Do Hydro Power Projects have significantly affected your agricultural activity (in term of production)?

When asked if they think that HPPs has significantly affected their agricultural productivity majority of them (86%) believed it had affected their production only 10% not believe in it, while 4% didn't know if it had affected it or not.

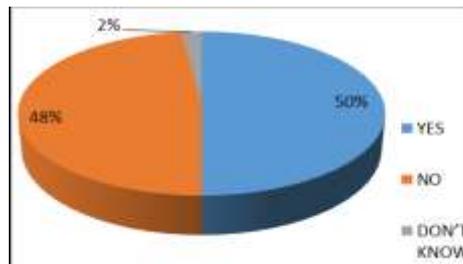


Q 6 Have you started growing crops different from the one which you used to grow before the project?

Around 71% said they had started growing crops different from the one which they used to grow before the project while 21% were not of this opinion as they still had been growing similar crops. However 8% have no idea about it.

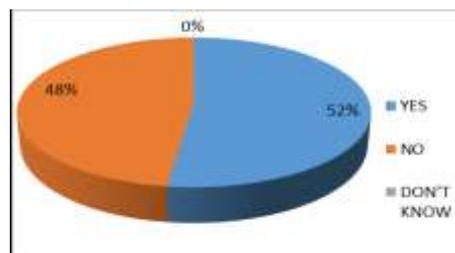


Q 7 Have you got enough water for agriculture ?



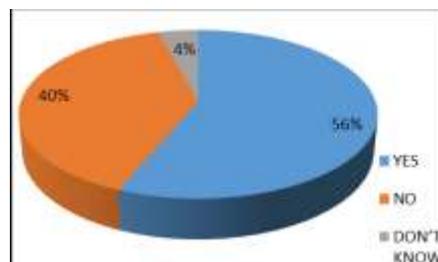
Q8 Have you got enough water for your daily needs?

The results of above mentioned two questions got similar response. When asked if they get enough water for agriculture and their daily need 50% gave positive response while 49% felt they did not get sufficient water for agriculture and their daily needs.



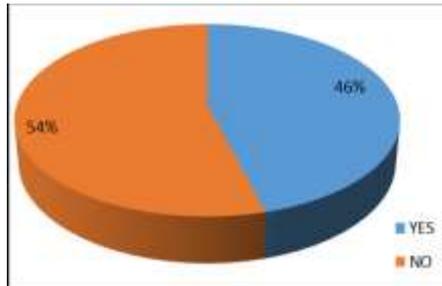
Q 9 Have your dependence on forest resources decreased after the project?

The surveyed individuals when asked whether their dependence on forest resources had decreased after the start up of HPPs around 56% believed in this while 40% did not believe in this statement. They were still harvesting forest resources and took their livestock for grazing in forest. However, 4% of them didn't know about it.



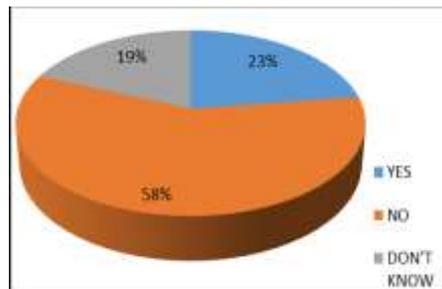
Q 10 Has Government acquired your land for the construction of Hydro Power Projects?

Around 54% of the respondents land was acquired by the Government for HPPs.



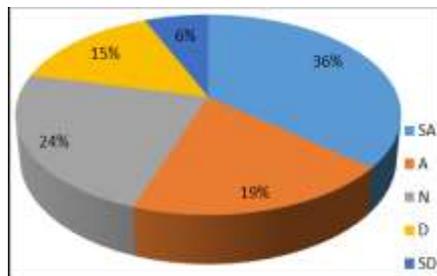
Q11 If yes, have you got adequate compensation?

58% of them did not get adequate compensation while only 23% replied positively. 19% did not know if they get adequate compensation or not.



Q 12 Do you think, your life is much better now than before?

When asked if they think that their life is much better now than before we got a mixed response. Around 36% of them strongly agree with it and 19% of them agreed with the statement. Around 24% of them remained neutral while 15% disagreed with it and 6% were strongly disagreed. So, 55% felt their life improved while 21% did not think so. However, around 24% felt neither improved nor deteriorate after the HPPs.



### **Discussion**

Hydro Power Projects have been under construction in Sainj Valley since 2000. Parvati and Sainj hydro electric projects are under various stages of development while Larji is fully functional one. Their construction has affected and changed the life style of native people. On the positive side, native people now have greater access to nearby towns like Bhuntar, Kullu and cities like Mandi . Most of the villages are now connected with motor-able roads which drastically changed people life. Earlier, students find it difficult to complete their schooling because of poor road networks. Now days, students can easily travel via bus or private vehicle. Health facilities have improved as critical patients can be referred to Hospitals in Kullu and Mandi cities. In case of agriculture, earlier native farmers used to grow cereal crops like wheat, maize, potato, garlic and some spices like chillies, turmeric and coriander however now they started growing vegetables like tomato, and pea and sell them at profitable price to nearby markets and this become possible only after access to roadways network. Farmers engaged in horticulture and producing apple, pomegranate, pear and peach can now have access to markets where they can sell them and earn money. This is the reason that 70% of the surveyed individuals were in favour of HPPs and around 55% of them think that there life is much better now. Some of them have got gainful employment in hydro project construction companies and thus has uplifted their economic status. Before the commencement of HPPs majority of them used to visit adjoining forest to rear their livestock and for collection of medicinal plants and mushroom. In today's scenario, youth prefer to study in technical colleges to get employment and thus their dependence on forest is reduced. In our survey 56% individual think that their dependence on forest resources has decreased after the project.

Though HPPs have many advantages and people do believe in their positive outcomes. However, there are many other aspects on which these projects fall short of native rural people expectation. The native people think that their agriculture production is decreased over the past few years. In our survey, around 86% people have of this opinion. The decreased production may be linked to intensification of agriculture to achieve higher yield and production. Mountain soils are of poor quality (Champion and Seth 1968) and intensive farming could exhaust the soil. Apart from this based on our survey, cropping pattern has been changed and people starting growing different variety of crops and vegetables. Moreover, landslides has increased and caused loss to cultivated land (Gautam 2015). Dumping of muckwell of earth material along mountain slopes, use of heavy machines like stone crushers, bulldozers have increased the dust pollution. Dust deposited on leaves reduces plant ability to synthesize food and also affect transpiration which ultimately cause decolourization, curling of leaves which

ultimately affect plant productivity. Moreover, alteration and diversion of river channels affect access of water to native rural people. In our survey around 49% people felt they do not get enough water for agriculture and daily use and now have to depend on project construction authorities for water supply. The dependence on forest resources though has declined however, only fewer individuals get temporary employment in HPP construction most of them still depend on forest resources to earn extra income. Another negative aspect of HPPs is that people land has been acquired and many (58%) still believe they have not given adequate compensation for the same. Around 24% people even didn't know whether their life is much better now or before, while 21% do not believe that river HPPs has brought positive change in their life. Around 37% individual believed that HPPs authorities have taken their lands, render them barren and thus affected the livestock rearing and therefore didn't benefit from it. Only few people in each village will able to take benefit of these projects, society at large remained neglected.

### **Conclusion**

Hydro Power Projects have significantly brought positive change in life of native people and are in favour of HPPs. However, the trickled down effect of HPPs have not happened. Decline in agriculture production, change in cropping pattern and poor access to water ponder us to the central theme of sustainability which is somewhat neglected. Though people benefited from such projects in current scenario however we do not know if it will sustained for long time due to temporary employment and current unsustainable agriculture practices. Moreover, Government should provide adequate compensation to the affected individuals by either providing a suitable land for agriculture or employment under various rural sector schemes. This will surely reduce pressure on forest resources and secure livelihood of rural communities of this region

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