

Asian Resonance

Socio-Economic Study of Baspa-2 Hydrel Project in Kinnaur District, Himachal Pradesh

Paper Id.: 15473, Submission Date:01/01/2022, Acceptance Date: 12/01/2022, Publication Date: 13/01/2022

Abstract

Hydroelectric Power Projects have been one of the sources of energy exploited for centuries in different parts of the world. The construction and operation of hydroelectric power projects have always been associated with changes in the social, physical and biological environment. Although these projects provide economic benefits in terms of electricity, employment, water for agriculture and industrialization, they also have other negative effects that have been ignored. This paper tries to examine the effects of the hydrel project on the local population. The main purpose of this research paper is to understand the socio-economic transformation brought about by the Baspa -2 hydroelectric power project in the Kinnaur district of Himachal Pradesh. In the present paper fieldwork observation and interviews with the people constitute the primary source of data. The findings of the study reveal that hydroelectric power projects have affected the lives of people in various ways. These includes, change in socio-cultural practices, changes in customs and traditions, decline in joint family system, loss of commercial horticulture and agriculture system, loss of livelihood etc. The concern of local people must be taken care of throughout the planning stage and the policymakers must take up a model to make the most of the positive effects while minimizing the negative environmental, social and economic effects.

Keywords: Hydroelectric Power Projects (HEPP), Socio-economic, Positive and Negative Effects.

Introduction

Hydro power development has been one of the sources of energy exploited for centuries in different parts of the world. India, like many countries around the world, has a significant need for energy, and has identified hydropower generation as a key component in meeting that need. Hydropower has piqued the interest of many people because it is an inexhaustible source of energy and a low-cost method of supplying electricity to remote areas in hilly areas. Since independence, India has made outstanding progress in the field of power development, with large dams serving as an indivisible unit. The late Indian Prime Minister Jawaharlal Nehru once said: "Dams are India's new temples." Up until the 1970s, large dams were synonymous with growth and economic progress. In recent years, hydropower projects around the world have received a great deal of attention due to the environmental and social consequences of such development. Dam construction and operation have always been linked to physical and biological changes in the environment.

On the positive side, these projects may create jobs, increase income, and improve transportation networks and the modernization process; however, they may also result in the loss of habitat and means of livelihood. Such human displacement tends to disrupt the traditional way of life, the psychological state, culture, and social structure, resulting in social maladjustment (Vidyarthi, 1970).As a result, the construction of hydroelectric power projects can have a social, economic, cultural, and ecological impact on the lives of individuals. However, in addition to the negative effects, there can be positive effects, which can be both intended and unintended. Hydropower is recognized as an important resource for meeting the region's energy demand and promoting economic development in the Himalayan region. While hydropower development provides economic and social benefits, large-scale dams in India have been linked to many of the same social and environmental issues that have been documented globally (Khagram, 2004).

Himachal Pradesh has been designated as a "Power state," indicating that it has a high potential for producing electric energy. The pressure is not only to produce electric power, but also to produce clean power by employing good technology that is less harmful and more environmentally friendly. Protests in several study area localities have revealed that these projects are causing various types of harm to people's livelihoods and the environment. The current study is being conducted to systematically investigate the socioeconomic transformation occurring in the study area as a result of hydroelectric power projects.



Punam Kumari
Research Scholar,
Dept. of Sociology,
Panjab University,
Chandigarh, India

Review of Literature

Lata et al. (2013) conducted a study on the Socio-economic impacts of the Sorang hydroelectric power project in District Kinnaur, Himachal Pradesh, India. According to their findings, the environmental condition of the area deteriorated after the initiation of the hydroelectric power project. The hydroelectric power project has changed and diverted natural river flows, affecting existing rights and access to water for locals and having a significant impact on livelihood and the environment.

Katoch et al. (2014) researched the "Impact of Nathpa Jhakri Hydroelectric Power Project on the Environment and Livelihood in Kinnaur and Shimla Districts of Himachal Pradesh." According to the study, the extent of cracks in the buildings and field was negligible before project implementation, as reported by respondents. In the present situation, the majority of the population has noticed cracks in all types of man-made structures and other resources. The study's other major findings reveal that before the project, the language, dressing, and eating habits were predominantly traditional according to the culture of the area. However, after the project was implemented, it changed as a result of exposure to people of different statuses and cultures.

Sharma & Rana (2014) investigated the impact of a hydroelectric power project on the Ravi and Chenab basins of Himachal Pradesh's district Chamba. According to research, the negative impact of hydropower projects has been observed in terms of lack of resettlement, homelessness or landlessness, environmental impact such as submergence, deforestation, loss of flora/fauna, soil erosion, and so on. Large-scale hydropower projects have caused damage to the Himachal Pradesh environment and triggered an ecological disaster. People are protesting the hydro projects because they are concerned about the loss of agricultural land and natural water resources in the hill state.

Negi & Punetha (2017) investigated people's perceptions of the environmental and socioeconomic impacts of three hydroelectric projects in the Indian Himalayas' northwestern region. It was discovered that project-affected people tend to forget the negative effects of hydroelectric power projects after they become operational, and the positive effects appear to outweigh the negative impacts.

Raj & Singh (2019) researched the effects of hydropower projects built on the Satluj River basin in Kinnaur. The study's main goal was to comprehend the socioeconomic situation and changes of project-affected families. Their findings revealed that Hydro Power Projects have impacted the lives of project-affected people in a variety of ways. The Hydro Power Project has harmed the project's affected people's social support, social integration, and customs and traditions.

Slariya (2020) reveals in his study that Chamera-1 has a significant impact on people's lives, as well as benefits that are less than the cost. Land submergence, displacement of natives, extinction of flora and dislocation of fauna, negative impacts on health, environment, culture, and psyche of people, and other factors are all affecting people's overall health.

Objectives of the Study

The objectives of the present study are

1. To study the socio-economic conditions of the individuals.
2. To study the socio-economic effects of hydroelectric power projects in the study area.

Study Area description

Himachal Pradesh is located in the western Himalayas. The ancients referred to it as Dev Bhumi (The Abode of Gods). The state of Jammu and Kashmir borders it to the north, while Uttar Pradesh and Uttarakhand border it to the south. It borders Haryana on the south and Punjab on the west and it forms the Indian border with Tibet on the east. Himachal Pradesh currently has 12 districts.

Kinnaur is a tribal district in Himachal Pradesh's north-eastern region. The river Satluj drains the majority of the district. In the Kinnaur district, there are numerous hydroelectric projects. This region was chosen because of the high concentration of hydroelectric power projects. The current study is being conducted in the villages surrounding the Baspa-2 hydroelectric power project in the district of Kinnaur.

The project is situated in the Kinnaur District of Himachal Pradesh, on the river Baspa, a tributary of the Satluj. The Baspa-2 project is a run-of-the-river hydroelectric power plant with a 300 MW installed capacity. The project's diversion barrage is located at Kuppa near Sangla, across the river Baspa. A diversion barrage directs water from the barrage to the power plant. The power plant is in Karcham. The water is passed through a 7.95kilometer-long headrace tunnel and an 845-meter-long steel-lined pressure shaft to create a design head of 702 meters for three 100-MW Pelton turbines. The H.P.

Government signed a Memorandum of Understanding (MoU) and an implementation agreement for execution with M/s. Jai Prakash Industries Ltd., New Delhi, on November 23, 1991 and January 1, 1992, respectively. Since 2003, the project has been producing electricity.

Material and Methods

An exploratory research design was used with the study's objectives in mind. The present study is based on primary data. The current research was carried out in the Kalpa block of tehsil Sangla in the district Kinnaur, Himachal Pradesh. The sample size of 60 was chosen from two villages using a random sampling technique. The interview schedule was used to collect information from the respondents. The questions on the interview schedule were both open-ended and closed-ended. The inclusion criteria for respondents were based on their age. People of a certain age have a better understanding of everything, so they were given preference. People over the age of 40 who have witnessed this hydropower development and have faced both the negative and positive aspects of this developmental initiative were given priority. Though respondents of other ages were also interviewed to learn about their perspectives, and respondents from various socio-economic backgrounds irrespective of their gender were also included in the study sample.

Results and Discussion

Socio-economic profile

From table 1 it is clear that 66.7 percent of respondents were male and 33.3 percent of respondents were female. Out of 60 respondents, only 5 percent were in the age group of 25-35, 23.3 percent were in the age group of 36-45. 30 percent were in the age group of 46-55 and 18.3 percent were in the age group of 56-65. 15 percent and 8.3 percent respondents were found in the age group of 66-75 and 75 & above respectively. 41.7 percent of respondents belonged to joint families, whereas 58.3 percent of the respondents were from nuclear families. This indicates towards change in the structure of the family and also points out that in the future, more nuclear families may emerge due to change in the family system. The educational background of the respondents reveals that the majority of the respondents were literates, with only 5 percent being illiterates, indicating a good education status in the area. The majority of respondents, 53.3 percent, were engaged in agriculture and horticulture activities for a living, indicating a high reliance on agricultural land.

Table 1
Socio-economic profile of the respondents

	Category	No.of Respondents	Percentage
Gender	Male	40	66.7
	Female	20	33.3
Age	25-35	3	5
	36-45	14	23.3
	46-55	18	30
	56-65	11	18.3
	66-75	9	15
	75 & Above	5	8.3
Type of family	Joint Family	25	41.7
	Nuclear Family	35	58.3
Education	Illiterate	3	5
	Primary	6	10
	Middle	8	13.3
	10th	12	20
	+2	22	36.7
	Graduation	7	11.7
	Post	2	3.3
	Graduation		

Occupation	Agriculture/Horticulture	32	53.3
	Govt.Job/Pension	11	18.3
	Private Job	7	11.7
	Business	5	8.3
	Animal rearing	3	5
	Any other	2	3.3

Effects on Socio-economic Environment

The socio-economic environment in hilly and remote regions varied within short distances. The implementation of any development project has both positive and negative consequences for the socio-economic environment of society. The project under consideration was long-term in nature, and a large number of outsider workers and their families were relocated to the project area to complete various project tasks. The respondents' perceptions of the project's positive and negative effects on the social lives of the local people were examined.

Positive Effects Perceived by the Respondents

The hydro projects were intended to improve employment opportunities and social development in the area. One of the advantages of hydropower projects is the availability of electricity in rural areas. According to Table 1, some of the respondents' economic system has improved as a result of employment opportunities in the project. According to 33.3 percent of respondents, employment opportunities for locals increased after the project's construction because they were hired for jobs in the project. Small businesses were also flourished as a result of the influx of outsiders and their demands. 28.3 percent of the respondents believed that after project construction the demand for small businesses were increased from dairy products to local vegetables. Earlier all-weather road connectivity was the major problem in the study area, which had been improved at the time of construction of the power project. 43.3 percent of the respondents have accepted that after project construction the all-weather road connectivity has been improved. According to 36.7 percent of respondents, project authorities provided many medical instruments to the area's hospital, which improved the area's medical facilities. Thus, it is clear that the majority of respondents believed that the hydropower projects had only brought negative changes to the socio-economic environment of the area, while a few believed that the projects had brought some positive aspects to the area.

Table 2
Positive Effects Perceived by the Respondents

Effects	Category	No. of Respondents	Percentage
Increased Employment opportunities	Yes	20	33.3
	No	34	56.7
	Can't Say	6	10
Increased Small Business opportunities	Yes	17	28.3
	No	36	60
	Can't Say	7	11.7
Improved roads condition	Yes	26	43.3
	No	31	51.7
	Can't Say	3	5
Improved Medical facilities	Yes	22	36.7
	No	27	45
	Can't say	11	18.3

Negative Effects Perceived by the Respondents

The negative effects due to the implementation of the project were also revealed by the respondents. 60 percent of the respondents believe that there is a change in the socio-cultural system due to the influence of the outsiders who are working in the projects. Dressing, eating habits and language were identified as the main socio-cultural indicators. Before the project, the majority of respondents reported that their language, dressing, and eating habits were predominantly traditional following the culture and tradition of the area. It had changed after being exposed to people from various social classes and cultures. Respondents reported that their language, dressing style, eating pattern and attitude have changed and that people are now leading a modern way of life in line with the state's developed areas.

66.7 percent of respondents have noticed a change in customs and traditions of the area. Tribal peoples have their own set of customs and traditions that have been influenced by an outside culture. Marriage ceremonies have changed as a result of this change. Following discussions with the locals, it was discovered that the joint family systems, which were the strength of their society and the pillar of the social system, were collapsing. According to 63.3 percent of respondents, the concept of joint families has been shifted to nuclear families since the development of the hydropower projects in the region. It was primarily because, following the project's implementation, family members gained economic independence and preferred the nuclear family system.

78.3 percent of the respondents have reported the loss of commercial horticulture and agricultural system. Commercial horticulture based on apple orchards and sowing of seasonal cash crops like peas, potatoes and rajma is the main source of income in these villages. Construction work for hydroelectric power projects has harmed the local climate, affecting commercial horticulture and agriculture to varying degrees. The majority of respondents reported a decrease in crop production as a result of dam construction.

Among other things the most negative effect was on the local crafts, specifically weaving products. 53.3 percent of respondents have reported the decline in local crafts that had a good market at local fairs. It was primarily because, following the project completion, job opportunities near the power project had increased, and local youths were now more interested in these jobs rather than continuing in their traditional family occupation.

There is a significant increase in health-related problems due to increasing pollution from blasting around the construction area. 56.7 percent of the respondents accuse the hydropower projects of deteriorating their health. Accordingly, the project workers had infiltrated the local social system, causing plenty of social issues in the community. According to 58.3 percent of respondents, the inclusion of outsiders in the construction of hydroelectric power projects has increased crime, theft, and other social problems. Therefore it is quite evident that the hydroelectric power project has a varying degree of negative effects on the socio-economic environment of the area.

Table 3
Negative Effects Perceived by the Respondents

Effects	Category	No of respondents	Percentage
Change in socio-cultural practices	Yes	36	60
	No	14	23.3
	Can't say	10	16.7
Change in customs and traditions	Yes	40	66.7
	No	14	23.3
	Can't say	6	10
The decline in the joint family system	Yes	38	63.3
	No	14	23.3
	Can't say	8	13.3

Loss of commercial horticultural and agriculture system	Yes No Can't say	47 10 3	78.3 16.7 5
The decline in local craft	Yes No Can't say	32 21 7	53.3 35 11.7
Increased health-related problems	Yes No Can't say	34 15 11	56.7 25 18.3
Increased social problems	Yes No Can't say	35 16 9	58.3 26.7 15

Conclusion and Suggestion

Without a doubt, electricity generation is a necessity for development but hydro projects do involve the submergence of forests and the displacement of people. Based on the above description, it can be stated that the hydroelectric power projects do harm the socio-economic environment of the area. Hydro projects were found to have effects on the socio-economic environment of the area both positively and negatively. However negative effects were more as compared to positive effects. The local population was accusing hydropower companies of deteriorating their socio-economic environment. Water resource projects must be sustainable to maximize positive effects while mitigating negative environmental, social, and economic effects. To minimize the consequences of Hydro Power Projects, a focus should be placed on the construction of small Hydro Power Projects sustainably. The interests of local people must be heard and considered during planning, and policymakers must adopt a model or strategies to minimize the negative effects of such development activities for local people who live nearby and have sacrificed their belongings. Furthermore, the hydroelectric project is expected to transform the communities in measurable ways. The projects had a multifaceted role to play in development at various levels – community, regional, and National. To maintain good relations concerning people's livelihoods and the sustainability of power projects, a bridge must be built between progress in the social and organizational learning process and stakeholders' willingness to participate in a consensus-building effort that contributes to identifying mitigation measures and areas of opportunity for regional development and environmental sustainability.

References

1. Asher, M. (2015). *Kinnaur's Curse? Economic & Political Weekly*, 50 (18).
2. Asher, M., & Bhandari, P. (2020). *Mitigation or Myth? Impacts of Hydropower Development and Compensatory Afforestation on forest ecosystem in the high Himalayas. Land Use Policy*.
3. Baviskar, A. (2002). *In the Belly of RIVER: Tribal conflicts over development in Narmada Valley. New Delhi: Oxford University Press*.
4. Banerjee, S. S. (2002). *Large Dams in India. New delhi: Indian institute of Public Administration*.
5. Bodh, V. K. (2016). *Dams Development Projects in North Western Himalayas. International Journal of Interdisciplinary and Multidisciplinary studies*, 4 (1), 20-22.
6. Chandu, T., Keenan, R. J., Petheram, R. J., & Shepherd, P. (2012). *Impacts of Hydropower Development on Rural Livelihood Sustainability in Sikkim, India: Community Perceptions. Mountain Research and Development*, 32 (2), 117-125.
7. Katoch, A., Guleria, J., & Kumar, A. (2014). *Impact of Nathpa Jhakri Hydroelectric Power Project on the Environment and Livelihood in Kinnaur and Shimla District of Himachal Pradesh. New delhi: Indian Council of Social Science Research*.
8. Khagram, S. (2004). *Dams and Development: Transitional Struggle for Water and Power. New Delhi: Oxford University Press*.
9. Kothari, C. R., & Garg, G. (2019). *Research Methodology: Methods and Techniques. New Delhi: New Age International Publishers*.

10. Kurtzs, R. (1983). *Introduction to Social Statistic (International Student Edition ed.)*. New Delhi: McGraw Hill Book Company.
11. Lata, R., Rishi, M. S., Herojeet, R., & Dolma, K. (2017). *Environmental and Social Impact Assessment: A study of Hydroelectric Power Projects in Satluj Basin in District Kinnaur, Himachal Pradesh, India*. *International Journal of Earth Sciences and Engineering* , 10 (2), 270-280.
12. Lata, R., Rishi, M. S., Kochhar, N., & Sharma, R. (2013). *Socio-economic impacts of Sorang hydroelectric power project in District Kinnaur, Himachal Pradesh, India*. *Journal of Environment and Earth Science* , 3 (3), 54-61.
13. Mathur, H. M. (2006). *Managing Resettlement in India*. New Delhi: Oxford University Press.
14. Mehta, S. R. (1997). *Poverty, Population and Sustainable Development*. Jaipur: Rawat Publications.
15. Negi, G. C., & Punetha, D. (2017). *People's perception on impacts of hydro-power projects in Bhagirathi river valley, India*. *Environmental Monitoring and Assessment* , 138.
16. Raj, M., & Singh, C. P. (2019). *Socio-economic study of Hydro Power - affected Tribal Communities in Kinnaur District of Himachal Pradesh*. *International Review of Social Sciences and Humanities* , 9, 293-303.
17. Sharma, H. K., & Rana, P. K. (2014). *Assessing the impacts of hydro power project construction on the river basin of District Chamba of Himachal Pradesh*. *International Research Journal of social Sciences* , 3 (2).
18. Slariya, A. (2020). *Health Impact Assessment: A Sociological Analysis of Chamera-1 Hydropower Project in Chamba District of Himachal Pradesh*. *Quest journals* , 8 (12), 83-94.
19. Vidyarthi, L. P. (1970). *Socio- cultural Implications of Industrialization in India: A case study of tribal Bihar*. New Delhi: Planning commission Research Programme Committee.