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HYDROPOWER PROJECTS AND SOCIO-ECONOMIC  
CHANGES: A STUDY OF PARVATI STAGE-III HYDRO POWER PROJECT



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Short Profile

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**ABSTRACT:**

Power is one of the most important inputs for economic development and growth. In addition to its widely recognized role as a catalyst to economic activity in different sectors of economy, the power sector makes a direct and significant contribution to economy in terms of revenue generation, employment opportunities and enhancing the quality of life. Himachal Pradesh is rich in hydro resources; it can generate a lot of hydro power through its abundance water resources. But at the same time the installation of project

changes the socio-economic frame work of the society. A lot of displacement and agitations has been noticed in recent past, in various projects of Himachal Pradesh. So it is required on the part of state government and project authorities to keep into consideration the issues related to well being of project affected peoples' while during the installation of hydro-power projects. They companies should not only harness the hydro potential but should also get engaged in the philanthropic work.

**KEYWORDS**

*Hydro Power Project, employment opportunities, economic development*

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## INTRODUCTION

Himachal Pradesh was formed on 15th of April, 1948 by the amalgamation of some of thirty erstwhile princely states of the hill region. It got the status of full statehood on 25th of January 1971, by the 14th constitutional amendment, and became the 18th state of India. Nature has blessed this with its bounty, and several of the picturesque landscapes and numerous hill stations. The state is blessed with five major rivers with numerous rivulets continuously flowing through it. These rivers provide the state a vast potential of hydro power, and make it as one of the richest in this field. The total hydro generation capacity of the state is 23000 mega watt. Until now, only about 1/3rd of the assessed potential has been assessed. There are a number of corporations and private individuals, engaged in the power production in the state. Amongst the big corporate entities are the NHPC Ltd., SJVN Ltd and Jai Prakash and Associate and NTPC etc. These large scale projects are directly or indirectly affecting the local peoples, with their construction activities. Many of them were displaced and evacuated, with their land purchased by the projects in lieu of compensation money. There are many activities which takes place after the project inception, which changes the socio-economic dynamics of the society of the affected region. It is the duty of theses corporate entities to redress the problems of affected people which arouse due to the installation of the project.

### Parvati stage III (520MW)

Parvati stage III is one part of three stages Parvati Hydro Power Project, of Himachal Pradesh. It is joint sector project, largest of all, in terms of generation of Hydro power, in the state. The Parvati Hydroelectric Project Stage III (520MW) is a run-of-the-river scheme on Sainj River located 800 m downstream of its confluence with Jiwa Nallah in Kullu district of Himachal Pradesh. It envisages utilization of waters released from tailrace of Parvati Hydro-electric Project (Stage-II) powerhouse at Suind as well as discharges of Sainj River in the Beas catchment. The Project is developed by National Hydro Power Corporation Ltd. NHPC Limited (Formerly National Hydroelectric Power Corporation) (BSE: 533098, NSE: NHPC) is an Indian Hydro Power Generation company that was incorporated in the year 1975 with an authorized cs. 2000 million and with an objective to plan, promote and organize an integrated and efficient development of hydroelectric power in all aspects. Later on NHPC expanded its objects to include other sources of energy like Geothermal, Tidal, Wind etc.. At present, NHPC is a Mini Ratna Category-I Enterprise of the Govt. of India with an authorised share capital of Rs. 1,50,000 Million . With an investment base of over Rs. 3,87,180 Million Approx., NHPC is among the TOP TEN companies in the country in terms of investment.

### Methodology

The study is based upon primary data, captured through questionnaire in which about 12 percent of the affected (Non displaced) were taken into consideration. The total number of the respondents enquired was ninety five. After the collection of data the tabulation was made, followed with the application of some statistical tools. In order to test the economic conditions and socio economic changes various indicators were devised. The opinion of the respondents was taken and the relevant results were noted down.

### Objectives of the study

1. To study the socio-economic changes after the inception of the project
2. To study the change in general economic conditions of the affected people.

### Socio-Economic Profile Analysis of the Project Affected People

In Himachal Pradesh a majority of people draw the major share of their income from agriculture related activities. In present study, most of the respondents were farmers dealing in agrarian practices and living in the villages in joint family system.

**Table No 1**  
Category Wise Distribution of the Respondents

| Category       | Frequency | Percent | Cumulative Percentage |
|----------------|-----------|---------|-----------------------|
| General        | 69        | 72.6    | 72.6                  |
| Schedule Caste | 26        | 27.4    | 100.0                 |
| Total          | 95        | 100.0   |                       |

Table No. 1 describes the category wise distribution of the project affected people. Most of the affected people in Parvati Stage III projects were of general category; their percentage was as high as 72.6 percent. The other affected people were belonging to schedule caste category, their percentage was 27.4 percent. It means that most of the affected people were general and schedule caste. Although there are other categories like schedule tribes and OBC but they are very sparsely distributed and are mostly away from the affected zone.

**Table No. 2**  
Family Wise Distribution of the Respondents

| Family Type | Frequency | Percent | Cumulative Percentage |
|-------------|-----------|---------|-----------------------|
| Joint       | 74        | 77.9    | 77.9                  |
| Nuclear     | 21        | 22.1    | 100.0                 |
| Total       | 95        | 100.0   |                       |

The Table No. 2 describes about the family wise distribution of the respondents. Generally, Joint family system means where most of the people of a family lives under one roof, there may be of two-three generation or more; whereas nuclear means where two generation lives under one roof. Most of

the people in the state of Himachal Pradesh live in joint family system. This is also evident in project affected area of Parvati Project. 77.9 percent of the affected people were living in joint family system, while only 22.1 percent were living in nuclear family system.

**Table No 3**  
**Occupation Wise Distribution of the Respondents**

| Occupation           | Frequency | Percent | Cumulative Percentage |
|----------------------|-----------|---------|-----------------------|
| Agriculture & Allied | 74        | 77.9    | 77.9                  |
| Labourer             | 8         | 8.4     | 86.3                  |
| Business             | 5         | 5.3     | 91.6                  |
| Services             | 5         | 5.3     | 96.9                  |
| Others               | 3         | 3.1     | 100.0                 |
| Total                | 95        | 100.0   |                       |

Table No. 3 deals with the occupation wise distribution of the project affected people of Parvati Stage III Hydro Power Project. It is evident from the table that a majority of 77.9 percent of the people were engaged in agricultural and allied activities, followed by 8.4 in labour related work, 5.3 each in business and service each and 3.1 percent in other independent jobs.

**Table No 4**  
**Type of Property Lost**

| Category          | Frequency | Percent | Cumulative Percentage |
|-------------------|-----------|---------|-----------------------|
| Land & House      | 33        | 34.7    | 34.7                  |
| Agricultural Land | 59        | 62.1    | 96.8                  |
| Others            | 3         | 3.2     | 100.0                 |
| Total             | 95        | 100.0   |                       |

The Table No. 4 describes about the type of property lost by the project affected people. A majority of 62.1 percent of the people have lost agricultural land whereas 34.7 percent have lost both land and houses, while 3.2 percent have lost other properties. As far as houses were concerned, it includes any structure made on land, whether for dwelling, storage, cow shed and grass store etc.

Table No 5  
Receipt of Compensation

| Did You received Compensation | Frequency | Percent | Cumulative Percentage |
|-------------------------------|-----------|---------|-----------------------|
| Yes                           | 9         | 9.5     | 9.5                   |
| No                            | 86        | 90.5    | 100                   |
| Total                         | 95        | 100.0   |                       |

Compensation was given mainly in form of cash and sparsely in land. The Table No. 5 describes about the satisfaction of the people, from compensation they have received for the property they have lost. Only 9.5 percent of the people were satisfied for the compensation they have received, while 90.5 percent were dissatisfied of the compensation.

Table No 6  
Satisfaction From Compensation

| Are you satisfied of compensation you have received | Frequency | Percent | Cumulative Percentage |
|---|-----------|---------|-----------------------|
| Yes   | 27        | 28.4    | 28.4                  |
| No  | 66        | 69.5    | 97.9                  |
| Can't Say   | 2         | 2.1     | 100.0                 |
| Total   | 95        | 100.0   |                       |

The Table No 6 describes about the satisfaction of the people from the compensation they have received. Only 28.4 percent of the respondents were satisfied of the compensation while 69.5 percent were dissatisfied. 2.1 percent of the respondents didn't say anything on this issue. The most of the respondents were of the opinion that they have received less compensation money as compared to other adjoining projects. On this issue there were even agitations against the company.

Table No. 7  
Economic Position

|  | Yes      | No       | Don't Know | Total     |
|--|----------|----------|------------|-----------|
| Are you Economically better position than the start of the project | 74(77.9) | 19(20.0) | 2(2.1)     | 95(100.0) |
| Total  | 74(77.9) | 19(20.0) | 2(2.1)     | 95(100.0) |

The table No 7 describes about the economic position of the project affected people. On this issue 77.9 percent of the people were of the opinion that they were economically better position after the inception of the project, 20.0 percent said that they were economically better before the project, while 2.1 percent didn't expressed their opinion.

**Table No 8**  
**Major Source of Earning of PAF's Before and After the Project**

| Major source                       | Earnings Before | Earnings After |
|------------------------------------|-----------------|----------------|
| Agricultural and allied Activities | 70(73.7)        | 63(66.3)       |
| Business                           | 5(5.3)          | 6(6.3)         |
| Service                            | 6(6.3)          | 7(7.3)         |
| Labour                             | 10(10.5)        | 14(14.7)       |
| Others                             | 4(4.2)          | 5(5.4)         |
| Total                              | 95(100.0)       | 95(100.0)      |

The Table No 8 describes about the major source of earning before and after the inception of the project. In general there was no fundamental change in the major source of earning of majority of the people after the inception of the project. The dependence upon agriculture was decreased from 73.7 percent to 66.3 percent whereas dependence upon business was increased from 5.3 to 6.3 percent. The people has shifted from agricultural activities to labour, as the shrinking of land and increase in the labour instances and other opportunities. The labour related activities were increased from 10.5 to 14.7 percent while others, which include independent works, contracts and financing activities, were increased from 4.2 to 5.4 percent.

**Table No 9**  
**Major crop Sown in Project Affected Areas**

| Crop                 | Earnings Before | Earning After |
|----------------------|-----------------|---------------|
| Maize                | 18(18.9)        | 18 (18.9)     |
| Wheat                | 50(52.6)        | 43()          |
| Vegetable            | 15(15.8)        | 18(18.9)      |
| Pulses               | 3(3.2)          | 4()           |
| Horticulture Produce | 6(6.3)          | 7()           |
| Others               | 3(3.2)          | 5()           |
| Total                | 95(100.0)       | 95(100.0)     |

The Table No 9 describes about the changes in major crop sown before and after the inception



of the project. There was no change in the production of maize, in and around the vicinity of project affected areas. A decrease in wheat production was noticed, as people have moved to other areas of production. Due to increase in the local demand for vegetables, the production of vegetable was increased. Further an increase in dependence upon the horticultural produce, pulses and other crops was also noticed. Though the changes were not induced due to the inception of project alone, but also due to increased commercialisation and improved marketing practices, roads and means of transportation.

Table No 10  
Impact on the General Economic Activities

| Category                  | Responses |          |           | Total     |
|---------------------------|-----------|----------|-----------|-----------|
|                           | Increase  | Decrease | No Change |           |
| Local Job Opportunities   | 59(62.1)  | 15(15.8) | 21(22.1)  | 95(100.0) |
| Manual Labour Instances   | 65(68.4)  | 12(12.6) | 18(18.9)  | 95(100.0) |
| Renting out of the houses | 62(65.3)  | 24(25.3) | 9(9.5)    | 95(100.0) |
| Lease of Land             | 73(76.8)  | 11(11.6) | 11(11.6)  | 95(100.0) |
| Number of visitors        | 60(63.2)  | 26(27.4) | 9(9.5)    | 95(100.0) |
| Inflow of the Money       | 80(84.2)  | 12(12.6) | 3(3.2)    | 95(100.0) |
| Standard of Living        | 56(58.9)  | 6(6.3)   | 33(34.7)  | 95(100.0) |

The Table No. 10 describes about the impact of Hydro Power Project in the general economic activities in and around project affected areas. 62.1 percent of the respondents were agreed that there was an increase in local job opportunities after the inception of the project, while 15.8 percent have noticed a decrease and 22.1 percent didn't noticed any change. On the issue of manual labour instances, 68.4 percent have noticed an increase, 12.6 percent as decrease and an 18.9 percent didn't have noticed any change. In renting out of the houses, 65.3 have noticed an increase, 25.3 percent as decrease and 9.5 percent as no change. On the issue of lease of land, an increase was noticed by 76.8 percent of the people whereas 11.6 percent each has noticed decrease and no change respectively. 63.2 percent of the people have noticed an increase in the number of visitors after the inception of the project, whereas 27.4 percent and 9.5 percent of the people have noticed, decrease and no change respectively. 84.2 percent of the respondents were agreed that there was an increase in the inflow of the money after the introduction of the project in their area, while 12.6 percent have noticed a decrease and 3.2 percent, not any change. On the issue of standard of living, a majority of 58.9 percent have noticed an increase, followed by 34.7 percent as no change and 6.3 percent as decrease. In general there was an increase in economic activities in and around the vicinity of the project affected area.

Table No. 11  
General Welfare Activities

| Category                        | Responses |          |          | Total     |
|---------------------------------|-----------|----------|----------|-----------|
|                                 | Good      | Bad      | Average  |           |
| Medical Facilities              | 45(47.4)  | 38(40.0) | 12(12.6) | 95(100.0) |
| Technical Education             | 48(50.5)  | 39(41.1) | 8(8.4)   | 95(100.0) |
| General Infrastructure          | 74(77.9)  | 15(15.8) | 6(6.3)   | 95(100.0) |
| Economic Impact                 | 50(52.6)  | 12(12.7) | 33(34.7) | 95(100.0) |
| Environment                     | 9(9.5)    | 59(62.1) | 27(28.4) | 95(100.0) |
| Culture                         | 12(12.6)  | 51(53.7) | 32(33.7) | 95(100.0) |
| Corporate Social Responsiveness | 20(21.0)  | 4(4.3)   | 71(74.7) | 95(100.0) |
| Developmental Impact            | 68(71.6)  | 9(9.5)   | 18(18.9) | 95(100.0) |
| Quality of Life                 | 5(5.2)    | 80(84.2) | 10(10.6) | 95(100.0) |

The Table No 11 describes about the general welfare activities provided or induced due to inception of the Hydro Power project, in and around the vicinity of the project. As far as medical facilities were concerned 47.4 percent have rated it good, 40.0 percent as bad and 12.6 percent as an average. In terms of technical education 50.5 percent has rated it good, 41.1 percent as bad and 8.4 percent as an average. In general infrastructure, which includes roads, transportation and other, 77.9 percent have rated it as good, 15.8 percent as bad and 6.3 percent as an average. As far as economic impact of the project is concerned 52.6 percent have rated it as good, 12.7 percent as bad and 34.7 percent as an average. As far as environmental impacts are concerned, only 9.5 percent have rated it as good, 62.1 percent as bad and 28.4 percent as an average. The similar is the cultural impact, where 12.6 percent of the people rate it as good whereas 53.7 percent as bad and 33.7 percent as an average. As far as corporate social responsibilities are concerned, which includes the general welfare activities like sanitation, drinking water facilities pathways and drainages etc. 21.0 percent have rated as good, 4.3 percent as bad and 74.7 percent as an average. 71.6 percent of the respondents rates the developmental impact of Hydro Power Project as good, 9.5 percent as bad and 18.9 percent as an average. As far as general quality of life of the project affected areas is concerned the 5.2 percent of the people have rated it as good, 84.2 percent as bad and 10.6 percent as an average.

### Findings:

Most of the Project affected peoples were belonging to general category and were living in joint family system. A majority of them were engaged in agricultural and allied activities.

Most of the affected people have lost their agricultural land, and have also received the compensation for the property they have lost, though, majority of them were not satisfied of the compensation they have received. But still they think that they were economically better position than before the inception of the project.

There was no fundamental change in the major source of earning before and after the inception of the project. Also it didn't cause any major change in agricultural practices except shifting from wheat production to others like vegetable and pulses.

A majority of the people thinks that there was an increase in general economic activity like, local job opportunities, manual labour instances, number of visitors, inflow of the money and all others, after the introduction of the project.

An increase or improvement was noticed in the general welfare activities like medical facilities, infrastructure, technical education and corporate social responsiveness. A positive impact was also noticed in development related activities after the inception of the project.

Upon the issues like environment, culture and general quality of life of the affected people, the impact of the Hydro Power Project was rated as bad. So it means that the project is a mixed bag of good and bad outcomes. The power projects are necessary in terms of fulfilling the electricity needs and revenue generation for the state and the people. But it required on the part of the government and the power producers to redress the issues of affected people.

## REFERENCES

- 1)B. Sudhakara Reddy, et al. "Energy Economy and the Environment", Energy Efficiency and Climate Change, Sage Publication India, Pvt. Ltd.
- 2)Prof R. Natrajan, " Role of Renewable Energy in the XXI Century", Environment & People, January 2000.
- 3)Anil Kakodkar " Fast Breeding Nuclear Energy" Yojna, Vol. 48, No.1, Jan 2004 pp 37-40. Himachal Pradesh " Economic Development" National Book Trust, 2008, New Delhi.
- 4)Debajit Palit "Rural Development Through Electrification", Kuruksheetra, Vol. 53 o. 12, Oct. 2005.
- 5)B. S. Padmanabhan " Renewable Geared to Play Pivotal Role" Yojna, Vol. 48, No.1, Jan 2004.
- 6)<http://indianpowersector.com/home/electricity-regulation/>
- 7)Jagmohan Balokra "Wonderland Himachal Pradesh" H. G. Publications, New Delhi.
- 8)Economic Survey of Himachal Pradesh, Economics and statistics Department Himachal Pradesh.
- 9)H. K .Mitoo, "Himachal Pradesh" Economic Development, National Book Trust, 2008, New Delhi.
- 10)Rajeder Attri "Himachal Pradesh a Himalyan Dreamland" Sarla Publication, Shimla, India.
- 11)L.R. Sharma, Upgradation of physical infrastructure "Perspectives on a growth oriented Hill Economy himachal Pradesh", Shipra Publication, Delhi 2007 page 201-03.
- 12)Minakshi Chaudhry, "Himachal – A complete Guide to the Land of Gods" Rupa & Company, new Delhi, 2006..
- 13)<http://hppcl.gov.in/page/Hydro.aspx/12.6.2014>
- 14)[http://en.wikipedia.org/wiki/Hydroelectric\\_power\\_in\\_Himachal\\_Pradesh/12.9.2014](http://en.wikipedia.org/wiki/Hydroelectric_power_in_Himachal_Pradesh/12.9.2014)
- 15)<http://energy.gov/eere/water/history-hydropower/12.12.2013>

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