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SOCIO-ECONOMIC CHANGES IN THE LIVES OF PROJECT AFFECTED PEOPLE: A STUDY OF DISPLACED PEOPLE OF CHAMERA-I HYDRO POWER PROJECT IN CHAMBA DISTRICT OF HIMACHAL PRADESH

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Abstract

Ravi basin had first hydroelectric power project 1904. But the development of Hydropower generation started in real sense with the installation of NHPC owned Baira Suil power project in 1982. After that the number of Hydroelectric Power Projects has increased rapidly till date. Chamera series of projects (Chamera-I, II and III) are the major projects and affected society at large including flora-fauna, physical environment by altering the ecology of the whole catchment area. These projects also displaced thousands of people and are still struggling for the identity even after 36 years at new place of their resettlement on the one hand and not got their dues and whatever they received they received with the intervention of High court and where some cases are still pending.

This paper is an attempt to understand, more than three decades journey of NHPC in Ravi basin and the changes brought because of the power projects installed by NHPC. Specifically, changes in socio-economic conditions of displaced people of Chamera-I will be the main focus of this paper. The paper is based on master level research conducted by the researcher by using exploratory research design and responses have been recorded by using interview schedule and observation methods. The research confirmed that this project has changed the way of living of people to a greater extend in many aspects of their life.

Keywords: *Hydroelectric Power Project, Displacement, Resettlement, Rehabilitation*

Introduction

It is important to remember that whatever we all are doing by being human being on this earth whatever activities we are doing to survive since early morning to till late evening, all are somewhere associated with the nature. It will not be exaggeration that for the fulfilment of all sorts of our needs, we are every inch dependent on *Mother Nature* inspite of all sorts of development we had made. The materials used for building, energy, clothing, food, and all the familiar parts of our day-to-day world come from natural resources. Our surroundings are composed largely of the environment and facilities built by humans for comfort, security, and

well-being. Man has created such an environment which in a way or another affect nature in many ways.

To meet our needs of survival and make our life more comfortable, we need electricity which can be generated only by using the natural resources. To use water on a *large scale, storage dams are needed* and also it has *many human, environmental and ecological issues* which are to be addressed along with such developmental initiatives. Such impacts of human activities can be seen in form of *development of long reservoirs and development of picturesque valleys behind the dams and further impact the air, land, and water in varying degrees in whole catchment* and become unbearable to the people who are living in the vicinity of dams and compelled to face the consequences without their fault. Their only fault is, they are living in there since generations and one day they came to know that hydro based developmental activity is going to be initiate in their area and they feel compelled to face psychological trauma and all ill-effects without getting any benefit.

Electricity cannot be generated in the plains and for electricity generation, we are depended on rivers and rivulets and slope also, which are mostly available in the hilly areas, like; *Himalayan region in case of India*. So, it is clear that it can be generated only in this region and the fact cannot be denied that for the national interest, these hydroelectricity generation plants are to be installed by keeping local interest aside.

Hydroelectric Power in India

India is 5th globally for installed hydroelectric power capacity. As of 31 March 2020, India's installed utility-scale hydroelectric capacity was 46,000 MW, or 12.3% of its total utility power generation capacity. Additional smaller hydroelectric power units with a total capacity of 4,683 MW (1.3% of its total utility power generation capacity) have been installed. India's hydroelectric power potential is estimated at 148,700 MW at 60% load factor. In the fiscal year 2019–20, the total hydroelectric power generated in India was 156 TWh (excluding small hydro) with an average capacity factor of 38.71%. The hydro-electric power plants at Darjeeling and Shivanasamudram were established in 1898 and 1902, respectively and first project was established in Chamba in 1908 in Himachal Pradesh.

Hydro Power Development in Himachal Pradesh and Chamba

Himachal Pradesh is one of the ten States that makes up the Indian Himalayan Region (IHR). Himachal Pradesh, located in Northern India, share its border with Jammu and Kashmir in North, Punjab in West and South West, Uttar Pradesh in the South East, Tibet in the East, and

Haryana in the South and is located between 30° 22'4" – 33° 12'40" North latitude, 75°47'55" – 79°04'22" East latitude. It manifests wide ranges in altitude, climate and geology. The altitudes range from 350 m to 6975 m above mean sea level the area is 55673 Sq. Kms and can be divided into three broad zones; *The Outer Himalayas or Shiwalik foothills, the inner Himalayas or mid- mountain zone and the greater Himalayas or alpine zone*.

Bhuri Singh power plant, built in May 1904 by the king of erstwhile Chamba estate, was the first hydropower project in Himachal Pradesh. The potential capacity of the state is about 27,436 MW in five river basins; *Satluj, Beas, Ravi and Yamuna*. Out of total hydel potential of the state, 8,418MW is harnessed so far, out of which only 7.6% is under the control of state government while the rest being executed by NHPC and other Independent Power Producers (IPPs).

NHPC in Himachal Pradesh

NHPC Company was incorporated on November 7, 1975 under the Companies Act as a private limited company under the name National Hydro Electric Power Corporation Private Limited. The company was converted to a public limited company with effect from April 2, 1986. The company is a hydroelectric power generating company dedicated to the planning, development and implementation of an integrated and efficient network of hydroelectric projects in India. It executes all aspects of the development of hydroelectric projects, from concept to commissioning. To date NHPC has developed and constructed 13 hydroelectric power stations and its total installed capacity is currently 5,175 MW. Its power stations and hydroelectric projects are located predominantly in the North and North East of India, in the states of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Assam, Manipur, Sikkim and West Bengal.

NHPC in Ravi Basin in Chamba

NHPC has started its commercial and professional execution in the field of hydropower generation with the execution of Baira-suil power project in 1980s and became corporation after it's successful execution. Till then to date in Ravi basin it has executed four projects and the detail of these projects is as follows:

Sr. No.	Name of the Project	River/Rivulet	Generation Capacity	Year of Commission
1.	Baira Suil	Baira, Suil & Bhaledh	180	1981 and 2020 (Renovation)
2.	Chamera-I*	Ravi	540	1994
3.	Chamera-II	Ravi	300	2004
4.	Chamera-III	Ravi	231	2012

**selected for the study*

Chamera-I Hydroelectric Power Project: Prime Concern

Chamera-I Power Project of 540 (3 x 180 MW) has been taken for the research. This project is a pondage scheme. As described in the table, the project has created 29 km long reservoir and has a detrimental impact on the lives of people who are living in the vicinity of the reservoir on the one hand and on the other hand huge impact on the oustees, who left their native land and compelled to be resettled somewhere else. This reservoir has affected the lives of thousands of people living on left and right sides of the reservoir. Some of the people (1554 families) officially have been displaced and reside out the area somewhere in other parts of the district or state who called as PAFs but still today some people (not counted by neither Govt. nor by NHPC) are living the vicinity of this reservoir and facing all sorts of deprivations and they are compelled to live till their last breath or unless they got economic mobility, only then they can leave and move from their original places of residences.

RR Initiatives of NHPC

Traditionally, as claimed by NHPC in his official website, socio-economic surveys and R&R plans have been an integral part of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) report, prepared as per the provisions of EIA Notification 1994 and 2006 and in case of Chamera-I only provisions of EIA notification-1994 have been implemented. A broad R&R package being implemented by NHPC in Chamera-I comprises the following provisions for the displaced people:

- Compensation for land, houses, shops and other properties etc.
- Homestead land
- Transportation charges for household items, cattle etc.
- Construction of house
- Solatium charges
- Financial assistance for construction of cattle shed or poultry farm
- Agricultural land depending on availability or landless grant
- Subsidy for seeds /fertilizers/ land development

- Development of public health centre, school, community centre etc.
- Provision of basic amenities like road, drinking water, electricity, medical etc.
- Vocational training to develop entrepreneurial skills
- Preference in allotment of shops in NHPC's shopping complex
- Special measure for Scheduled Tribes
- Renovation/ relocation of religious structures or structures of archaeological importance.

The respondents have been interviewed by keeping these provisions in view while conducting research in the empirical setting. The respondents have also being told about the recent provisions of "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (RFCTLARR), 2013" with effect from 01.01.2014, in which a detailed *Social Impact Assessment (SIA)* Study is essentially to be conducted by the concerned State Govt. through an independent *SIA Agency* and *Social Impact Management Plan*/*R&R Plans* formulated for PAPs. But in the project understudy the process of socio-economic studies/*Social Impact Assessment* (SIA) was not conducted and *R&R plan* was not prepared on the basis of such studies and not engaging and consulting the affected communities. This aspect is the main base of the study conducted for this paper.

Objective of the Paper

The prime aim of this paper is to document the change in the socio-economic conditions of displaced people. The change in their lifestyle for over 25 years of installation of the project by comparing the prior and after the installation conditions of displaced people.

Research Methodology

Since, the study aims to explore the relationship between hydropower generation and lives of displaced people, so this paper is based on the exploratory research and non-participatory observation methods have been used. Because of the nature of study, secondary as well as primary sources of data have been used. For secondary data, on-line available material has been consulted to identify the variables which were further used in the formation of interview schedule which was used to collect data by vising respondents personally in four (4) villages situated on left and right side of the reservoir. The collected data have been codified, tabulated and interpreted by applying suitable statistical tools and finally conclusion drawn.

Study Area

By keeping the objectives of the study, affected villages of Chamera-I hydroelectric power project has been selected. As shown in the figure on the left, which is showing 29 km long reservoir (18 Km Ravi side toward Chamba showing on the right and 11 Km Suil side toward Sundla showing on the left) and Ravi side has been selected for the study. The villages situated on left bank (Udaipur and Dhardha) and on right bank (Rajnagar and Chakloo) have been selected. To select respondents, probability sampling method has been used.

Results and Conclusion

As per the aims and objective of the present paper, desired data have been collected by using suitable statistical and research methods. The data collected on variables such as; village, social segments, economic conditions, age, education, habitat structure, land holding, occupation, income etc. and to see the change, the conditions of the respondents have been compared with prior and present situation. Interview schedule and simple random sampling method to select the respondents from upstream of the dam (Ravi side) and villages selected from both left and right side of the reservoir. Data has been collected from 50 respondents from the villages situated in the vicinity of Chamera-I power project. The collected data tabulated and interpreted as follows to drive the conclusion:

Table:1 Showing Village wise Distribution of the Respondents

Research Segment	Sr. No.	Name of Village	No. of Respondents	Percentage
Right side of Reservoir	1.	Udaipur	08	16.00
	2.	Dradha	12	24.00
Left side of Reservoir	3.	Rajnagar	20	40.00
	4.	Chakloo	10	20.00
		Total	**50**	**100.00**

To see the impact on different geographical areas, respondents from both sides of reservoir have been selected to intensive study. Broadily dividing into two geographical segments; left side and right side of reservoir (as shown in figure and table) and two-two villages have been taken from both segments. From right side of the reservoir, 16 percent respondents have been taken from Udaipur village, where most of the displaced people of this project have been

resettled. From second village, i.e. Dradha, 24 percent respondents have been taken, the respondents from this village are also resettled and situated at the vicinity of the reservoir.

From the second research segment, i.e. left side of the reservoir, 40 percent respondents have been taken from Rajnagar village which is one of biggest village of the catchment area and the respondent were native of this village whose some part of the land have been acquired by NHPC for dam and some part is still with them and it would be interesting to the change they experienced with the coming up of this project. The last village selected for study was Chakloo which is about 10 km away from Rajnagar and situated nearer to the dam but the elevation of the village is comparatively high so because of dam, people of this village lost water mills, natural sources of water *(Panihaars)*, pasture land, floodplain benefits, ecosystem services and presently facing many problems in kind and only some people have lost their land and belongings in the dam. So, it would be interesting to see the impact all respondents have with the installation of the project and to see the impact both; prior and present conditions have been compared.

Table:2 Showing Education wise Distribution of the Respondent

Education Level	**Udaipur**	**Dradha**	**Rajnagar**	**Chakloo**	**Total**	**Percentage**
Illiterate	03	03	02	01	**09**	**18.00**
Primary	03	03	01	01	**08**	**16.00**
Middle	00	01	06	02	**09**	**18.00**
Matriculation	01	02	10	05	**18**	**36.00**
10+2	01	02	00	00	**03**	**06.00**
Graduation	00	01	01	01	**03**	**06.00**
Total	**08**	**12**	**20**	**10**	**50**	**100.00**

Education wise, Chamba is one of the most backward districts of the state and stood at number 12 and study area is not an exception. As depicted in the above table, only 6 percent respondents are educated upto +2 and graduation. Maximum respondents, i.e. 36 percent are matriculate whereas 18 percent are middle pass and 16 percent are only primary pass and a good number of respondents, i.e. 18 percent are illiterate. The educational condition is somewhat good in Rajnagar having maximum number of matriculate people. After getting job no one has tried to study further and improve their qualification.

Earlier there were only govt. schools, specifically primary schools were available almost in every village, whereas middle schools were used to be at some distance and the high and secondary schools were far away and were situated at cluster bases. For whole catchment, there was only college at Chamba town which is exiting since 1958.

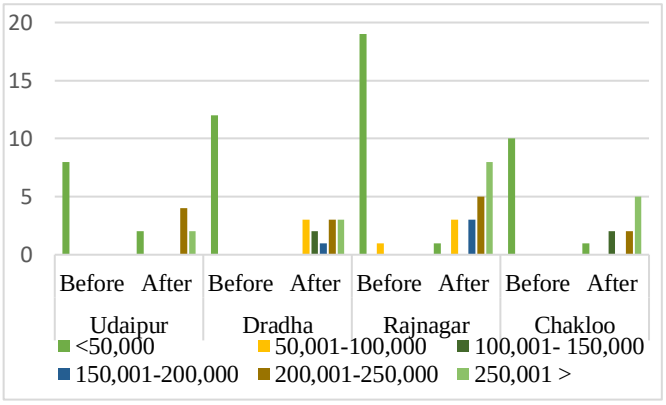
Presently, there is big change in the prior condition, there are many private schools of different levels, another college at Bhalie opened by the state govt. recently and with the installation of project, the central government has opened three *Kendriya Vidyalayas* at *Karian, Khairi* and *Banikhet*. In these schools, children of project employees as well as of local people are studying.

Tale:3 Showing Income Profile of the Respondents

Income	Udaipur		Dradha		Rajnagar		Chakloo	
	Before*	After**	Before	After	Before	After	Before	After
<50,000	08	02	12	00	19	01	10	01
50,001-100,000	00	00	00	03	01	03	00	00
100,001-150,000	00	00	00	02	00	00	00	02
150,001-200,000	00	00	00	01	00	03	00	00
200,001-250,000	00	04	00	03	00	05	00	02
250,001 >	00	02	00	03	00	08	00	05

**before the Installation of Chamera-I, **after the Installation of Chamera-I*

Prior to installation of power project, the economic conditions of the area were very poor. There were no jobs and most of the people has agriculture as their main source of income. As per the table and figure: 3, there is change in the income level of the respondents as they got job as well as compensation for their belongings including land.

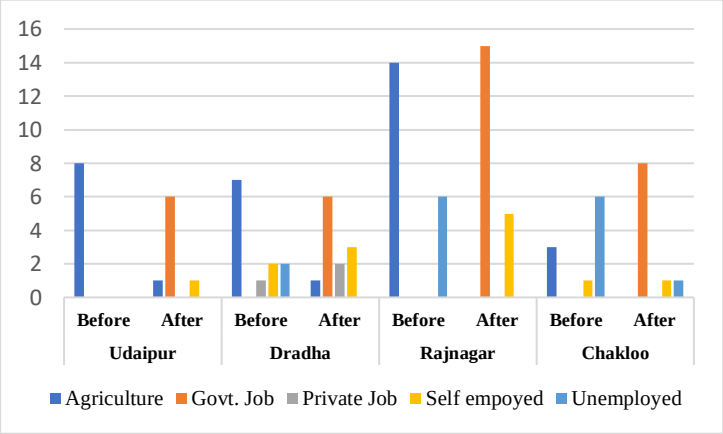


After displacement people are engaged in government jobs, private jobs and some has started their own business. The annual income varies from 50,000 - 2,50,000. Those who are employed in project have income more than 2,50,000. Most of people are working in project in one way or other. The power project has provided the jobs for displaced as per their qualification. The illiterates also have class IV jobs. Overall data shows that there is an increase in income which show positive trend.

Table:4 Showing Occupational Profile of the Respondents

Occupation	Udaipur		Dradha		Rajnagar		Chakloo	
	Before	After	Before	After	Before	After	Before	After
Agriculture	08	01	07	01	14	00	03	00
Govt. Job	00	06	00	06	00	15	00	08
Private Job	00	00	01	02	00	00	00	00
Self-employed	00	01	02	03	00	05	01	01
Unemployed	00	00	02	00	06	00	06	01
Total	**08**	**08**	**12**	**12**	**20**	**20**	**10**	**10**

The occupation of people before the project was dominantly agriculture based and maximum people were involved in labour work. People use to earn money by selling agricultural products or by labour only and there was no occupational mobility. Cattle rearing was also practised. After getting jobs in project the occupation has changed. Now people are engaged in government and private jobs. Some has also started their own business with the compensation money received in lieu of their belongings.



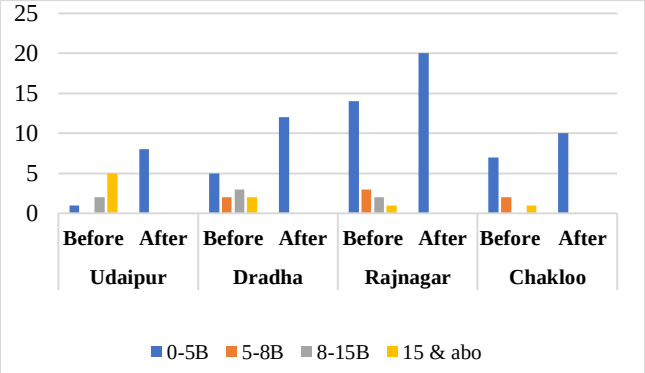
In government job, people has joined state as well as central government. Some have joined private firms and some have joined marketing. Those who were illiterate, has been appointed as peon and chowkidar in NHPC. Atleast under the policy of the govt. one member of the displaced family has got job as per their qualification at that time.

Table: 5 Showing Land Holdings Status of the Respondents

Land Holdings (in Bighas)	Udaipur		Dradha		Rajnagar		Chakloo	
	Before	After	Before	After	Before	After	Before	After
0-5	01	08	05	12	14	20	07	10
5-10	00	00	02	00	03	00	02	00
10-15	02	00	03	00	02	00	00	00
15 & above	05	00	02	00	01	00	01	00

The land holding has reduced drastically. Most of the private land has been acquired for the dam and land of more than 2000 people have been acquired along with govt. land. People have their farms (land) on the bank of river which have been acquired and presently, respondents are having very less land and totally depended on market to meet out their basic needs. Earlier the whole area was self-sufficient and capable to cater all types of local needs, but with the coming up of the dam, land merged and there is no land, no crop in 750 meters downward to

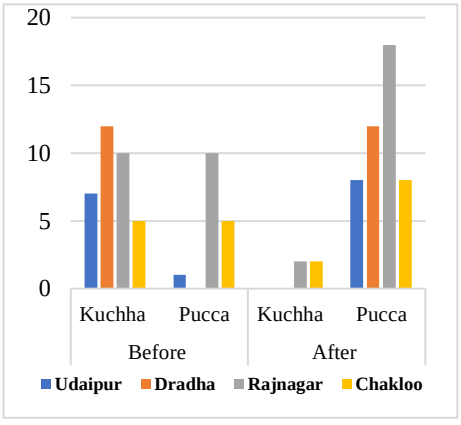
main land. Some people have their houses near to bank but when the water level rises, they have to move too far. Government has provided compensation for their land but they have received money less than the actual cost of land. Before the installation of power project, they use to sell the produce obtained from fields and was a regular source of money but as and when they lost the land this source is now no more.



From above table/figure, one can easily understand the scenario of loss of land. There is a drastic change in the land holding status of the respondents as it is depicted from figure on the left. Almost all respondents became marginal farmer after the installation of Chamera-I, however, some are residing in the nearby villages while some have left their native villages and purchased land at new place of resettlement. Though, there is a provision of giving atleast 5 bighas land by the government to each oustee, but in this project, no such land has been given. The researcher was told by the respondents that those people who were uneducated and honest have received less money and compensation as compared to educated people. The compensation for educated and aware people have been increased manifold and the value of their losses have been increased, which shows the injustice attitude of the authorities.

Table: 6 Showing Habitat Pattern of the Respondents

Sr. No.	Village	Habitat Pattern Before		After	
		Kuchha	Pucca	Kuchha	Pucca
1.	Udaipur	07	01	00	08
2.	Dradha	12	00	00	12
3.	Rajnagar	10	10	02	18
4.	Chakloo	05	05	02	08
	Total	**34**	**16**	**04**	**46**



Because of economic backwardness usually the traditional houses are made of mud and clay and categorised as *kachcha*, same was the case with the respondents and people of the study area. Maximum respondents have had kuchha houses. Kuchha house means house made of mud and clay, slate, wood and mud floor with minimum amenities in the household whereas pucca means, concrete house made with cement, tiles, marvel and all amenities of life. Before the

installation of power project, maximum houses have not electricity connection, but it is worthy of mention here that, there is no role of NHPC in supplying electricity connection to them, it is the policy of state government which is responsible for the electricity connections.

A drastic change has been observed as depicted in the above table as far as habitat patterns of the respondent is concerned. People in general and respondents in particular have experienced this change with the coming up of Chamera-I, which is a positive trend. However, it would be interesting to see the real cause of this change, as per the observation and data collected by the researcher, there is less role of NHPC in this transformation. The fact cannot be denied that because of the interaction with people from outside of the area, people of the areas have been oriented and this impact the psyche of the native of catchment area and definitely to an extent played a positive role.

Conclusion

On the basis of above description, it can be concluded that as per the objective of this paper, data presented here depicts that there is a positive contribution of Chamera-I Hydropower Project in the socio-economic development of the respondents specifically and in the whole project area in general. There is other side of the project also which is painful, the displaced people are still waiting for the compensation and whatever the amount of compensation given to them that was as per the revenue assessment by the state government and there is a big difference between market rate of the land and revenue rate. So, whatever the compensation given to the oustees that was spent to purchase land only and it was very difficult for them to resettled at new place by leaving everything which was once their own. One more face also cannot be denied that livelihood cannot be replaced by the compensation. The source of livelihood (agriculture land) earning daily or seasonally but compensation was given once and land use to rear whole family but compensation was given to the only head of family not to other dependents and women were the worst affected because they had not claim over the compensation as their names are not in the revenue record.

It is also concluded that with the coming of project, majority of the people are living in better conditions with handsome amount of money on the one hand and on the other, there are also some deprived people who are still facing the ill consequences of NHPC owned power project in Ravi basin. Undoubtly NHPC has contributed a lot in the name of national development, but the locals are still suffering and they are compelled to suffer and their generations will also suffer because of hydroelectric power generation in this basin. Researcher has also told by the

people that some people have committed suicide after the installation of this project over a small issue and they jump into water without giving any second thought. It was also told that earlier the water level was about 750 meter away and people use to rush after the person who decided to commit suicide, but now it is just in few feet away from the house and there is no chance to save him as the whole catchment does not have any protection wall, however there is provision of protection wall as per the recommendation of World Commission of Dams, both sides of dams should be covered by the boundary wall to protect the lives of cattle as well as human beings but in case of this project there is nothing.

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