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Impact of Nathpa Jhakri Hydroelectric Power Project on Production and Productivity of Livestock in Kinnaur and Shimla Districts of Himachal Pradesh

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ABSTRACT

Nathpa Jhakri Power Project is the biggest hydro-electric project of the country built on the Satluj river and is located in Shimla and Kinnaur districts of Himachal Pradesh. Although, hydroelectric projects offer opportunities for infrastructure development and economic growth; but if not well designed, implemented and operated, they have the potential to adversely affect the communities. In this study an attempt has been made to study the pros and cons of the power project on production and productivity of livestock. By studying the sample of 200 random selected families. It is concluded that Nathpa Jhakri hydroelectric power project has positive impact on the production and productivity livestock in the surrounding panchayats.

Keywords: Hydroelectric, livestock, power, production, productivity.

INTRODUCTION

Electricity is the harbinger of the development of an area as it promotes industries, which in turn generates employment, raises the income of the people and leads to development and prosperity of the inhabitants. Today, one of the most pressing needs is the growing demand for electric power. Today, India is the fifth largest consumer of energy in the world, accounting for 3.7 per cent of the world consumption. Its total primary energy demand is expected to be almost double by 2030 (Tarun Kumar, Shyam Mohan 2012) (1). For any growing economy, power is a vital input needed to fuel the engine of economic growth and to fulfil the basic needs of the entire population of a country. Energy differentiates the least developed or developing economy from a developed economy. Empirical evidence suggests that lack of energy can whittle down the pace of economic development while its abundance can stimulate the development.

There are multiple sources of primary energy ranging from fossil fuels like coal, petroleum and natural gas, hydro, nuclear, solar and renewable energy and also non-commercial energy. Hydroelectricity is the electricity generated by hydropower, the production of electrical power through the use of the gravitational force of falling water. Construction and operation of dams had always been associated with changes in the social, physical and biological environment. Although, hydroelectric projects offer opportunities for infrastructure development and economic growth; but if not well designed, implemented and operated, they have the potential to adversely affect the health and well-being of local as well as distant downstream communities (Erlanger T.E. et al. 2008) (2). The discourse of "Benefits versus Losses" always remains with hydroelectric power projects. Given all this, there is a need to quantify the benefits and adverse impacts of the hydroelectric project. To analyze the pros and cons of the power project the present study was formulated with the objective to study the impact of Nathpa Jhakri hydroelectric power project on production and productivity of livestock in the surroundings of the power project.

METHODOLOGY

The research investigation was carried out from weir site to the powerhouse. The weir site falls in Kinnaur district while power house is situated in Shimla district of Himachal Pradesh. So, this study is conducted in two districts namely, Kinnaur and Shimla districts of Himachal Pradesh. Multi-stage sampling technique was used for the selection of respondents. In the first stage sample of three Panchayats from Nichar and one Panchayat from Rampur block was selected randomly. In the second stage from the selected panchayats, twenty villages i.e. seventeen from Nichar Block of Kinnaur

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district and three from Rampur Block of Shimla District were selected randomly. In the third stage a sample of two hundred households from the selected villages was drawn randomly through proportional allocation method. The primary data were collected by personal interview of the respondents with the help of pre-tested comprehensive schedule designed for the study. In order to meet out the requirements of the specific objective of the study both primary as well as secondary data were collected. The results have been presented by working out simple averages and percentages.

Time dimension of the study

The ex-ante (before) and ex-post (after) approach was adopted for the collection and analysis of data. The year 1991-92 was taken as the ex-ante and the year 2012-13 being the study year represented the ex-post scenario.

RESULTS AND DISCUSSION

Production and productivity of livestock

Livestock is the integral part of the hill farming system. The livestock species play very important economic, social and cultural roles or functions for rural households once they contribute to improve income and well-being of the farm family. Livestock helps on food supply, family nutrition, family income, asset savings, soil productivity, livelihoods, transport, agricultural traction, agricultural diversification and sustainable agricultural production, family and community employment, ritual purposes and social status (Moyo and Swanepo *el al*, 2010). Livestock gives social status to its owners once it is considered a common mean of demonstrating wealth and provides economic status. Livestock has an important contribution for food supply of rural and urban areas and contributes to the family nutrition, supplying animal protein. As household income increases, the consumption of protein increases, principally from animal origin, allowing the substitution of vegetal by animal protein. Besides milk, eggs and meat used as a source of food, other livestock products are used for domestic consumption and local sale such as skins, hides and horns.

The perusal of Table-1 revealed that among the different milch animals the production of improved cow was highest. It was 4.50 and 5.58 litres/animal per day before and after project implementation, respectively. The productivity of goat was around 0.50 litre/ day/animal. The table further indicated that the productivity of all the milch animals i.e. local cow, improved cow and goat had increased by 26, 24, and 20 per cent after the project period as compared to before project period, respectively. It was due to the improvement in the management and feeding practices followed by the farmers.

The total milk availability on the average household was estimated at about 355 and 1315 litres/annum in the before and after project periods, respectively. The production of milk had increased mainly due to the increase in the number of milch animals and higher level of productivity. It was reported by the respondents that the milk demand during and after the implementation of the project had been increased, thus, the livestock of improved breeds was maintained by the farmers keeping in view the demand of milk. Similarly, the annual production of meat, wool and FYM has also showed an increase of about 81, 88 and 28 per cent over before project period, respectively.

Table 1: Production, productivity and income from livestock

Particulars	Before Project	After Project	% Change
Productivity of milch animals (kg)			
Local Cow	2.50	3.17	26.80
Improved Cow	4.50	5.58	24.00
Goat	0.50	0.60	20.00
Production and availability of livestock products (kg)			
Milk	355.35	1315.03	270.07
	(100.00)	(100.00)	0.00
Local Cow	88	284.032	222.76
	(24.76)	(21.60)	-12.76
Improved Cow	172.8	857.088	396
	(48.63)	(65.18)	34.03
Goat	94.55	173.91	83.93
	(26.61)	(13.22)	-50.32
Meat (Sheep & Goat in q)	0.74	1.34	81.08
Wool (kg)	1.39	2.61	87.77
FYM (q)	15.36	19.65	27.93

Note: Figures in parentheses indicate the percentages to total.

Sale of livestock products

It can be seen from the Table 2 that the on an average the total annual value from milk, meat, FYM *etc*. after the project period was estimated at about ` 44, 525 which was significantly higher as compared to before project period *i.e.* about ` 4,721. Among the different products the contribution of milk to the total value was found to be the highest. It was about 90 per cent before project period which has increased about 95 per cent after the project implementation. The share of meat and FYM has decreased while the share of wool remained unchanged in both the periods.

Table 2: Contribution of different livestock products in total value of livestock produce

Particulars	Before Project	After Project	% Change
Milk(kg)	4264.20	42080.96	886.84
	(90.33)	(94.51)	
Meat	59.20	348.40	488.51
(Sheep & Goat in q)	(1.25)	(0.78)	
Wool (kg)	13.90	130.50	838.85
	(0.29)	(0.29)	
FYM (q)	384.00	1965.00	411.72
	(8.13)	(4.42)	
Total	4721.30	44524.86	2625.92
	(100.00)	(100.00)	

Note: Figures in parentheses indicate the percentages to total.

CONCLUSION

In this study of pros and cons of the Nathpa Jhakri hydroelectric power project on the production and productivity of livestock in Himachal Pradesh it can be concluded that the project has more positive effect. The productivities of all the milch animals i.e. local cow, improved cow and goat had increased after the project period as compared to before project period. The milk demand during and after the implantation of the project had increased, thus the livestock of improved breeds was maintained by the farmers keeping in view the demand of milk. The total annual value from milk, meat, FYM etc. after the project period was found to be higher as compared to before project period. The share of meat and FYM has decreased while the share of wool remained unchanged.

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