

# The Construction and Development of Dam Hydropower Project

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**Abstract:** *Kol Dam Hydroelectric Project is one of the major historical projects of Himachal Pradesh which has been constructed between Harnora village, District Bilaspur and Kyan village, District Mandi. The project was identified in the 1960s when Himachal Pradesh was not a full - fledged state. To study the rehabilitation and resettlement works in the Kol Dam Hydroelectric Project, development works in the project affected area, environmental changes in the affected area due to construction and development, to understand the actual field conditions of the Kol Dam Hydroelectric Project, and the concepts of rehabilitation and resettlement. It is necessary. Development indicates a better standard of living of the individual, society and community, in which improvement in the quality of life and living of the entire society and nation is considered important rather than giving importance to any particular individual. Hydropower projects are built after identifying a specific area, which is an aspect of development projects due to which problems of displacement, rehabilitation and resettlement arise. Displacement is the result of development projects which demand resettlement and consider resettlement important for development. Development projects without proper rehabilitation and resettlement raise questions about development. Resettlement means resettlement of a person from one place to another as a result of construction and development of a project.*

**Keywords:** Dams, Rehabilitation, Resettlement, Displacement, Project Affected Areas, Development, Environment, Society and Community

## Historical Background of Kol Dam Project

Kol Dam Hydroelectric Project was identified as a multi - purpose dam project. On 8 November 1908, when Sir Louis Dane traveled from Bilaspur to Sunni to determine the height of Bhakra Dam and to establish the dam, he had expressed the possibility of two big projects on the Sutlej River between Bilaspur and Sunni [1]. Efforts for the Kol dam project had started from 1960 AD, but in 1963 AD, when BBMB completed the work of Beas Sutlej Link Project 'Dehar Plant, the machinery and manpower of Dehar Plant was not available, it started being used well for Kol dam. After Himachal Pradesh got the status of a full state on January 25, 1971, the first detailed project report of the Kol dam - 1976 was presented by the Himachal Pradesh State Electricity Board [2]. Since most of the field inspection work in the project report was done before Himachal Pradesh got the status of a full state, in which Himachal Pradesh had less interest in the planning of irrigation project for the state of Punjab, hence, due to political and technical reasons, the approval of the Kol Dam project was delayed.

**First Detailed Project Report:** The first detailed report of the Kol Dam Hydroelectric Project was submitted to the Central Electricity Authority in 1976, which had three parts. The first part contained the outline of the 5 - 120 MW Kol dam water storage scheme, the features of the project and the irrigation and power project. The second volume was related to the cost and financial assessment of the project and the third part was the drawing of the project. According to the outline of the first DPR, there was a possibility of an additional increase of about 18 years in the life of Bhakra Dam due to stagnation of silt and silt of Sutlej River in the upper project [3]. Apart from power generation in the coal dam, it was also planned to benefit from the irrigation project. This beneficial scheme for the interests of farmers was necessary for nation building, but in the dam schemes built after 1970, water storage schemes were not given much importance. Instead of water storage in dam projects, run - of - the - river schemes were given more importance. Started

being considered important technically also, the French turbines which produced more electricity were considered more important. Because the storage capacity is estimated on the basis of height, but even after the rejection of the storage plan of the Kol Dam Project, till the final report, the height of the dam was kept the same as was determined in the first plan.

**Second DPR and approval of the plan [4]:** The first feasibility report of the Kol Dam Hydroelectric Project was submitted to the Central Electricity Authority in 1976. The water storage capacity in this scheme was limited due to which this scheme was rejected. But based on the first report the height of the dam was 163 m and the reservoir level was 57600 hectare m but according to the new report no change was made in the height of the dam and the name of the irrigation project was removed and the power capacity of the dam was 800 m. Estimated MW. This DPR of 'Run of the River' scheme was submitted to the Central Electricity Authority in May 1987, which in August 1988, the Central Electricity Authority gave its techno - economic clearance for this project to the Himachal Pradesh State Electricity Board approved. Environmental clearance was given in 1989 AD and the Forest Department also gave its approval to this project in 1990 AD. From 1990 to 2000, the project came to a halt again and no work was done for 10 years.

**NTPC and construction work plan:** On 26 February 2000, NTPC entered the hydro power sector and started the construction of the first hydro power project, Kol Dam (800 MW). Signed contract with State Electricity Board and Himachal Pradesh Government for the work according to the contract of 26 February 2000, the state government has given the responsibility of the construction work of Kol Dam Hydroelectric Project and re - establishment of the facilities destroyed in the project affected area and submergence area, to NTPC. Handed over to CEA report of project cost related to coal dam plan which was approved on 30 June 2002.

The estimated cost of the project (including interest during construction) based on December 2001 price level was estimated at Rs 4493 Crore. NTPC had proposed to finance this project with a ratio of 70: 30 through debt and internal financial sources and foreign commercial loan sources, which has been approved [5].

Multi - purpose dams play a major role in economic development. Maximum use of energy is indispensable for the economic development of any country and attainment of higher standard of living. High technology is needed for economic development and the higher the level of technology used, the more energy is consumed. For developing countries like India, there is even greater need for the use of high technology [6]. In a huge country like India, the role of hydropower is very important to deal with the future energy crisis, because favorable conditions exist for its development. For example, for hydropower generation, physical factors like formation of waterfalls, sufficiency of river water, water flow throughout the year etc. are required, which are present here. Indian rivers discharge 1677 billion cubic meters of water into the ocean every year [7]. Proper utilization of this water can be accomplished by building multi - purpose dam schemes.

Hydropower has been identified as a very effective source of energy. It has some specialties of its own. The most important thing is that being a renewable source of energy, it saves scarce fuel reserves. It is pollution free, hence environment friendly. Hydro power stations have a much longer useful life as compared to coal and gas fuel powered power stations [8]. Before studying the environmental changes in the affected area due to development works, construction and development in the Kol Dam Hydroelectric Project, it is important to understand the actual regional conditions of the Kol Dam Hydroelectric Project and the concepts of rehabilitation and resettlement. Development indicates the better standard of living of the individual, society and community, in which improvement in the quality of life and living of the entire society and nation is considered important rather than giving importance to any particular individual [9]. Hydropower projects are built after identifying a specific area, which is another aspect of displacement projects due to which problems of displacement, rehabilitation and resettlement come to the fore.

Displacement is the result of development projects which demand resettlement and consider resettlement important for development. Development projects without proper rehabilitation and resettlement raise questions about development. Resettlement means resettlement of a person from one place to another as a result of construction and development of a project. For rehabilitation, two things are required: land and house/residence and rehabilitation means social, cultural, community and economic support to the affected person to provide support for career. A person who has been forced to leave his place of residence, home or private land and go to another place due to a dam project is called displaced. Displacement can be of a particular individual, family or community who has come or comes under the project affected area. Due to dam projects, if a person's private land or community land or community

property is acquired for the project, but the person's residence remains at the same place or there is no physical displacement, then such person or community will still be entitled to the rights of the project affected person/persons. Noun is given. There are many examples in the villages affected by the coal dam project which have escaped physical displacement after land acquisition in the command area. Such persons are not called displaced even after the transfer of private land; rather, according to the policies of the Kol Dam Project, they have been termed as affected a person, which means that physical displacement is what makes rehabilitation necessary.

Social scientists have expressed many views regarding rehabilitation, but the meaning of rehabilitation in relation to dam projects has emerged in different forms in different projects. If we keep in mind the ideologies of social scientists and the history of rehabilitation in dam projects, then the work of rehabilitation in India can be placed at the lowest level. Bhakra - Nangal Project (K. N. Raj - 1960, R. Rangachari - 2006), Pong Dam Project (Reenu Bhanot and Mridula Singh - 1992) and mega hydro power dam projects of North Eastern India (Shashikant and Lanshi Lobo - 2009). Rehabilitation and resettlement studies have revealed the same situation in India so far.

Rehabilitation and resettlement means bringing the affected person to his previous complete state that is, providing the basic necessary facilities for living along with the settlement of the affected person. It is the collective responsibility of the project authority and the government. The National Rehabilitation and Resettlement Policy - 2007 indicate that, 'It is the responsibility of the State Government to ensure minimum facilities and supply of minimum basic needs to the displaced people.'

Rehabilitation and resettlement work is an important part of dam projects. In India, rehabilitation and resettlement dam projects are being considered important to get rid of the ill - effects of displacement and problems arising due to dam projects (landlessness, unemployment, homelessness, hunger etc.) and for balanced development. In a developing country like India, where a lot of importance has been given to the development and construction of hydropower projects, the country's permanent development cannot be achieved without solving the problems arising due to those projects. The problem of displacement in dam projects is worldwide. After displacement the displaced person has to face many problems. Michael N. Cairney (1999 - pp.1 - 49) expresses this as the threat of poverty. According to Cairney, "Landlessness, unemployment, homelessness, marginalization, hunger, increase in morbidity and mortality, lack of access of the displaced person to common property resources and increase in social backwardness are the problems arising from displacement which increase the risk of poverty". [10]

Rehabilitation, rehabilitation and development in dam projects is the need of the modern era. Multi - purpose dam projects are essential for the development of the nation. Amidst the exploitation of energy resources and its ever - increasing consumption, hydropower projects are a source of renewable energy. The construction of power projects

cannot be stopped in India because it is an important means of national interest and institutional development, but there is a great need for improvement in rehabilitation and resettlement policies, for which the World Dam Committees, The World Bank and the Asian Development Bank are making continuous efforts to improve national rehabilitation and resettlement policies. In the context of hydropower projects, development means the development of basic facilities for rehabilitation.

Assets in hydro power project have been defined under Himachal Pradesh Nautor Rules - 1968, but there is a rule of land in exchange for land to a person. In the rights of coal dam assets, Himachal Pradesh Government has laid down the rules for coal dam assets in the Nautor Act of 1968. By making changes in the Act, special rules have been laid down for giving a 40 by 50 feet plot to the ashes instead of land. This rule is in Himachal Pradesh Nautor Rules 1968 - Rule 8 - A which was added on 11 September 2001. This provision prescribes a spe Himachal Pradesh Nautor Rules 1968 - 8 - A for rehabilitation and resettlement in Kol Dam Hydroelectric Project in Himachal Pradesh. Cultivable and barren land is continuously decreasing in Himachal Pradesh, which is given to the displaced or project affected persons in the form of Nautor land. Created due to shortage. On the basis of this rehabilitation and resettlement rule of Kol dam, rules have been made to settle the coal dam remains or homeless people in colonies, but the construction of colonies depends on the economic condition and economic development. Without the availability of employment, the landless farmers are forced to settle in the colonies. How dire the consequences of settlement could be, this was not considered while framing the rules.

Himachal Pradesh Nautor Act - 1968 provides for land and compensation in lieu of the land acquired for public interest purpose in the state, but the Rehabilitation and Resettlement Policy created for the Kol Dam Project in 1999, changes in the rules of land allotment have been made for the rehabilitation of the Kol Dam Project and raising questions on the rehabilitation plan. As per the new rules, the allotted plots have been allotted on perpetual lease basis for 99 years [11].

Rehabilitation and resettlement in the Kol Dam project points towards questionable development. There is a lot of difference between the concept of displaced person and property. In relation to displacement, dam projects refer to those people who have been deprived of private land, houses and common property resources due to land acquisition, but Oasthi refers to the person who regains the basic facilities affected as a result of the project and gets the facilities, employment, business etc. available in the new environment. The question here is whether the people displaced by the Kol Dam Project, who are called Oasthi, have actually been able to register priority in getting basic facilities (common property resources), employment and business? What is the basis of construction of colonies? How successful and effective has rehabilitation and resettlement proved to be under the new rules? To answer these questions, it is necessary to analyze the rehabilitation and resettlement in the four project affected districts of Bilaspur, Mandi, Solan and Shimla.

### **Kol Dam: Rehabilitation and Rehabilitation Working**

**Style:** - In the Kol Dam Hydroelectric Project of Himachal Pradesh, the construction work has been done as per the new working style  $\frac{1}{4}$ New Modal $\frac{1}{2}$  in the Rehabilitation and Rehabilitation Scheme. Rehabilitation and resettlement in other dam projects of Himachal Pradesh like Bhakra Dam Project, Pong Dam Project etc. could not be completed even after the process that lasted for years. At the time of construction of these projects, no rules were made for rehabilitation and resettlement due to which displacement took place. It has been resulting in terrible pain and suffering in Himachal Pradesh. Himachal Pradesh Government was not in favor of repeating the policies of the old schemes in the Rehabilitation and Resettlement Plan of Kol Dam Project. The new working style of Kol Dam wanted to enable the project affected people to settle in the areas around the project site as per their will and to give priority to the project affected people in the selection of settlement location so that a model form of rehabilitation and resettlement could be achieved. The new plan was better in objectives than the earlier settlement plans but the size of the plots was so small that permanent development proved to be a pipe dream. This work of the new scheme was not done equally at every place in the affected districts. Despite the size and technology of the plots being similar, the settlement sites could not be selected as per the wishes of the affected people. The displaced people of Sundernagar district Mandi had demanded resettlement near National Highway - 21, but as per the contract, the National Thermal Power Corporation had to start the construction work within 30 months, as a result of which the displacement of the affected people started even before the construction of the settlement sites. It has been done. By the time the plots were constructed, people were forced to settle in other places. The real truth of dam projects is that the schemes made for the displaced people remain pending for years and the dam construction authority institutions go ahead with the construction of the dam and the displacement continues continuously. More than 50 years have passed since the construction work of Bhakra Dam was completed but the settlement of Bhakra displaced people has not been completed yet. Same thing has happened with the displaced people in the Coal Dam project also. Even though rehabilitation sites have been selected in the Kol Dam Project, rehabilitation and resettlement work is still pending here.

**Problems of resettlement and rehabilitation:** - When resettlement and rehabilitation are talked about in Himachal Pradesh, the displaced people of Bhakra Dam and Pong Dam draw attention towards resettlement and rehabilitation. The problems of the displaced people of Bhakra Dam and Pong Dam have been raising questions on the political economy of Himachal Pradesh and the rehabilitation and rehabilitation plans of multi - purpose dams for the last 5 decades [12]. Himachal Pradesh is an important hill state of India where there is immense potential for hydro power projects. Hydropower projects play an important role in fulfilling commercial objectives in hilly states. By 2012, 20376 MW hydro power projects have been identified with 55 percent potential capacity [13]. Work on most of these projects has already started. And the voice for rehabilitation and rehabilitation started rising from the hills of Himachal Pradesh [14].

The number of people living in river valleys in Himachal Pradesh is very high. Being a hilly region, there is very little plain area for agriculture and the hill people live in the foothills of rivers. A large number of displacements also occur due to large dam projects on these rivers. Due to big dam projects, the agricultural land of Himachal Pradesh is continuously decreasing and the number of unemployed and landless farmers is increasing as a result of dam development projects. In the coal dam project, National Thermal Power Corporation Limited was given the right to acquire 750 hectares of agricultural and private land, which was necessary for the project on the basis of DPR of 1988, but on 26 - 02 - 2000, with the state government. In the contract, the Corporation was given the right that if the Corporation expressed the need to acquire private land for the construction of a permanent settlement, then the State Government would transfer that land to the Corporation [15].

These rules related to dam projects of the state government indicate whether the state government really wants to reduce displacement? In reality, acquisition of private land can be reduced and displacement can be minimized. In the Kol Dam Hydroelectric Project, some farmers of Harnora Gram Panchayat considered some area of private agricultural land in Harnoda as unnecessary acquisition and after four times notification, they filed their official report in 2003 AD. District administration and National Thermal Power Corporation officials admitted that some area could be left out of all the land identified in Harnora. The acquisition of 750 hectares of private land for the Kol Dam project was identified on an estimated basis, the approval of which was given by the State Government on 26 - 02 - 2000, but in reality only 364.44 hectares of private land was used for the construction works of the project (Dam Construction, Road, Rehabilitation Colony and water reserves area) which has been acquired for the Kol Dam [16].

Works under Bhakra Beas Management Board and Punjab State due to these projects, joint planning has never been made between the state and authority institutions in rehabilitation and resettlement works in Himachal Pradesh and here the displaced people have received rehabilitation in a fragmented form. In the Kol Dam Project, National Thermal Power Corporation Limited adopted the East India Company's method of uprooting people. Officials of the National Thermal Power Corporation would go among the rural people and acquire knowledge about the actual conditions of the villagers and when the project officials became well acquainted with the villagers, they started sending them to shelters and rented houses. This is the truth of the displacement process in the Kol dam which no displaced person can forget. The British East India Company had done similar things and established its own branches to expand its trade in India. This was the first opportunity for National Thermal Power Corporation Limited to enter the field of hydro power and National Thermal Power Corporation Limited wanted to establish its foothold in the field of hydro power.

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