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## **Socio-Culture Impact on Surrounding Villagers by Tehri Dam Reservoir**

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### **Abstract**

Large Dams have always the symbol of development and Tehri Dam is one of them. One side it is benefited but other side is detrimental for society. Present study researcher has focused on socio-culture impact on surrounding villagers by Tehri dam Reservoir. Uttarakhand is mostly a hilly area where most of the hill communities are totally dependent on natural resources and either their community intimate through socio-culture action or surrounding environment. But Theri dam and it's huge Reservoir has affected these communities social life, cultural, religious activity, environment and so on.

**Key words:** Theri Dam, Reservoir, Social-Culture, Impact, Development, Surrounding community.

### **Introduction:**

Development is a vast concept related with economic, social, educational, health and environmental well being for their society. The relationship between dams and development has been a subject of debate and discussion at national and international levels. Dams and reservoir have played an important role in economic development, serving variety of purposes: electricity generation, flood control and irrigation. However, due to far reaching environmental impacts, dams have become a subject of debate and controversy. Disagreements with regards to understanding of impacts/ implications about the hydropower projects has lead to polarization between people grouped in stark terms as proponents and opponents of dams. A dam is the development and management of water resource of a river basin. A multipurpose dam is a very important project for developing countries, because the population receives domestic and economic benefits from a single investment. As early as 6500 BC, the Sumerians constructed dams across the Tigris and Euphrates rivers to provide flood control and irrigation for crops (**Mc Cully 2001**). By the first millennium BC, stone and earthen dams were erected on nearly every continent, enabling the acquisition of water and food to sustain population growth. Dam technology advanced slowly until the Industrial Revolution when larger dams were built in less time and from man-made materials (**Di Francesco**

**and Woodruff 2007**). The rapid increase in dam projects during the early and middle twentieth century was driven by socio-economic and political pressure to increase the quality and quantity of water for production while simultaneously minimizing its destructive potential. Jawaharlal Nehru saw the dams as the “Temples of India” that would ensure progress for India. This thought, however has also influenced and has dominated the thinking of policy makers – politicians, bureaucrats and has brought about an acceptance for construction of more dams amongst people with a view that they are symbols of development. In the twentieth century big dams and other development projects were often associated with progress and prosperous economic development for many countries, including India (**Khagram, 2005**).

### **Objective:**

The present study two main objectives are given below-

- 1- To find the social impact of Tehri Dam Reservoir on surrounding community.
- 2- To find the impact of Tehri Dam Reservoir on cultural life of surrounding village.

### **Method:**

The present study focused on those surrounding villages which are situated near by Tehri Dam Reservoir. Universe of the study under in both blocks villages which are closer to Tehri Dam Reservoir in which Universe of this study are 10 villages of surrounding area of Tehri dam Reservoir which are affected by this reservoir. These villages are situated much closer of dam reservoir approximately 500 meter to 1 km. From district Uttarkashi researches selected a block Chiniyalusaur from where 5 villages (Hadiyari, Badangaon, Baldogi, Chotimani and Bhaldgauon) are selected

Total number of household are 307 from district TehriGarhwal. researcher selected a block namely Partapnagar wherein 5 village (Sadragaon, Chaundar, Chanti, Kholdar and Kangsali). are selected and total number of household are 497. In this sequence, Total Universe of this study has 804 households from 10 villages of two districts. Multistage Purposively Simple Random sampling method was used where 25% respondents were selected. Total 200 households are selected where unit of sampling of this study was 200 respondents. The source of data collection, Interview schedule was used to collect primary data. The secondary data is also used and for this purpose govt. records, Statistics, geographical data, relevant government agency publications, Journals, published materials, books, news papers and unpublished research work is consulted.

### **What is Development?**

Development is gradual growth so that it becomes more advance and stronger. Defining development is not an easy task, primarily because of the fact that the concept of development is closely associated with social, cultural, political and economic dimensions intertwined with one another and also because of many paradigm changes the process of development has undergone so far. Its composite and multidimensional nature has made it really difficult for a scholar to formulate an all encompassing definition of development. It can be explained only in terms of material and non material changes viewed as betterment through history and in the contexts of different ramifications

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of such changes. Development in itself is a complex and vast concept in itself but is a natural and important part of evolution for every person, any community and society at large.

### **Need of sustainable development in Uttarakhand:**

After long struggle Uttarakhand came into existence as a separate state of India in 2001, hills people are much expected towards their growth and development. But due to lack of appropriate policy and planning, unplanned consume to natural resources create worse conditions in hills area. Geological point of view as well as environmental and ecologically Uttarakhand is most sensitive hill state, So that there is need of sustainable development for this hill state

Define in our common future the Report of the 1987 world commission on the Environment and development (the Brundtland Report) as development that meets the needs of the present without compromising greater environmental decay and hardship in a world of ever diminishing resources the Report foresees the possibility of a new era of economic growth based on policies that sustain and expand the natural environmental resource base. Economic growth and modernization have historically been pursued aggressively by nation – states, as a means not only of satisfying basic material needs but also of providing the resources necessary to improve quality of life more generally (for example with respect to access to health - care and education). However most forms of economic growth make demands on the environment both by using (sometimes finite) natural generation. The philosophy of sustainable development attempts to resolve this dilemma by insisting that decision taken at level throughout society should have due regard to their possible environmental consequence. **(Dictionary of Sociology, 2005)**

### **Dams (Hydropower):**

Power is seen as one of the prime movers of economic development in any country. The availability and accessibility of affordable power is one of the main determinants of the quality of life of the citizens. Hydropower is seen as one of the most significant renewable source of energy for the new generation. The power generated from the kinetic energy of water is known as hydropower as the water velocity of water is used for generating hydro-power. The word 'hydro' originates from the Greek language meaning water. In hydrology, the kinetic energy obtained from gravitational force is converted into electric energy. **(Gupta, 2008)** Hydro-power is the oldest way of generating energy but using hydropower as electric power had begun in the 18th century. Hydro power is much cheaper and economical than other conventional energy producing systems. In 2010, 16% of the world's energy consumption was obtained from the hydropower approach. Due to its nature of being a clean energy source, its usage is continuously increasing over time. China holds the first place in the world in the production of hydroelectric power. Hydroelectricity is becoming increasingly popular due to its specific properties. Tertiary world countries have little to do with it now. **(http: www. hydropower. Org/country-profiles/china)**

### **Tehri Dam in the Context of Development:**

In such a historical context, the Ganges was presented as a tool for the country's material advancement and the Tehri dam became part of a nationalist project of development. The dam, standing at 260.5 meters (855 feet) was designed to be the highest in Asia and the fifth tallest in the world. Its designers and proponents boasted that the dam would have a peaking power capacity of 2400 MW, enough to annually generate 6532 million units of energy while providing water to irrigate 270,000 hectares of land and further stabilizing. In the case of rural Nepal, (Shrestha (1995) draws on personal experiences to discuss the processes and (self) perceptions involved in becoming a development category. *Vikasis* a Hindi word for development commonly used in the Himalayas. **(Drew, 2004:7)** The electricity produced by Tehri dam is earmarked for the consumption in New Delhi and a pipeline directs large amounts of water to serve the needs of the capital's 16 million residents. While the initial projected costs of the dam were estimated to be 4 million USD, the actual expenditure was closer to 1 billion USD.

Despite investigations on the hazards of the dam and concerns over displacement, the Planning Commission approved the project. Although the former Prime Minister Indira Gandhi briefly stopped the dam's construction in the 1980's, operations resumed with the help of the USSR. The state's Irrigation Department was responsible for the project until 1989 when the Tehri Hydro Development Corporation Limited (THDC) was created. In the wake of the fallen USSR, the project even received a period of support from the World Bank. The story of the Tehri Dam's construction cannot be outlined in its entirety here. The urgency to complete the dam was often framed in the context of fulfilling the need for irrigation, electricity, and drinking water for the "developing" country and voices of dissent were denied as those that are holding India back from reaching its full potential. Taking an extreme position, a manager of the Tehri Hydro-electric Development Corporation (THDC) was quoted as saying with regards to the opposition movement to the Tehri dam: "Environmentalists are antinational and should not be allowed to interfere in matters that engineers know best. For more information, please visit the THDC's website at <http://thdc.nic.in/> and also the International Rivers Network at 31H.M. Vyas, manager of the THDC, quoted in "Tehri: Hanging over troubled waters." **(Down to Earth, vol. 1, no. 1, May 1992).**

### **Opposition to the Tehri Dam**

While the Tehri dam project earned the support of corporations, politicians, and even some segments of the population in the Himalayas, it was also subject to decades of opposition. Main point among the various complaints was the threat to the land and the some 100,000 people in the 112 villages and the historical town of Tehri that would be affected by the dam's 45 kilometer reservoir in the Bhagirathi River and the 23 kilometer reservoir of the Bhilangana River.

While **the concern for the displaced populations** was present in many of the arguments against the dam, it is **the threats the dam posed to the cultural, religious, and ecological significance of the river that were most significant.** While displacement was indeed a pressing issue, we believe that the other threats did not receive enough attention. The religious, ecological, and cultural arguments to be examined are intertwined, but they will be approached separately (as much as possible) in an effort to outline each position.

Although the opposition lasted decades, documentation of the protests in English are scant. For this reason, it is not possible to say how large the opposition was. Dogra (1992) presents the early years of opposition as being organized and effective. The movement began officially in 1978 with the creation of an anti-dam organization known as the TehriBandhVirodhiSangarshSamiti (TBVSS), known in English as the Tehri Dam Opposition Struggle Committee. VirendraDuttSaklani was the first Chairman of the committee. Under his leadership, the initial years of protest saw the collection of substantial amounts of dam related information by the TBVSS from which education campaigns, petitions, and massive” demonstrations arose **(Dogra, 1992: 60-63)** Over the years, however, support dwindled as the movement failed to make headway and the dam came to be increasingly regarded as a fait accompli.

A few individuals, however, opposed the dam to the very end. Among the most notable figures involved in this struggle is Sunderlal Bahuguna his speeches and writings that are readily accessible and from which I draw some of my observations about the significance of the dam and its negative effects on connections between people and the Ganges.

Critiques have dismissed SunderlalBahuguna’s efforts in the context of Chipko for his role as a “rural elite” whose protests gained audiences through “simple, populist narratives that pitted peasants against the state and markets” without adequately addressing the heterogeneity of classes, interests, and constituencies involved **(Rangan 2004: 382)**. While SunderlalBahuguna might have been born to an elite class, he returned to his native town of Tehri after receiving education in the city to live an intentional life of austerity alongside the villagers whose lifestyle he admired and aspired. As for the narratives he used, I cite them knowing that they do not express the feelings of all the people impacted by the dam. SunderlalBahuguna, however, was not alone in voicing the opinions he expressed and I argue that his statements add to our understanding of how some people viewed the dam.

Now in his nineteen,SunderlalBahuguna is one of the India’s leading environmental activists. He was greatly influenced by VinovaBhave and Mirabahan, most prominent followers of Gandhi. SunderlalBahuguna adopted the Gandhian way of life as a youth by emphasizing the spiritual journey above the acquisition and consumption of material goods. Such an approach supports small-scale industries; rural and “traditional” Indian livelihoods; and nonviolence as the foundation for a healthy society. Due to his involvement with the Chipko movement, SunderlalBahuguna was already a visible character on the national scene by the time construction on the Tehri dam began in 1978. In his opposition to the dam, SunderlalBahuguna combined political experience and a Gandhian approach of non-violent dissent and wrote articles, met with prominent political figures, held town meetings, embarked on long *padyatras*(walking journeys that go from village to village to raise awareness about issues), and endured extended fasts. Unswayed by the project’s aim to provide water and electricity for the urban residents of New Delhi hundreds of kilometers/miles away, SunderlalBahuguna and other members of the opposition framed the dam as taking away from rather than adding to the Himalayan region.

### **Studies and reports related to the Impacts of Tehri Dam and other Hydro projects in the Himalayan Basin of Ganga:**

Uttarakhand Himalaya is prone to landslides and earthquake and it has a known history of disasters. Tehri dam project was approved just before (In 1972) the famous chipko movement (1974), on which the work had started in late 90's and completed in 2006. The situation became more critical after the formation of the separate Uttarakhand state in 2001, when there was a race to kick- start construction of about 450 small and big Dams to develop the newly born state. ([www.iitr.ac.in](http://www.iitr.ac.in)) Controller and Auditor General of India (CAG) in 2010 had observed several discrepancies on hydro power generation in Uttarakhand. CAG raised serious doubts on the pre-feasibility (PFR) studies of several hydro projects, observed the negligence of environmental concerns posing severe hazards both for natural ecology and stabilization of hill slopes in the state of Uttarakhand (<http://www.cag.gov.in>) An alarming situation arose in the monsoon of 2010 when Tehri Dam reservoir was allowed to fill up to 835 meter height, due to heavy rains during 16-22 September 2010, Dam authorities failed to assess the inlet flow in the Dam. As a result, this inundated the upstream town of Chinyalisaur, ManeriBhali II project situated in the just upstream and the power project had also stopped, power generation due to back water pressure of Tehri Dam reservoir. Downstream of the Dam was evacuated and 1400 cubic water was released during this period Later after draw down from the maximum level many fresh landslides were created around the reservoir. At the same time under construction koteshwar dam situated in downstream of tehri was overflowed due to release of excessive amount of water from Tehri dam and had severe damage in power house resulted in loss of about 100 crore rupees, this all had in fact raised serious doubt even on technical aspects of this dam. A severe landslide incidence had also taken place in December-2010 inside the diversion tunnel of Koteshwar dam (400 Mw) which is in fact a part of Tehri Dam project. To repair these damage dam authorities had to stop the power generation from Tehri Dam for more than a month; one could imagine that if this would have happened in peak monsoons, then the situation would have been disastrous [Active fault beneath the Tehri dam, Garhwal Himalaya – seismological evidence. (*Current Science*, Vol. 103, No. 11, 10 December 2012). It is pertinent to mention that the Tehri Dam is located in a seism tectonically active region in the Indian Himalayan belt. This 260.5 m high dam has live water storage of  $2615 \times 10^6 \text{ m}^3$  and is capable of generating crustal deformation already tectonically active region. Moreover, **seismological evidence for an active fault beneath the Tehri dam based on mapping of the earthquake distribution has been observed, study** presents initial results suggestive of linkage between the seismicity near the Tehri dam, and loading and unloading of the reservoir. One could easily observe the various landslides incidences around the Tehri dam reservoir as well as such incidences have also been widely observed in the vicinity of koteshwar Dam reservoir (CAG, 2010). One of the crucial aspect of the impact on wildlife has not been seriously considered in the dams, besides this the idea of cumulative impact assessment (CIA) of the river basin, strategic assessment, socio-cultural impact assessment, minimum ecological flow for the dam projects are the other important aspects which are not in proper practice and are still debatable. After construction of Tehri Dam almost 115 km stretch of Ganga from Maneri to Koteshwar has been fragmented and converted into series of tunnels and reservoirs. A study was carried out for cumulative impacts of dams in Bhagirathi and Alaknanda valley where the Wildlife

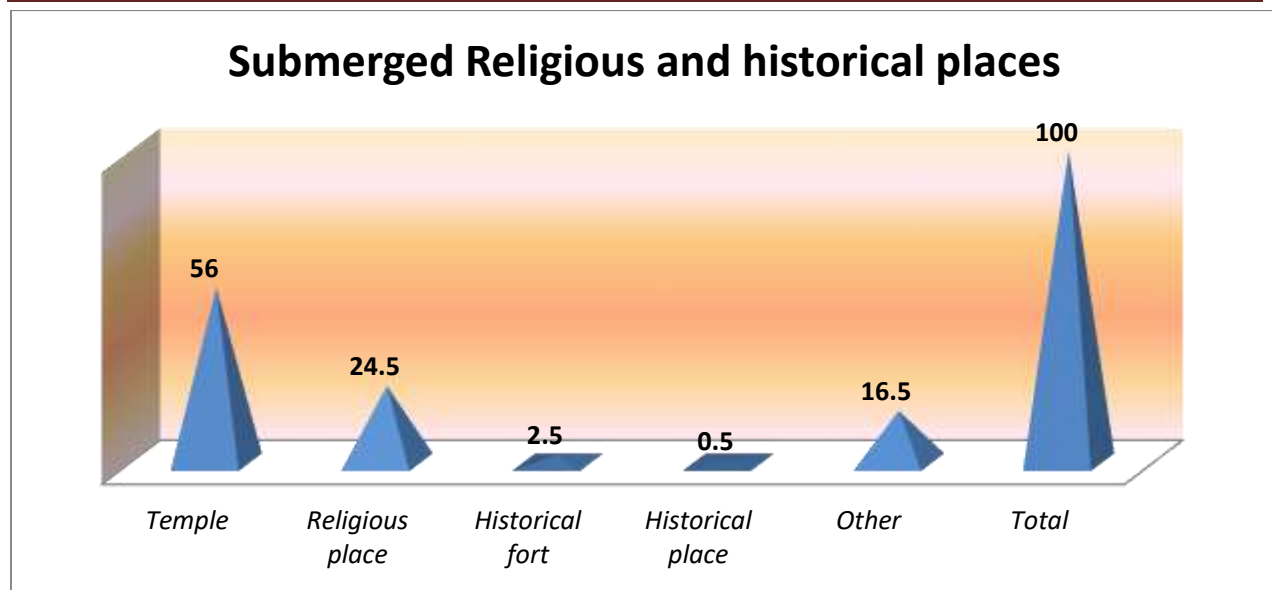
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experts have raised serious concerns regarding the impacts on wildlife due to construction of 24 proposed hydro power projects in Bhagirathi and Alaknanda valley [Assessment of cumulative impacts of hydroelectric projects on aquatic and terrestrial biodiversity in Alaknanda and Bhagirathi basins, Uttarakhand. A report by 'Wildlife Institute of India' (2012)]. Scientists have warned about the threat to the biodiversity of Himalayan region through the construction of dams, it is projected that by 2025, deforestation due to dam building would likely result in extinction of 22 angiosperm and 7 vertebrate taxa. Disturbance due to dam building would likely reduce tree species richness by 35%, tree density by 42%, and tree basal cover by 30% in dense forests [Potential Effects of Ongoing and Proposed Hydropower Development on Terrestrial Biological Diversity in the Indian Himalaya. *Conservation Biology*, Volume 26, No. 6, 1061–1071]. The issue of minimum ecological flows necessary for the rivers of Alaknanda and Bhagirathi valley was also discussed among the Inter-ministerial Group (IMG), and they recommended the six tributaries of Ganga should be left in their pristine form [Report of the Inter Ministerial Group on issues relating to river Ganga. (March-2013)]. Various studies have been carried out in the Himalayan basin of Ganga with reference to its geological, environmental aspects and fragile ecology. The table below summarizes the conclusions of the important studies.

#### **Socio-Cultural Impact:**

One of the most apparent impacts of Tehri dam reservoir is the physical segregation of the area because of the reservoir itself and as a result of this physical distance; the important socio-cultural impacts are possible. The questionnaire for analyzing this impact specifically revolved around understanding the effect that the hydropower project has had on the sites and activities of cultural significance in the area – inclusive of local temples, festivals, sacred places and natural/ man-made heritage structures. Many temples and sacred places have submerged in the reservoir and while most are lost forever a few have also been reestablished/ relocated. An analysis of this is essential to understand the extent of the impact. Since the significance of the river Ganga is intensely deep rooted amongst the Indians, it is pertinent to understand the impact the Tehri dam has had on the connection and relation that the inhabitants of the area had with river Ganga. For this reason, the impacts with reference to the connection with the holy river has been analyzed on cultural, social, religious and personal connect of the people.

Culture is defined in many ways through historical, philosophical, psychological, humanitarian and literature point of view. In simple terms, the term culture is used to signify good set of value system. Sociology and anthropology does not do comparative assessments between the various aspects of life and the aspects of life are mostly registered without any valuation. The scientific view point of these sciences considers the common nature also besides special development and good values, as an inseparable part of the culture. In conclusion, our nature is expressed through the way that we dress, our thinking and understanding styles, daily conversations, art, literature, religion, entertainment and amorous love are manifestations of our nature. **(Rawat, Harikrishna (2009))**



The graph above depicts the different types of religious and historically significant places that got submerged in the reservoir. As per the data, highest percentage (56%) of the respondents said that their temples were submerged in the reservoir while the next set of respondents (24.5%) observed the submergence of religious/ sacred places, 16.5% respondents explained that other places like the grazing land, agricultural land and cow ranch were submerged in the reservoir and 2.5% respondents reported that the historical fort also submerged in the reservoir

**Effect on Cultural activities:**

The local community in the study area is that of Hindus, in majority who have a rich tradition and colorful age old folklore. As part of the cultural local tradition grand *melas* local places like *Nagun*, *Chham* and *Devishaurd* were organized during the month of April, where people from different distant villages also came. However, due to the formation of Tehri reservoir, the cultural significance of these festivals has reduced as the number of people attending these fairs has significantly dropped after the construction of dam due to the physical distance because of the reservoir and the absence of convenient modes of commuting to the other side.

**Ganga is a Holy River even after the reservoir has replaced the river**

The word “Ganga” is derived from the root word “*Gam Gacha*” implying that which flows. Therefore, when the flow of the river Ganga is stopped or hampered, the essence of the river is absolutely compromised. In the vicinity of the Tehri reservoir, the partially affected families, that are left behind, refuse to consider the water from the river Ganga as divine. The unique property of self-cleaning of the Ganga which is due to the maximum amount of dissolved oxygen levels in the Ganga water, need a free movement of the river through which she cleanses and purifies herself along the way but due to reservoir formation, the flow of the river is stopped for several kilometers thereby preventing the river from cleansing herself.



Half of the respondents (58%) believe that the holiness/ purity of the river Ganga has been compromised/ tarnished due to construction of reservoir. 7% of the respondents have laid down a vehement opinion that the Ganga holds no consideration for them.

### **Utilization Ganga jal for religious purposes**

As expected, 92% of people stated that they use Ganga Jal for some or the other religious purposes. Traditionally speaking, Ganga jal is of huge significance as the water is known to have purifying properties. The pious waters of the holy river Ganga, is therefore used for purifying the puja sthan during daily prayers.

### **Conclusion:**

Old Tehri town was situated on the confluence of Bhagirathi and Bhilanga River called Ganesh Prayag. It was the center place of Garhwal Himalaya because all pilgrims and tourist of the char Dham yatra Badrinath, Kedarnath, Gangotri Yamnotri used to go through this city.

This town was established in 1815 by king of Garhwal Sudarshan Saha, old Tehri town and its nearby area had its own historical and cultural heritage. This town was the center of hundreds of villages as well as apart of Tehri town there were many small towns like Chham, Siraen, Bahaneti, Nagunetc which was also center places of many villages, which are now submerged.

Tehri town and its adjoining area were culturally rich, every year on the occasion of various festival like bashant panchmi (starting of spring season) Makar sankranti in January and Vaishaki in April cultural fair were organized by local communities, where people of nearby villages gathered and celebrated these festivals and fairs together with full of joy and happiness. After completion of the first phase of Tehri Dam a huge reservoir came into existence. All the public places submerged into reservoir where local fairs occurred. Tehri dam reservoir also affected the social contact, kinship and marriage relations between the people who are living surrounding the reservoir, as well as they affected emotionally due to displacement of those familiarize community forever. Earlier effected area of Tehri dam reservoir was quite closed to district headquarters, so that people of nearby villages could avail all kinds of government facilities like higher education, health, transportation etc. Due to huge reservoir people not only away from district headquarters, but also deprived of their basic facilities. Tehri dam is the multipurpose development project of government of India, but it is a deal of loss for local people, they didn't get anything but lost everything.

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