

**Reservoir: The causes of epidemic and ecological problems  
(with special reference to Tehri Dam reservoir)**

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Abstract

In present study researcher has focused on impact of reservoir of Tehri Dam on health aspects. Researcher has discussed with different village's people to know the effects and causes of epidemic problems on them. Present study also focused on environmental and health related affects from Tehri Dam reservoir. A big dam which is a symbol of economic prosperity through generate to light, water as an irrigation system, water supply and more but another side, still water in large amount as a man made reservoir create the different kind of problems. Such types of reservoir are not only dangerous for environmental perspectives but also harmful for health aspects due to different epidemic problems. Tehri Dam may be very harmful in environment and ecological perspectives and due to ecological disturbance health problems may be increase. There is still limited research has done in these particular problems.

**Key words: Epidemic, Ecological, Dam, Reservoir**

**Introduction:**

We are well known that dams are the symbol of development; it was truth for worldwide in mid 1950 to 20<sup>th</sup> century. Dams have been used to provide a store of water for agriculture, industrial uses, household uses for thousands of years. Hydroelectric dams, additionally, act as an alternative to non-renewable energy resources that constitutes the majority of the world's energy. 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).Himalayan regions fulfill the requirement of water and provide are ideal condition of dams building. Uttarkhand a Himalayan state have a vast diversity, mountain, glaciers, plenty of rivers, are which constitutes a good condition for dams building. Tehri dam is one of the most magnificent

structures of 21<sup>st</sup> century and it is the 4<sup>th</sup> largest earth and rock filled dam in the world and biggest in India, located at the confluence of Bhagirathi and Bhilangina rivers, in Tehri district of Uttarakhand.

The genesis of Tehri dam projects dates back to 1969 when it was prepared and submitted to Govt. of India and originally approved in June, 1972, but till the year 1977-78 the pace of the construction of the project could not pick up due to paucity of funds. Subsequently, without increasing the height of the Dam as earlier proposed, the installed capacity was revised from 600MW to 1000 MW in 1983. Consequently, In July 1988, the Tehri Hydro Development Corporation (THDC) was set up as a joint venture of the Government of India and Government of U.P. for executing the Tehri Hydro Power Complex project (2400MW) in 2 stages, stage one including Tehri Dam & Hydro Power Plant (1000 MW), Tehri Pumped Storage Plant (1000 MW) and the later including Koteshwar Hydro Electric Project (400 MW), (Panwar and Upreti, 2015)

Government of India, in March, 1994 approved Government of India, in March, 1994 approved implementation of Stage-I i.e. Tehri Dam and Hydro Electric Project (1000 MW). It was subsequently completed in 2006 forming 42 sq. km. of storage lake and started electricity production in 2008. One side politician, government and technocrats claim that dams essential for development of nation, our economy, accomplish demand of electricity and it will not affect to society, environment and ecology etc. but on the other side The dam construction had been a matter full of contentions between locals, environmentalists and other social workers, and the government. The Tehri Bandh Virodh Sangharsh Samiti (TBVSS) formed 1978 under the presidentship of VD Saklani, the Chipko activist Sunderlal Bahuguna along with several others took forward the movement against the dam construction on the cost of around 85,000 people. The Tehri Bandh Virodhi Sangharsh Samiti (TBVSS) founded on January 24, 1978 went to the Supreme Court. The Supreme Court gave a verdict against the petition. When the Environmental Appraisal Committee (EAC) refused to give clearance to the project, the movement got further momentum. All in vain as it did not stop the project. (Chand, 2014) However, dams have drastic damaging effects on the environment and on the populations that live near the dams and so have become the subject of great scrutiny, with organizations concerned with environmental health such as World Wildlife Fund (WWF) and International Rivers advocating the removal of old dams and the use of alternatives. Initiatives have been taken around the US to remove old, outdated dams. In this article, Mission 2017 looks into the uses of dams and ways of maximizing their efficiency and minimizing their environmental damage. The article looks into the details of dam's reservoir and

their problems. Due to a large submersion of forest and agriculture land by the reservoir, over 18,000 families were classified as affected according to the Government of India. Tehri dam extend gradually before their size and it create much problems near surrounding villagers in future it causes the malaria, fever, cholera, skin diseases and other serious epidemic problems will be faces due to polluted reservoir.

### **Objectives:**

In this study two main aim are given below –

- (i) To find out the type of problems faced by the surrounding villagers due to Reservoir pollution.
- (ii) To find out the environmental and ecological effects on surrounding areas by Tehri Dam Researcher.

### **STUDY AREA:**

Tehri dam is located in the Tehri Garhwal district of Uttarakhand. The study area includes 5 villages located in nearness of dam's reservoir. Tehri dam reservoir covered five blocks wherein four blocks situated in Tehri district (Partap nagar, Chaam, Jakhnidar and Paukhal) and one block situated in Chiniyalisaur Situated in Uttarkashi district. Researcher has has selected Chiniyalisaur block for the study from which five villages were selected which are near and affected by the reservoir.

The selected villages are located within 500.meters of distance from the reservoir .These villages have faced various problems of health, environmental and ecological such like submergence, landslides, malaria, stomach problem and eye problems and community forests, road networks etc. Further over the years it has been realized that the area has become an isolated zone in terms of social, infrastructural and economic aspects resulting in degradation of natural resources which has made people more vulnerable to existing conditions.

### **MATERIAL AND METHOD:**

The study conducted wide field survey of selected villages and there agricultural lands, water bodies, landslide sites. The given 5 villages were chosen on the basis of purposive sampling to identify households and include group discussion. Respondents were chosen from the most affected family. The data collect by interview schedule and focus Group discussion with the partially

affected villagers. Secondary data was also used for the study. Secondary data was collected from the following sources.

### **Unexpected Causes of the Tehri Dam Reservoir:-**

One of the unexpected or unplanned consequences of the Tehri dam is the amount of communities that were not initially entitled to compensation or R&R, but have become project-affected people. Mr. Suyal described this as a loophole in policy concerning the communities on the east side of the reservoir. There are many communities along the slopes of the reservoir, which extends to 42 kilometers along the Bhagirathi and 25 km along the Bhilangana Rivers (Joint Expert Committee, 2011). Consequences imposed on the communities located around the reservoir were not the initially addressed by the THDC policy. One of the most immediate consequences created soon after the reservoir began to fill was a disconnection of travel routes and transportation. Old Tehri Town served as a hub and a source of immense resources for the surrounding towns and villages. The filling of the reservoir, therefore, reduced their inability to access necessary facilities, such as health services, education, markets and more. This disconnection has created a perpetual burden of posterity on the surrounding people (Painuly). Tehri reservoir is gradually making bigger their own size to yet and continuously landslides in river bank sides. According to Prakash Chand Ramola and other villagers, *(Badhan village) before dam construction many small bridges over the Gnaga River which was used by the people to reach the easily to market and buy certain things, children also went easily to their schools, colleges and villages due to these bridges. But some bridges and shortcut way submerge into reservoir. Sayansu, Chaam and other bridges submerged into reservoir. One of the respondent Sohan lal from (Kumrada village) stated that now distance to market and other places are much far and too expansive due to reservoir.* Reservoir causing many problems to surrounding villagers such as lack of transportation etc. These problems are faced by partially affected villagers surrounding reservoir.

### **Future aspects of epidemic problems due to Reservoir:**

In tropical areas, reservoirs provide a perfect breeding ground for parasitic organisms, especially as mosquitoes. Larger reservoirs have a higher potential for breeding such parasites and spread disease to surrounding populations. Indirectly, infected water is used for irrigation and thus infects crops. If large numbers of people are relocated to areas near the reservoir during the reservoir formation, the increased density of people will make the spread of infectious disease more likely.

Effect of large dams on malaria are shown through many studies. For example, after the construction of the Bargi dam in India a 2.4- fold increase in malaria cases and an over four-fold increase in annual parasite incidence among children were recorded in villages closer to the dam (head end) compared to more distant villages (tail end) and a strong increase in the hospital prevalence in partially submerged villages could be detected (Singh *et al.*, 1999; Singh and Mishra, 2000). Increases in malaria cases near dam sites were reported both in stable and unstable malaria transmission areas. In Tigray in northern Ethiopia, numerous small dams and irrigation systems were put in place at altitudes above 1800 m with the broad aim of reducing dependence on rainfed agriculture, and improving overall food production. Comparative appraisal of a series of cross-sectional malaria surveys among children carried out in villages in close proximity to these newly constructed small dams and in villages farther away, revealed a seven-fold increase in malaria risk for those residing near dams (Ghebreyesus *et al.*, 1999).

It was also found that dam areas displayed a lower malaria transmission compared with distant settings when integrated vector management or other control interventions have been applied. For example, in Uttaranchal, India, a study, which compared the parasitological indices in a dam area to forest or plain areas, recorded a prevalence and annual parasite incidence of zero in the dam area. Better economic status, insecticide spraying and more awareness towards health maintenance were described to be the main factors accounting for the lack of malaria transmission at the dam site (Shukla *et al.*, 2001). In addition, in Thailand no increase of malaria incidence was observed near the Nong Wai dam and Ubol Ratana dam, probably because of indoor residual spraying of all houses with DDT, compared to the Srinagarind dam, where an increase in malaria prevalence was reported and for which we are not aware of any vector control measures (Bunnag *et al.*, 1979; Harinasuta *et al.*, 1970). There are several studies that show that epidemic problems can be spread by dam's reservoir. According to villagers who lived nearby Tehri dam reservoir, said that due to polluted water of the reservoir people are not able to use it for and they have to arrange water from



other sources daily use like; natural spring, natural resource due to unavailability of Gangajal nearby their village. but before constructed huge reservoir people use gangajal for prayer, drinking and other holy rituals.

Researcher found that the condition of the siver connected with these villages in worsening day after day due to the polluted causing rise in certain type of diseases. Health conditions of the inhabitants are also becoming worse.



Research observed the pollution and wastage in Tehri dam reservoir, and aware the news papers..



### **The impact of ecological problems in future:**

Habitat loss is the biggest cause of extinction. Freshwater habitats are thought to be the habitats face the highest loss of biodiversity [11]. Building a dam in a river causes great changes within the river and leads to great changes in the river systems, leading to habitat loss. The structure of the dam itself acts as a barrier preventing fish populations from migrating along the river. The formation of a large still body of water in place of a small rapidly moving body of water changes the dynamics of the water system, which makes it less suitable for the original species to survive, which may lead to extinction [8].

The National Environmental Engineering Research Institute determined that the Tehri Dam project was not expected to affect the purity of the water because the reservoir acts as a 'static container' where the water is constantly moving, thus disallowing pollution and sediment buildup (Joshi 2006).

### **CONCLUSION**

In the end it is concluded that the Reservoir which are important for the development are also one of the main causes of epidemic. We can see that big dam are symbol of development at the same time we can find the problems related to environment of society. Tehri Dam which in the biggest dam of Asia in producing hight in a very big quantity but it has affected the ecology of the area causing many disease and if there problems would not be monitored properly it will come seasion problem in the future.

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