

## REHABILITATION OF BISALPUR DAM CATCHMENT AREA AND THEIR CONSEQUENTIAL EFFECTS ON VEGETATION

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**ABSTRACT :** Bisalpur dam is the largest gravity dam in Rajasthan. It is made for drinking water supply and irrigation purpose. It supplies drinking water from Bisalpur to Ajmer, Jaipur, Tonk and its neighbouring areas. Sixty three villages are partially/totally sunk in to the water of this dam and are affected very much. The Bisalpur Dam catchment area was rich in vegetation. After building the dam and its filling up to its capacity, maximum vegetation of catchment area have been submerged in to water. This paper deals with the consequential effect of vegetation after the catchment of sinking area, affected plant species and present status of vegetation.

**Key words :** Rehabilitation, Catchment, Floristic.

### INTRODUCTION

Bisalpur dam is located in Deoli Tehsil of Tonk district in Rajasthan. This dam lies between 25°55'28" N latitude and 75°27'20"E longitude. It is about 125 km away South-West to Jaipur. The dam is built across the Banas river between thick forests containing two mountains of Aravali range. The dam was completed in 2003 and constructed near Bisalpur village of Tonk district which is known as Bisalpur Project.

The length of dam is about 574 meter (1883 feet) and the height is about 39.5 meter (130 feet). The command area of river Banas extends over 48 thousand 18 square kilometers. The total command area of this dam is 27726 sq/km. Total sinking land area is 21836 hectare. 251 hectare forest zone and 63 villages are directly affected from sinking in to water by this dam. A deep permanent water reservoir is present in the water releasing side in front of the Gaukarneshwar Mahadev temple. This reservoir is known as Dah. The winter season attract vast variety of birds in Bisalpur so it is a bird watching centre and beautiful picnic spot.

Brown sandy soil is found in the adjacent area of Banas river. The surrounding region consists mainly of plains with hills in between near the Bisalpur dam. There is good soil cover with rocks underneath. Earlier this area was rich in vegetation. After construction of the dam maximum number of bio-diversity have been drowned. Therefore it is important to focus on such type of vegetation. A considerable amount of work in this area has been neglected till now. In the present study attempts would be made to explore and investigate the affected vegetation of the area. Important contributions in floristic studies are those of Vyas (1964), Gupta & Bhandari (1965), Sharma & Tiagi (1979), Shetty & Singh (1987-1992) and Gena & Sharma (1988).

### MATERIAL AND METHODS

Thousand of houses, farm and other areas were merged when Bisalpur dam constructed. The people were rehabilitated in new areas, but some were left and still waiting. The compensation given to the people from government was not adequate. So many people lost their employment. The general climatic condition of the region is dry, except a short duration of rainy season. The average annual rainfall of the study area is 52.46 cm. The average temperature of the study area is 26.7°C. The maximum temperature reaches up to 44.2°C in the month of June while the minimum temperature remains 5°C in the month of January. Relative humidity of this area is generally over 56% during the rainy season.

The study area were carefully visited and surveyed so as to locate the present status of vegetation. Studies were carried out in monthly intervals. To record the important information about the vegetation of Bisalpur dam catchment area, whole area was visited from January,2010 to February,2012. Local, old experienced person and ethnic communities have thorough knowledge of vegetation of surrounding area. The data were collected by interviews, observations and participation. Information and inquiries were also collected from Bisalpur project office and irrigation department. The present study is based on self observation in the actual field and queries with rural people and rehabilitees residing in remote area of the region.

### RESULTS AND DISCUSSION

The vegetation of the area are tropical dry deciduous type. The forest cover varies greatly in composition and quality. *Anogeissus pendula* is the predominant species distributed almost throughout the area, forms almost pure stands at certain places. The undesirable biota such as *Prosopis juliflora*, *Lantana camara* and *Parthenium hysterophorus* are constantly

increasing. It replaced the indigenous *Anogeissus pendula* plant species continuously. It is causing vegetation imbalance and their growth rate is very high. In aquatic vegetation pollution being a problem and reached to the extent that the water contained in has been rendered unfit for use and become toxic for aquatic flora and fauna of some part of the sinking area. It falls adverse effect on traditional marketing of fruits and vegetable like *Cucumis melo*, *Citrus vulgaris*, *Cucurbita pepo* etc. These traditional cucurbits are growing continuously in Banas river but now the conditions have been changed for them.

Forest of Bisalpur dam catchment area was natural habitats for many types of animals and organisms. This area has lost its natural particular vegetation. Banas river possesses a delicate ecology that depends on a regular cycle of disturbance within certain tolerances. Due to the construction of dam, the ecosystem of this area has been totally imbalanced and resulting in many negative impacts. Bisalpur dam is disrupting this ecology. Banas river has lost its natural beauty after the construction of dam and its reservoir.

The major effect of this dam is to alter the pattern of disturbances that the plants and animals of a river have evolved for. Complex sets of habitats are erased. The riverbed below the dam has become like a pavement of cobbles and has lost its value as habitat for plants, micro-invertebrates and fishes. Construction of Bisalpur dam across Banas river is resulting in danger for many phytoplanktons, zooplanktons, fishes and many aquatic species which can survive only in floating water.

Due to submerging of large land area into water it becomes predominant vegetation less area. The forest, agriculture and grassland area have been covered within catchment resulted in shortage of fuel, vegetables and fodder for animals. Certain important plant species also extincted from this area due to this. After the construction of Bisalpur dam on Banas river the manipulation of river systems is wreaking havoc on the aquatic environment and its biological diversity. Hundreds of species or subspecies of fishes are threatened or endangered because of habitat destruction.

People living near the catchment area get worried in rainy season because they know it very well that with the increasing water level they have to leave their places and have to move to safer places with their families and their cattle. Sometime they have to face economic loss due to the pests, insects and grasshopper which damage their crops on large scale. Another problem is related with many inflectional diseases caused by the mosquitoes or flies which make the habitat in stagnant water near the catchment area. The people of catchment area have to cover the larger land area to reach their desired place resulting in wasting their time and money. The fertility of soil is also facing the adverse effects. In the catchment area of Bisalpur dam the rural economy was predominantly based on agriculture and animal husbandry. So, the dam is becoming a curse for the people and bio-diversity of the catchment area.

*When the dam was made many big rocks and trees were submerged and it affected the apiculture of this area so reduced the economy of local people. Certain plant such as Saccharum spontaneum was utilized for mudda making and Saccharum munja was used as munj making were also drowned, so reduced their density. Enicostema axillare is used in medicines of fever also become rare. Some sacred grove places and endemic vegetation which was covered by the tribal area were also sancked. The endangered plant species of the area are Commiphora wightii, Dendrocalamus strictus, Gymnema sylvestre, Celastrus paniculata and Helicteres isora.*

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