

AN ASSESSMENT OF BISALPUR DAM: A MAJOR WATER PROJECT OF RAJASTHAN

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INTRODUCTION

‘Water is the lifeblood of our bodies, our economy, our nation and our wellbeing’. Water is the source of all life. Water being essential for human life has become one of the greatest challenges of 21st century, so it is necessary for realistic assessment of available water and utilizes it in most efficient and economical way.

Rajasthan is the largest state of the India, occupying an area of 3.42 lakh square Km with more than 10.4 percent geographical area of the country, occupying 5.5% population of the country. The state has extreme climatic and geographical conditions, 2/3rd part of the state is a part of the great Thar desert. Out of the total 142 desert blocks in the country, 85 blocks are in the state. The available water is not enough to cater to the needs of the drinking, agriculture and non-agriculture demands. Thus the state is facing water scarcity and less availability of portable water. Water is a critical resource in this area. It has only 1.15 % water resources of India while supporting 5.60% of human population and 10.50% of cattle population of the country. On the other hand the phenomenal population growth and industrial growth raised needs to lead more and more demand of water. So water management is the most prominent issue in Rajasthan.

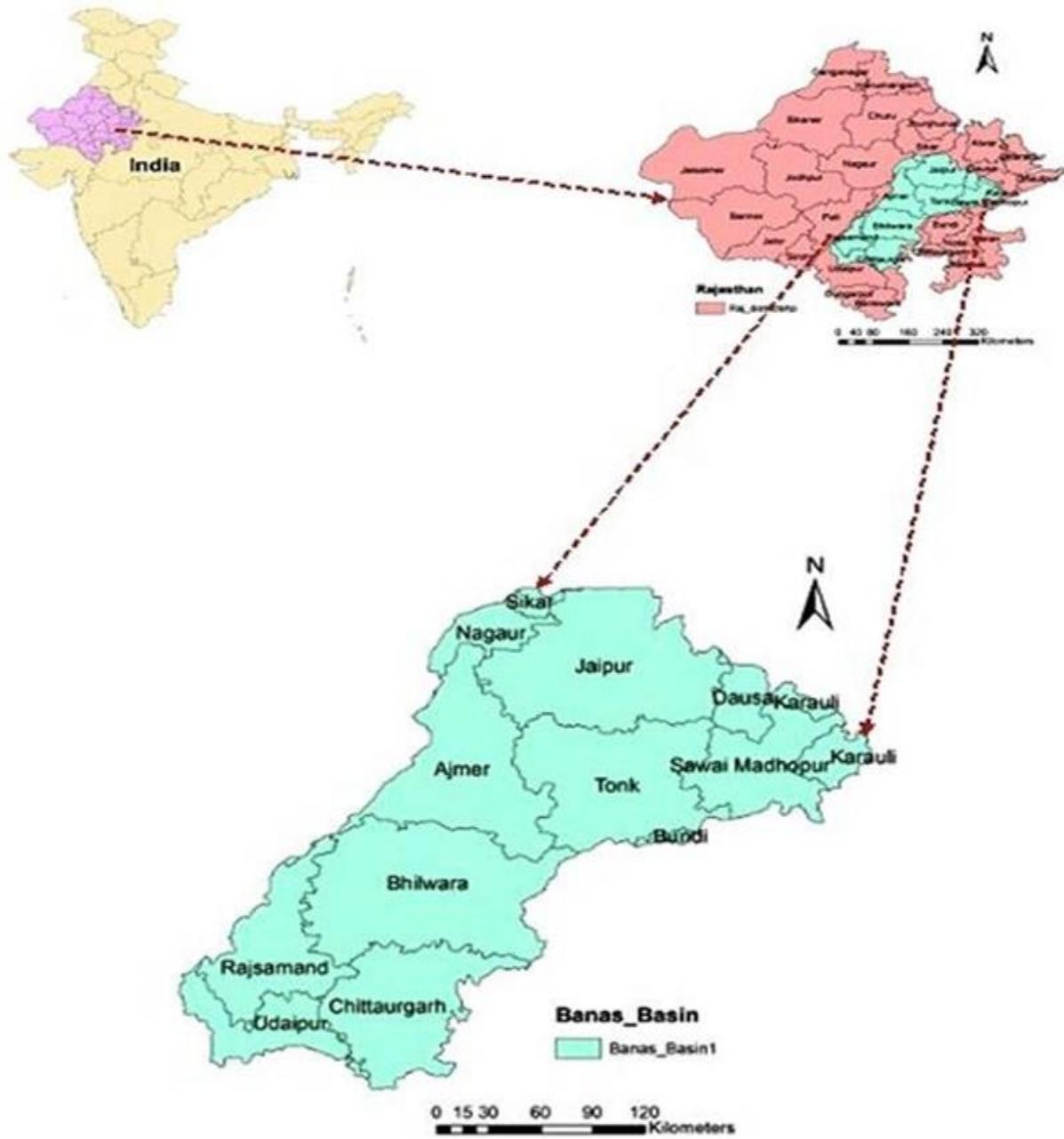
Technical solutions enable diversion of water towards areas of demand and Dams have played a major role in it. Dams have helped to provide water for drinking, agricultural and urban uses, hydroelectric power and wildlife management which are generating major social and economic benefits. Water sharing is a noble idea. However the present situation proves that sharing water is a sensitive issue, resulting in many disputes. The command area of Bisalpur dam has same circumstances. The Bisalpur dam was constructed in the 1990s by the state government of Rajasthan on Banas river. The river is also known as ‘van ki asha’ (hope of forest). The banas drains a basin of 45,833 km² and lies entirely within Rajasthan. It is a seasonal river that dries up during the summer. This paper reflects the analysis of Bisalpur Dam project in Rajasthan.

STUDY AREA

Study area of the research paper is the command area of Bisalpur Multi-purpose Project. Bisalpur dam is situated at Bisalpur village near Todaraisingh tehsil of Tonk district, Rajasthan. The dam is located on the Banas river which rises in the Khamnor hills of the Aravalli range and flows among the area of Rajsmand, Bhilwara, Tonk, Ajmer, Jaipur, Swaimadhopur, Karauli districts. Banas is a major tributary of the river Chambal. The total length of the river is about 480 km. The major tributaries of Banas river are Bedch, Kothari, Khari, Menal, Mansi, Dhundh, Morel etc. The relief of the district is plain and somewhat undulating terrain and is divided by the river Banas. The soil is fertile but sandy and ground water is limited. The total population of the district is 1,421,711. The average water table is low and irrigation potential is limited because of the rock formations in the district. Agriculture is the main occupation and is characterized by low productivity.

To overcome the shortage of water in central eastern Rajasthan, construction of Bisalpur dam on Banas river was completed in 1999. The height of the Bisalpur dam is 38.50 M and the length is 574 Meter. Two canals were build up on the dam ,the Right main canal (51.64 km) and the Left main canal (18.65 km) to provide drinking water facility to Jaipur, Ajmer, Kekadi, Nasirabad, Sarwad, Beawar, Kishangarh and to provide drinking water and irrigation facilities in 256 villages of Tonk districts. Bisalpur-Jaipur water supply project, Bisalpur-Ajmer water supply project, Bisalpur-Niwai water supply project, Bisalpur-Dudu-Unniara water supply project, are the major drinking water supply projects under the multi-purpose project.

Bisalpur – Jaipur water supply project is an essential component of the state's long term strategy to ensure a sustainable drinking water supply for Jaipur city to reduce the city's dependence on its ground water resources. This is a part of Rajasthan Urban Infrastructure Development Project (RUIDP).



OBJECTIVES

When the well is dry, we will know the importance of water– Benjamin Franklin.

Application of human mind to use the natural gift for their own purpose has not only worked in favor of human beings but also against them. India's first prime minister Jawahar Lal Nehru coined a term "**Temples of modern India**" to describe the importance of dams. Dams are a part of his vision of modern India but in present scenario there are many issues and disputes increasing in respect to sharing the water of dams. There are also many issues on the sharing of Bisalpur dam's water. This research paper deals with justifiability of allocation of water, disputes on sharing of the water and the wrong preferable supply of water etc. issues of Bisalpur dam project. Some specific objectives of the paper are as follows -

1. Assessing the impacts on the community with construction of the dam.
2. Discussing the status of water allocation based on their water requirements of urban and rural areas and demarcate the major problems of water sharing in the region.
3. To discuss the future potential of Bisalpur dam Project to fulfill the water requirements of Jaipur city, which is undergoing a rapid population growth and urban sprawl and its repercussions on the water supply in Tonk and Ajmer.
4. Suggesting some short term, midterm and long term strategies to mitigate the water requirements of Ajmer, Tonk and Jaipur and boost regional development in the region.
5. To compare the development of agriculture, industries and other economic activities pre and post construction of Bisalpur dam with respect to the beneficiary areas.
6. To introspect the major issues of water sharing within and inter districts in the command area of Bisalpur dam.
7. To assess the availability of water in urban, rural and slum households.

METHODOLOGY

Evidence – gathering for this study took the form of literature review and site visits to many places under the command area of Bisalpur Dam including semi-structured interviews with local people.

LITERATURE REVIEW

The secondary data like technical reports and official documents of government institutions in Rajasthan and at national level in India and relevant media sources was used to assemble evidences. Many books and papers and the water policies of government of Rajasthan and India

etc. are also concerned. This diversity of published sources was used to gather the data for the study.

Site visits and semi – structured interviews –

Site visits were conducted at many places benefited from the water of Bisalpur dam. At these different locations some interviews were prearranged whilst others were opportunistic. Interviewees were people from village gatherings included officers, the junior site engineer at the Bisalpur Dam and local people operating water infrastructure. Many informations were collected from Conversations and discussions with the project affected people. So at the micro level primary data was collected using interviews, questionnaire and other participatory research methods. Group techniques of participatory research methods like focus, structured and formal group discussions was employed for gathering information. Focus group discussions conducted with different interest groups like farmers, traders, laborers etc. Formal discussions was conducted with the people in the administrative level, or are active in the local social, political, religious streams, teachers.

An attempt was made to assess the future potential of Bisalpur dam in respect of socio-economic growth of the area regression analysis method have been used. As the amount of water in the dam is highly dependent on yearly precipitation patterns, the average annual rainfall data and the average growing water demands of the districts was collected and it was assessed that the growing urbanization of Jaipur city will create a negative impact on the supply of water to Ajmer and Tonk.

RESULTS AND DISCUSSIONS

The Bisalpur project has greatly influenced its command area. The dam have played a major role in the economic and social development of the region i.e. - supply of potable drinking water in deficient areas and increased employment opportunities, better transport facilities, increased economic opportunities, irrigation facilities etc. But now the region is facing many issues in terms of sharing the water of dam including the desiccation of aquatic and riparian habitat, resettlement and rehabilitation of project affected people, inequities and unfairness pertaining to water allocation and distribution. The purpose of this paper is to overlook these issues and suggest some strategies for future planning of water management in the area.

The state is supplying water from Bisalpur Dam to Ajmer, Jaipur and Tonk districts, there are several issues regarding the allocation of water. There are inequities and unfairness pertaining to water allocation and distribution of Bisalpur Project water.

According to the State Water Policy, 2010, the order of priorities of water allocation will be as follows-human drinking water, livestock drinking water, other domestic uses, agriculture, power

generation, industrial and then non-consumption uses. The Bisalpur-Jaipur Water Supply Project had originally been conceived to ensure a sustainable drinking water supply in the area but the actual conditions are different from it. Where around 167 villages of Chaksu and Phagi blocks are struggling and protesting for the drinking water allocation from Bisalpur project at the same time the water is being used as non-consumptive uses such as for gardening, sanitation services and other leisure activities. The demanding area is suffering from continuously reducing ground water table and high fluoride concentration in ground water which is unfit for drinking and even pose a risk to health according to PHED, Rajasthan. So the priorities of water allocation is a major issue in the area.

Table 1: Jaipur City – Decadal Population Growth

Years	Population	Decennial Growth (percentage)
1971	636,768	57.83
1981	1,015,160	59.42
1991	1,518,235	49.55
2001	2,324,319	53.09
2011	3,471,847	49.37

So we can say dams have become a weapon for the rich, urban and powerful to take control of water resources away from the poor, rural and disposed. Many conflict has emerged due to skewed water distribution pattern in the region. In order to meet urban water requirements, the state has conveniently alienated the water stressed zones in rural areas. This preferential from of water governance has undoubtedly raised questions about the future water-sharing strategies in the state. So the question is this that is it justified to cater to such increasing urban demands by overlooking the existing water requirements in rural areas.

Declining trend of inflow in Banas river has been observed during recent decades, there is various reasons behind this like continued rapid changes in land use pattern, population increase coupled with changing lifestyle are major factors responsible for it and rainfall patterns in the Banas River Basin might be altered in the near future (2010-2040) under various climate change scenarios and the potential impacts of these changes will leads to low streamflow in the Banas River. Where on the other hand, during the last century there has been a steady trend towards

population resettlement to cities. This urbanization trend leads the increasing demand of water so there is a question that Bisalpur dam has the future potential to fulfill the water requirements of Jaipur city.

Policy reversal and land acquisition are another issues related to the study area. In 2000s the state government had provided technical and financial assistance to farmers to construct minor anicuts and later banned 27000 private anicuts in the banas basin.

Table 2: Approximate water diversion and loss from the Bisalpur Dam (Department of Water Resources operational manual: ‘Rajasthan Water Resources, Bisalpur Dam’

Water diverted	Reported tmcft Annually	Average MID	% value
To Jaipur city	11	853	34%
To Ajmer city	5	388	15%
To Tonk city	0.5	39	1.5%
To 88,000 Hectare land irrigated in Tonk district	8	620	25%
Evaporation from reservoir	8	620	25%
Totals	32.5	2,520	100%

There are also some political issues relevant to sharing the water of dam. Even within the district there is discrimination with regards to water sharing. Unniara tehsil, the constituency of the state agriculture minister Prabhu Lal Saini, is being highly benefited from Bisalpur Dam but here there are many areas that were deprived of water fell within a radius of 40 km in the command area of the Bisalpur dam.

The Rajasthan State Water Policy 2010, describes the critical status of water in Rajasthan in terms of:

- The growing imbalance between demand and supply of water
- Uncertainty in availability of water
- Inequity in access to water
- Low operational efficiency of water resource development projects

- Depleting groundwater resources and deteriorating quality of water

But we can not deny the fact that The Bisalpur Project has played significant role in the social, economic, cultural growth of its command area. Before this project ground water was the important source of drinking, agricultural and industrial purpose and the level of fluoride, nitrate, salts is very high in the area which make it unfit for drinking purpose even pose a risk to health. Supply of potable drinking water in deficient areas and increased employment opportunities, better transport facilities, increased economic opportunities, irrigation facilities etc. are playing important role in the overall development of the region.

So for the sustainable development of the region and betterment of the area we should improve the institutional mechanism in relation to ground water, better planning of surface water, delivery and conservation of water. we should pay attention upon the growing urbanization trend and the climate variability which are predicted to make the water supply system fragile in Jaipur. we could assess the urbanization trend in the world and resulting issues for water supply system. Then we can assess the case of Jaipur and make a comparative statement on the current issues in the area.

In order to increase the capacity of the dam, the PHED has proposed to raise the height of the dam by a meter, this should be under the active consideration of the government and in order to avail the water, the department had to construct a new pumping station, additional raw water pipeline and water treatment plant. Some technocrats suggesting that government could connect the Bisalpur dam and the Isarda dam in the adjoining Sawai Madhopur district to get drinking water for Dausa region.

The water policy should be formulated on the basis of the outlook that water is the fundamental human right not a commodity only through these means we can ensure the inalienable right to water for all the people. Citizens in Rajasthan have becoming dependent on canal supplied water, in former times people survived in the Thar without water brought from elsewhere. Our ancestors used rainwater to fulfill their needs but rainwater harvesting techniques have almost disappeared in areas where the canals are supposed to deliver water. Ideally everybody could take care of his own water supply.

CONCLUSION

The crisis of water in the state is due to less rainfall, its arid climatic conditions and a large part of its water is saline and unfit for human consumption and irrigation but the studies proves that It would be a wrong proposition that water crisis that lead to water scarcity, disputes or conflicts are only due to factors like population growth, increasing diversified water uses etc. They are

factors but the problem also lies in current legal policies, social and economic status of the people and the institutions governing water resources administration and management.

Almost half of the world resident lives in cities but occupy less than 2% of land area. It is evident that the provision for water in cities must come through sources external to its urban environment. Due to pragmatic reasons such as land use, availability and valuation of land, it does not seem possible for rapidly urbanizing countries such as India to make cities self-sustainable in the provision to have impact on the peri-urban and villages surrounding the urban areas. But at the same time we can not deny the fact that water is not a commodity, we should resist all criminal attempts to marketize, privatize and corporatize water. Only through these means we can ensure the fundamental and inalienable right to water for all the people. We can conclude this by the statement of a woman, Mylamma, who succeeded in shutting down a soft drink plant, "When you drink coke – you drink the blood of people."

The history of dams in our country provides a wonderful vantage point from which to view the cultural, economic and social development of modern India. Dams have served over the last century as powerful engines of economic and social development across the country and the benefit doubles in the desert areas like our state so a systemic approach to management and investment of water resources can guide sustainable development. Developed resource management techniques along with progressive water policies and principle like ideal utilization of water resources in many countries can substantially mitigate the water resources scarcities. We can take the example of Israel.

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