

Water Rights and Water Fights: A Study of Bisalpur Project

¹Madhu Devi, ²Dr. Monika Kannan

¹Research Scholar, ²Associate Professor & Head
Department of Geography
Sophia Girls' College, Ajmer

Introduction -

Water, which is basic to human existence, is an indispensable element for the support of all kinds of life processes. It is required not only to quench our thirst and meet our domestic needs, but also to produce and process the food we eat and also other materials necessary for human welfare. From time immemorial water has also served as a medium for the transport of men and material. Also water resources serve as a form of power to produce steam for mechanical power or to move turbines for the generation of electricity. To put it in nutshell, 'water is the primary input into all economic activity and social welfare, while its fulfilment of aesthetic and recreational needs cannot be underestimated. Water has become in this century, as perhaps never before in history, a universal problem. With the growth of population and expansion of industry and agriculture, demands on water resources are increasing day by day. But with the dawn of industrialisation, and the success of scientific methods to accelerate economic development, coupled with the problems associated with the rapid expansion of population, the situation has undergone a sea change. The adequacy of water-supplies is now an acute question in every zone of intense human habitation.

The State is poorly placed in terms of availability of water resources. It has only 1.16 percent of the surface water and 1.70 percent of the ground water resources of the country. Average rainfall in the State 531 mm against national average of 1200 mm. This too is erratic in occurrence, resulting in frequent drought conditions. In absence of adequate surface water sources, there is over reliance on ground water. Gross annual draft of ground water in the state is 13 BCM against recharge of only 10.4 BCM. Due to these adverse conditions, Rajasthan is severely affected with drinking water supply problems. Because large areas of Rajasthan are relatively arid, mechanisms for allocating scarce water are critically important to the welfare of the citizens.

As a result, proper water management is required in a dry state like Rajasthan. One of the issues with optimal water management is storage and its accurate appraisal. In Rajasthan, the demand for drinking water, particularly in big towns/cities, is rapidly increasing. Rapid population growth has resulted in resource limitations and environmental damage, particularly concerning freshwater (Qian and Zhang 2001). Planning is required to ensure that municipalities can satisfy demand in the coming years. Due to a severe lack of drinking water supply to Jaipur, Ajmer, Kishangarh, Beawar, and other towns/villages en route that are not located on or near any perennial river, the people have endured a scarcity to alleviate the misery. With the above-mentioned increasing demand, the Government of Rajasthan decided, following the guidance of the Planning Commission of the Government of India, to plan, formulate, and design the Bisalpur Project in such a way that it finally fits into the overall composite project to facilitate both water supply to Jaipur and Ajmer, as well as irrigation facility in the drought prone Tonk district. The Bisalpur Project irrigation-cum-drinking water system network was built near the village Bisalpur, some 30 kilometers south-east of Todaraisingh and 50 kilometers north of Tehsil Deoli in Rajasthan's Tonk district. This dam is built on the Banas River.

Nature of the problem -

The maximum utilization of natural resources without realizing the reality of its getting reduced quantitatively as well as qualitatively. So conflicts have emerged among us for more utilization of water which come to be popularly called as 'water wars'. Water sharing is a noble idea. However the present situation proves that sharing water is a sensitive issue, resulting in many disputes. In Rajasthan now a days we can clearly see many issues like this such as the problem of sharing water of Bisalpur Dam. 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.

The demand for water has been gradually increasing; while the supply always remains constant or may even reduce if the monsoon is not adequate, this has resulted in river water disputes. The recurring nature of river water disputes not only emotionally drains the people but also has led to enormous law and order problems in the disputing areas.

The major underlying reasons for these conflicts include- low rainfall, inadequate water supply, dependency on one major water source, high population growth and rapid urbanization, modernization and industrialization. Deterioration of the ground water quality is far more serious. Rajasthan is particularly handicapped in this regard because of the over- dependence on ground water. Following table compares the magnitude of the problem in Rajasthan to the rest of India –

Particulars	India	Rajasthan(village)	% of country
Fluoride	26131	10788	41.28
Salinity	28398	23168	81.58
Nitrate	3032	856	28.23
Iron	79955	60	0.12

Fig. 1: Groundwater quality in Rajasthan.

Due to these adverse conditions, Rajasthan is severely affected with drinking water supply problems. In south-eastern hilly region, ground water is available only in selected valley part and water table fluctuates rapidly due to rocky geographical formation of the area. In years of continuous drought reservoirs of the area dry up and create severe critical water crisis. The west Aravali area is desert, having scanty and erratic rainfall and often faces drought conditions. There are only a few reservoirs in the area, soil structure is basically alluvial with limestone and allied sedimentary rocks, which are good aquifers. The increased demand of water for agriculture, industrial and domestic uses is fast depleting the ground water reserve and deteriorating the water quality. The available water has high TDS, salinity fluoride and nitrate contents. Urban Water Supply of safe hygienic and potable drinking water to urban population is undoubtedly the top priority of the State Government. All the 222 towns of the State have been benefited with drinking water supply system. But the service level and the quality of supplied drinking water still needs a lot of efforts in terms of improvement and consumer satisfaction. The main thrust in the Eleventh Five Year Plan was on of providing reliable, self-sustaining drinking water supply with adequate service levels to the urban areas and as per prescribed norms. Due to the falling groundwater levels, poor quality, and the inadequate supply, there was a great need to find a new surface water source that would fix these issues. The goal was to find a water supply that would be able to provide the entire city with 24-hour clean water service and be able to accommodate the projected growth rate in Jaipur for future years as well.

Study Area -

A. Latitudes and Longitudes Rajasthan State:

Latitude: 2303'00" to 30012'0" N

Longitude: 69030'0" to 78017'0" E Banas Basin:

Latitude: 24015'0" to 27020'0" N

Longitude: 73025'0" to 7700'0" E

Bisalpur dam:

Longitude: 75027'30" E

Latitude: 25055'20" N

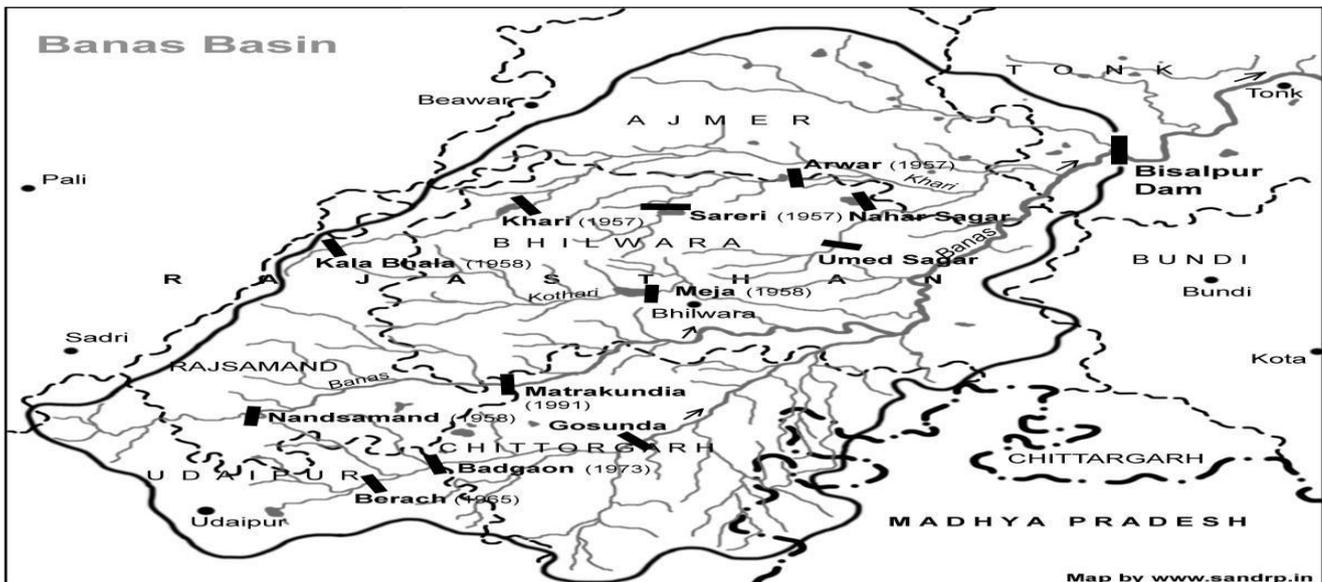


Fig.2: Banas Basin

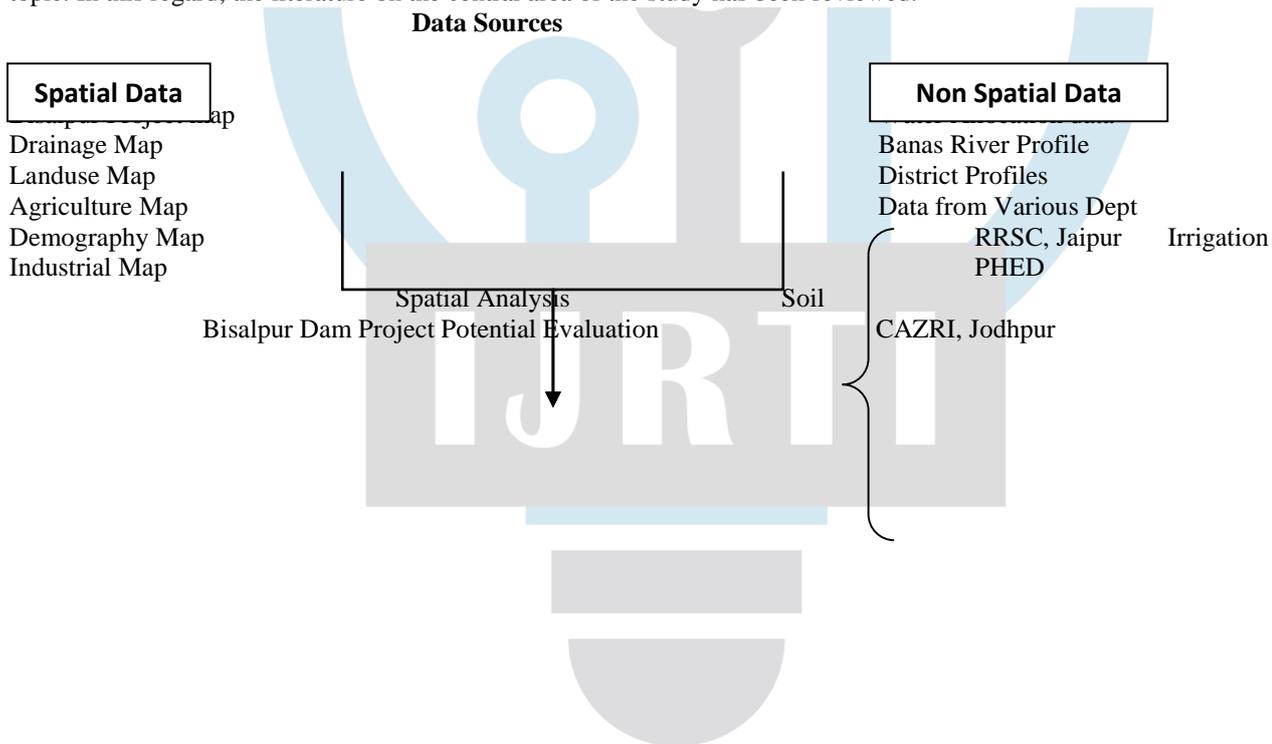
Bisalpur Drinking water cum irrigation project is constructed across river Banas, a tributary of river Chambal near village Bisalpur of Deoli tehsil in Tonk district of Rajasthan. The dam is about 25 km from Deoli town on Jaipur Kota road. The project comprises of concrete dam 574 meter long with maximum height of 38.50 meter with gross storage capacity of 1095.84 Mucm and live storage capacity of 1040.95 Mcum. Masoury gated ogee type spillway 338 meter long crest having 18 number of radial gates of size 15 by 14 meter to pass design discharge of 29046 cumec at MWZ Right main canal is 51.64 km long with head discharge capacity of

18.34 cumec and left bank canal is 19 km long with 2.25 cumec head discharge capacity to irrigate an area of 81,800 hectare (CCA) in Tonk district. The Ultimate irrigation potential of the project is 55,224 hectare.

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. To prepare drinking water supply schemes based on surface is the utmost priority of the state government to provide safe drinking water to people. The present study is a modest attempt at identifying and understanding the issue involved in the freshwater of Bisalpur dam project in a framework of historical and analytical approach. It tries to discern the politics that is in extra every mixed in the water disputes. The freshwater disputes for an early resolution in order to pave the way accelerating economic development and social welfare. The research is expected to facilitate and understanding of the problems involved in making an integrated and fuller use of the dam in this region as a whole. So to analyze the status of water allocation from the Bisalpur dam Project amongst Ajmer, Tonk, and Jaipur districts is the main objective of the study.

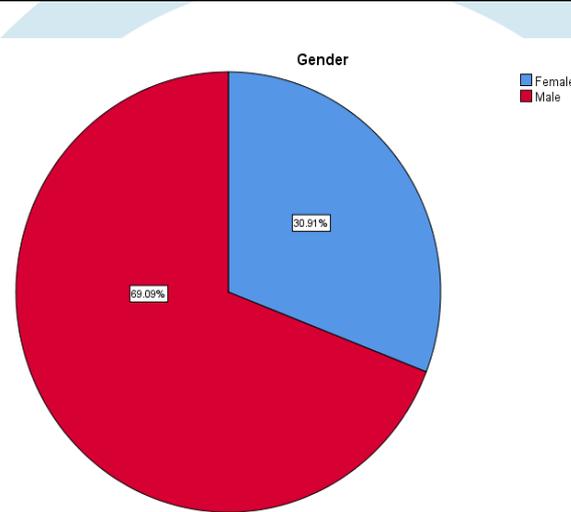
Methodology- In order to explore and analyze the Bisalpur Water Supply Project in Jaipur, several different approaches are taken. These different approaches incorporate a variety of perspectives into the overall analysis and attempt to give a voice to all sectors of society. To better understand and assess these issues, a number of people are consulted. Government officials are interviewed and government documents are examined to get a sense of the problems in the area. Scholar had the privilege of Talking to government officials, ideas have been exchanged with them. A survey, in both English and Hindi, is used as a guide to interview people from various parts of the research area. However, as an effort was made to collect a random sample from many different areas, the views expressed are believed to be common sentiments and can therefore be used to qualitatively analyze the policies of the government. To gain knowledge and to have first-hand information on the research area of the study, the researcher has gone through primary and secondary sources. To understand the various aspects of the research area under consideration, the researcher has reviewed the existing literature. The materials thus collected are helpful for the researcher to get explicit knowledge on the topic. In this regard, the literature on the central area of the study has been reviewed.



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. A survey, in both English and Hindi, is used as a guide to interview people from various parts of the research area as follows

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	119	30.9	30.9	30.9
	Male	266	69.1	69.1	100.0
	Total	385	100.0	100.0	



An effort was made to collect a random sample from many different areas, the views expressed are believed to be common sentiments and can therefore be used to qualitatively analyze the programs and policies of the government. There is a significant difference between the districts and the status of water allocation from the Bisalpur dam Project.

Descriptives								
Water Allocation								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Ajmer	144	5.3403	1.09137	.09095	5.1605	5.5201	2.00	7.00
Tonk	128	5.2422	1.14153	.10090	5.0425	5.4418	2.00	7.00
Jaipur	113	5.2301	1.11810	.10518	5.0217	5.4385	3.00	7.00
Total	385	5.2753	1.11432	.05679	5.1637	5.3870	2.00	7.00

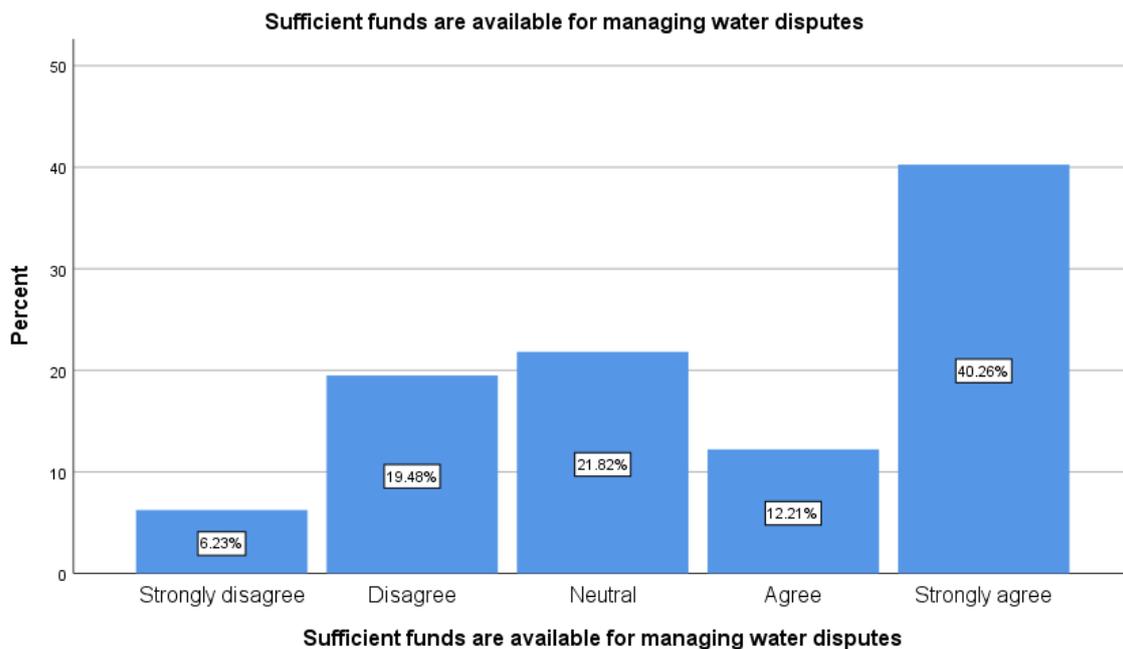
ANOVA					
Water Allocation					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.979	2	.490	.393	.675
Within Groups	475.836	382	1.246		
Total	476.816	384			

In Malviya Nagar, P.C. Choudhary says that his water quality has greatly improved and that the new water is "very purified." Meena Mathur, also of Malviya Nagar is disappointed that the water is not coming to her house for any longer than it used to, nor is the pressure better. She says, "They promise us that this will change soon, but I do not know what to believe, because they keep saying 'soon' but it never happens." Mathur does admit that the water seems cleaner and tastes better than before, though, so she is still hopeful that the Bisalpur Project will be the answer to Jaipur's water problems. PHED officials say that the narrow old pipelines in neighborhoods like hers are preventing a better flow right now, but that it will continue to be improved. Although it will take several years, eventually the whole city will have water access for close to 24 hours a day.

Although it has not started for most people, the Bisalpur Water Supply Project is viewed by residents as good solution to the drinking water problem in Jaipur, at least for now. They cite the expected improvements in quality and supply time as the main reasons for this, and several people say, "Now all of Jaipur will be supplied with water."

Not all of Jaipur is expected to be supplied with water, however, at least in the next couple of years. Archenna Agarwal of Satya, An NGO, explains about the situation in Kunda Basti, which is located on the East edge of Jaipur: "This basti is an example of where the PHED is failing. They do not have any individual pipelines, and now that the hand pumps are drying up, have to rely on tanks of water being brought in. Because they do not already have pipeline in the area, there are no plans for them to get Bisalpur water anytime soon." Interestingly, she says that the women she works with do not want to pay for water in private connections, even though they spend up to several hours each day collecting water. They feel that because they can get water for free, their money is better spent on electricity or household items.

The demand will be higher than the renewable supply from the dam alone, and it will cease to be a sustainable water source. Current projections indicate that by the time, the water supply will have been seriously depleted, and Bisalpur Dam will no longer be able to supply the majority of the water that Jaipur needs. However, this amount of time is thought to be sufficient enough to allow the groundwater levels to recharge and to explore other water options.



The Water Policy and Action Plan for India 2020: An Alternative was written in 2002 by the National Water Resources Council along with the Prime Minister. It puts forward broad goals for the country, but notes that individual states need to make their own, doable plans as well because the water and monetary resources across the country vary greatly. This policy includes some significant elements. First, it says, "Besides taking care of urban and rural needs, maintaining the life of river systems and other water bodies should be an important objective of planning." Also, it clearly references that the states are not all the same and should not be treated as such: "The standard with regard to water allocation per capita for domestic use should be 30 to 60 liters per day. It may vary according to rainfall zones i.e. less in Rajasthan and more in Assam, but should be the same for rural and urban areas." This is important not only because it differentiates between states, but also because it says that all people within the state should be treated equally with regard to water supply. Generally, rural areas are allocated less water than urban areas per capita and must accept a lower level of quality, and this should not be the case. Finally, this plan outlines the steps that should be taken to compensate people in the case of forced resettlement due to large water projects. It says that land for land compensation should always be the preferable option, and that rehabilitation should also be provided.

Elaborating this point further and examining the factors to be applied in determining an 'equitable apportionment' of the waters in a specific case it is observed: "The question of rational apportionment of available river waters among the claimants must, therefore, necessarily depend on several factors which have a bearing on the apportionment of water, such as climatic conditions, rainfall, soil conservation, social and economic aspects and so on. In line with the best international practices in the Water sector, the Rajasthan Government has adopted a radical shift from predominantly engineering based solutions to local community based water management solutions. This is a shift towards community level empowerment and responsibility for their own water management under the umbrella process of integrated water resource management.

Causes of Water Conflicts -

Conflicts over water, both within countries and between countries, are sharply increasing. However, few of these conflicts have led to violence. Major underlying reasons for these conflicts include (1) low rainfall, inadequate water supply, and dependency on one major water source; (2) high population growth and rapid urbanization; (3) modernization and industrialization; and (4) a history of armed combat and poor relations between countries and among groups within countries. Water scarcity alone, however, is infrequently the cause of armed conflict over water. Immediately precipitating causes include sociopolitical tensions; disputes over dams, reservoirs, and other large-scale projects; and disputes concerning environmental and resource issues.

Preventing Conflicts over Water -

Several possible approaches can prevent conflicts over water. One set of approaches consists of measures to increase the availability of water, including (1) reducing use of water, such as by decreasing wasteful uses and increasing efficient uses; (2) increasing availability of clean water, such as by reducing industrial pollution and sewage contamination of water, improving sewage and wastewater treatment, and improving watershed management; (3) establishing and maintaining new groundwater wells; (4) designing and implementing improved methods of desalinization; and (5) expanding use of grey water (wastewater from domestic activities that can be recycled for some uses), as has been done extensively in Singapore and Israel.

Conclusion -

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. In the political vocabulary of the 21st century, there has been a major drift in the semantic meaning of water, from a "core human facility" to be provided for, to a "Universal problem" to be arbitrated upon. Water generally does indeed come for free this does not mean it doesn't have a value. There are several water sharing models and principles are introduced we can see the examples of mature yet different integrated water resource management governance structures in developed countries wide scale adoption of IWRM.

The research will help in aiding the state to make necessary policy changes to ensure effective implementation of the law in resolving water disputes. This work will help the other researchers as well as the academicians interested in this field to conduct further studies in different parts of state. The suggestions put forth by the researcher can be a vital source for further improvement in the policy making. Hence, in this background, the study is very significant and relevant to the community at large.

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