A Study of water crisis problem in Kishangargh area in Ajmer, Rajasthan

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Abstract : ***In this paper we are presenting a Study of water crisis problem in Kishangargh, Ajmer, Rajasthan. The desert of Kishangargh is in the grip of a water crisis with 19 out of the 33 districts being famine affected, with the government sending water trains to parched Kishangargh and tankers to other areas facing acute shortage.The water crisis in Kishangargh is one of the major issues tormenting developing nation, as still millions of people in the country do not have access to safe drinking water and clear water for sanitation purpose. The development and over-population has created a lot of stress on water resources in the Kishangargh, especially in the district Ajmer.No future action plan has been formulated to solve the crisis of water. The village people have to go a long distance (500 meters) daily to collect water for their domestic purpose. In public places well is the main source of drinking water. The village people demand government help through MJSA scheme. The literacy rate of village is approximately 30 % which is low. Due to scarcity of water the village is less developed. The contribution of village people to solve the crisis of water is nil. The village people are keenly interested to construct a pond to meet their demand. Due to low forest cover extreme heat and less precipitation, the ground water level is going down day by day. The people of the village have not prepared any plan to overcome this problem.***

IndexTerms – Area, Water, Crisis, Village, Problem.

I. INTRODUCTION

Water is a critical factor for development planning in Kishangarh district Ajmer, Rajasthan. Despite heavy investments in water resources, the people of Kishangarh district Ajmer Rajasthan are suffering from water scarvillage. Water resource management is largely exploitative rather than conservationist. Tradition methods of water conservation have been neglected. Annual rainfall in Kishangarh district Ajmer Rajasthan is highly variable and scanty. The important task before us is to harvests this seasonal and natural precipitation. The north western desert tract gradually improves from an arid desert in the far west to a comparatively habitable and fertile tract towards and the northwest. Cultivation in the desert region is poor and precarious, though some tracts have better soils and are more productivity. The arid parts of Kishangarh district Ajmer Rajasthan are a near rainless desert. In some areas, rainfall scarcely averages more than 120 mm. irrigation is limited by the scarvillage of water in the west of the desert and has traditionally been restricted to deep wells and rain water harvesting systems. By and large, land use in the Thar is dependent on rainfall. In good rainfall years, large areas cropped, cattle thrive on extensive pastures and substantial amounts of hay are stored for future use. Rain water is stored in ponds and underground tanks. Small earthen embankments were constructed by the number of cultivators to enclose as much land as they could and surround it with thorns to keep animals away. Most villages in the desert tract had small ponds, and in a good season there was sufficient water to drink for seven to eight months. If rainfall failed, water was available for only four to six months otherwise the Villages had to bring water from other villages 20- 30 km away. In some of the villages had tankas or circular holes in the ground, lined with fine polished chuna (lime) in water was collected during rainfall and used when other supplies failed. In Rajasthan, there are vaious traditional water resources systems– nadi, talab, jojad, bandha, sagar, samand and sarovar, just to name a few. Traditional methods of harnessing surface water may provide some lternatives to meet the problem of water demand. A systematic study of similar traditional water harnessing methods is needed to make policy-makers aware of these alternative sources. Traditional methods of harnessing surface water may provide some alternatives to meet the problem of water demand. A systematic study of similar traditional water harnessing methods is needed to make policy-makers aware of these alternative sources. In spite of this, traditional water sources have vast potential.

Many water harvesting structures and water conveyance systems, specific to the different cultures, were developed. The Indus Valley Civilization, that flourished along the banks of the river Indus and other parts of western and northern India about 4500 years ago, had one of the most sophisticated urban water supply and sewage systems in the world. The fact that the people were well acquainted with hygiene can be seen from the covered drains running beneath the streets of the ruins at both Mohenjo-Daro and Harappa. The well planned village of Dholaviras, on Khadir Bet, a low plateau in the Rann in Gujarat. One of the oldest water harvesting systems is found about 130 km from Pune along Nane Ghat in the Western Ghats. Each fort in the area had its own water harvesting and Storage system in the form of rock cut cisterns, ponds, tanks and wells that are still in use today. A large number of forts like Raigad had tanks that supplied water. They harvested the rain drop directly. From rooftops, they collected water and stored it in tanks built in their courtyards. From open community lands, they collected the rain and stored it in artificial wells. They harvested monsoon runoff by capturing water from swollen streams during the monsoon season and stored it in various forms of water bodies. They harvested water from flooded rivers [3]. In Thar Desert traditional water harvesting methods are Kunds, Beris, Baoris , Jhalaras, Nadi, Talab, Tankas, Khadins, Anicuts , Bavadi, Virdas and Paar [3].

Kishangarh, Ajmer is a village and a Municipal Corporation in Ajmer district in the Indian of Kishangargh. Its popular full name is Madanganj-Kishangarh, Ajmer. It was built by the Rajgharanas and Maharajas of Jaipur and Kishangarh, Ajmer. It lies 18 miles north-west of Ajmer and 90 km far away from Jaipur. It is connected via Kishangarh, Ajmer Airport, Indian Railways' Kishangarh, Ajmer Railway Station and National Highway. It is the birthplace of the Kishangarh, Ajmer style of painting, which is known for the beautiful depiction of a courtesan known as Bani Thani. Earlier, It was known as the Village of Bani Thani Painting. In British Era, it was established as Power Loom, Tomato Mandi, Jeera Mandi but in recent years, Kishangarh, Ajmer has come to be known as the Marble village of India. It is purported to be the only place in the world with a temple of nine planets. It has heritage lake named as Gundolav Lake. Kishangarh, Ajmer Nepheline Syenite, located about 500 m after the bypass bifurcation of Kishangarh, Ajmer towards Jaipur on NH-8, has been notified as one of the National Geographical Monument of India [14]. Kishangarh, Ajmer economy mainly depends on the Marble trading. Kishangarh, Ajmer has more than 1,000 gangsaws, 5,000 edge cutting machines, around 25,000 godowns and more than 25,000 marble traders and it gives employment to around 1 lac people. The widest range of Indian, Italian and Makrana marble is on display in this area. It also has a

flourishing market for power-loom and ball mills sector. The desert of Kishangargh, which has being struggling with water scarvillage for long, now looks forward to address water crisis with campaigns focusing on rainwater conservation and promoting groundwater recharge by reviving old water structures. The Mukhya Mantri Jal Swavlamban Abhiyan launched in January this year emphasises on solutions for rising water scarvillage by reviving old water structures with public participation and providing water management techniques in the rural regions of the driest of the country [16]. A total of 21,000 villages of the are targeted to be benefited in a period of three years and over 3,000 villages have been identified on the basis of priority in the first year. Spread over 342 lakh hectares of land, out of which 60 per cent constitutes of the Thar desert, Kishangargh faces acute water shortage as it suffers from the lowest amount of precipitation in the country throughout the year. "The Abhiyan ensures effective implementation of water harvesting and conservation related activities in the rural regions of the ," Sriram Vedire, Chairman of the Kishangargh River Basin and Water Resources Planning Authority told .

II. DEPTH TO WATER LEVEL IN KISHANGARGH

Kishangarh, Ajmer is a village and a Municipal Corporation in Ajmer district in the Indian state of Rajasthan. Its popular full name is Madanganj-Kishangarh, Ajmer. It was built by the Rajgharanas and Maharajas of Jaipur and Kishangarh, Ajmer. It lies 18 miles north-west of Ajmer and 90 km far away from Jaipur. It is connected via Kishangarh, Ajmer Airport, Indian Railways' Kishangarh, Ajmer Railway Station and National Highway. It is the birthplace of the Kishangarh, Ajmer style of painting, which is known for the beautiful depiction of a courtesan known as Bani Thani. Earlier, It was known as the Village of Bani Thani Painting. In British Era, it was established as Power Loom, Tomato Mandi, Jeera Mandi but in recent years, Kishangarh, Ajmer has come to be known as the Marble village of India. It is purported to be the only place in the world with a temple of nine planets. It has heritage lake named as Gundolav Lake. Kishangarh, Ajmer Nepheline Syenite, located about 500 m after the bypass bifurcation of Kishangarh, Ajmer towards Jaipur on NH-8, has been notified as one of the National Geographical Monument of India [14]. Kishangarh, Ajmer economy mainly depends on the Marble trading. Kishangarh, Ajmer has more than 1,000 gangsaws, 5,000 edge cutting machines, around 25,000 godowns and more than 25,000 marble traders and it gives employment to around 1 lac people. The widest range of Indian, Italian and Makrana marble is on display in this area. It also has a flourishing market for power-loom and ball mills sector [15].

Kishangarh, **Ajmer** **किशनगढ़** **Madanganj-Kishangarh, Ajmer**	
village	
Nickname(s): Marble Village of India	
Kishangarh, Ajmer	
Coordinates: 26.57°N 74.87°ECoordinates: 26.57°N 74.87°E	
Country	India
State	Rajasthan
District	Ajmer
Government	
• **Type**	Rajasthan government
Area	
• **Total**	895.78 km^2 (345.86 sq mi)
Elevation	433 m (1,421 ft)
Population (census 2011)	
• **Total**	155,019
• **Rank**	13th in Rajasthan
• **Density**	170/km^2 (450/sq mi)
Languages - Marwari, Rajasthani, Hindi, English	
• **Official**	Hindi
Time zone	IST (UTC+5:30)
PIN	305801 , 305802
Telephone code	01463
ISO 3166 code	RJ-IN
Vehicle registration	RJ-01, RJ-42
Website	www.Kishangarh, Ajmer.com

III. OBSERATION

- Maximum families are joint families.
- Main source of drinking water is well and hand pump.
- Village people have to go 100 meters to collect drinking water.
- Main source of drinking water is hand pump and well.
- A long Queue can be seen on handpums of this village for the collection of drinking water of village.
- 10-15% people of village are interested for solution of water crisis.
- No action plan has been prepared for declining water table day by day.
- The village head team (Sarpanch) has not taken any action to solve the drinking water crisis.
- Population of village is 1550 the same Mundoti water crisis has been seen in adjoining villages.
- The depth of water table is 150 feet in this village.

- Rain water harvesting system has been recorded in 10-15 houses.
- In extreme Summer the main source of drinking water is boring water.
- In extreme summer the main source of irrigation is well crop.
- A massive crop loss has been recorded due to crisis of water.
- Government of Rajasthan gave compensations to farmers for crop damage.
- A severe loss in crop production has been noticed due to shortage of water.
- Desire related to tooth has been recorded after drinking of village water.
- Rain water harvesting facility available only in 10-15 houses.
- The literacy rate is 50- 70 % in this village.
- The percentage of forest is 20-30%.
- Rajasthan Government gave compensation for crop damage.
- The people of this village demand that facility of tap water is must.
- Lack of awareness seen in this village about- water crisis No agitation has been seen in this village for water crisis.
- 10-15 % people are involved fro solution of water crisis in this village The role of news paper is negligible in this regard. No action plan has been prepared to solve the water crisis till date.
- The forest cover of this village is 20-30% which is less according to standard percentage which is 33%.
- No action plan has been prepared for declining water table day by day in this village.
- The village head Team(Sarpanch) has not taken any action to solve the crisis.
- The depth of water table is 200 feet in this village.
- In extreme summer, the drinking water is supplied through tankers.
- Financial loss has been noticed due to shortage of irrigation water in this village.
- After drinking the water of well joint pain and yellowish teeth has been noticed.
- Due to extreme water crisis people Started boring in their house.
- In 40-50 houses boring water facility is available.
- After crop damage, Government of Rajasthan gave compensation to village people.
- In this village only 10-15 houses have facility of water conservation.
- In extreme hot season only well or pond (in few cases) water is only source used for irrigation.
- Only 50-60 families have their own well in this village less water crisis has been recorded is rainy season.

IV. WATER CRISIS PROBLEM IN KISHANGARH, AJMER DISTRICT AJMER (RAJASTHAN)

Satellite images and maps are prepared for a scientific approach and mobile application is used to monitor the progress of the campaign. Five departments of the government are working in synergy for the campaign, Vedire said. He said maps are drafted in Hindi to enable people to understand the planning. Vedire said the campaign is to make the free from drought and its impact will be visible in next three years. Under the campaign, villages are being made self reliant in water supply. The campaign is run by public participation and 3499 people have so far provided Rs 33,75,87,950 for it. Some of the efforts include harvesting available run off in rural area by treatment of catchment, utilization of available water and irrigation of lands through harvested water. Water harvesting and conservation works will be implemented from the funds available under departments, Non Government Organizations, Corporate Social Responsibility (CSR), Non Residents Villages Club (NRV Club) and other such organizations.

A drought is an extended period of months or years when a region observes pauvillage in its water supply. It may be due to significant decrease in precipitation over a specified area or marked depletion of available surface water and fall in the water tables. On an average, 28% of the geographical area of India is susceptible to drought. The drought is just not the scarvillage or absence of rainfall, but is more related to water resource management [8,9,6]. More than 60% deficient rain fall comes in the category of severe draught. It can have a substantial impact on the ecosystem and agriculture of the affected region [3 & 12]. Rajasthan is the largest state in India covering an area of 34.22 million hectare i.e. 10.5 % of the country‘s geographical area but sharing only 1.15 % of its water resources. The estimated per capita water availability in the state during 2001 was 840 m3 and is expected to be 439 m3 by the year 2050 against the national average of 1140 m3 by 2050. More than 70% of its people depend upon agricultural activities. Rajasthan experiences acute weather and consists of four distinctive seasons- Pre-monsoon, Monsoon, Post-monsoon and winter. The average temperature in winter ranges from 2° to 26° C and in peak summer the average temperature range from 28° to 48° C making the region arid and draught-prone [7]. Most of the area of the state (60-75%) is arid or semi arid. The conventional attitude to a drought as a phenomenon of arid and semi-arid areas is changing because even areas with high average rainfall often face acute water scarvillage. In the case of Rajasthan, there have been 52 drought years of varied intensity since 1901. At the village level, the number of drought-free years will be even less [5]. Therefore, every year some parts of Rajasthan are affected by drought. Despite this, the State considers drought as a transient phenomenon where short term relief measures are considered to be a solution. It is estimated that one year‘s relief fund may be sufficient to develop rain water harvesting structures to meet drinking water requirements in rural areas of western Rajasthan [11].

Coverage. Under the Rural Water Supply Programme, the State is giving top priority to cover all NC habitations to the current norm. Water supply is fully government funded, using resources from the State, the Central Government and ESAs. The State has also specific projects to address water quality problems, generally through the construction of piped water supply schemes.

Water quality problems

> 16% of habitations have excess fluorides

> 14% of habitation have excess salinity

> 15% of habitations have excess nitrates

Water quality. More than 15% of the protected water supply sources is supplying chemically polluted water. An even larger proportion of protected sources is supplying, at least part of the year, water which is bacteriologically contaminated.

Sustainability. The comparatively scarce fresh water resources of the State are not properly managed. Competing users over-exploit precious groundwater supplies. Widespread pollution is another threat to the fresh water stores. Long-term planning is sorely lacking. In this situation, the groundwater resources, which are the backbone of most of the rural water supply schemes, are increasingly under threat [6].

1. Making villages self-sufficient in water & creating "Islands of Excellence"
2. Four year program, each phase of one year
3. Launched across 295 Blocks of 33 districts
4. People's participation
5. Mobilizing financial resources from multiple sources- Line Departments, NGOS, Corporate houses, Religious Trusts,Nonresident Villages, Social groups etc.
6. Use of technology
7. Construction of low cost water harvesting structures on watershed approach

V. RESULTS AND DISCUSSION

1. The development of modern water-saving agriculture is at a critical period with the traditional technology upgrading intertwined with the high-tech development.
2. At the same time, emphasis on the traditional technology application and upgrading depend on high-technology.
3. Great attention should be paid to the research and exploitation of modern water saving technology, using information technology, biotechnology and other high-tech and new materials. Secondly, modern biology water-saving technology, an important direction for future water- saving agriculture development, is also a hotspot and emphasis for current research.
4. Water-saving irrigation technology, non-traditional water resources, exploitation technology, and dry-land water efficient technology are the keys to recent research of modern water-saving agriculture technology.
5. The main elements of its research should be focused to solving difficult problems of technology applications process, which is also an emphasis that we should strongly support and increase investment starting from now.
6. Technical system integration and demonstration is the key stage for technology into production application, but also a weak link of water- saving agricultural technology development in China.
7. To strengthen research and development of this work, it is conducive to transform technology and large-area applications; therefore it is also a current key research content that should be supported.

On the basis of the present study, following salient conclusions have been drawn:

1. Kishangarh Ajmer district has to live with drought. The experience indicates that the frequency and severity of drought is continuously increasing.
2. Bad experiences of 2002 and 2009 drought is an eye opening for the policy makers. It clearly indicates that droughts largely mean _water famines' than 'food famines'.
3. Poor water quality may cause severe epidemic during draught.
4. It is high time to make people aware for water uses and everyone has to realize the importance of single drop of water.
5. All water harvesting techniques used in the state shall be revamped again.
6. There has to be strong linkages between policy makers, users, agriculture scientists‘, public health and irrigation department. Now onwards, particular area has to be year marked for a particular crop depending upon the availability of water and water consumption.
7. Water saving measures should be made mandatory to reduce the pressure on water resources. This can be achieved by implementing economical technical measures without compromising in standard of living and life style of human beings.

Name of Village : Tilonia

- Population of the village is 2500.
- Maximum hours have hand pumps the whole village.
- The village people are working on some action plan which will be very effective to solve the water crisis is near future.
- Maximum awareness to solve the water crisis was seen in this village only.
- The ground water level is 300 meter.
- The village water is of two types, salty & sweet both.
- People of village demand to execute the “Jal swavlamban Yojana” immediately in their village.

Name of village: Didwara

- The Population of village is 2500.
- Maximum families in this village are joint families.
- Many families of this village dependent on hand pump and well.
- The village people face severe shortage of water .
- To solve the water crisis the participation of village people is only 10%.
- Due to lack of education the village people are less aware and least interested to solve this problem The literacy % is only 20%.
- The forest cone of this village only 20-30% which is very low.
- No future plan was formulated to solve the water crisis in this village.
- No efforts were done to solve this major problem by the top administrative level.
- Same water crisis was seen in adjoining villages.
- The depth of ground water is 220 feet.

Name of village:- Ralawta

- Population of the village is 3300.
- The main source of drinking water in village houses is hand pump.
- The village people want a permanent solution of water crisis.
- The wells are provided to village people for their daily need.
- The village people are less aware about a permanent solution of water crisis.
- The public participation regarding water crisis is zero.
- The role of news paper in solving the problems related to water is zero.

- The literacy percentage of this village is 50% .
- The depth of ground water is 300 meter.

Name of village: Mundoti
(Tehsil Kishangargh of the village)

- Maximum families are joint families.
- Main source of drinking water is well and hand pump.
- Village people have to go 100 meters to collect drinking water.
- Main source of drinking water is hand pump and well.
- A long Queue can be seen on handpums of this village for the collection of drinking water of village.
- 10-15% people of village are interested for solution of water crisis.
- No action plan has been prepared for declining water table day by day.
- The village head team (Sarpanch) has not taken any action to solve the drinking water crisis.
- Population of village is 1550 the same Mundoti water crisis has been seen in adjoining villages.
- The depth of water table is 150 feet in this village.

Name of village: Bandar sindri (Kishangargh)
In village Bandar sindri Population=4000
Maximum families are joint- families main source of drinking water is well. The village people go at least- 50 meters to collect drinking water.

- The people of this village demand that facility of tap water is must.
- Lack of awareness seen in this village about- water crisis No agitation has been seen in this village for water crisis.
- 10-15 % people are involved fro solution of water crisis in this village The role of news paper is negligible in this regard. No action plan has been prepared to solve the water crisis till date.
- The forest cover of this village is 20-30% which is less according to standard percentage which is 33%.
- No action plan has been prepared for declining water table day by day in this village.
- The village head Team(Sarpanch) has not taken any action to solve the crisis.

Name of village : Kakniyavas

- Population of village is 1200.
- Maximum families of this village are joint families.
- Village people go 50 meters to collect water.
- Main source of drinking water are well and hand pump.
- Main source of irrigation is well.
- Major problem of village people is to collect water in a very long queue.
- People of this village are less interested to solve the crisis of water.
- The literacy rate is approximately 50-70% but the village people are less aware about this way or problem.
- The role of media (print /electronic) is negligible to solve the crisis of water.
- The average forest water is approximately 20%.
- Maximum people or the village demand tap water in their houses.

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