

# Mapping Of Water Crisis in Kishangargh Area of Rajasthan with Special Reference to the Rain Water Harvesting Management through Social Campaign and Traditional Technique

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**Abstract :** In this paper we are presenting a Mapping of Water Crisis in Kishangargh Area of Kishangargh with Special Reference to the Rain Water Harvesting Management through Social Campaign and Traditional Technique. 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. Nearly 17000 out of the total 44672 villages are facing water crisis and transportation of water through rail in Bhilwara and by tankers in other areas has already started by the public health and engineering department. 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.

**IndexTerms – Campaign, Traditional Technique, Management, Harvesting, Area.**

## I. INTRODUCTION

Kishangargh, Ajmer is a village and a Municipal Corporation in Ajmer district in the Indian of Kishangargh. Its popular full name is Madanganj-Kishangargh, Ajmer. It was built by the Rajgharanas and Maharajas of Jaipur and Kishangargh, Ajmer. It lies 18 miles north-west of Ajmer and 90 km far away from Jaipur. It is connected via Kishangargh, Ajmer Airport, Indian Railways' Kishangargh, Ajmer Railway Station and National Highway. It is the birthplace of the Kishangargh, 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, Kishangargh, 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. Kishangargh, Ajmer Nepheline Syenite, located about 500 m after the bypass bifurcation of Kishangargh, Ajmer towards Jaipur on NH-8, has been notified as one of the National Geographical Monument of India [14]. Kishangargh, Ajmer economy mainly depends on the Marble trading. Kishangargh, 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 .

Rainwater harvesting is most suitable where Groundwater is scarce, Groundwater is contaminated, Terrain is rugged or mountainous, seismic and flooding events are common. The aquifer is at risk of saltwater intrusion, population density is low, electrivillage and water prices are rising, water is too hard or mineral laden, consumers must restrict salt and chlorine intake, where utility service is unreliable and conservation is an objective. Water conservation and harvesting have been practiced in India and other parts of world. Rajasthan is famous for its traditional water conservation and harvesting practices in Kunds, Pokhar, Talab, Johad, Khet Talab, Nadi, Khadins, Anicuts, Bavadi and Bandha. Madhya Pradesh the Pat Bandhna is an age old practice adopted by tribal families. Chandela tanks are good example of water conservation and harvesting, constructed by the Chandelas rulers. The dominant structure was the johad, a crescent shaped dam of earth and rocks, built to intercept rainfall runoff. A johad served two functions. On the surface, it held water for livestock. But like an iceberg, its most important parts were below the surface. By holding water in place, it allowed the liquid to percolate down through the soil. It recharged the aquifer below, as far as a kilometre away. Stored underground, the water could not be lost to evaporation.

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].

## II. KISHANGARGH ATTEMPTS TO RESOLVE WATER SCAR VILLAGE THROUGH CAMPAIGNS

The desert of Kishangargh, which has been struggling with water scarcity 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 scarcity 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 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. He said the first phase of the campaign is completing on June 30 and its result will be noticeable after monsoon [7]. 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 [8]. 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 runoff 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. [9]

## III. FEATURES OF THE SOCIAL CAMPAIGN

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

## IV. KISHANGARGH WATER SUPPLY PROGRAMME

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].

## IV. WATER CRISIS DURING DROUGHT IN KISHANGARH, AJMER DISTRICT AJMER (RAJASTHAN)

A drought is an extended period of months or years when a region observes paucity 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 scarcity 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 drought. 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 m<sup>3</sup> and is expected to be 439 m<sup>3</sup> by the year 2050 against the national average of 1140 m<sup>3</sup> 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 drought-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 scarcity. 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].

#### IV. RESULTS AND DISCUSSION

Name of village: Mundoti

(Tehsil Kishangarh 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 handpumps 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 ( Kishangarh)

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 for 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.

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 cover 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.

#### REFERENCES

- [1] Amin S, Sadeghi JM, Salimi Manshadi MA 2004. Economic feasibility of saving water through controlling outflow of ghanats. *Irrig. Drain. Syst.* 18: 145-154
- [2] Rural Water Conservancy Division of Water Resources Ministry 2001. Looking back to Ninth Five-Year Plan of water-saving irrigation. Beijing, China: China Water-power Press
- [3] Jing RL, Li Y 2004. Biological water-saving development strategy for China. *Essays of Water-saving Agriculture.*
- [4] Sharma E, Rai S C, Sharma R. 2001. Soil, water and nutrient conservation in mountain farming systems: A case study from Sikkim Himalaya. *Journal of Environmental Management* 61(2):123–135.um in China5.
- [5] Mishra PK, Rai SC.2013. Use of indigenous soil and water conservation practices among farmers in Sikkim Himalaya. *Indian Journal of Traditional Knowledge*12(3):454–464.
- [6] Dr. Jagdish Prasad , Dr. D.G.M. Purohit, Dr. Sunil Sharma, Dr.N.K.Ameta 2017. Rain Water Harvesting”, (IRJET) Volume: 04 Issue: 12
- [7] Rain Water Harvesting Through Tanka in Western Rajasthan 2017. *International Research Journal of Engineering and Technology (IRJET) Volume: 04 Issue: 1*
- [8] www.irjet.net
- [9] Goyal RK and Sharma AK. 2000. Farm Pond: A well of wealth for the dry land dwellers. *Intensive Agriculture, Vol. XXXVIII (July- August 2000), No. 5-6 pp. 12-14 & 26.*
- [10] Goyal RK, Ojasvi PR and Bhati TK. 1995. Economic Evaluation of Water Harvesting Pond under Arid conditions. *Indian Journal of Soil Conservation* 23(1): 74-76.
- [11] Khan and Venkateswarlu J. .1993. Rainwater harvesting for increasing water availability in arid Rajasthan. *Journal of Institution of Engineers, 6: 18-26.*
- [12] Narain P and Goyal RK. 2005. Rainwater Harvesting for Increasing Water Productivity in arid zones. *Journal of Water Management Vol.13 (2): 132-136*
- [13] Narain P and Goyal RK. (2005) Rainwater Harvesting for Increasing Water Productivity in arid zones. *Journal of Water Management Vol.13 (2): 132-136.*
- [14] Agarwal, A. and Narain, S. (eds) 2005. *Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems* Centre for Science and Environment. New Delhi, India.
- [15] United Nations / World Water Assessment Program. (UN / WWAP) 2003. 'UN World Water Development Report Water for People, Water for Life', Paris, New York and Oxford, UNESCO.
- [16] Grey, N.R. and Sharma, O.P. 2005. Traditional rainwater harvesting technologies: key to drinking water security for desert communities in arid regions of India'.
- [17] Prasad Jagdish, Purohit D.G.M. 2017. The Permeability Influence of Dune Sand Mixed with Bentonite, *IRJET volume 4 issue 10*