A study of rainwater harvesting management through mapping of water crisis and social campaign in Ajmer district of Rajasthan

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ABSTRACT

The Ajmer region has been a center of attraction for foreign tourists whose numbers have been steadily increasing over the last few years which is very important for the regional development of Ajmer. The regional plan will depend on agriculture and employment. Water crisis is a major problem in this region as water crisis is becoming increasingly serious, there is a need for improved water management system. This paper attempts to combine different systems of rainwater harvesting and collection and filtering systems. Rainwater harvesting is a simple and low cost technique that is used for drinking as well as household use of people. We believe that every drop of freshwater that falls to the ground must be exploited for use, especially in developing areas. Instead of wasting water flowing from roofs and along roads, we combine traditional harvesting practices with new technologies to make water accessible, clean and safe to drink. In this paper we are studying in rainwater harvesting management through mapping of water crisis and social campaign in Ajmer district of Rajasthan. The depth of water level is 150 feet in these villages. Rain water harvesting system has been recorded in 10-15 houses. This study was conducted in four villages of Ajmer, Rajasthan.

Keywords: Ajmer, Region, Rain water harvesting, Depth, Water level, Water crisis etc.

Introduction

Rainwater harvesting is a simple process in which rainwater is collected and stored for regular use. Rainwater harvesting is done directly or indirectly, through other water sources, either naturally or artificially. RWH is an age-old practice of collecting rainwater from the roof of a building and filling it in large tanks. It is useful for all purposes except drinking water; However, it can also be treated as potable standards.

Broadly, there are two main techniques of rainwater harvesting (1) rainwater harvesting on the surface (2) groundwater recharge

Structures used include underground tanks, ponds, check dams, wears, etc., that receive direct rainfall. Pavements, roads and roofs. However, they have an ideal ceiling for catchments, as a larger coefficient is produced from it and water contamination is also lower than the other two alternatives.[1]

The excess rainwater runoff into the subsurface through an infiltration system is called 'artificial groundwater recharge'. In the floor area, the recharge of water will be about 1 L / m^2, where in the pavement area i.e. through pavers with gaps, it will be about 10 L / m^2. Another estimate states that when a pavement has a width of 3 meters, 3,00,000 L of rainwater flows for 1 mile, if the width of the pavement is plate 2 then the flow of rain water will be greater .[1]

The "group sourcing" effort plans to empower more than 21,000 towns in bone-dry Rajasthan to end up confident for their water needs by 2020. The lead program has been advanced by the main priest by and by, with supported interests to different areas of the general public, including residents, NGOs, corporate, station and religious pioneers and the media, to add to it. Requiring a financial plan of Rs 3,600 crore for the main period of the crusade, finishing June 30, 2016, the program has been evaluated to miss the mark by Rs 1,200 crore. Rajasthan has the nation's 10 for every penny arrive mass however just 1.1 for each penny surface water making it totally reliant on ground water which is quick draining.

Ajmer, Rajasthan: The desert territory of Rajasthan is sinking further into a water emergency as the late spring tops. 13,500 towns don't approach safe drinking water, surviving exclusively helpless before water tankers sent by the administration.

Objectives of this study

1. To identify the water crisis area of Ajmer district in villages.
2. To motivate the people of Rajasthan Specially Ajmer district villages for Rainwater harvesting in their house
3. To find out the water crisis facing by the people of Ajmer district villages by Questionnaire
4. Aware the people of Ajmer district villages to rejuvenate the traditional method of water conservation through social campaign
5. Tell the people of Ajmer district villages about traditional techniques of water conservation used in ancient time and execute them in their village

Literature Review

According to **Thakur, A.K. furthermore, Kumar, S., (2009)** "In the accident that Gandhi were animate today, what ability he do?" says Singh. "Rather than utilizing the khadi as the image, he would accomplish johads, in ablaze of the actuality that today the greatest abusage is underground baptize mining and the commercialization of water.".

Abhijeet Keskar1Satish Taji 2016 Multiply Gopalpura by 750 towns, and you can envision the intensity of an EcoTipping Point. As guests conveyed the news home, different towns developed their own johads.

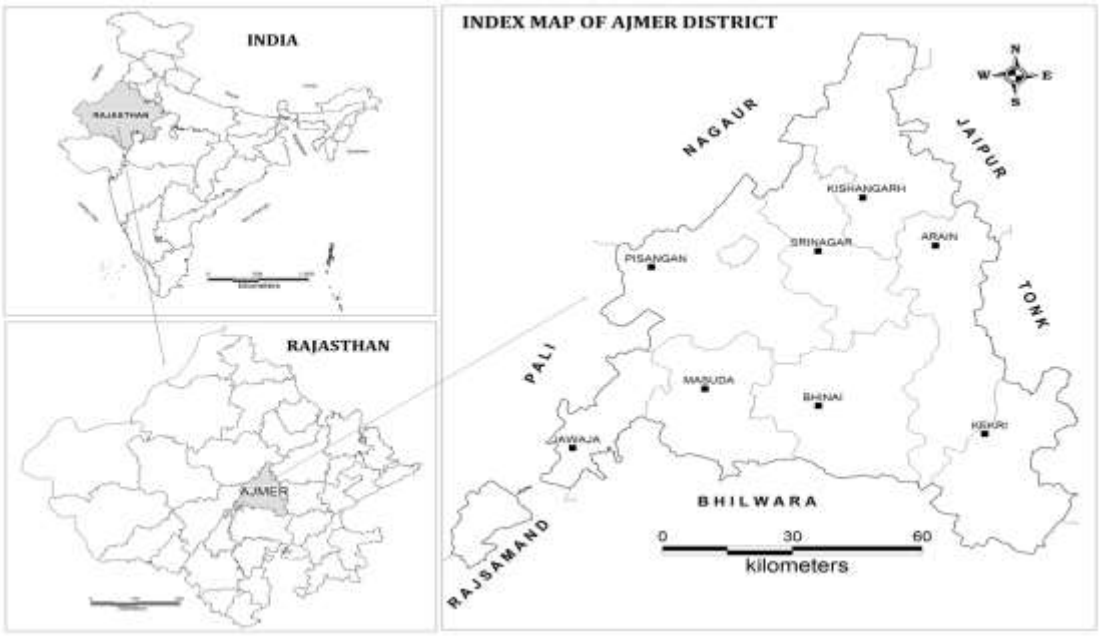
Speich, B., Croll, D., Fürst, T., Utzinger, J. & Keiser, J. (2015). Rajasthan has the nation's 10 for every penny arrive mass yet just 1.1 for every penny surface water making it totally subject to ground water which is quick exhausting. What's more regrettable just 10 for each penny of wells have water that is alright to drink and 88 percent of Rajasthan water is saline, 55 for each penny has high fluoride.

Joshi, K.N. (2011) As recently as 20011, the state ordered TBS members to destroy a dam at Lava Ka Baas village or face arrest. The residents, however, would not let the bulldozers near. For two months, they held a vigil over the structure, night and day. In the end, the authorities backed down.

Jyotiba B.Gurav and D.G. Regulwar (2013) The Arvari struggle was not a segregated issue. As Villages made new assets, they some of the time mixed up a similar social powers that had pillaged their old ones. However, this time around, their town committees did not fall into disunity.

Study Area

The Ajmer locale covering geological region of 8,481 sq.km. is arranged between 250 38' and 260 58' North Latitude and 730 54' and 750 22' East Longitude and involves 2.48% of the aggregate territory of state (Figure 1). The name of Ajmer is gotten from "Ajaymeru" which implies the invulnerable slope. It is sub-separated into 4 sub-divisions specifically Ajmer, Beawar, Kekri and Ajmer, Ajmer and includes 6 tehsils and 8 squares. The aggregate number of towns in the locale is 1,111 and add up to populace is 25,84,913 including sex proportion of 950 females for every 1000 of guys (Census 2011 information). The decennial populace development rate of the locale is 18.66% (2001-2011). The region is extensively triangular fit as a fiddle and is by and large a plain zone sprinkled with low slopes of Aravalli ranges. The Aravalli slope ranges run parallel to each other generally in NE-SW bearing offering ascend to lengthened valleys and separation fields of Marwar from the high lifted place where there is Mewar. The base height of 301 m amsl is found in Kekri square while most noteworthy rise of 870 m amsl is seen in Pisangan square. Sand hills and bunch of sand hills cover a vast piece of the Sarsuti valley and territory around Picholian and Pushkar valley. These highlights are generally framed because of sudden end of a slope range or presence of twist holes in the slopes.



The monsoon season is short from July to August and the average rainfall ranges from 400–600 mm. There is occasional rainfall during January and February. Fresh water is very precious but it is in very limited quantity so it should be preserved and conserved.

Material and Method

1. Find the problem of study area of Ajmer district villages through questionnaire, interview and visit the place of study
2. Photography of water crisis area in Ajmer district villages.
3. Mapping of water crisis in Ajmer district villages area of Rajasthan with special reference to the rain water harvesting management through social campaign and traditional techniques
4. Find out the traditional method of water conservation in study area of Ajmer district villages
5. Aware the people affected by water crisis in Ajmer district villages by N.S.S, College students and administration.

Proposed Methods of Rain Water Harvesting in Ajmer

The yearly per capita accessibility of water in the describe a much underneath edge estimation of 1700 m considered for water pressure condition. The normal yearly precipitation of he western bone-dry locale is 317 mm and that of rest of eastern Rajasthan is 680 mm with by and large normal precipitation of 554 mm for the state. The coefficient of variety of precipitation changes between 45 to 56%. Water reaping is an antiquated practice and has been polished for over 4000 years in numerous parts of the world. Water gathering is accumulation and capacity of rain from overflow regions, for example, rooftops and different surfaces is has important in regions lacking and sort of customary, incorporated government supply framework, and furthermore great quality crisp surface water or ground water is deficient. In the event that the gathering and capacity are painstakingly planned, it is not enough for a family living in the region with scanty rainfall every year.

Need for Rainwater Harvesting

1. As water is winding up rare, it is simply the need of the day to accomplish independence to satisfy the water needs.
2. As urban water supply framework is under enormous weight for providing water to regularly expanding populace.
3. Groundwater is getting exhausted and contaminated.
4. Soil disintegration coming about because of the unchecked spillover and
5. Wellbeing risks because of utilization of contaminated water.

Traditional Rain Water Harvesting System

Many water reaping structures and water transport frameworks, particular to the diverse societies, were produced. The Indus Valley Civilization, that prospered along the banks of the waterway Indus and different parts of western and northern India around 4500 years back, had a standout amongst the most complex urban water supply and sewage frameworks on the planet. The way that the general population were very much familiar with cleanliness can

be seen from the secured channels running underneath the lanes of the remains at both Mohenjo-Daro and Harappa. The very much arranged town of Dholaviras, on Khadir Bet, a low level in the Rann in Gujarat. One of the most seasoned water collecting frameworks is found around 130 km from Pune along Nane Ghat in the Western Ghats. Each fortress in the region had its own water gathering and Storage framework as shake cut reservoirs, lakes, tanks and wells that are still being used today. Countless like Raigad had tanks that provided water. They gathered the rain drop specifically. From housetops, they gathered water and put away it in tanks worked in their patios. From open network lands, they gathered the rain and put away it in fake wells. They gathered rainstorm overflow by catching water from swollen streams amid the storm season and put away it in different types of water bodies. They gathered water from overwhelmed waterways. In Thar Desert conventional water collecting strategies are Kunds, Beris, Baoris , Jhalaras, Nadi, Talab, Tankas, Khadins, Anicuts , Bavadi, Virdas and Paar.

Modern Rain Water Harvesting System

There are two primary strategies of rain water reaping:

1. Capacity of rain water on surface for sometime later.
2. Energize to ground water.

Current Rain Water Harvesting framework are-

Pits: Recharge pits are developed for energizing the shallow aquifer.

Trenches: These are congenital if the absorptive agitate is attainable at bank profundity. Trench ability be 0.6 to 1 m wide, 1 to 1.6 m abstruse and 10 to 20 m continued accidental on the accessibility of water. These are inlayed with approach abstracts.

Hand pumps: The accepted duke pumps ability be activated for animating the bank and abstruse Aquifers, if the accessibility of baptize is restricted. Baptize should go through approach media to abjure from chocking of animate wells.

Burrowed wells: Existing burrowed wells ability be acclimated as animate anatomy and baptize should go through approach media afore putting into burrowed well.

Aquifer: The aquifer is porous, baptize blood-soaked layers of sand, bedrock or bed agitate that can crop analytical or accessible admeasurement of water. These are congenital 1 to 2m wide, 1 to 1.8 m abstruse which are refilled with rocks, bedrock and base beach.

Energize wells: Recharge wells of 100 to 300 mm beyond are for the a lot of allotment developed for animating the added abstruse aquifers and baptize is gone through approach media to abjure from airless of animate wells.

Energize Shafts: For animating the bank aquifer which is anchored beneath clayey surface, animate shafts of 0.5 to 3 m ambit beyond and 10 to 25 m abstruse are congenital and refilled with rocks, bedrock and base beach.

Sidelong shafts with bore wells: For animating the high and in accession added abstruse aquifers accumbent shafts of 1.5 to 2 m advanced and 10 to 30 m continued accidental on accessibility of baptize with maybe a brace bore wells is built. The aberrant shaft is refilled with rocks, bedrock and base beach.

Water Tanka-A Tanka is a barrel shaped underground water stockpiling reservoir wherein water from housetops, a patio or common or misleadingly arranged catchment streams into the cleared underground pit, through separated bays made on the outer mass of the structure, where it is put away and can be utilized by one family amid the dry season. Once completely filled, the water is adequate for a group of 4-5 individuals for a time of 5– 6 months, and spares it from consistently water-bringing drudgery.

Technique for Increase Runoff from Catchments

To a specific degree for higher overflow age, Catchment qualities can be changed. The degree of change relies upon the speculation accessible and the normal utilization of overflow water. Where no wellspring of water exists and in region with detachment of other water sources, higher starting speculation is supported on long terms.

1. Soils smoothing and compaction helps expanding overflow from the catchment zones. Achievement is for the most part more noteworthy on topsoil or earth soil soils.
2. Care must be taken to diminish the slant as well as the length of the incline to decrease overflow velovillage and along these lines lessening spillover.
3. Less measures of sodium salts especially NaCl, $NaHCO_3$ connected to abandon soils where vegetation has been evacuated causes scattering of the surface soil, decreasing invasion and expands spillover. In any case, this sort of treatment requires a base measure of growing dirts in the dirt.
4. Evacuation of rocks, stones and ineffective vegetation from the catchment helps in continuous stream, improves overflow to accumulation site. Land forming into streets and accumulation of water in channels.
5. Sandy soils have low water holding capavillage. Spreading of dirt cover to the ridge soil surface lessens the penetrability and therefore quickens overflow.

6. Synthetic medications like wax, black-top, bitumen and bentonite forestall descending development of water, which increases overflow.
7. Hill sand of catchment zone to be balanced out by Cement, Lime, Gypsum and Stone hull, which lessen porousness of ridge sand and spillover, can be expanded.

Observations

1. Name of village: Ajaysar

In village Ajaysar Population=2,790

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.
- 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.

2. Name of village: Akhri

- Population of village is 995.
- 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.
- There is no permanent solution of water crisis among the people of village.
- The team of village heed (Sarpanch) are less interested to solve this problem.
- Same water crisis was recorded in adjoining village.
- The farmers of this village use wells (Whole year) for irrigation.
- In hot summer the main source of drinking water supply is tanker.
- In summer main source of irrigation are well pond & boring well.
- The depth of water table is approximately 200 feet.
- Rain water harvesting system was found only in 10-15 houses.
- Crop production has been adversely affected by shortage of water.
- Many people of the village were adversely affected by drinking the village water Hair related problem was commanly noticed.

3. Name of village: Amba Maseena

- Population of the village is 2677.
- 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.

4. Name of village: Aradka

- The Population of village is 2,133.
- 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.
- Rain water harvesting system in houses was totally lacking in this village.
- The boring water facility was found only in 5-10 houses.
- In hot summer the main mode of drinking water in agriculture field is well water.
- Many cases of joint pains were observed by drinking water village.
- In rainy season the water crisis decreases.
- The people of the village do not take interest to solve the water crisis.

Result and Discussion

Mukhyamantri Jal Swavlamban Abhiyan (MJSA)

Mukhyamantri Jal Swavlamban Abhiyan (MJSA) scheme started in Rajasthan between January and June 30th 2016 total 3529 villages were benefitted by this scheme.

The aim of MJSA scheme are

1. To recharge the well water
2. To increase the crop yield
3. To stop soil erosion
4. To create a better environment by proper use of barren land.
5. To Grow folder on waste land
6. To increase the water table in dark zone.

The benefit of MJSA scheme

The many village of Ajmer got benefitted by MJSA scheme. The water level of many wells increased . Water following from 20 hectare area collected in watershed infrastructure. This water can be used for 6-8 months for cattle/ Animals under MJSA scheme S.No. 16/2.2.16. Sanctioned amount Rs. 1.50, Amount used 1.50 Lac, Phase I

Village: Ajaysar

Nadi was constructed to collect the rain water. After construction of Nadi well water increased in 12 wells. The crop yield was also increased.

- In rainy session the extra water following on 25 hectare land was collected in ponds/Nadi. After the water level was increased upto 4-5 feet.
- Many small device were constructed to slow the speed of following water.
  After that the soil erosion was totally stopped.
- The moist soil is helpful in growing grass, plants, trees, By this process the environment of this area improves.
- Water availability increase for for 6-8, which is used as drinking water for animals/Cattle

Contour Trenches

Under MJSA scheme, Phase II, Village Mohanpura, Panchayat simiti Ajmer The contour trenches were made to check the speed of following water coming from mountains.

The benefits of contour trenches:

- Slow down the speedily following water coming from mountains.
- Helpful in recharging the underground water
- It helps to increase the water level wells. It increase the crop production
- Contour trench collects the soils following from mountains

Construction of Nadi

Name of Village: Akhri

Nadi was constructed Akhri village under MJSA scheme. Village people were benefitted by this construction in following way.

1. 12 wells near by Akhri village recharged after construction of Nadi.
2. After construction of Nadi, drinking water for animals/Cattle is available for 6-8 Months.
3. Moisture retains in soil for along time after construction of Nadi. Which helps to grow grass, herbs, shrub and trees resulted in betterment of environment.
4. Extra following water from 25 hectore land has been stoped which helps to increase in the water level by 4-5 feet that area.

Construction of contour Trench

Name of Village: Amba Maseena

Contour trench was constructed under MJSA scheme II phase on waste land and empty land.

Benefits of MJSA scheme

1. The water following speedily from mountains will flow slowly. This lowers the risk of soil erosion.
2. The contour trench will act as barrier for following water. This will result increasing the water level of that area.
3. Increased water level of soil will increase the water level of well. This will be helpful in increased crop production.
4. The fertile soil of hills will be collected in contour trench. If plantation is done an contour trench, the percentage of tree cover on hills will be increased. It will be helpful in maintaining the balance of environment.

Name of Village: Aradka

Construction of MPT under MJSA scheme II phase

In Village Aradka , MPT was constructed under MJSA scheme II phase in pasture land.

Benefits by this scheme

1. Rain water will come in constructed MPT through 25 hectare land.

It will recharge 5-10 wells and increase the water level of village. The village people hope that besides fodder, animals will get sufficient drinking water.

Construction of Babayacha

Name of Village: Babayacha

Scheme: MJSA Phase II

Proposed benefits by this construction

1. The water following from mountain area will stop the water and increase the water level of that area.
2. This will create moisture in soil for Rabi crop. It will be resulted in crop production
3. This will decreased the speed of following water which is responsible for soil erosion. By this method the fertile soil loss will be totally stopped.
4. This will increase the social and economic status of farmer

Desilting of Anicut and construction of Pal

Name of Village: Badiya Ka Bala

Benefits

1. After desilting of anicut and construction of pal the village people of Badiya Ka Bala village were benefitted by following way.
2. The water level of 12 nearby village of Badiya Ka Bala increased. Crop production also increased by this method.
3. Extra or free flowing water from waste land was collected in anicut, which resulted in increasing water level of Badiya Ka Bala village.
4. By desilting the anicut the depth was increased and sufficient water was collected in rainy season. By this method the water level of 20-25 wells increased and ultimately farmers of Badiya Ka Bala were benefitted.
5. Crop production increased by this method.
6. Water scarcity in this area decreased.
7. Same farmers financially benefitted.

Name of Village: Badlya

Panchayat Samiti: Ajmer

Construction of Farm Pond under MJSA scheme Phase I

Benefits:

By construction of farm pond, farmers were benefitted. Water collected in farm pond was used for irrigation of crop. Crop yield was increased by this method. Some farmers were economically benefitted and they grew verity of crops in same time.

We Suggested village people and village administrative head that they should take help from N.S.S volunteers adopt a village every year to educate village people and aware them about rain water harvesting, water scarcity and water management. We suggested people of 20 village of Ajmer through questionnaire and interview methods.

Conclusion and Future Scope

The result of this case study shows that

The village people of Ajmer are facing acute water scarcity. The main source of irrigation and drinking water is well and handpumps. The village people get minimum help from top administrative level. In extreme summer the water is supplied through tankers. Among 20 villages only few village families having rain water harvesting System. Village people go a long distance daily to collect water. Very few houses have boring well facility in whole village Literacy rate is low, which is a main reason of lack of awareness. Forest Cover is very low in comparison to standard forest cover 33%. Canals are totally absent in the village. Crop production decreased/destroyed every year due to scarcity of water. Youth of village don't take interest to solve the water crisis of the village. Some villages are benefitted under MJSA scheme of Rajasthan government The village people don't discuss their problems with authorities of watershed department More or less problems of the entire villages of Ajmer are almost the same. No action plan has been prepared by the village people for complete solution of water crisis. The main reason of this problem is low literacy rate and lack of awareness. From government level, many facilities are provided to village people regarding water crisis. Besides this, many schemes were launched by state government, but village people don't show any interest in these schemes. In hot summer, the source of drinking water and irrigation is well and handpumps. People of village are not interested to restore the ancient historical place where rain water harvesting was done through Bavaris, Tankas, Nadi, Talab, Jhohad, Panam Keni etc. A very few village were benefitted through MJSA scheme because youth of village don't take interest to solve the water crisis.

Recommendations

Rain water harvesting management through social campaign and traditional techniques Rajasthan is a dry state. The rainfall in the state is decreasing day by day. The only way to solve this problem is "Rain water harvesting management" The suggestions which can change the scenario of Ajmer regarding complete remedy of water crisis are:

1. The new township plan should be approved only when rain water harvesting provision should be incorporated in it.
2. Complete execution of MJSA scheme in the village Ajmer (Rajasthan)
3. Take the help of NSS volunteers to aware the village people of Ajmer by showing them slides of ancient traditional methods of water conservation and execute them in villages of Ajmer.
4. The target of Mukhyamantri Jal Swavalamban Abhiyan (MJSA) in 3500 villages in the state touted to be the country is largest water conversation campaign in rural area. The crowd sourcing campaign aims to enable over 21000 villages in arid Rajasthan to become self reliant for their water needs by 2020.
5. If MJSA scheme is completely executed in the villages of Ajmer, it would be a great achievement for us. We should execute the MJSA scheme in all the villages of Rajasthan.
6. Afforestation should be promoted from top administrative level to grass root level. This would be helpful in retaining moisture in the soil for a long time. Besides this the soil erosion will be stopped. Moisture of the soil helps in growth herbs, shrubs and trees.
7. In every village of Ajmer Bavaris, Nadi, Well, Taanka, Johad should be constructed for rain water harvesting.
8. Every people of the village should be educated and aware. This can be achieved by execution of " Sarva Sikhsa Abhiyan". Students of college and N.S.S volunteers can play a key role in this regards.
9. Only educated and aware citizen can solve the problems of the society. For successful execution of MJSA scheme, Youth of the Rajasthan should be involved in it. The MJSA and other schemes of government for well being of the society should be taught in colleges in compulsory paper of environmental studies. For practical knowledge students should go to fields where government schemes are executed.

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Plate 1

Pond Ajaysar village

Dry Well Akhri Village

Dry Hand Pump Amba Maseena Village

Dry Pond Aradka Village

Plate 2

Model of Ground water recharge pit, RWH Theme Park

Questionnaires

Question 1. In which area of Ajmer do you live?
Question 2. Your family is joint or single
Question 3. What is the source of drinking water in your house?
a) tap b) well c) hand pump d) boring
Question 4. How far do you have to go to get water?
Question 5. There are stepwells or wells in your area
Question 6. What problems do you face mainly for drinking water?
Question 7. Are the waters in your area sweet or salty?
Question 8. What facility do you want from the government to solve the water problem in your area?
Question 9. How much awareness among people is there to solve the water problem in your area?
a) not at all b) little c) more d) too much
Question 10. People of your area have done some life agitation for water problem solution
Question 11. You are a contributor to the solution of water problem in the area or village.
a) zero b) 10-15% c) 20-25% d) 50-45%
Question 12. The role of newspapers in solving the water problem of your village
a) negligible b) 15–20% c) 30–50% d) 40–65%
Question 13. Literacy percentage in your village is
a) 10-15% b) 20- 60% c) 50- 60% d) None of the above
Question 14. The percentage of forest in your village is
a) 5 - 10% b) 20 - 30% c) 60 - 50% d) 50 - 60%
Question 15. Has any plan been made in your village to deal with the decreasing groundwater level day by day
a) yes b) no
Question 16. Does your village have water problems even during rainy days?
Question 17. Sarpancho has taken any step to solve the water problem in your village.
Question 18. Are there such water problems in the villages adjacent to your village?
Question 19. Have the people of your village prepared any action plan to deal with the horrific panic?
Question 20. What are the means of irrigation throughout the year in your village?
a) well b) canal c) hand pump d) pond
Question 21. Severe heat is the arrangement of supplying water from tankers in your village.
a) yes b) no
Question 22. What are the depth of underground water level in your village
Question 23. How many houses are there in your village?
Question 24. How many houses in your village have boring water system?
Question 25. How many houses are there in your village to conserve rainwater?
a) not in any house b) in 10-15 houses c) in 20-25 houses d) in 30-40 houses
Question 26. In the scorching heat, the fields in your village are irrigated.
a) wells b) canals c) ponds / boring d) none of these
Question 28. In the scorching heat, the main sources of drinking water in fields are in your village.
a) well b) tap water c) boring water d) none of these
Question 29. Due to lack of water in the fields in your village, crops have been damaged.
Question 30. If there is loss of crops due to lack of water, is that loss made up?