Water Conservation Techniques in Rural India

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WOMEN for INDIA

❖ Content

❖ Abstract

Water management is a way of facilitating better use of water to reduce energy consumption. Water conservation is important because fresh clean water is not only a scarce resource, it is also expensive. Approximately 83 percent of the groundwater available is used in India for agriculture. The country's rainfall has not only been unevenly distributed but has also been unevenly distributed over the course of the year in relation to the temporary distribution of water. The primary source of freshwater is rainfall, it should be collected when it falls and wherever it falls, the reasoning behind conserving water. Water conservation has become a need of the day. The ancient biblical texts and epics give the water management and storage systems of that time a clear perspective.

The government had to send hundreds of tankers during the drought to supply water to villages Despite being a populated country with varied geography and environment, India has no comprehensive water policy.

Water conservation Water management is an extremely valuable activity for village residents. The government began improving rural water supply in 1972, and the problem was declared a national priority in the mid-1980s. Existing village-level water management practices offer a great example of a combination of tradition and science. As a result of this discovery, the size and wealth of the Indus civilization increased which eventually led to more organized sewerage and drainage settlements. Water management is the most effective and environmentally friendly way to combat global warming. A drive toward conserving water is a step to protect the future.

Keywords : water | management | fresh | conservation | supply | conserving | falls | distributed | unevenly | rainfall |

❖ Introduction

Water management is the method of allowing effective use of water to reduce use of energy . Water conservation is critical, as fresh clean water is not only a scarce resource but also a costly one. The circle of life uses the circle of water. The ancient religious texts and epics give a good perspective into the water storage and storage frameworks of the period.
Over the years, rising populations, growing industrialization and, expanding agriculture have enhanced the demand for water. Efforts have been made to collect water by building irrigation systems and digging wells; some countries have also tried to recycle and desalination (remove salts) of water. The conservation of water has become a necessity of the day. In many cities, the idea of recharging groundwater by harvesting rainwater is becoming increasingly important. Water sweeps through the forests gently as vegetation disintegrates. Also, it feeds wells, lakes, and rivers. This groundwater, Forest conservation requires the safeguarding of catchment resources. In ancient India, forests were assumed to be the 'mother of rivers' and worshiped the sources.

Many of us who live in large cities have 24-hour rushes, pools, and decorative fountains to enjoy a carefree lifestyle. Cosseted by this comfort layer, many of us still don't know the effect on our environment of these water-intensive practices. Rapid urbanization and water contamination have broadened the supply-and-demand gap and placed tremendous pressure on surface and groundwater quality bodies and thereby reducing per capita water availability. If the public is not aware of the meaning of storing, recycling and reusing water, clean water will soon become a precious find Developing countries like India with a vast territory, a complex and nuanced topography, a diverse climate, and a dense population.
Approximately 83% of the available freshwater is used for agriculture in India. The predominant source of freshwater is rainfall, the rationale behind conserving water is to collect it as it falls and wherever it falls. Rainfall in the country has not only been unevenly distributed but also unevenly distributed over the course of the year concerning temporary water distribution. India, a nation that relies primarily on agriculture, is related to agriculture in terms of economic developments. Agriculture is confined largely by water. An example of the desert town of Jaisalmer in Rajasthan, which is self-sufficient despite receiving inadequate rainfall as against Cherrapunji, which is rewarded with the best precipitation in the world but still faces water shortages due to lack of conservation methods, may be able to understand the value of retaining rainwater through a variety of techniques.

❖ The Problem

In the last 100 years, the planet has experienced two big changes in water management:
One, individuals and communities were steadily handing over their role to the State, even though there was no government anywhere in the world providing water more than 150 years ago.

Second, the use of simple harvesting and rainwater technologies has declined. And the subjugation of rivers and groundwater through dams and tube wells has become a key source of water. Water in the rivers and aquifers was just a small part of the overall rainwater. There was therefore an inevitable, growing, and, in many cases, the debilitating burden on them. Heavy reliance on the state also meant that the cost of water sources was high. Low recovery costs have brought down the financial viability of water schemes, and repairs and maintenance have been in abysmal nature. With nobody interested in using water carefully, the security of potable water has become questionable — a dilemma that India has witnessed recently. This meant there were severe issues with government drinking water systems.

For seven years, 0.14 million dwellings have dropped out of the Government's rural drinking water services last year, according to a report submitted in Lok Sabha in 2016. So, despite government pumping in crores to take drinking water to nearly 1.7 million dwellings in 2007-2014, 58 percent of them slipped to 'not covered' status or needed fresh investment through new water supply projects. This is why the government had to deploy hundreds of tankers to supply water to villages during the drought Despite being a populous country with diverse geography and climate, India does not have a comprehensive water policy. There are no proper guidelines available for the usage of surface water and groundwater by different sectors and different states.

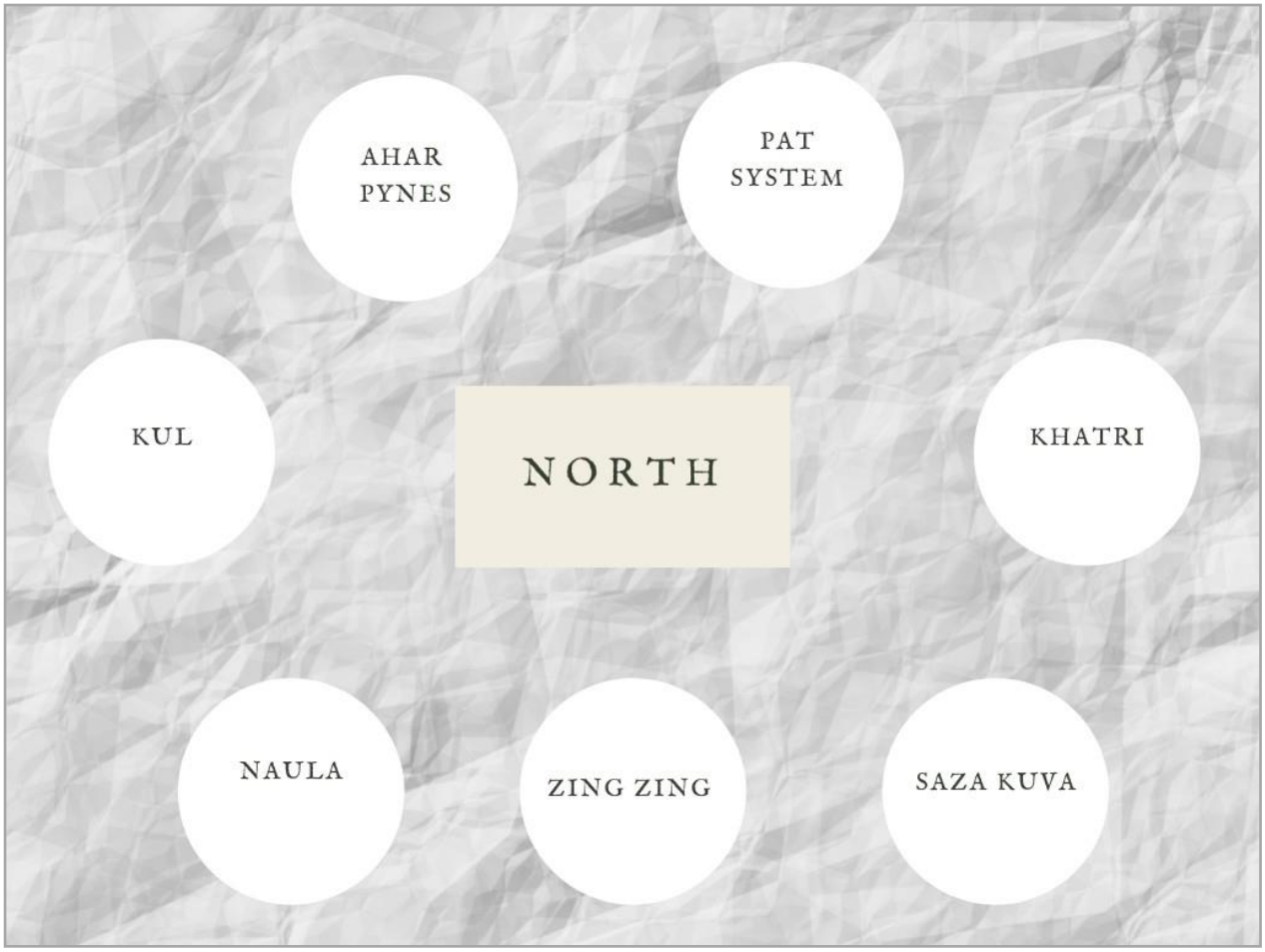
Construction of dams, other hydroelectric projects, and agricultural water diversion has contributed to the systematic degradation of large habitats on the river.

❖ Ancient Trace

Archeological research indicates that the art of water management is profoundly ingrained in ancient Indian culture. Excavations indicate that the Indus Valley Civilisation, which thrived along the shores of the Indus River and other areas of northern and western India around 5,000 years ago, had one of the most advanced municipal water and sanitation networks in the world. The fact that people were well acquainted with sanitation can be seen from the closed drains flowing under the ravaged districts of Mohenjodaro and Harappa. The village of Dholavira, which is located on a hill between two rainwater canals, is a prime example of water engineering. A significant number of tanks were cut within the rocks to produce drinkable to tradesmen who worked along this ancient trading route. Each fort in the region had its own water collecting and storage network in the form of granite cisterns, dams, reservoirs, and wells still in use today. A good number of forts like Raigad had water-supplying dams. In ancient times, houses in western parts of Rajasthan were built in such a way that each had a rooftop system for water harvesting. Rainwater was guided from these rooftops to underground storage tanks. This device can still be seen in all the forts, palaces, and houses of the country. In Burhanpur in Madhya Pradesh, Golkunda and Bijapur in Karnataka, and Aurangabad in Maharashtra, deep baked earthen pipes and tunnels are now functioning to control the supply of water and convey it to distant areas. Arthashashtra of Chanakya refers to irrigation by way of water collection systems. Sringaverapura, near Allahabad, had a sophisticated system of water storage that used the natural slopes of the land to store the floodwaters of the Ganga River. Chola King Karikala constructed the Grand Anicut or Kallanai across the Cauvery River to channel water for irrigation (it is still working) while King Bhoja of Bhopal created the largest artificial lake in India.

Water conservation is a practice that has been practiced in and about all areas of our country . Rural areas, in urgent need of conservation methods have acquired new methods / enhanced old traditional methods to meet their crisis of depleting ground water level. Here is a collection of all the water conservation practiced in all rural areas - being continued from ancient times or new scientific developments . India being a country rich in tradition and heritage and a vast topographical features has practices ranging from north to south

❖ NORTH



1. *KUL* - Kuls are channels of diversion which bring water from glacier to village. Kuls have been around for decades, mostly spanning long distances, with some over 10 kilometres. They are the lifeline of people in Himachal Pradesh's Spiti Valley, and even in Jammu.
   Kul ends at the glacier to be tapped on. Keeping the head clear of debris is accomplished by lining Kul 's sides with stones that guarantee there is no overflowing or clogging. The Kul leads to the village where a circular water tank retains the water. The water drawn from here is due to the village's need.

2. *Ahar Pyne* - Ahar-pyne method is an indigenous irrigation technology that continues to irrigate large areas in South Bihar plains of India even today.An Ahar is rectangular water storage structures of the shape embankment, i.e. a geographical region embanked on three sides, the fourth side being the natural gradient of the land itself. installation for an ahar comes either from natural after-rainfall drainage or from pynes where necessary diversion work is finished.

3. *Pat System* - The specific pat system was developed by Bhitada village, Jhabua district of Madhya Pradesh. This system was constructed to drain water from rapid -flowing hill streams into irrigation ducts called pats according to the rise and fall of the terrain. In a Pat system stones are stacked up and then covers with teak leaves and mud to make them leakproof .

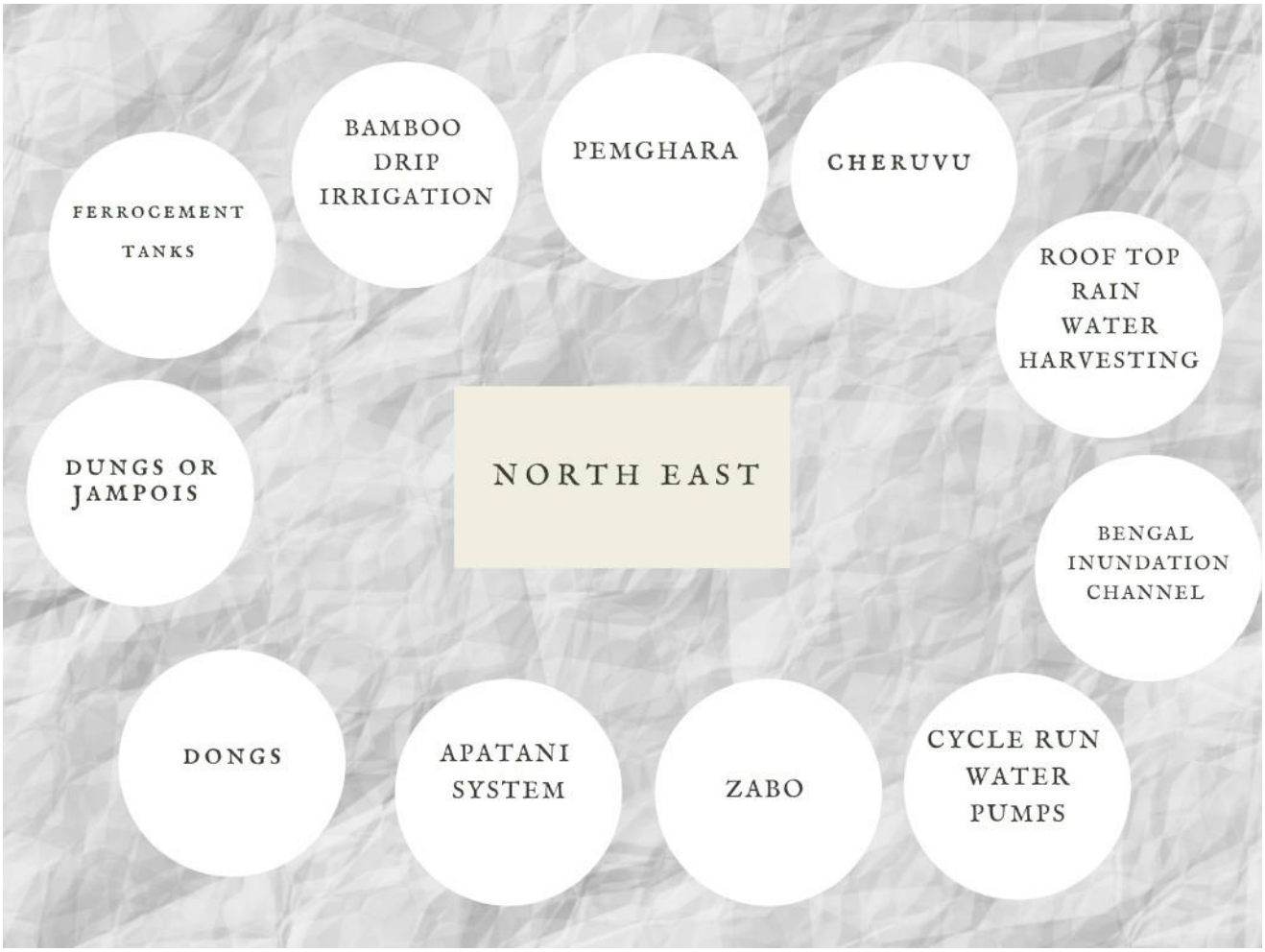
4. *Khatri* - *K*hatris are chambers that are carved in solid rock surfaces to conserve water .Practiced mainly at Hamirpur, Kangra and Mandi districts of Himachal Pradesh it is a traditional water conservation method .

5. *Saza kuva*- Saza kuva- An open well with multiple owners saza kuva is that the most significant source of irrigation within the Aravalli hills in Mewar, eastern Rajasthan.The soil dug out to make the well pit is used to construct a huge circular foundation or an elevated platform sloping away from the well.

6. *Zing -Zings* - zing zings are structures found in Jammu and Kashmir, Ladakh for the water harvesting. they're small reservoirs, where water from the melting ice is stored. When glaciers melt throughout the day, the channels fill with a trickle that turns into flowing water within the afternoon. The water is accumulating towards the evening and is being employed the subsequent day.

7. *Naula* - Naula is a surface-water harvesting method typical to the capitol hill areas of Uttaranchal. These are small wells or ponds within which water is collected by making a fence across a stream.

❖ NORTH EAST



1. *Bamboo Drip Irrigation* - This water management device and stream and spring water usage is accomplished with bamboo pipes. This 200-year-old technique, performed in Meghalaya, involves 18-20 liters of water entering the bamboo pipe system per minute to irrigate downhill fields. The entire irrigation system consists of different types of bamboo pipes of varying cross sections that carry the water from perennial springs to the tops of the hill. The flow of water is regulated by the positioning of the changing pipes.

2. *Pemghara* - Found in Odisha ,Pemghara are water soak pits used to recharge groundwater . Soak pit is a covered, penetrably -walled chamber that allows water to steadily soak into the ground. It is a cost-effective method for recharging groundwater bodies.

3. *Roof Top Rain Water Harvesting* - It is a method in which rainwater is captured from the roof and deposited in reservoirs. Harvested rainwater can be stored in subsurface ground

water reservoirs through the use of unnatural recharging techniques to meet household needs through insulation in tanks. The main objective of rainwater harvesting on the roof is to make water available for future use. Capturing and collecting rainwater for use in dryland, hilly, urban and coastal areas is especially significant.In alluvial areas energy saving for 1m , rise in ground water level is around 0.40 kilo watt per hour.

4. *Cycle Run Water Pumps -* Cycle run water pumps utilises human power that is generated by pedalling a cycle that hauls water from ponds , reservoirs , streams , wells . This cost effective method saves time , energy and is designed for small scale farmers who do not have the dexterity to work , afford diesel -run motors , This pump can bring a flow of 100 litres per minute . This idea was gestated by Nasiruddin Gayen , a poor farmer hailing from a village of west bengal

5. *Zabo* - Invented in kikruma, the village of Nagaland 'Zabo,' which means 'appropriating water,' is a traditional way of storing rainwater that runs out of the mountains.It usually includes the preservation of forests on the hilltops, as well as the water catchment. At the next level, the ponds are dug out to hold the rainwater, which is brought through small canals. They serve as reservoirs with their bottom and sides jammed and compacted to reduce seepage. The water passes through the cattle yards and flows into the paddy fields below. This water carries the dung and urine of the animals to the fields to meet the nutritional requirements of the soil.

6. *Dongs* - Constructed by the Bodo tribes of Assam , Dongs are ponds to harvest water for irrigation. These ponds are individually owned with no community involvement.

7. *Dungs or jampois* - Dungs or Jampois are small irrigation channels that link rice fields to streams. These are found in the Jalpaiguri district of West Bengal.

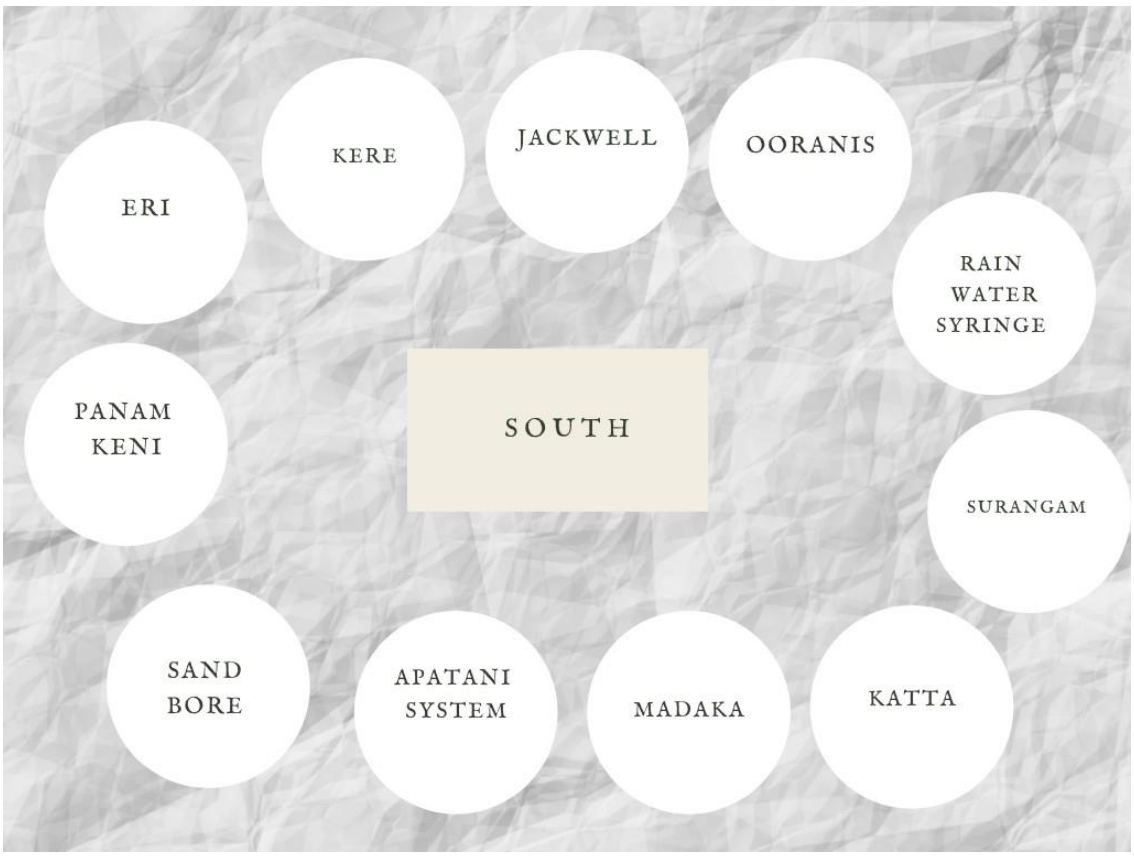
8. *Ferrocement tank*s are made of a thin layers of mortar made up of cement , protected with a wire mesh cage and bars made up of steel . Ferrocement also offers earthquake protection, high winds, and other natural disasters. In building, the use of ferrocement requires a lot less cement and steel, making it more environmentally friendly. These factors plus their low cost render ferrocement an obvious option in rural tanks.

9. *Cheruvu-* Cheruvu hailing from Chitoor and Cuddapah districts in Andhra Pradesh. They are reservoirs to store runoff. *Cheruvu* embankments are shaped with *thoomu* (sluices), *alugu* or *marva* or *kalju* (flood weir) and *kalava* (canal).

10. *Apatani system* - It is practiced by the Apatani tribes of ziro in the lower Subansiri district of Arunachal Pradesh. In the Apatani system, the valleys are terraced in plots separated by 0.6 meters high earthen dams that are held by bamboo mounts . On the opposite sides the plots have inlets and outlets. The inlet of the lowly plot functions as the outlet of the high lying plot. The deeper channels connect the point of inlet to the point of outlet. Terraced plots can be swamped or drained with water by opening and blocking inlets and outlets. There is a wall that is 2-4 m high and 1 m thick near forested hillsides which taps the water coming from the stream. This is transmitted to agricultural fields through a network of channels.

11. *Bengal inundation channel* - Inundation canals have been an efficient irrigation system in Bengal. The floodwaters, rich in silt, entered the flood canals and were transported to the fields. The canals were wide and shallow and long and continuous. Channels cut into their sides, distributing water to the fields. They were closed once the floods had stopped.

❖ SOUTH



1. *Kere* :Using Tanks, known as kere in Kannada, is a traditional irrigation method in the Central Karnataka Plateau, These tanks were fed either by channels flowing off from anicuts built across streams or by streams in valleys. The outflow of one tank enabled the subsequent one all the way down the stream; the tanks were designed in a line , usually a few kilometres apart. This meant that no overflow wastage would be collected and the water from the tank higher up in the sequence would be stored in the lower one below.

2. *Eri* :Tamil Nadu's Eri (tank) system is one of the oldest water management systems in India An Eri can be categorised in two categories one being a system era that is surrounded by channels that divert river water , the other being a non system era , that is fed by rain exclusively . The tanks are interconnected in order to allow access to the remotest village and to balance the water level in the event of excess supply. The eri system uses the water completely for irrigation purposes , without which the paddy cultivation would not be possible in Tamil Nadu

3. *Panam Keni* : "Panam Keni" is a special type of well used by the hamlets of Mullu Kuruma. The kurumas have been using this type of well for hundreds of years. Cylindrical in shape, only about four feet in diameter and depth. The wall is made of the Toddy Palm (Caryota Urens). Usually the bottom stem portion of large palms is used to make wooden cylinders after they have been stored in water for a long time, so that the inner core is rotten and degraded and the outer hard layer remains. The wooden cylinders are immersed in places where there is good ground water spring, and this is the secret of abundant water even in the hottest summer months.

4. *Sand bore* - Sand bore is a simple and economical rural technology through which farmers use the water available at a lower depth. Sand bores were commonly used before the arrival of the borewells. As the water available at a depth of less than 30 feet is used, sand bores do not affect groundwater.The sand bore technique has been used in Karnataka since decades.

5. *Jackwells* - In lower sections of the southern part of the Great Nicobar Island the undulating terrain, bunds were made of hard wood sticks, and water would collect in the pits so formed .They use split bamboos abundantly in their water harvesting systems . A full length of bamboo is cut lengthwise and positioned along a steep slope with the lower end leading into a shallow pit. These act as rainwater conduits which are collected drop by drop in pits called Jackwells.

6. *Ooranis-* There were innumerable tanks in the south of Travancore that contained enough water to irrigate and cultivate only a few acres of land that relied upon them_. The rough topography of the area and the lack of wide open spaces made it easier to construct only small tanks, unlike big ones in the flat districts of the then Madras Presidency, now Tamil Nadu.

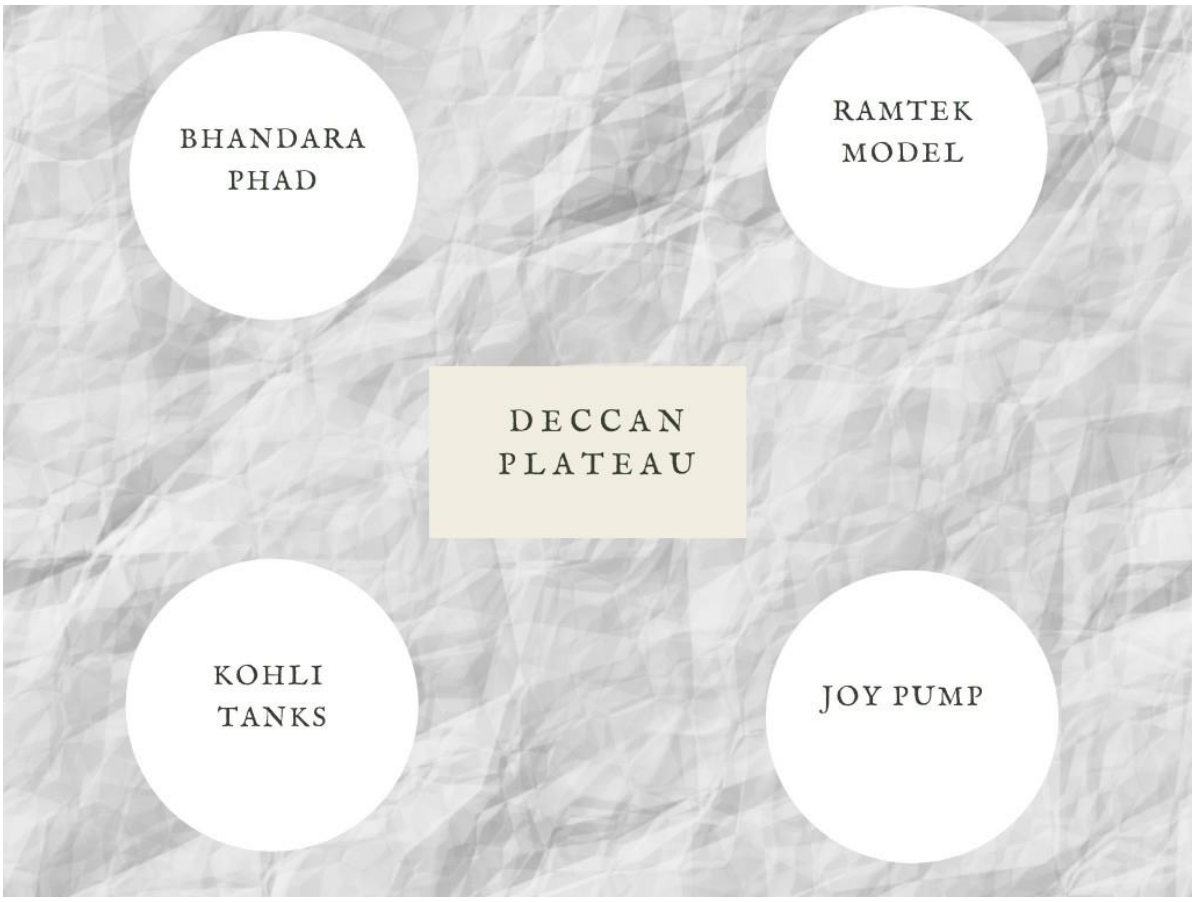
7. *Rain water syringe* - Antoji in Kerala has innovated a cost-effective method for harvesting rainwater in coastal areas. Rainwater is collected from the roof tops of houses and stored in a pressure tank on the ground and with the help of PVC pipes, water is lowered below sea level (16-24 feet). The water is retained in the underground water column which is then harvested during summer by a simple piston pump or motor by constructing a tube well in the vicinity.

8. *Surangam* -Surangam is a taken from a Kannada word that means a tunnel. It is a traditional method used for water conservation followed in Kasaragod district of Malabar region of Kerala . A surangam width is about 0.45-0.70 metres and about height about1.8-2.0 m . It is usually 3-300 m long . Usually a number of secondary surangams are excavated within the main one.If the surangam has a noticeable length , a number of vertical air shafts are provided to ensure atmospheric pressure inside. Surangams hold a striking similarity to qanats that existed in Mesopotamia and Babylon around 700 BC.1,2 By 714 BC. India , Persia and Egypt being some countries that had this technology .Surangams are extremely cost efficient as the initial cost of building it is the only expenditure made on it . Surangam were excavated at a very slow pace and took generations to be built .

9. *Katta*- Kattas — temporary check dams built across streams and rivers in the Kerala and Karnataka districts until two decades ago. Built with kacha stones and locally available wood, kattas are erected in the month of November or December, after the monsoons have subsided. Invariably, each Katta has a diversion channel.The use of sand bag cattas; plastic or fiber sheets; the construction of semi-permanent cattas using mild steel sheets and a concrete base are some of them

10 . *Madaka* - 'Madaka' is another very useful traditional water harvesting system. It is a unique structure built on the upper reaches of an undulating topography. Laterite is the type of soil in this area. It's different from the 'kere' (earthen tank), which is dug to catch water from the sub-soil. Madaka is not completely man-made. In an area with natural slopes, our ancestors would identify a bottleneck and build an earthen wall there.

❖ DECCAN PLATEAU



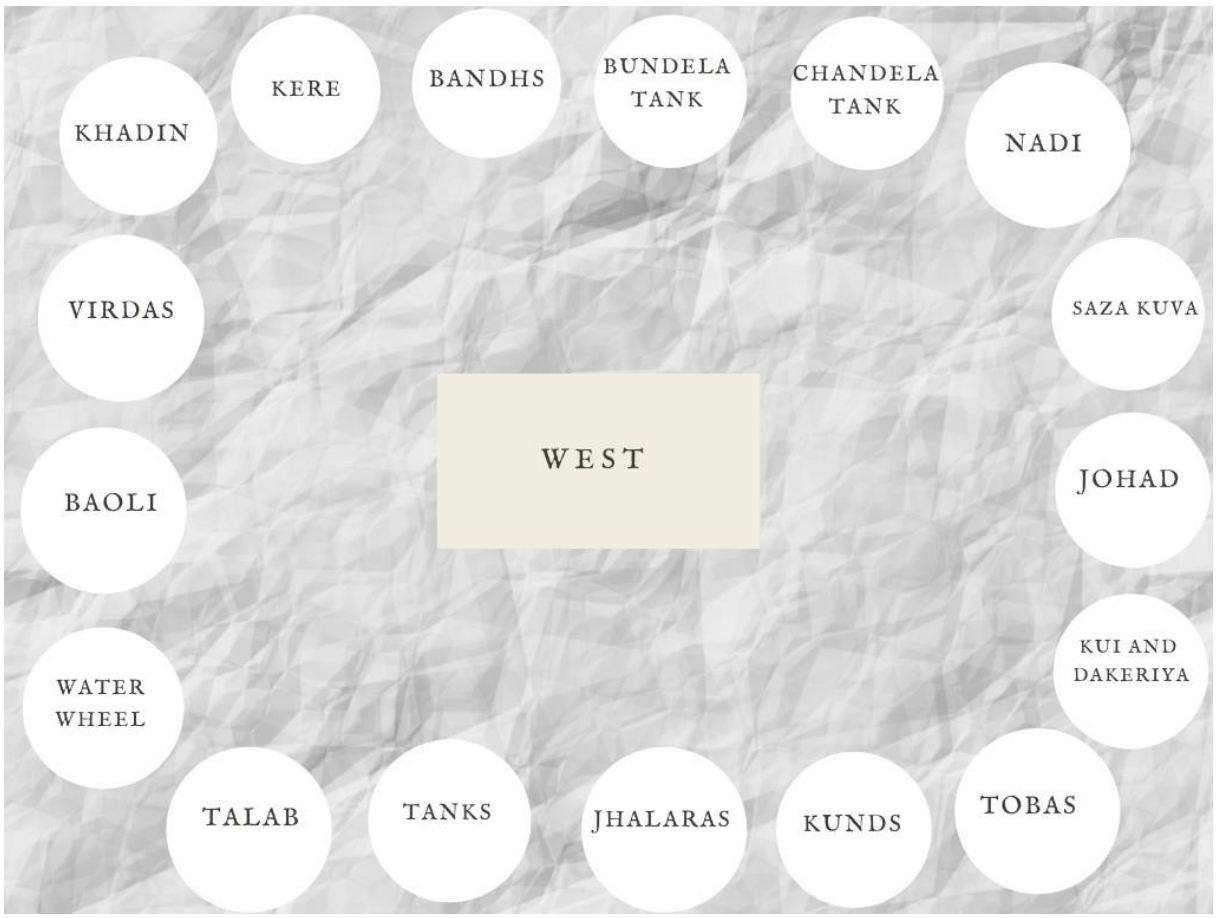
1. *Bhandara Phad* - A few centuries ago Phad, a community-run irrigation system came into existence . Bhandara Phad originates from a Bhandara built across a river , which have calves branching out to irrigate the fields owned by the Phad. Sandams ensure that excess water is drained from the canals by distributors and field channels. The three rivers which act as the engine to the Phad network are the Panjhra , Mosam and Aram - districts of Maharashtra .

2. *Kohli tanks* - Kohlis, a small group of farmers, built some 43,381 water tanks in the Bhandara district of Maharashtra some 250-300 years ago. These tanks were the backbone of irrigation in the area until they were taken over by the government in the 1950s. It is also important for the irrigation of sugar and rice. The tanks are of all sizes, these tanks provide provisions to bring water to the villager's door steps .

3. *Ramtek model* - It was named after the water storage systems in the town of Ramtek, Maharashtra.Built and maintained mostly by the Malguzars (landowners), these tanks form a chain, extending from the foothills to the plains, conserving some 60-70 per cent of the total runoff. Once the tanks situated in the upper reaches near the hills had been filled to full, the water flowed down to fill successive tanks, usually through interconnecting channels. This sequential method usually stores any water left unstored in a small water hole.The area around the Ramtek ridge in the south experiences rapid runoff and little percolation due to the existence of its steep slope on both sides .

4. J*oy Pump* - This structure was invented to alleviate water scarcity problems in villages that had no clean ground water , no source of electricity and deficient monetary capacity. The structure is attached below a merry go round wheel and is identical to a traditional hand pump .Children ride on the seesaws and at the same time water is drawn and the tank is filled . It can also be used to pump water from bore wells and large storage tankers.It is installed at far flung places and is easy to maintain .It has been used in developing countries like India and Africa. Span pumps pvt limited, a Pune based company called Span pumps pvt limited, is designing such pumps in India.

❖ WEST



1. *Khadin* - A Khadin, also known as a dhora, is an innovative structure designed to collect surface runoff water for agriculture. Its key feature is a very long (100-300 m) terrestrial bank constructed across the lower hill slopes below the gravelly hills. Sluices and spillways cause excess water to drain away. A Khadin is a terrestrial reservoir constructed across the general slope, which retains the maximum potential runoff of rainwater in the agricultural sector. It not only tends to boost the moisture in the submerged ground, but also prevents the sweeping away of the top soil and the manure applied to it.

2. *Virdas* - Deep wells that are drilled in shallow depressions are known as Jheels. Here, people collect enough rainwater to ensure that fresh water is available throughout the year. Perfectly applicable through the centuries to the adaptive ability of the Maldharis. 6A device that reaches down to the top layer of fresh rainwater. When fresh water is depleted, the brackish water zone travels upwards and rises up to the bottom of the virdas.

3. *Water wheel* - Water wheels are round wheels in shape that are used as storage tankers , they have handles attached to the top to provide effortless mobility . Crafted to minimise drudgery and save time for working women, the water wheel can hold up to 10 to 50 litres of water in hygienic conditions. It is designed for durability on rugged terrain and is made of high quality plastic. It has become common in the villages of Gujarat , Madhya Pradesh and Rajasthan.

4. *Baoli* - Baolis were designed for political , strategic or philanthropic reasons by the aristrocracy . these structure were secular and could be used by everyone to draw water . Such majestic steps seem to have elaborate arches, sculpted patterns, and even rooms on their sides. The locations of the baolis often demonstrate the way in which they were used. Baolis were mainly used for utilitarian and social gatherings in villages. Baolis used to be used as a resting place on commercial roads. Stepwells used mainly for agriculture had irrigation systems that channelled water to the fields.

5. *Talab* -Talabs are also known as lakes or large reservoirs. These structures are built in natural depressions or valleys. Kharasan talab was a historically significant water-harvesting system. Traditionally, they are built by villagers on community lands, using lime masonry walls on the sides, with soil as a filling material between walls. Talabs are popular in the Mewar area and the town of Udaipur has a large number of talabs. The reservoirs are of different sizes and named as such: a small lake is called talai; a medium-sized lake is called bandh or talab; and a larger one is called sagar or samand. The water produced from these lakes are used mainly for irrigation purposes and also for drinking . A large number of these reservoirs are lost to urbanisation and industrialisation

6. *Tanks* - Tanks, unlike talabs, are constructed on four sides with massive masonry walls. They are either square or rectangular in shape and can accommodate huge quantities of water. Invariably, a system of canals is provided to bring rainwater from the catchment areas. Most of the famous tanks are built in Jodhpur. Some of these have now been abandoned and are receiving sewage and polluted water from the adjacent colonies. The feeder canals have fallen into disuse and are used as sewage lines and as garbage dumps.

7. *Jhalaras*- Jhalaras are man-made tanks, mainly used for community bathing and religious functions. They are rectangular in design and have stairs on three or four sides. They store the subterranean seepage of a talab or a dam upstream. Some of these jhalaras are now being used for irrigation purposes. Some jhalars are being destroyed by mining and industrial activities.

8. *Kunds* - Kunds are rainwater harvesting structures found in the areas of the Thar Desert in western Rajasthan. They are the primary source of water in the Thar region. The kund is a circular well underground. It looks like a saucer-shaped river basin that gently slopes towards the center where the well (kund) is located. The depth and diameter of the kunden can rely on the water requirements used for drinking and domestic purposes.

9. *Tobas* - Tobas is the local name given to land depression with an organic catchment area. Tobas are constructed around an area that has low porosity, a hard land, and consisted of depression and natural catchment areas . Tobas provide water for and pasture for the cattle and water for human consumption. To preserve and increase the capacity of the tobas, the catchment areas have been widened. No encroachment has been allowed to damage the catchment area. Tobas containers are also deepened to improve storage space.

10. ***Kui and dakeriya*** - Kui and Dakeriya-Kuis and Dakeriyan are found abundantly in the western Rajasthan district of Bikaner. In the vicinity of the drilling tanks, 10-12 m deep pits are dug. Kuis can also be used for rainwater harvesting in low rainfall areas. Usually, the mouth of the pit is narrow enough to prevent the collected water from evaporating. The pit widens as it burrows under the ground, so that the water can sink into a large area. The vacancies of these completely kuchcha (earth) structures are usually covered with wooden planks or put under a lock and a key. During the times of crisis water is used here sporadically as the last option .

11. ***Johad*** - Johads, one of the oldest systems used to collect and recycle ground water, are small earthen dams that capture and store rainwater. Designed in an area with a naturally high elevation on three sides, the storage pit is created by digging the floor, and the excavated soil is used to put a barrier on the fourth side. Often a number of johads are intertwined through deep channels, with a single outlet opening up to a river or lake nearby. This prevents structural harm to groundwater pits known as madakas in Karnataka and pemghara in Odisha.

12. ***Saza Kuva*** - The most important source of water in Rajasthan is the saza kuva . A significant feature of it is that is an open well with multiple people acting as owners.The soil dug out to create the well pit is used to build a large circular base or a raised platform that is sloping away from the well.

13. ***Nadi*** - Nadis are village ponds established in valleys by strategically constructing earthen reservoirs around natural depressions. Owing to the wide surface area of the nadis, there is a significant water loss due to evaporation. Water availability from the nadi varies from two months to one year after rainfall. The location of the nadium depends on its storage capacity due to the associated catchment and runoff. Jodhpur and Rajsamand in the districts of Rajasthan are homes to these nadis . They range from 1.5 to 4.0 metres in the dune areas and 3-12 metres in the sandy plains

14. *Chandela tanks* - Chandela tanks were built by stopping the running water in a small stream of water flowing between hills by constructing large earthen reservoirs that are 60m wide or more . In the middle of the embankment , the chandela tanks had a convex curvature . Many old , traditional tanks were constructed near areas of human settlement of clusters of hills These tanks are made up of lime and mortar, and this is why these tanks have survived for thousands of years, but the only problem facing these tanks is the silting of the tank beds.

15. *Bundela tank* - These tanks are greater in-depth than the Chandela tanks. These tanks had firmly constructed steps leading to water in the tank; but these reservoirs had chabootaras, pavilions and royal orchards planned to display the glory of the Ruler who built them. These tanks are not as pocket friendly and basic as the Chandela tanks.

16. *Bandhs* - Bandhs are located in the Thar Desert area of Mewar. It is a stone check dam, built across a stream or a gully, to catch the runoff of a monsoon on a stretch of land. Submerged in water, the ground becomes rich and porous due to silt deposition and the soil retains a considerable amount of water.

❖ Conclusion

Water conservation is a really important practice for the people residing in the village areas. Farming, construction, fieldwork being their primary source of work, water plays an extremely essential role. The civilizations of Mohenjo Daro and Harappa are sufficient proof that ancient India was more advanced than the rest of the world at the time when irrigation was developed in the Indus Valley Civilization by about 4500 BCE. The size and prosperity of the Indus civilization increased as a result of this discovery, which eventually led to more organized sewerage and drainage settlements. Indus Valley Civilisation had developed well-organized systems for irrigation and water preservation. India has long faced the issue of providing safe drinking water to more than 700 million people in more than 2 million villages. The government began improving rural water supply in 1972, and the problem was declared a national priority in the mid-1980s. As a result, 95 percent of India's rural population had access to some form of water supply infrastructure by 2011. At present, none of these systems is functional. Water management encompasses all policies , strategies, and programs for sustainably managing the freshwater natural resources, preserving the hydrosphere, and satisfying current and potential human demand. Population, household size, and growth and income all decide how much water is used. Factors such as climate change have increased the effect on existing groundwater sources, especially in the production and irrigation sector. It is as old as the very world. Current water management activities at the village level are a perfect example of a mix of tradition and science. Almost every area in India has its unique method of storing and conserving water, which has been prevalent since time immemorial. Although some methods, such as baolis in Delhi, have long been forgotten, others, such as guls in Uttarakhand, are still widely used today. Traditional methods developed and used thousands of years ago are still a way of refilling the water table at the district level.

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