

Mewar's Unparalleled Water Management System

Well known for their rare foresight and deep insight, the rulers of Mewar have become pioneers in several fields and one of them is their unparalleled water management system. While selecting a suitable site for shifting of his capital from Chittorgarh to the saucer-shaped valley of Girwa, Maharana Udai Singh not only considered it a safe place against enemy attack, but also a suitable site for the availability of adequate water for irrigation and drinking. In fact, all through the ages, the Maharanas have given due importance to conservation of water through measures such as watershed management, lake interlinkages, river interlinkages, and diversion of river water.

The oldest and one of the most beautiful lakes of Udaipur, Pichhola was built by a Banjara, the chief of a tribe that was engaged in transport of grain. When Maharana Udai Singh moved his capital to Udaipur in 1559, he strengthened the dam and greatly enlarged the lake. Rainwater from Dewas Dam flows through Sisarma river and then mingles in Pichhola. Pichhola is also connected with

Goverdhan Sagar through a link channel constructed by Maharana Swaroop Singh.

Doodh Talai lake was also built by a nomadic Banjara and was used for drinking water by the cattle of the tribe. A link channel connects it with Pichhola.

Amar Kund lake that was built by Amar Chand Barwa, a Minister of Mewar, is situated between Pichhola and Rangasagar and connects the two waterbodies by a link channel constructed by Maharana Udai Singh at the time of foundation of Udaipur. Kumhariya Talab is interconnected with Pichhola Lake and Rang Sagar.

Rang Sagar lake was constructed by Maharaja Raj Singh Second. It acts as a link channel between Pichhola towards South and Swaroop Sagar in the North. It is interconnected with Amar Kund and Kumhariya Talab.

The pear shaped Swaroop Sagar was constructed by Maharana Swaroop Singh. It is interconnected with Rangasagar and Fatehsagar. The overflow of this lake can either fill Fatehsagar or merge with Ayad River at Gumanwala Nullah. The place where Fatehsagar, the biggest lake in Udaipur after Pichhola, exists



now, was built during the reign of Maharana Jaisingh and was known as Dewali Ka Talab after the village Dewali where it is located. Later on Maharana Fatehsingh built a new big dam. As the lake was close to Pichhola, a channel was built to connect the two waterbodies. The water flowing through the surrounding hillocks drains into this lake. It is fed by Badi lake, Chhota Madar and Bada Madar. Finally the overflow of Pichhola and Fatehsagar mingles with Udai Sagar through Ayad river.

Located about 10 kilometres to the west of Udaipur town, Badi Lake also called Jana Sagar, was built during the reign of Maharana Raj Singh. It was designed by Kisna, son of Sugra Ram. It was

built on the Ubeshwar river. It feeds Fatehsagar.

It is noticeable that Fatehsagar gets more water from Pichhola through the link canal and Bada and Chhota Madar than from its own catchment area. Udai Sagar has a dam across a valley or fully-bundled dam, a rare feature not found everywhere. It brings to the fore, the implementation of the norms of medieval town planning which states that following the establishment of a new town, a reservoir should be built to drain the sewage and waste water from the town to a distant place, thereby saving the environment of the town and its vicinity from pollution. And this is what Udaipur does for Udaipur. The rulers of Mewar were

pioneers in linking and diverting the course of rivers. Long before 1869, when Mediterranean and Red Sea were connected through Suez Canal, Maharana Raisingh First got the waters of Ubeshwar river diverted to Morwana river by building a check dam wall.

Prior to this, Ubeshwar river used to flow into Chhota Madar. Similarly Maharana Fatehsingh got the surplus waters of Ayad river diverted to Fatehsagar through the construction of Chikalwas feeder canal. Realizing that the hard rock's like dolomite were not suitable for collection of water, the Mewar rulers used them for dams to stop the flow of water. For strengthening the dams, a special technique of filling the foundation with lead that was not known anywhere else in the world was used.

The dams were so designed that their average capacity was approximately double of the quantity they received in one average monsoon. In this way, water was available during droughts and it was not wasted in times of floods. There was a proper system of desilting the lakes. The farmers were allowed to desilt the lakes on

their own expenses. Silt was to be taken from near the banks where it was deposited again during the next monsoon. For making the maximum use of water, it was first of all used for irrigation. Meanwhile, the water that seeped into wells and 'Baoris' was used for drinking. For this purpose wells and Baoris were dug near places like Gulab Bagh and Saheliyon Ki Bari that were close to the lakes. This resulted in the proper use of water for two main purposes and at the same time the underground water level also used to be high. In the city and neighbouring areas. Cereals, vegetables and fruits also grew in abundance.

The water of the lakes was used for irrigation of Rabi crop, so that by summer season the water level of the lakes went down and expansion was reduced which in turn resulted in less exposure to sun and less evaporation.

The lakes were built in the East South of the city. So the wind that blew from East South to North West in summer, kept the city and the green areas cool. The town planners chose barren rocky areas to build palaces, temples and houses and the fertile areas were left

for crops and gardens that provided the green belt with high underground water level.

An underground canal was built at the tri junction of roads leading to Fatehpura, Badgaon and Bedla. It was constructed under a road that had heavy traffic. An innovative syphon device was employed in which water was conveyed from one point to another through a U-shaped structure usually passing an obstacle. The outlet point

About 440 hectares of land was irrigated every year from Fatehsagar, most of which was through this canal and so it used to run throughout the year. With gradual increase in supply of water for drinking purposes from Fatehsagar, the availability of water for irrigation was reduced year by year and finally stopped by the year 1980. So this structure and the canal system became obsolete. People used to take bath

Veteran journalist Ashok Mathur's blog (ashokmathuronudaipur.com) with over forty articles on Udaipur's palaces, temples, lakes, gardens, festivals, fairs, wildlife etc. is getting very popular. It has interesting content for Udaipurites as well as tourists.

had to be lower than the inlet point to cover the friction losses. So the canal water level was kept about three metres higher than the road level. There were two circular wells on both the sides. Water was conveyed across the road from the upper well to the lower one through a barrel below the road connecting the wells. In this way the desired canal water level was maintained even after crossing the road.

at the top of both the wells. It was a popular landmark called Kothi in Hindi and Siphon in English. There was lush greenery and mango farms on both sides of the road.

The deep knowledge of different aspects of water management system and its implementation by the rulers of Mewar has contributed substantially to the development of the region in its own way.

- Ashok Mathur

Save water, Plant trees, Use Solar cooker

Ecosystem Restoration, theme of World Environment day

One Health Approach, Health of Environment, Health of Animals, Health of Human being

On the eve of World Environment day, 5th June we should pledge to save water which is essential component of our body as all metabolic activities takes place in our body in water as it constitutes 70% of our body weight. Not only for human being it is essential part of the Animals and Plants as they can also not survive without the water.

Save water- Daily Life – we can do it by minimize the use of water in our daily routine activities like Bathing, washing cloth, using small can for lavatory, mopping the floor instead the washing. In many ways this important resource of life can be saved.

Save Rain water – (STOP RAIN TO DRAINS) Restore Surface and Underground water – we are extracting the underground water without restoration resulting this water is depleted and dark area are created in country where no more underground water is available.

Editorial
We have closed all sources of natural recharge of the rain water both outside our house (by constructing wall to wall road) by cementing the floor inside the house so no natural recharge takes place in the underground water both outside or inside the building so this rain water goes waste into drains.

Artificial Recharge of Rain water – By DEWAS WATER FILTER - This is only way left to restore the depleted water, which is simple, cheapest, easiest method to recharge any underground water source like well, Tube well, Hand Pump. So we should install it before the rain comes so that our roof top water goes into the water source to recharge.

Plant Trees – we have seen the crisis for oxygen recently during this corona pandemic the most important resource for our survival, we will die within few minutes if we do not get oxygen. The plants are the only source for production of oxygen and maintain our ecosystem. Only way left for us to plant the trees in this coming monsoon and maintain them through out life as they will be future source for oxygen for our next generation. Simple way is to plant at least two plant in front of our house and treat them as our own children and maintain them till they can self sustain.

I have planted 17 various types of plants in my Arvind Nagar colony and used to go for watering in night as if these plants are (my children) do not sleep thirsty. They have taken a shape of big trees by now giving shelter and food to birds and oxygen to the colony. When I can do it why we all can not do it.

Use of Solar cooker – A Boon for working women and farmer- A Solar energy is the free sources of energy and every day we need food to eat and maintain our body. We are mostly using LPG gas or wood for which plants are to be cut and LPG source is also having a limit. My wife Dr Manju Jain cooking in the solar cooker since last 40 years. It is simplest, cheapest and easiest method of cooking.

and there is no loss natural nutrient in this cooking. You can cook rice, pulses, green vegetables, Dal-Bati, Lapsi, Khaman, Cake and many more with this natural resource of solar energy.

We should today on the eve of World Environment day take a oath that we will save water, plant tree and use solar cooker for Restoration of Ecosystem.

WATER – HERO
Dr P.C. Jain M.B.B.S.

Drones- Helping Save the Environment



The word 'drone' frequently referred to as UAVs – unmanned aerial vehicles often bring to mind an image associated with warfare owing

to the heavy use of drones by the military. Nevertheless, this is a myth! There are numerous ways that drones are being used in the different commercial operations outside this domain.

They are being used more and more in other ways in society as they are helping aid workers and even ecologists have started putting these devices to use towards sustainable development.

Their capability to access, inspect and gather data from an area of concern in minimal time and cost is almost incomparable. The use and applications of drone technology are being extended to make the devices active tools in humanitarian and safeguarding the environment. Used suitably and with the correct regulation in place, drones can help improve work carried out in the field of sustainable development.

Various examples of drones in development projects show the possibilities of using them in the field of humanitarian aid and environmental protection.

Deepak Joshi conferred with "Youth Face of India 2021"



Udaipur: We are doing active work in various social sectors by the Foundation. Deepak Joshi of Udaipur is also among the best seven of Youth Face of India 2021 for youth. He has been ranked among the best 7 out of around 1500 youth from across the country.

At the ground level of youth in three phases, the survey has been short-listed to seven participants who reduce the swing at ground zero, including Deepak Joshi of Udaipur. It is worth noting that Joshi is known for his unique campaigns. From time to time, he has run many campaigns, including Diwali Happiness, Ragging Open College, Mental Health is Wealth, etc. Recently, Joshi is running Corona Vaccination Awareness Campaign on an online platform in which public awareness is being spread through video messages by IAS, RAS, doctors, and writers from across the country. Deepak Joshi is the founder of Muskan Foundation, working in various social fields.

Singer Saniya Saiyad recreates Tujhse Naaraz Nahi Zindagi as an ode to environment

Singer Saniya Saiyad is recreating Tujhse Naaraz Nahi Zindagi as an ode to environment on the eve of World Environment Day as she took it upon herself to plant trees to save Mother Earth.

Renewable Energy Projects

Aerial technology is proving to be an emerging trend in renewable energy projects. A great example of this is solar farms. Drone inspections are keeping large-scale solar energy projects successfully running around the world. The thermal mapping ability of this technology is assisting solar companies in assessing the anomalies in a quick time and carrying out rectification to efficiently manage production of solar energy. Simply put, drones are helping solar projects kick off and get going.

The thermal imaging camera helps relay footage back to a team on the ground. Using a Thermal drone one can map an area, spot invasive vegetation and dust on the solar panels and other problems that might occur. It can also detect defective panels that are overheating.

Industrial emissions

Often people relate mapping to real estate or agriculture; developing an in-depth view of an area that can be used for planning and modelling. But one mapping can be beyond land, that is, industrial emissions. Advanced sensor technologies in drones coupled with AI and special software platform are capable of tracking invisible gases from above.

Deforestation and Wildlife Conservation
Drones are also being used to tackle illegal logging and industrial deforestation. Pandemic has proved that the natural world

is something that should be cared for and preserved. And that includes wildlife.

They can also monitor banned logging activity and map landscapes in their entirety. This allows conservation teams to keep an eye on the development of the land over time, and ensure that farms, plantations and poachers don't upset wildlife and the environment.

Today illegal poaching is causing certain animals to fall to the point of near-extinction, including elephants and tigers.

Besides tracking poachers, drones are also deployed to count populations of animals.

Drones are also helping with animal conservation efforts in many countries.

In interiors and inaccessible locations, this is usually a labour-consuming and costly process, but drones facilitate local conservationists to keep a finger on the pulse of local wildlife with ease.

Precision Agriculture

It is well known that drones are very useful in agriculture. They help farmers to evaluate crop health & yield from above in a more cost-effective and efficient way. They help farmers make informed decisions on the use of pesticides and fertilizers. Drones not only match up manual labour that goes into agricultural work but perform better in terms of cost and time.

By empowering farmers to use their land as efficiently as possible, drones can help to keep the necessary industry of agriculture free

from waste and environmentally damaging practices.

Water Preservation
Water is one of the most precious commodities around the world, but significant quantities are lost on a daily basis through leaking and broken pipes.

Armed with infrared cameras, drones are being used in hot and remote locations, to spot leaks in underground water pipes in the desert.

Drone Delivery

A research done by an environmental scientist at Lawrence Livermore National Laboratory shows that delivery drones can lessen the burden on the environment and deliver smaller packages faster than trucks. Delivery trucks are responsible for about 20% of the world's greenhouse gas emissions.

So, drone technology and its applications are ever growing and are offering multiple and dynamic technological and social impacts. Filling the gap between satellites and ground surveying, drones enable fast, remote access to a particular area, allowing activists, scientists and aid workers to compile reports, analyse situations and obtain data about a region, issue or disaster faster, more accurately and saves more time than having teams of people on the ground. Beyond monitoring and observation, drones can also proactively be used to help get medical supplies to those in need, plant trees and monitor deforestation.

Wing Commander S Vijay



The original sung by the legendary Lata Mangeshkar composed by RD Burman with lyrics by Gulzar seems to echo with the state of trees and plants today. We need to preserve our environment as our future depends on it," echoes Saniya.

However, there will be no change in the vocal style. "I have grown up on Lata Ji's voice. She is my idol. I am also paying a humble tribute to Lata ji with my rendition and I hope she will hear and love it," says Saniya. "I chose this song as it has the power to inspire millions."

Hema Malini Inaugurates BMC's Be A Tree Parent MEGA Vriksha Campaign

The recent cyclone Tauktae has battered the green cover of Mumbai, with 2363 trees being uprooted and innumerable others losing their branches. A survey revealed that 70 per cent of the trees lost were non-native species. After studying the local agro-climatic conditions, including soil quality, humid weather, the BMC prepared a list of 41 native trees that can be planted in Mumbai and are part of the trees in the Konkan belt.

These are Wad, Pimpal, Umber, Kanchan, Kadamba, Gunj, Palas, Nim, Mahogany, Moh, Bahawa, Sag, Arjun, Ain, Kinjal, Sita Ashok, Undal, Nagkeshar, Champa, Shivan, Shirish, Karanj, Bakul, Bell, Taman, Hirda, Behda, Coconut, Amla, Khair, Tetu, Mango, Putranjiva, Wild Almond, Bibba, Parijata, Rita, Sandalwood, Phanas and Chafa among others.

On the eve of World Environment Day, the BMC's K West Ward Asst Commissioner Mr. Vishvas Mote along with Make Earth Green Again MEGA Foundation started the 'Be A Tree Parent - Adopt A Fallen Tree Pit' Campaign to involve societies and residents to adopt one of the 348 fallen tree locations in K West Ward and re-plant the same with an identified fast growing tree species. Keeping in mind the above and to restore the green cover, Asst Commissioner Vishvas Mote avered, "The aim of this campaign is to involve citizens and societies to adopt and take care of a tree at the location of a fallen tree, that will be planted in consultation with the Garden department. It also aims to create awareness among citizens about different native species of trees, their blooming seasons and growth patterns and to build a sense of ownership among residents for green cover in the city."

Added Anusha Srinivasan Iyer, Founder, Make Earth Green Again MEGA Foundation, "The trees we are planting in conjunction with the Garden department of BMC include flowering plants Tamhan, Jamun, Badam and such other native species. We have water levels that are high. Hence the roots do not go very deep in search of water, which is why we think it best to grow species that do not grow above 30 feet. We are requesting the locals to become a tree parent and adopt the trees. Any guidance or help they need at any time, we are there to handhold them."

For Royal Harbinger Call
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