



Dear All,

We are happy to bring you the April 2022 issue of the WIN newsletter, covering the Jan-Mar-2022 quarter.

The covid 3rd wave in India turned out to be far less damaging to human life as well as the economy, and our projects too were affected only in January. The low virulence and quick decline in cases, have led to rapid recovery in our projects on ground.

Summer brings on the distress due to water shortage in several parts of the country. Drinking water, water for cattle, etc., becomes scarcer leading to greater groundwater extraction, in turn leading often to salinity increase. In many places, water is transported by tankers over long distances at high cost. This phenomenon is observed in areas with yearly rainfall ranging from 4 inches to 40 inches, and even where irrigation canals are present, due to ever increasing water consumption. This brings alive the need for water conservation in nearly all areas, with different yearly rainfall, with or without irrigation, and including in urban or rural areas.

Roof Rainwater Harvesting (RWH or RRWH) and Groundwater recharge are simple, cost-efficient, highly effective and sustainable measures in improving water availability, maintaining groundwater level and quality. They also help in improving hygiene by reducing water accumulation on ground and reduce storm water drainage needs.

The dry summer months are ideal to implement RRWH and groundwater recharge structures, as the impact can be measured in the following monsoon. WIN Foundation has supported many RRWH and groundwater recharge projects through our partners, with very positive measured impact.

Aptly so, Rainwater Harvesting is the theme for this newsletter issue. In our continuing Science in Action series, we have articles on RRWH from two expert-practioners, with wide experience in this domain, in different parts of India.

WIN Foundation has also created a resource site for RRWH for Ahmedabad and Gujarat, to provide practical guidance on RRWH implementation (<https://sites.google.com/winfoundations.org/urban-waters-ahmedabad/>). Our team is also happy to answer any queries on RRWH, to help implementation at Ahmedabad or elsewhere, through email.

The Maker Bhavan Vishwakarma Engineering Innovation contest has now entered the next phase, with 28 selected student teams, from campuses across India, starting work on their prototypes.

Our nutrition projects continue to focus on field health worker training and women microentrepreneur development for nutritious food.

We also report on progress in our engagement with NGOs and other skilling service providers to utilize our skillingtowin.org online platform, which we offer at no cost to them, to support skilling for social impact.

We hope you enjoy reading this newsletter, and look forward to your feedback (email to info@winfoundations.org). We also invite contributory articles, case studies etc. for future issues, or

Contents :

- Latest Updates
- Science in Action Series 3
 - Rainwater/Roofwater Harvesting
 - Journey towards Sustainability
- Event and Programs
- Collaborations /Associations

suggestions for collaboration.

With Warm Regards

Paresh Vora
Director, India Operations



Latest Updates

Nutrition:

Our nutrition projects, based on local market creation strategy, using dual Push (Supply) and Pull (Demand) approach, continue to make steady progress.

In Sanand, sustained efforts by our partners Samerth with our microentrepreneurship training expert Nikesh, has helped and motivated the women entrepreneurs to reach at the stage of launching products. Parallely, 15 Health Workers who underwent a Field Health Worker training, are actively counseling mothers and collecting data to track growth of 150 infant children. This training covers nutrition for 1st 1000 days starting from conception, including mother's nutrition, newborn nutrition by mother's feeding and subsequently additional food – up to about 2 years of age.

In the Vasna slum area of Ahmedabad, our partner Saath Livelihoods launched the Microentrepreneurship training program, with 20 women participating. On the occasion of Holi and as a part of training session these potential women Nutri-preneurs prepared holi snacks in the Central Kitchen and marketed the products with help of Saath and other NGO partners. The field health workers training, another component in this project, is scheduled in early April, and will be conducted by SMDT.

We are also extending the high impact Field Health Workers training by SMDT to Khambhalia, Dwarka District, Gujarat in early April.

Water and Sanitation:

In partnership with Arid Communities and Technologies, Kutch, and Jhaleswar Philanthropic Charitable Trust, Dhrangadhra, Dist - Surendranagar, we are starting the PGWM program in select villages in the Little Rann areas of Surendranagar and Morbi Districts, this summer.

To promote and encourage Water Conservation in urban areas, especially Roof Rain Water Harvesting, we organised an awareness and practical training for Plumbers on 1st April'22 in association with Sujalaam and Expert Building Solutions. 40+ plumbers actively participated in this event. We look forward to conduct more training programs like this in future.

As a pilot program to showcase easily implementable and maintainable RRWH system in urban residential societies, we plan to support three lower income and slum resettlement societies in Ahmedabad through Mahila Housing Sewa Trust (MHT) to provide Rain water harvesting and recharge systems.

In this issue, we also launch 'Urban Waters Ahmedabad' platform <https://sites.google.com/winfoundations.org/urban-waters-ahmedabad/>, to educate, share knowledge and spur action regarding rainwater harvesting in Ahmedabad and Gujarat.

Innovation, Entrepreneurship and Skilling:

Parisodhana Technologies successfully conducted their training course 'Billion Social Masks' using our [skillingtowin.org](https://www.skillingtowin.org) platform, many women from remote villages of Hyderabad attended this blended online training course (<https://www.billionsocialmasks.org/>).



'It is a privilege to partner with WIN Skilling platform. The web interface for offering skill development training to female artisans is of great value, especially as it provides a central platform of engagement along with a possibility to issue certificates of qualification. Billion Socials Masks initiative empowered 500+ artisans across 16 states of India through this platform we will offer continuous improvement to trained artisans along with fresh training to new joinees. WIN team has been extremely friendly in uploading the course materials and the platform is user friendly.'

**Ms.Selvi Alagan, Training Coordinator, Billion Social Masks.
Parisodhana Technologies, Hyderabad**

To initiate grassroot microentrepreneurs to use modern digital tools for market entry, sales, customer

service, delivery etc., we have planned a multi-location, multi-partner training and implementation program for "Whatsapp Business for small micro-enterprises". 25 to 30 microentrepreneurs nominated by five NGO partners will undergo this experiential training in April-May'22, to be conducted by Mr.Nikesh Ingle.

We continue to enhance our innovation and startups support, and we have entered into two Memorandum of Understanding's (MOU's), to support student innovation and social impact projects.

i) With iHub Gujarat (Gujarat Student Startup and Innovation Hub) <https://ihubgujarat.in/> to support social impact startups and innovations from students at hundreds of campuses in Gujarat under the iHUB network.

ii) With Institute of Design, Nirma University, under a tripartite agreement involving Arid Communities and Technologies and Institute of Design, Nirma University to support collaborative research, design and field activities which help promote innovations for social impact in WIN focused domains.

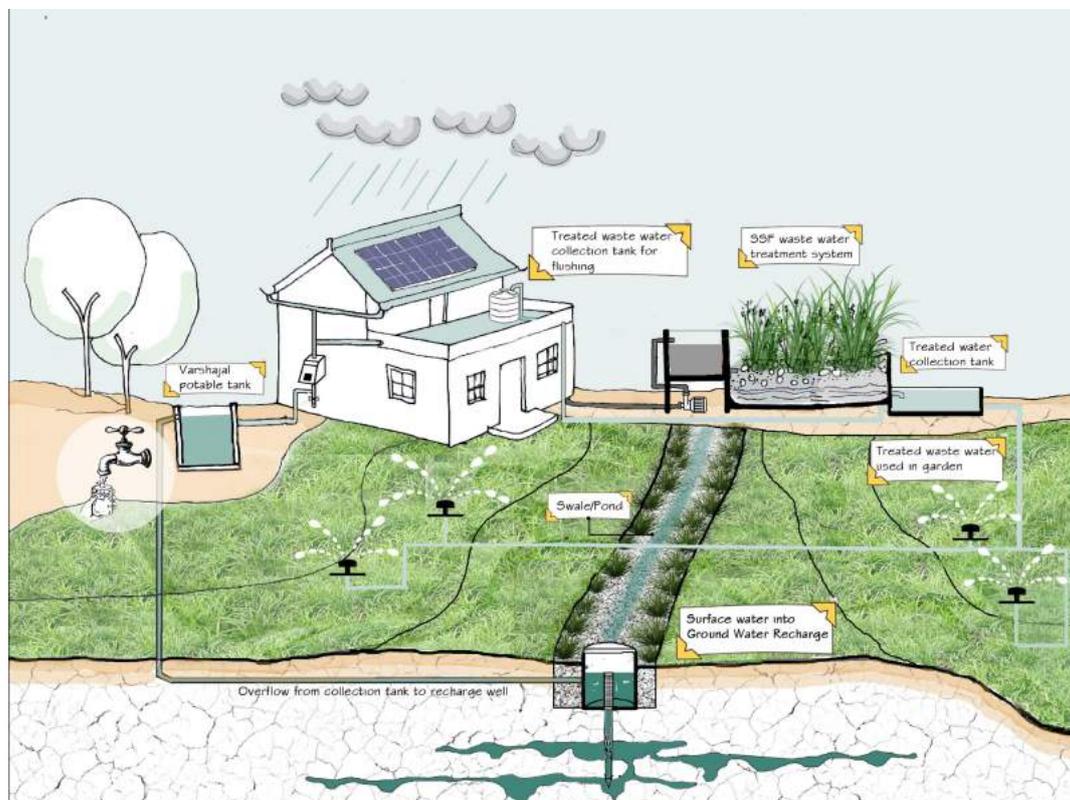
Vishwakarma Award for Engineering Innovation 2022 - launched on January 22, received overwhelming response with 100+ applications from all over the country and 28 applicants were selected for the second round. The grand finale will be held on 27th August'22 at IIT Gandhinagar

Under our WIN Innovative Product Market Validation Program for innovative technologies. We have introduced (i) weather station and soil moisture metres by Soilsens and (ii) Soil and Water testing kits by FFEM, in the tribal area of Sabarkantha district, Gujarat through our NGO partner Viksat. (<https://www.winfoundations.org/programs/>)

Aishani Goswami, Project Associate at WIN Foundation was selected for the 'Moving Upstream: Sindh' fellowship Walk along Sindh hosted by Veditum India Foundation. She walked for around 140 kms along the River Sindh in Madhya Pradesh. She documented stories of the river and its riverine communities. Read at: <https://veditum.org/2022/03/01/sindh-across-its-banks-and-beyond/>

Among other news, our partner Samerth's contribution at Kutch as been recognised by UNDP India 2022 (https://issuu.com/undpindia/docs/inspiring_india - pg. 21)

Science in Action Series - 3



Roof Rain Water Harvesting (RRWH) and Run-off Water Recharge

Without water, life on earth is unimaginable. However, freshwater sources are becoming scarce with the passage of time, due to its overuse, lack of recycling and pollution. Large parts of India and many parts of the world face water stress in the dry season, and this is expected to increase in the coming decades. Rainwater harvesting (RWH), is a simple, effective and sustainable method to conserve water, through a process to collect rainwater, filter it, and then store it in natural or man-made storage reservoirs.

Modern societies have forgotten the traditional methods used across India to conserve the water. Some traditional water harvesting methods followed in India include vavs, bavri, madakas, ahar pynes, surangas, taankas and many more, each perfected and used over centuries, as per location and need.

RRWH helps recharge tanks, local aquifers, reduce urban flooding and most importantly ensure water availability in water-scarce zones throughout the year.

WIN Foundation and its partners actively promote both Roof Rain Water Harvesting and Surface runoff water harvesting, in several projects. These include RRWH in schools and community buildings, and surface water recharge in farms, ponds and riverbeds.

Urbanwaters Ahmedabad

WIN Foundation is happy to launch `Urban Waters Ahmedabad` platform, which aims to educate, share knowledge and spur action regarding rainwater harvesting in Ahmedabad. It is a part of Urban Waters group which includes similar content for other Indian cities like Bengluru, Pune, Tumkuru and Chennai.

The platform intends to guide citizens, societies, organizations for water conservation, Rain Water Harvesting and other water saving techniques in a practical, reliable and cost-effective manner.

Following information can be find though this platform :

- An overview of Ahmedabad's geographic, climatic and water related information.
- Practical guides for Rain Water Harvesting for bungalows, societies, schools, etc
- Including basic designs, resources and contacts, calculations for rainwater harvesting etc.
- Guides for other water conservations and wastewater management activities.
- Regulatory guidelines for rainwater harvesting in Ahmedabad
- Case studies of rainwater harvesting projects in urban and peri-urban regions of Gujarat

Please visit : <https://sites.google.com/winfoundations.org/urban-waters-ahmedabad/>

If you wish to contribute an article or list your services on this site, or if you wish to give your feedback, do write to us at info@winfoundations.org

Rainwater Harvesting and Groundwater Management in Urban Areas

Biome Environmental Trust has been working on urban water issues, especially in Bengaluru and its surroundings, for more than a decade now. It has championed ecological water practices at household, community, and neighbourhood scales. It has engaged with citizens and communities, driving public education, sharing actionable information, conducting various forms, and facilitating implementation. As its work progresses, there is a need to strengthen these practices and inform institutions of governance and policy to ensure more comprehensive practice.

This article has been written based on the knowledge and experiences of the Biome team.

Author:

Nikita Harikishan is a researcher and project lead at Biome Environmental Trust. She is a bio-architect and is working towards combining natural building, permaculture, whole systems, and participatory design in her projects. Her current research work involves an understanding of sustainable water and wastewater management in urban areas.

Co-author:

Shubha Ramachandran leads the Water Team at Biome Environmental Trust (www.biometrust.org). She has designed and implemented several rainwater harvesting and wastewater treatment systems primarily in and around the City of Bangalore. At BIOME she has been working on understanding groundwater, wastewater and wetlands. She is a TEDx speaker and has also represented BIOME at the World Water Week in Stockholm. She has a degree in Civil Engineering from IIT Mumbai.

Rainwater harvesting - Science in action

Rainwater harvesting has been in existence for thousands of years. It is a very intuitive and actionable idea. Still, there is complex science behind rainwater harvesting and groundwater management, including rainfall patterns, climate variability, hydrogeology and the impact of human activities on hydrogeology. However, at the same time, we can look at this knowledge with a lens that can be applied at a small and decentralized scale for practical application. It is with this thought that this article has been written.

Introduction

The water supply situation today is very different from 100, 50, or even 25 years ago. India faces challenges of water stress, constituting 16% of the world population but only 4% of the freshwater resources .

With rapid urbanization, cities/towns rely heavily on the cost-intensive long-distance water supplies to meet the widening water demand-supply gap including overexploitation of in-situ groundwater resources while dealing with declining infrastructures. Furthermore, urbanization disrupts the natural hydrological cycle as there is a reduction in infiltration and groundwater recharge due to the existence of large impervious areas, removal of shallow aquifer to build multiple basements, thus urban areas face the twin problems of floods during monsoon and shortage of freshwater during non-monsoon months.

India has had a rich tradition of community-based water harvesting. Each region has a different structure for harvesting rain, from Eris in the southern plains of Andhra Pradesh, Karnataka, and Tamilnadu to Jhalaras, kundis and step wells in Thar regions of Gujarat and Rajasthan, Kuls in western Himalaya, Ahar Pynes and Baolis of the Indo-Gangetic Plains, Zabo, and Virdas in Northeast regions. This long history of water structures has long been forgotten and has been dumped with garbage or closed off. However, there is a need to reimagine rainwater harvesting, groundwater, open wells, and their relevance in contemporary times.

The solution, therefore, lies in decentralized rainwater harvesting, which is increasingly being turned to as it offers an alternative, affordable, reliable, and sustainable water source in the face of increasing water shortages. Rainwater harvesting can be done using two methods: storing water for direct use or recharging groundwater.

Know your rainfall

Rainfall statistics for the areas is of paramount importance to understanding rainwater harvesting norms. Information on average annual rainfall quantity, distribution across months and rainfall intensity is crucial. Rainfall quantity will decide the potential for rainwater harvesting from any surface i.e., a product of total rainfall and the surface area of collection

Weather Monitoring Stations & Telemetric Rain Gauges

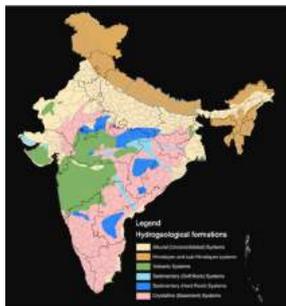
With the concept of "Measure to Manage", Karnataka State Natural Disaster Monitoring Centre (KSNDMC) has installed 930 weather monitoring stations at Hobli level which captures the 4 major parameters - Temperature, Relative Humidity, Wind Direction, and Wind Speed, and 6500 telemetric rain gauges for monitoring rainfall data. The weather forecasts are made by ISRO and with the Ground level data provided by KSNDMC to ISRO every day, it is possible to get more accurate and reliable predictions.



Weather Monitoring and Telemetric Rain Gauge at KSNDMC office

The near-real-time data collection, report generation, and dissemination have been helping the State Government in planning and executing disaster management and mitigation plans at the micro-level.

Know your geology



Main hydrogeological provinces of India

Geology plays an important role in the occurrence of water within a watershed. Water availability is governed by the rock types occurring both at the surface and within the subsurface and the extent of weathering and fracturing of the rocks. India has highly diversified hydrogeologic characteristics. There are six extensively documented groundwater typologies across India i.e. mountain systems, alluvial (unconsolidated) systems, sedimentary (soft) systems, sedimentary (hard) systems, volcanic systems, and crystalline (basement) systems (CGWB). Based on local geology, one can understand the best recharge strategy and the most appropriate recharge tool/structure for the context.

Storing rooftop rainwater for domestic use

When rainwater is a supplemental or primary source of water for domestic use, then designing for storage is essential. Rainwater harvesting systems will have the following 5 basic components: Catchment area including building roofs and paved areas, Gutters, Downtake pipes, Filters, First flush devices, Storage tanks/ponds and Delivery systems till the point of end-use.

Calculating storage size depends on rainfall pattern, rainfall intensity, catchment area, the total volume of daily usage, budget, and space availability. Ideally, in areas where there is severe water scarcity, there may be a need to harvest and store all the rainwater, but this may be inefficient and therefore can be decided based on the consumption needs. For instance, if 1000mm of rain is falling on a 100sqm catchment, for which you would need 10 lakh litre storage, but this is inefficient.

Therefore, an optimal size of a storage tank can be arrived at based on the calculation of daily water consumption, which can be correlated with the total harvestable rainfall. If rainwater is immediately used after collection, more water can be harvested annually for a relatively smaller storage size.

The stored water should have a point-of-use treatment before end-use. For example, appropriate measures should be taken to ensure it meets the drinking water quality standards if it is to be used for drinking purposes.

Integrating rainwater into groundwater management

Groundwater is far more significant in the water-supply of cities and towns but is widely not appreciated, as it is an 'invisible resource' connecting various urban infrastructures. Unaccounted groundwater in urban areas exceeds 50% in 28 Indian cities (CGWB, 2011). While some legislation exists that directly or indirectly seeks to help manage groundwater, the enforcement has been weak and a very big barrier. Given the nature of groundwater development and use, for it to reach a scale that can have an impact for the city as a whole, all users and stakeholders need to become part of the solution and make groundwater a community resource.

Outlined below are a series of things to know about the same:

Groundwater recharge

The percolation of excess rainwater through an infiltration system to the subsurface is called 'Artificial Groundwater Recharge'. The runoff water collected from rooftops and surface water can artificially recharge and augment the depleting groundwater resources, especially in the urban areas, where the natural recharge has diminished considerably. As a thumb rule, it is important to understand the water resources within the city and at what depths these are found, which can then be taken as a baseline to understand the best recharge strategies.



Digging of recharge wells. Source: Biome Environmental

There are different types of recharge structures - a) Recharge pits; b) Recharge trenches; c) Recharge through dry or operational dug wells; d) Recharge through abandoned/existing tube wells; and e) Recharge wells, etc.

Recharge rate tests

A recharge rate test is conducted to assess the recharge rate of an aquifer i.e. to see how quickly water percolates into the ground. In this test, a known quantity of water is pumped into the well/s being tested, and the time taken for it to percolate into the ground is recorded. Measurements are taken of the depth of the water every minute for the first 10 minutes, then after 15 minutes, 30 minutes, one hour, two hours, and so on. From these measurements, the recharge rate of the well/s can be calculated, which helps us understand the recharge rate of the shallow aquifer in that particular area. The more wells that are tested in an area, the better our understanding of that aquifer.

Million recharge wells for Bengaluru

Biome is campaigning "[A million recharge wells](#)": Reviving our responsibility for groundwater. The initiative aims at striking a balance between groundwater extracted and recharged, by digging 10 lakh (1 million) recharge wells across Bengaluru City. The explicit objective of the intervention is to increase the groundwater table in the city while providing livelihoods to the local community of traditional well-diggers (called Mannu Vaddars) in Karnataka. The implicit objective is to build a water culture in the city, where people value water availability, water structures, and also take responsibility for managing groundwater collectively.

A recharge well is basically a hole in the ground into which the rainwater runoff can be directed, such that it percolates into the ground, augmenting the water table. The [recharge well](#) can be a powerful tool and symbol for reviving our relationship with groundwater as it reconnects us to our open well heritage; it reminds us that unless we fill our aquifers up, we will not be able to extract; and that we cannot extract limitlessly. It also teaches us that groundwater is not anyone's private property, but a common pool resource.

Mapping the aquifers underneath our city through participatory approaches

A city or town should be aligned to all sources of knowledge - often this information does not only come from formal institutions such as hydrogeologists, civil engineering departments, water managing authorities, etc but also from the residents, traditional well-diggers, borewell diggers, etc, who also have an understanding of the local aquifer and geology. Therefore evolving a participatory approach towards groundwater mapping, with participation from institutions, schools, etc who can help with mapping is useful.

As a result of this, the recharge of aquifers is managed bottom-up, with each citizen also taking responsibility for managing groundwater, either by documenting it or by digging a recharge well.

People also begin to understand that they might not directly benefit from recharge wells, but if everyone recharges, the entire community benefits.

Outreach and communication

To promote RWH in the city, creating awareness regarding the importance of rainwater harvesting, both for immediate uses and also for sustaining the water table in the long run, is essential. There is a need to shift the initiative from institutional endeavors and make it into a mass movement. There has to be an investment in communicating the city's problems, the existence of laws and legislations and how the law attempts to address this problem, and therefore the role of citizens to implement the law and be part of the solution.

As awareness of the issue increases, more people begin to understand the ecological flows that surround us, and what they can do to protect these systems. It also inculcates a feeling of giving back and emphasizes the importance of doing so.

[1] <http://www.ide-india.org/content/water-india-facts>

[2] <http://www.rainwaterharvesting.org/rural/Traditional3.htm#apat>

[3] <http://cgwb.gov.in/documents/papers/incidpapers/Paper%201-B.M.Jha.pdf>

www.urbanwaters.in

Community platforms that demonstrate RWH are useful for understanding the overall scenario. www.Urbanwaters.in web space seeks to inform, guide and provide any and all resources to all of us to make us water literate, solve our individual or community water problems and act responsibly by taking care of our common urban water resources. It seeks to help make us a part of the solution rather than being a part of the problem.

aatmaNEERbharta - A Journey towards Water Sustainability

Mr.Setu Shah, Founder, Sujalaam, www.sujalaam.com

INTRODUCTION TO THE CONCEPT OF SUSTAINABILITY

What is considered "sustainable" in one location may be a challenge to sustainability elsewhere. Sustainability is a concept that describes the dynamic condition of complex systems, particularly the biosphere of Earth and the human socioeconomic systems within it. It reflects both our fundamental values and our knowledge of nature and life on Earth.

Sustainable water supply is a component of integrated water resource management, the practice of bringing together multiple viewpoints to determine how water should best be managed. Sustainable water systems should provide adequate water quantity and appropriate water quality for a given need, without compromising the future ability to provide this capacity and quality.

It is clear that because water is essential to all life, water resources management, using the principles of sustainable development, will be essential for achieving sustainability.

RAIN RICH INDIA

India is extremely fortunate to receive 120 cm rainfall annually against the world average of 80 cm which is the maximum rain per sq. mt. in the world. It's even said that our country will get submerged in 3 feet of water. Yet ironically, we are the 13th Most water stressed country in the world. India's water crisis is often attributed to lack of holistic planning, increased privatization, industrial and human waste, and corruption. In addition, water scarcity in India is expected to worsen as NITI Aayog predicts that by 2030 - 40% of the population will have no access to drinking water and 6% of our GDP will be lost.

HISTORY OF WATER IN INDIA

Bharat was known as Golden Sparrow

Ancient India (from 3000 BCE to around 10th century AD) is the period when India was known as the "Sone Ki Chidiya" (a Golden Sparrow). This era witnessed cultural confluence and economic boom at many junctures, yet the fabric of traditions never got destroyed. Even today people say 'Jaha Daal Daal par sone ki chidiya karti hai basera' (*where the golden sparrow dwells on every branch of a tree*).

Traditionally Indians worshipped both water and rain as "Jala" and "Varuna". Even rivers were worshipped. Till 3000 B.C., Rainwater Harvesting & Recharge happened without human effort as rain got collected in rivers and natural depressions. Civilizations flourished on riverbanks all over the world. Indus valley civilization in India. From 3000 B.C. to 1800 A.D., Rainwater Harvesting & Recharge happened with human effort. Indians harvested rainwater using different methods. These

methods depended on local conditions. Different parts of India used different structures for harvesting rainwater. Some examples are:



Figure 1: Tankas

Source: <http://www.inaplanetofourown.net/assets/>

[papers/Spruha%20P.%20Chokshi%20-%20Cumulus%20Mumbai%202015.pdf](http://www.inaplanetofourown.net/assets/papers/Spruha%20P.%20Chokshi%20-%20Cumulus%20Mumbai%202015.pdf)

1. North: Zing in Leh Ladakh
2. East: Bamboo Irrigation and Zabo in NorthEast
3. South: Jack Wells in Andaman & Nicobar, Eri in Tamil Nadu
4. Central: Pat in Madhya Pradesh, Ramtek in Vidharbha
5. West: Tankas and Step Wells in Gujarat, Bawri & Jodhads in Rajasthan.

Drawing upon centuries of experience, Indians continued to build structures to catch, hold and store monsoon rainwater for the dry seasons to come. Skilled people managed these structures over generations. These sustainable traditional techniques, though less popular today, are still in sustainable and efficient.

Talab

Talabs are either natural or man-made reservoirs that store water for household consumption and drinking purposes. They were also built to regulate the flow of water and prevent flooding. Talabs were at the core to recharge rainwater via aquifers and used as surface water. Several ponds were built across Gujarat during the 15th Century for both irrigation and drinking water.

Taanka

Taanka is a traditional rainwater harvesting technique indigenous to the Thar desert region of Rajasthan. A Taanka is a cylindrical paved underground pit into which rainwater from rooftops, courtyards, or artificially prepared catchments flows. Once filled, the water stored in a taanka can stay in same condition for years together. An important element of water security in arid regions, taankas can save families from the everyday drudgery of fetching water from distant sources. Tanka is mainly used for storing roof rainwater to be then used for household purposes.

This history reflects the ingenuity and wisdom of our forefathers who made harvesting of water and its management an integral part of the native culture and community life. These practices were perceived by the common man as his sacred duty and by the communities as part of good local self-governance and social responsibility. This Water-Wisdom at all levels of society ensured adequate availability of water for all, which in turn, formed the basis for all round development and prosperity. Water, Forest, and Community interdependence worked hand in hand and allowed multiple civilisations to flourish in India.

If one were to draw the essence of the past, one would say that it was the openness to investments, openness to ideas, a scientific temper which had propelled India to that position in the global economy at that time. India was once upon a time, big economic power in the global economy.

TODAY DEPENDENT; INDEPENDENT INDIA

We all know water is essential, but too many of us think it's unlimited. Fresh water is a finite resource that is rapidly becoming scarce. In India, a warming climate is drying up lakes and rivers, while rapid urbanisation and water pollution are putting enormous pressure on the quantity and quality of surface and ground water. The country's fragile agricultural system still is now depending primarily on groundwater creating havoc on the national economy.



Figure 2: The water crisis

Source: <https://www.ecowatch.com/8-major-cities-running-out-of-water-1882061458.html>

Our path towards this water crises started in 1960 when we started to draw water through tube wells instead of surface water sources like ponds and rivers. This scalding journey has seen water bodies vanish, an unplanned centralised water supply come up, subsidised rates and the devaluation of water, immense wastage of water, the pain of water becoming a commodity and various levels of mismanagement of water especially as the generations have come to take water supply for granted.

Nearly 40% of water demand in India is met by ground water. As a result, ground water tables are falling at alarming rate of 2-3 meters per year. Water scarcity has many negative impacts on the environment, including lakes, rivers, wetlands, and other freshwater resources.

India is the second largest urban system in the world with almost 11% of the total global urban population living in Indian cities. The country has reached a turning point in its journey of its economic transformation wherein half of the country would be 'urban' in a few decades. (MoHFW, 2019). Indian cities produce nearly 40,000 million litres of sewage every day and barely 20% of it is

treated. 80% of sewage in India is untreated and flows directly into the nation's ponds, lakes, and rivers, polluting the main sources of drinking water and further seeps into groundwater, thereby creating a ticking health bomb in India. Weak or non-existent enforcement of environmental laws, rapid urban development, and a Lack of awareness about the dangers of sewage are all blamed for water pollution. Untreated sewage is killing Indian rivers. A 2011 survey by the Central Pollution Control Board revealed only 160 out of nearly 8,000 towns had both sewerage systems and a sewage treatment plant.

Regardless of improvements to drinking water, many other water sources are contaminated with both bio and chemical pollutants, and over 21% of the country's diseases are water related. The concern is that India may lack overall long-term availability of replenishable water resources. While India's aquifers are currently associated with replenishing sources, the country is also a major grain producer with a great need for water to support the commodity. As with all countries with large agricultural output, excess water consumption for food production depletes the overall water table. Many rural communities in India who are situated on the outskirts of urban sprawl also have little choice but to drill wells to access groundwater sources.

THE WAY FORWARD TOWARDS AATMANEERBHARTA

Sustainable development was explicitly popularized and contextualized by the Brundtland Commission in the document "Our Common Future" where it was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (UN, 1987). Sustainable water means a nation that can be water self-sufficient: ensuring there is enough water to meet multiple needs, from agriculture to municipal and industrial. It also means water supply will remain consistent, despite climate change impacts, such as a lack of rainfall and drought, or too much rain and being flood resilient. Sustainable water also means that the economics stack up in matching supply and demand and the water delivery process is as efficiently as possible. Water sustainability can also mean energy neutrality by coupling traditional water treatment technologies with renewable energies.



“जीवेषु करुणा चापि
“विधीयताम्। तेषु मैत्री

Compassionate and Friendly to all Living Beings

Figure 3: Achieving Water Sustainability

Source: <https://www.wateronline.com/doc/sustainability-report-creating-a-water-secure-world-0001>

The very concept of 'aatmaNEERbharta' is based on the philosophy of being self-reliant in water for our daily need. Reviving existing water bodies, smart farming, responsible industrialization, re-using wastewater, harvesting, and recharging rainwater are the most suited saving grace of survival. Water is a finite and irreplaceable resource that is fundamental to human well-being, but it is only renewable if well managed.

aatmaNEERbharta THROUGH CHANGE IN OUR ATTITUDE

The fundamental issue facing everyone is how to reconcile our desires for all of us on this globe to have a good life with the constraints imposed by the availability of a renewable, but limited, water resource. It can be done. Let our optimism be a torch to light the way forward!!!

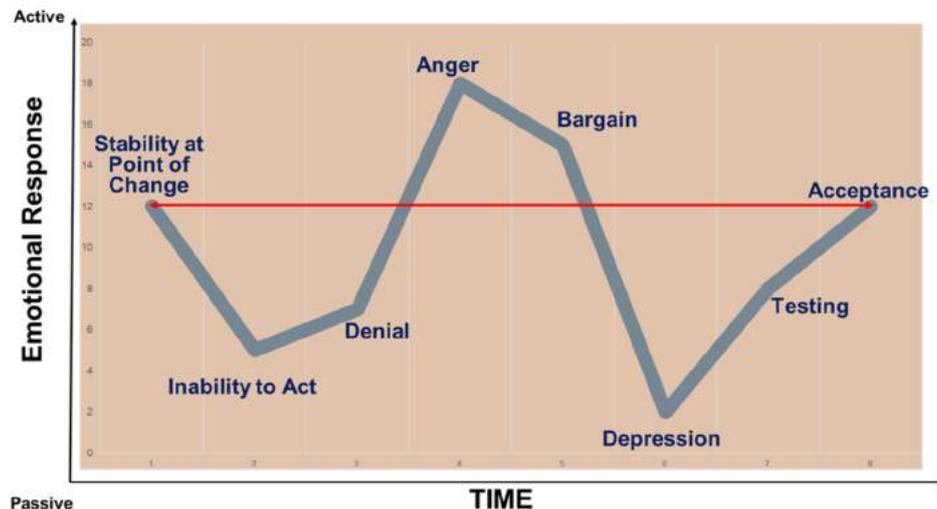


Figure 4: Attitude Change Process

Source: DK Series - Managing Change

Water distinguishes our planet compared to all the others we know about. Our notion that water is an infinite source available at our beck and call is almost illusionary for now we are realising just how very finite this elixir of life is.

There is an immense need to heighten the awareness to bring about a change in our attitude towards water management, the significance of comprehensive water management, its socio-economic benefits and ability to mobilise finances for development of our nation.

A FEW ECO AND POCKET FRIENDLY SOLUTIONS

A few solutions which can be adopted by communities for water conservation include:

- Roof Rain Water Harvesting Systems, for residential, office, government, school, college buildings
- Surface Runoff Water recharge for farms, gardens, large campuses
- Excess water recharge for water bodies including lakes, ponds, rivers
- Waste water management using efficient techniques, e.g. Root zone treatment

SUJALAAM

Sujalaam is an organizational setup which aims at nurturing communities and the nation towards achieving sustainability in water. With increasing awareness on saving water, we realized the need for having water harvesting solutions in our premises which can also educate our future generation on the need and options to conserve water. Our approach to aatmaNEERbharta is a geographic approach that helps in systematic understanding and optimizing the quest of Water Sustenance.



Figure 5: Rainwater recharge for flood mitigation at Torrent Pharmaceuticals Campus



Figure 6: Saraswati Kanya Vidya Mandir School - Dholka

CONCLUSION

There is no escape from the fact that the need and demand for finite and vulnerable water will continue to expand and so will competition for it.

More uncertainty in water availability, higher frequency of extreme weather events, and more rapid return flow of water to the atmosphere are expected in the future.

We Indians are fortunate to receive maximum rain per sq. mt. in World. Let us change our attitude towards water management by adopting Decentralised Nature Based Water Management Systems and make India the Golden Sparrow again.

To become aatmaNEERbhar in your water needs reach out to us on namaste@sujalaam.com

WIN Foundation - Events and Programs



RAINWATER HARVESTING TRAINING FOR PLUMBERS

WIN Foundation in association with Sujalaam and Expert Building Solutions organised an awareness and practical training event on Rainwater Harvesting for over 40 Plumbers on 1st April'22 at Ahmedabad.

Mr. Setu Shah, Director of Sujalaam, with his vast expertise in RRWH systems on ground in industries and residences, conducted the training program. Sujalaam (<https://www.sujalaam.com/>) is a group of water managers, leading to water sustainability by preserving water in a dynamic state and bridging various gaps within nature's hydrological cycle to balance water elements on Earth. The session was facilitated and supported by Mr. Vishal Shah, Partner of Expert Building Solutions. Expert Building Solutions offer one stop solution for construction and interior material needs.

Mr. Setu Shah held the plumbers spellbound with his concise and comprehensive coverage of grass root level topics like need and importance of water harvesting in India, India's tradition water storage methods, our journey towards water crisis, Drinking water issues, Importance, need and process of - Harvest-Recharge-Reuse-Reduce, Roof water harvesting, and run-off water recharge.

Mr. Vishal Shah enlivened the training with fun and ice-breaking games, making the session more interactive and interesting for the participants.

40+ plumbers who actively participated in the training, promised to commit themselves to promote and spread awareness on Rain water harvesting in the societies / communities, which will also in future become a business or earning path for them.

Link to session Video -

<https://www.youtube.com/playlist?list=PLhdu7QmMqv9vQHlyUKfbMrHmxBS3C1zI>

For more information, please feel free to write:

Sujalaam : namaste@sujalaam.com

Expert Building Solutions : info@expertbs.com

WIN Foundation : info@winfoundations.org



It was a great initiative by WIN foundation with the support of Sujalaam and we are happy to be a part of this event and noble cause for water

We will try to make an impact on ground with positive results.

-Mr. Vishal Shah, Partner, Expert Building Solutions

The training was very nice and now wherever we go for work, we advise our client about the rain water harvesting system. This system is actually old that it exists in our old city houses of Ahmedabad, which I already knew about underground Tanka. But it was an insightful learning for us to know about the same system can be done differently and The session team explained it very well. We will keep spreading awareness about this wherever we go for work and I also think that this kind of training should happen frequently.

Mr. Kanjibhai Madhad, Plumber

VISHWAKARMA PRIZE - 2022

Vishwakarma Prize Competition encourages and rewards top innovators among engineering students focused on building practical systems

This year's competition was launched on 5th January' 2022, jointly organised by Maker Bhavan Foundation and WIN Foundation and partnered with Kiran Patel Center for Sustainable Development at IIT Gandhinagar. The theme for 2022 is Water & Sanitation.

The competition was extended to 28th February 22, due to partial covid lockdowns on campuses and labs.

With an overwhelming response of 110+ application from young innovators across the nation from top-tier universities in India – IITs, IISERS, NITS, BITS Pilani, Nirma University, CEPT University and many other colleges of India, our domain experts shortlisted 28 teams. These teams will work on a prototype for 4 months. The teams will be provided with funding and mentoring support. Out of these, our panel of experts will identify 10 top finalists who will travel to IIT Gandhinagar for the final assessment before an illustrious jury from Industry and Institutions, where the top winners will be announced. The grand finale will be held on 27th August'22 at IIT Gandhinagar.

For more details please visit :

<https://www.winfoundations.org/vishwakarma-award-for-engineering-innovation/>

<https://makerbhavanfoundation.org/awards/>



In the above embedded video, Mr. Ron Mehta, President of WIN foundation, and Mr. Paresch Vora, Director of India operations, discuss with Mr. Hemant Kanakia, Founder, Maker Bhavan Foundation, about (i) WIN foundation programs, (ii) its work in supporting innovators in Water and Sanitation and (iii) the importance of student innovations in this domain.

INSTITUTIONAL COLLABORATION / ASSOCIATION :

WIN and iHub Gujarat - Memorandum of Understanding

WIN Foundation has entered into a Memorandum of Understanding with iHub Gujarat (Gujarat Student Startup and Innovation Hub) for supporting social impact startups and innovations from students across hundreds of campuses in Gujarat, part of iHUB network.

This mutual collaboration aims to support the development of technology entrepreneurship in general and help socially responsible start-ups to define design and bring to life meaningful innovations. WIN Foundation will support iHUB programs to



- (i) build student awareness of challenge areas
- (ii) mentor startups
- (iii) offer WIN Market validation program to qualifying startups from iHUB

About iHub : <https://ihubgujarat.in/>

WIN – ACT- IDNU - Tripartite Memorandum of Understanding



WIN Foundation Arid Communities and Technologies and Institute of Design, Nirma University (IDNU) entered into a Memorandum of Understanding to support the activities which help promote innovations for social impact among poor and lower middle-class communities in rural, tribal and urban slum areas, primarily in domains of (i) Water and Sanitation including smart agriculture and (ii) Maternal and Child.

This tripartite collaboration aims to continuously examine and explore possibilities of working together with respect to followings:

1. Jointly explore projects, programs and activities towards achievement of the core objectives, which may be carried out jointly by Faculty, Research staff and students at the Institute of Design- Nirma University, staff of ACT and WIN, and staff of partners of any of the parties.
2. Support innovations for social impact through
 - Joint evaluation of startup support opportunities

