



**MARATHWADA GRAMIN
VIKAS SANSTHA (MGVS)**

Cover Story
- Shri Vinod Hande

जलसंवाद



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Jalsamvad



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We have started noticing the visible effects of Climate Change. There is no country in the world where water has not created a problem. Cloud bursts, heavy rains, uncontrolled floods have destroyed human life so also properties everywhere. Most of the roads were converted into rivers, agricultural fields into small lakes, rain water entered the houses where normal life became difficult. Before remedies could be found out, again there was a second wave adding fuel to the fire. Number of people lost their life and many cultivators committed suicide when they saw their crops being swept away by heavy floods. Number of villages lost contacts with nearby towns and cities. Movement of material and men became extremely difficult. Even the help could not reach the needy people in time.

There are some rain shed areas in the country which are always facing drought conditions, where rainfall is very scanty. But, to our surprise, those areas also received heavy rains. Increased temperature results in heavy evaporation, clouds are formed and in the evening those clouds release water causing heavy downpour even in these rain shadow areas.

Insurance facility miserably fails here. If some people, in some areas face any problem insurance comes to the rescue. But here, the problem is so grave that the insurance cover miserably fails here where all are affected at one and the same time.

Some philanthropists, temples have come forward to the rescue by giving donations to this cause but their help is just a drop in the ocean. It is the Government organizations only which can be a savior. Surveys are in progress and soon the aid would come forward. Central Government also has shown the willingness and soon this aid also would be released. In giving the aid, one thing is very clear that the entire loss can never be covered.

If such situation occurs, its impact is there for at least next three to four years, sometimes even more years. First impact is on the morale of the people. The source of income stops and day to day survival becomes difficult. Help from the Government is a temporary solution. That help does not cover the entire loss. Many of the people go in depression and there is a disastrous effect when the head of the family commits suicide. And if such incidents occur again and again, the agricultural economy is completely shattered.

If normal floods are there, they can be managed but if such a heavy downpour is there, that causes irreparable loss to the economy. Such floods also are associated with land slides. At places, there is heavy soil erosion where the impact lasts for years. All that loose soil enters the streams and rivers and their water holding capacity gets reduced.

Till now, we were taking this climate change very lightly. We were not at all prepared to face such dreadful impact. This incidence will prove to be a great eye opener for all of us. Government machinery, student of geology, hydrology, planners should come forward with a effective plan so that such incident does not recur again.

Dr. D. G. Deshkar, Editor.

Organization - Gramin Vikas Sanstha (GVS)

Shri Vinod Hande

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(In June 2021 it was decided by the editor of this Jalsamwad magazine, Dr. Datta Deshkar to introduce the readers to the organizations working in the field water on national and international level. He asked me to shoulder the Responsibility. Introduction to organizations we have started from July 2021 issue of this magazine. Today I am very much happy to say that we have introduced to the readers 50 such organizations up till now. This is the 50th organization you are reading about. Moreover, this is not the end of our journey. Our journey is ON.)

Though the India is a country of farmers villages in India are still facing a lot problems especially in the areas like water scarcity, sustainable agriculture development, poverty, ecological imbalance, health hazards, problems of women, children illiteracy etc. The Sanstha was formed for working towards above goal by some young men under the leadership of Shri Narhari Shivpure called Gram Vikas. The Sanstha was working under the Chairmanship of Senior Freedom fighters and winner of President Award Shri. B.D. Patil. The Sanstha is working towards the goal of sustainable development with the support of various section of society. Area covered by the Sanstha are water resource management, sustainable rural development, training, research, health and empowerment of women.

Self-reliant motivated and disciplined society is the goal of the Sanstha. Sustainable rural development through people's participation is the motto of Sanstha. Gram Vikas Sanstha came into existence in 1995 with an intention to make sincere

efforts to achieve goal of rural society with active participation of society. Though the GVS started its work from 1995 but officially it was registered in 1998. GVS is registered under Society registration act 1860, Bombay public trust act 1950, and foreign contribution regulation act 1860. It is also registered under IT Act under section 80G for tax exemption. In 2019 GVS was honoured with "NGO leadership Award".

To enable the society to achieve complete development through efficient management of natural resources for sustainable agriculture development, poverty reduction, empowerment of women, and education for self-reliant society is the mission of GVS.



Objectives of GVS

- Implementation of sustainable rural development programs through people's participations keeping water, land and man at the centre.



- Implementation of various health awareness programs, education, literacy, and empowerment women and children.
- Implementation of various training camps, workshops, seminars, public awareness in different section of society.
- Establishment of likeminded voluntary organizations for expanding work for rural development.

Operational area of Gram Vikas Sanstha covers 8 districts of Marathwada region and 1 district of North Maharashtra Region. So, to say they are working in 50 blocks of 9 district. These 50 blocks cover more than 500 villages. To date more than 20 lakh people are benefited through the programs of GVS.

Districts of Marathwada region	District of Maharashtra Region
Aurangabad	Nasik
Beed	
Osmanabad	
Hingoli	
Jalna	
Nanded	
Parbhani	
Latur	
District -09	Block- 38 Villages-2500+

Achievement of GVS till date are,

- By implementing Integrated watershed



Organizational Structure



development programme over land of 50,000-hectare area nearly 50 villages become drought free.

- By implementing different projects in 2500 villages, over 5 lakhs individuals are benefited.
- GVS has reached at the grass roots level with co-operation of Sakal media group. They implemented 'Jal Pher Bharan Abhiyan' in Marathwada region. Through this Abhiyan villages become drought free.
- GVS has established more than 600 self help groups for women till date, that provided jobs to 8000 women.

Projects run by GVS for the betterment of people are listed below

- Watershed Management and Sustainable Rural development
- Training Research
- Human Development
- Other Projects

Watershed Management and Sustainable Rural development

GVS says if we are to establish self-reliant and independent villages as dreamed by Mahatma Gandhi, we need to follow time bound action plan taking into consideration the need of the society regarding Water, land, People and cattle for sustainable rural development. The GVS is trying to achieve this through the following programs.

- Vasundhara-IWMP
- VSTF
- Bajaj CSR Water Conservation Project
- Adarsh Gaon- Our Development is in our Hand.
- Agriculture information and counselling centre
- Jalswarajya – ‘APLA PANI’ Project
- National Rural Drinking Water Program
- Water Conservation.

Vasundhara : The “Vasundhara” project is run by the financial support of Rural Development Ministry, under the Ministry of Central Government. Project site is 12 km. from Aurangabad city. GVS implements this project in the area of 6427 hectare which covers 25 villages Tande, Wadi, Basti. 15000 people are covered under this project. Under this project 22 percent of population are those who are below poverty line and 10 percent landless population. In project area rainfall is 650 mm and permanent irrigation of 441 hectare land. Activities completed under this project,

- For capacity building 60 training camps were organised giving benefits to 3000 people.
- By constructing 36 roads, public meeting hall, all villagers of the project area are benefitted.
- By doing 2500 h. compartment bunding, 11 farm pond, 15 CNB and 1 MNB groundwater level



increased in project area and also increased availability of clean drinking water.

VSTF (Village Social Transformation Project : Integrated Rural Development is the object of this project.

GVS implemented the Villages Transformation Project under Maharashtra Village Social Transformation campaign in 8 villages from Chitte River basin near Aurangabad city. State level target under this project,

- To achieve sustainable development in 1000 villages in Maharashtra
- Provide basic infrastructure facilities in these 1000 targeted villages
- Improvement in agriculture
- Efforts towards enhancing the human development index.
- To ensure availability of sufficient potable water to everyone in project area.
- To minimise mother and child death rate.
- To provide education .

Bajaj CSR Water Conservation Project : Aim of this project is to enhance the standard of living of the people through people’s participation. Capacity building of farmers for effective water management, and to increase the ground water level by effective water management are the objectives of this project.

Kachner and Khodegaon villages were selected for this water conservation project. Both villages are situated on Aurangabad-Beed Road around 40km from Aurangabad city. GVS implemented this project in coordination with AFARM and Bajaj. Outcome of this project.

- Irrigated 50 hector agriculture land in both Kharip and Rabbi season.
- Increased ground water level by 2 to 3 meters.
- Increase in agriculture income by 50 percent.
- Employment to landless people.

Adarsh Gaon : Our Development is in our Hand- GVS has started this “Our Development is in our Hand” in 2003 at Wawa village of Paithan taluka of Aurangabad district. Wawa village is having 95 houses with a population of 519. Out of these 95 houses 23 household are from below poverty line and 18 houses are landless people. To achieve integrated development of village 15 self help groups has been formed, that helped women and young girls to earn livelihood by active participation. Grazing, tree cutting, alcohol, open defecation, and bore wells are banned in this Wawa village for development of village. The Maharashtra government has awarded ‘Adarsh Gaon’ status to Wawa village in 2011.



Agriculture information and counselling centre :

This is GVS training program. GVS implement ‘National Agriculture Technology Project’ with the support of ‘Agriculture Technology

Management Agency (ATMA), Aurangabad. It is located at Girnera in Aurangabad taluka. 192 villages of Paithan taluka are the beneficiaries of this project. Following information is provided to villagers 1) rate of agriculture product, 2) training related to agriculture, 3) Agriculture planning information, business related to agriculture, books related to agriculture, agriculture tourism etc.

Jalswarajya : ‘APLA PANI’ Project- GVS has implemented this ‘Apla Pani’ project in rural area to solve water shortage, lack of drinking water problem. GVS believes that sustainable water facilities can be created through the Jalswarajya and Apla Pani program. This program is implemented with the help of World Bank and Government of Germany in 11 villages of Udgir taluka, 6 villages of Songaon taluka in Hingoli district, 7 villages of Nifad and Yeola taluka in Nasik district, 11 villages of Paithan and Gangapur taluka of Aurangabad dist. Out come of this project

- Through 403 capacity building training 10253 benefited.
- Through 363 Women empowerment and self-help group 5445 are benefited.
- By constructing 1750 toilets 8750 are benefited.
- Through 35 water supply program 84552 are benefited.

National Rural Drinking Water Program (NRDWP) :

Safe drinking water for drinking is the right of every individual. It is basic necessity for life. Due to lack of proper water management in Maharashtra it is difficult for any individual to get safe drinking water. GVS has implemented this program which is run by central government of India. The ground water level is also decreasing year by year. To over come the issue of water shortage and polluted water problem GVS is implementing this National Rural Drinking Water Program in 45 villages of Aurangabad, Latur and Jalana districts of Maharashtra. Activities covered under this program are like construction of cement bands, ground water recharge program, rain water harvesting, digging of ponds in village to conserve water and to increase the ground water level.

Water Conservation- It is a very important program of Govt. of Maharashtra. Maharashtra govt. has decided to implement with a view to improve the lifestyle of the people in rural areas to achieve rural development. To develop agriculture from water resource development and to solve the serious drinking water problem is the need of the time says GVS.

For this purpose, JBGVS, AFARM and GVS have implemented this program jointly in a planned manner. Sufficient funds are made available by JBGVS to start all works concerned with ridge to valley development. In GVS views programme will be more effective and successful provided co-ordination between technical experts, work scheduling and quality, involvement of rural people etc.

Purpose water conservation program

- To minimise soil erosion and silting
- To minimise the intensity of flood on down slopes.
- To improve groundwater recharge
- To manage irrigation and water sanitation
- To control water logging and salinity problems.

Training Research

The Marathwada region of Maharashtra state is one of the backward regions of the state. This region is behind in health, education, agriculture, empowerment and other facilities are not available in this region. GVS has taken initiative of developing this region. To accelerate the work of development GVS has organized training program for the stakeholders of the society. GVS has provided training on the topics of agriculture, education, health, women empowerment. Training is also given to the officers of rural development, individuals and organizations. All these trainings are given at GVS Bhawan, Aurangabad. GVS conducts training activities under the project of PANCHAYAT RAJ, Backward Region Grant Fund Program (BRGF), Vasundhara, Swarna Jayanti Rozgar Yojana etc. that focus on rural masses. These are all flagship program of Govt. of India. Under Jal Jeevan Mission program 16826 people took training of 4944 Gram

panchayat of Aurangabad and Jalna districts. Similarly, 7267 people of 1648 blocks took training under Swachh Bharat Mission of Aurangabad and Jalna dist. of Maharashtra.

Human Development

According to India Human Development Index 250 districts of India comes under back word region. Out of 250 districts, 12 are in Maharashtra and 3 in Marathwada region. The ministry of Panchayat Raj implementing various schemes in the field of Health, Education, Livelihood etc. Govt. of Maharashtra has appointed GVS to implement above programs. GVS have also conducted survey in block of Himayat Nagar and Kinvat block of Nanded district and submitted report to the government.

Abhiyan of GVS

In addition to above program GVS run Abhiyan in following sector.

- Rain water harvesting campaign
- Chitte River rejuvenation Abhiyan

Rain water harvesting campaign : This Abhiyan is also known as 'Jal Pherbharan Abhiyan'. India is a rich country but Indians are poor says one of the Swiss bank directors. He also said India has ample natural resource available, human power; knowledge power all this thinks make this country a very unique country. It has been said that if third world war will happen in this world then the reason will be water. Therefore, proper utilization of water and its proper management is very important. Global warming has made it more critical for living being. In rural area women walk down 3.8 km. a day that makes 1400 km. in a year. In Maharashtra every year in 20000 villages water is supplied by tankers. 70 percent of villagers fall sick due to consumption of contaminated water. GVS has taken initiative in villages of Marathwada region by providing watershed facilities, rain water harvesting, bunds on rivers, small ponds in farms etc. The goal and objective of rain water harvesting are,

- Creating awareness regarding the natural resource management and its importance.
- Water harvesting program to overcome from

water shortage in draught area.

- Involvement of college students in the activities for sustainable development of natural resources.
- Water harvesting technology of low cost, reuse of water and awareness and water management programs.

Activities under water harvesting campaign workshop

In the water management workshop GVS invites representatives from schools, colleges, society, colony, NGOs and following activities are carried out like 1) Awareness through exhibition, 2) Competition program at ground level, 3) Public awareness, 4) Free technical guidance, 5) New initiatives survey and research, 6) Public awareness camps related to govt. program.

Chitte River Rejuvenation Abhiyan :

Since its foundation GVS is working in field of water management. In 2012 drought Marathwada region suffered lot. Because of shortage of water fruits and agriculture products were destroyed. Many farmers have committed suicide because of burden of loan. GVS has taken the initiative to change the situation of the villages suffering from shortage of water. GVS has already implemented its project in Sindon, Bhindon to Akot, Pachod, Chitegaon, Apatgaon etc. under the Vasundhara project. Chite river flows from these villages and cover the distance of 16.5 km. 15000 people are dependent on this river. GVS has started this project so that water can be available throughout the year even if there is less rain fall with proper water management. Objectives of this Abhiyan are mentioned below.

- Surface water is decreasing every year
- Wastage of water during the rainy season
- Increasing population need more water
- To eliminate water evaporation
- Water conservation for next generation
- Natural resource awareness
- Water management and its efficient usage
- To provide water to every living being like, birds, animals etc.

Outcome of the Abhiyan

There is positive output from this project and they are as follow.

- Increase in ground water level
- Increase in irrigation area
- Increase in agricultural production
- 300 Jal Mitra (water friend) are working for the project.
- Flood and soil erosion controlled
- Women empowerment



Partners of GVS

From the big list of partners and supports of GVS few are listed as below,

The World Bank, Central Government, Sakal, USAID-India, LIC of India, Bajaj Auto, Maharashtra Village Social Transformation Foundation etc.

Donation

It is not a single person's job or capacity to help all the needy. GVS appeals for donation that helps them in several ways. GVS is working for the people of rural area since their foundation, it was possible for them because of generous contribution to the noble cause from society. Hence Gram Vikas Sanstha appeal to all for direct donation to them in their Bank account. Bank details are given on their website.

Further details of Gram Vikas Sanstha about there are available on their website. For interested

readers GVS's address and other details are given as under.

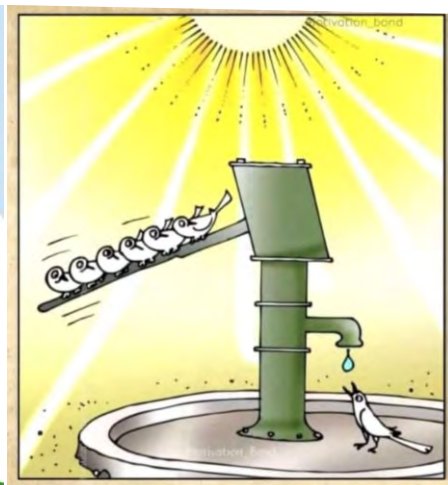
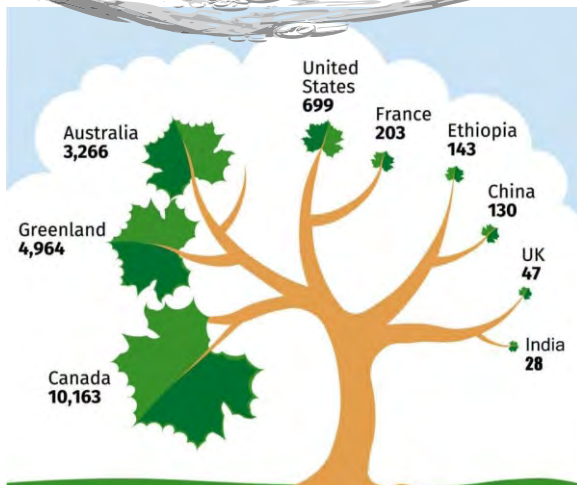
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Legal Status to Ganga & Yamuna rivers

Press Note

Shri Rajendra Singh, (M) : 9414066765



A national level discussion on “Why and how to grant legal status of ‘Living Mother’ to Ganga and Yamuna rivers” was organized on 25th August 2025 in New Delhi under the leadership of Rashtriya Jal Biradari.

Key Highlights

Unanimous Resolution: To seek legal status of “Living Mother” for the Ganga and Yamuna rivers.

Six Task Groups formed:

1. Parliament Group – To secure political support from Mps.
2. Legal Group – Led by Sanjay Parikh and Sudhanand ji to revive the pending Supreme Court case.
3. Research & Documentation Group – To compile spiritual and cultural significance of the rivers.
4. Awareness Group – To conduct public campaigns in Ganga–Yamuna regions.
5. Knowledge Sharing Group – To publish a book by Arun Tiwari on the subject.
6. To prepare 'Ganga Law Draft' in collaboration with legal experts, jurists, social, environmental and Ganga lovers.

Global and Legal Perspective

River Whanganui in New Zealand, River Atrato in Colombia, River Turag in Bangladesh, and River

Magpie in Canada have granted living-entity status and protected their rivers. In the year 2017 Ganga and Yamuna rivers also granted this status by Uttarakhand High Court, but later the order was stayed by the Supreme Court.

Collective Commitment

Protect the rivers from encroachment, pollution, and exploitation.
Fulfill the cultural, moral, and constitutional responsibility of recognizing the rivers as “Living Mothers.”

Key Participants

Swami Shivanand Saraswati (Matri Sadan), Sanjay Parikh (Senior Supreme Court Advocate), Dr. Rajendra Singh (Waterman of India), Arun Tiwari, Ramesh Sharma, Neeraj Kumar, Dr. Indira Khurana, Satyanarayana Bolisetty (National Convener, Jal Biradari), and over 70 representatives from the Ganga–Yamuna basin regions.



Mysterious river found under the Ice cover

Mysterious river found under two kilometers of ice sheet, Scientists are speechless , what is the significance of the new research ?



Scientists have discovered a mysterious river beneath the thick ice sheet of East Antarctica.

Scientists discover 34 million year old hidden river Antarctica is a continent located on a plateau in the southern hemisphere of the Earth and is surrounded by the Antarctica Ocean. On the other hand, the North Pole is located under a continuous ice sheet in the Arctic Ocean. The North and South Poles are hidden under the thick sheet of ice all year round, so many parts of this region have not been explored by humans even today. Therefore, many secrets are hidden in this area even today. Now scientists have found a mysterious river under the thick ice sheet of East Antarctica.

The river is said to be more than 30 million years old. Scientists say that his river has been hidden in this icy region, which is more than 10 million square kilometers wide, for a long time. How exactly did scientists discover this river ? What is the significance of this new research ? Let's find out about it.

How exactly was the river discovered ?

- A team led by Stewart Jamieson from Durham University made the discovery with the help of the Canadian satellite system RADARSAT.
- This technology helped them identify small changes in the ice surface, and thus discovered this hidden place under the ice.
- In this search, scientists have found a land carved out by the river.
- Scientists say that this area was covered by a sheet of ice of almost two kilometers.
- Jamieson told Brighter Side News that the discovery is like finding a time capsule.

He said that this land was protected under the thick sheet of ice. This river has been here since before there were glaciers. This means that this river has existed since the time when Antarctica was not an icy region. At that time, Antarctica was part of the supercontinent Gondwana. This supercontinent also included Africa, South America and Australia. At that time, instead of ice, Antarctica had flowing rivers, forests and dinosaurs. About two crore years ago, glaciers formed in this region and the situation changed. At that time, scientists say that this region also disappeared under the ice sheet.

Antarctica's journey from Gondwana to the glaciers :

The East Antarctica Ice Sheet began to form around 34 million years ago during the transition from the Eocene to the Oligocene. At that time, global temperatures dropped and carbon dioxide levels fell below the threshold. High mountains

such as Gamburtsev Subglacial Mountains and the Transantarctic Mountains became the nucleus of the growing ice mass. Over millions of years, these mountains expanded into glaciers and eventually merged with the ice sheet. Around 17 to 14 million years ago, during the Miocene, climate changes caused the ice sheet to expand. Some evidence from marine sediments suggests that there were several climate changes during the warm period, the mid - Pliocene and Pleistocene interglacials. This affected the region.

What is the role of technology in this discovery :

Using the RADARSAT satellite system, scientists observed subtle changes in the ice surface. These signals helped them find the hidden terrain. The scientists used radio - echo sounding (RES) and computer models to study the land below. Their findings revealed a terrain that did not match modern ice flow patterns, suggesting that the river was formed much earlier. The scientists used flexural modeling to determine whether this ancient terrain was eroded by natural changes.

Why is this discovery important ?

Understanding the climate of this region helps scientists predict how the East Antarctic Ice Sheet will fare in our warming world. In a study published in Nature Communications, Jameison's team said the discovery is important for climate science. The discovery could provide a wealth of information about Earth's past, present and future. By unraveling the secrets of this region, we can prepare for future climate challenges. It could also help protect fragile ecosystems, the scientists said.

What are the consequences of melting ice sheets ?

A large amount of glacial ice spread over the land is known as an ice sheet. There are now two ice sheets in the world. One on Greenland and

the other in Antarctica. Together, these two places contain about two - thirds of all the fresh water on Earth. It is said that this sheet is melting due to climate change. As a result, coastal regions may suffer due to the rise in sea levels. Therefore, this discovery is also considered important to prevent future threats.



This river is said to be more than 30 million years old.



Note : While designing the issue of Jalsamvad - English we find very interesting news, information and articles specially on water and its management. That tempts us to include the same in our issues. Getting formal permission for this inclusion is that way difficult. Therefore our effort is to print them as it is in our magazine. We may kindly be excused for such inclusions. We express a deep sense of gratitude to the original writers.

Thanks.

Dr. Babasaheb Ambedkar's Water Socialism &

the Vision for Sustainable Development (Part - 7) Dr. Dattatrya Gaikwad

(Translated by) Smt. Nilam Pandit, (M) : 9823948048

Introduction

Dr. Babasaheb Ambedkar is best known as the father of India's Constitution, but his contributions go far beyond that. He fought tirelessly for equality, justice and basic rights for India's oppressed and marginalized communities. His ideas of liberty, fraternity and social justice became the foundation of modern India. A brilliant thinker and writer, Dr. Ambedkar left behind a wealth of knowledge through his books, speeches and policies. His forward-looking ideas continue to guide India's progress in education, economy and social equality even today. Dr. Ambedkar spent his life fighting against caste discrimination and social injustice. He dreamed of an India where every person - regardless of their birth, gender, language or region - would have equal rights and opportunities. While he is most famous for his social reforms, he also made important contributions to India's development in areas like: Water management and irrigation, agriculture and rural development, electricity and infrastructure, and fair tax systems.

This article explores Dr. Ambedkar's practical ideas for building a sustainable and equal society - ideas that remain relevant for India's development today. Multi-Purpose River Valley Development Scheme

India's water management system owes much to the contributions of Dr. Babasaheb Ambedkar. His work in planning, designing, and executing sustainable water resource projects, multi-purpose river development, and water conservation was groundbreaking. He played a key role in maximizing water use and introduced important policies and laws for interstate river

development. His vision for regional integrated development laid the foundation for long-term water resource sustainability.

From 1942 to 1946, Dr. Ambedkar served as India's Labor Minister while also overseeing irrigation, hydroelectric power, and public works. After World War II, various economic plans were proposed to rebuild the nation, including the Bombay Plan, People's Plan, and Congress Plan, drafted by leaders and experts. During the 1950s and 1960s, economists like V.K.R.V. Rao, D.R. Gadgil, C.N. Vakil, and P.S. Lokanathan worked on shaping these policies (Sukhdev Thorat – Ambedkar's Role, p. 9).

As Labor Minister, Dr. Ambedkar chaired key policy committees and made significant contributions to water resource and river development, including:

1. National Policy Framework : Established a clear strategy for water and hydroelectric power development.

2. Key Institutions : Created the Central Water Commission and Central Electricity Authority for technical research and planning.

3. River Valley Authority : Proposed the idea of a dedicated authority for river management.

4. Multi-Purpose River Projects : Championed large-scale river valley schemes for irrigation, power, and flood control.

5. Major Basin Developments : Initiated projects in the Damodar, Mahanadi, and Mahanadi river basins

To turn these development ideas into reality, Dr. Babasaheb Ambedkar first proposed creating a River Valley Development Authority. This

became the foundation for India's water and power policies. At that time, under the 1935 Government of India Act, control over rivers and water resources belonged to state governments and princely states - the central government had no direct role in irrigation projects. If the central government wanted to implement any irrigation scheme, it had to work through state authorities. There was another important rule: any irrigation project costing more than ₹50 lakhs needed approval from the central government. This system made large-scale water projects difficult to execute.

Dr. Babasaheb Ambedkar took the first crucial step in river development by creating the Damodar River Valley Authority, marking the beginning of sustainable water management in India. This authority was responsible for planning, implementing, and managing projects related to irrigation, electricity generation, and navigation along the Damodar River. To ensure effective use of water resources, he organized two important conferences - the first on January 3, 1944 and the second on August 23, 1944 - to discuss the multi-purpose development of the Damodar River basin. These meetings led to a comprehensive project addressing flood control, irrigation systems, boat transportation, drinking water supply, and hydroelectric power generation. The formal proposal for the Damodar River Valley Authority was presented on December 1, 1947, and after careful consideration, it was approved by Parliament on February 18, 1948. Dr. Ambedkar's leadership and vision were instrumental in turning this ambitious water management project into reality, setting a precedent for future river development initiatives in India.(4)

Following this plan, engineers proposed building eight dams across the Damodar River system. Three dams would be constructed on the Barakar River at Tilaiya, Deval and Maithon, two on the Damodar River itself at Balmer and Aiyar-Sanalpur, and one each at Bokaro and Konar. Each dam site was carefully chosen to include hydroelectric power generation. A detailed

report(5) called the 'Preliminary Memorandum on the Unified Development of the Damodar River' documented these plans. The Central Technical Power Board prepared this important report with input from engineers in Bihar and Bengal, following recommendations by expert Mr. Voorduin. The visionary framework for this sustainable development project came from Dr. Babasaheb Ambedkar himself. On August 23, 1945, at a key conference in Kolkata, Dr. Ambedkar clearly outlined the policies, planning methods, and step-by-step processes needed to make these dam projects successful. His leadership ensured the technical plans aligned with broader development goals for the region.

Waterway Development Scheme

While Dr. B.R. Ambedkar was deeply involved in the Damodar Valley Development Scheme, he maintained correspondence with Odisha's prominent leader, Harikishan Mehtab. In a letter, Mehtab suggested that a development initiative modelled after the Damodar Valley Project should be extended to Odisha's rivers. Dr. Ambedkar himself envisioned a multi-faceted developmental approach for Odisha's socio-economic progress, introducing innovative concepts for sustainable growth. His ideas were prominently articulated in a keynote speech delivered on 8th November 1945 in Cuttack during a conference addressing flood-related damages and mitigation strategies in Odisha.

The recurring floods in the state caused severe devastation, with droughts and epidemics further compounding the loss of lives and property. The Mahanadi, Brahmani, and Baitarani rivers wreaked havoc across Balasore, Puri, and Cuttack districts, submerging approximately 8,000 square miles of land. Additionally, the state's rich natural resources—including iron, chromite, laterite stones, mica, and granite—faced significant depletion due to these disasters. Detailed accounts of these losses were documented by Dr. Mokshagundam Visvesvaraya in his 1937 and 1939 Odisha Flood Control Inquiry Reports. To counter

these challenges, discussions centered on implementing actionable solutions. Dr. Ambedkar emphasized adopting flood control measures inspired by American river management systems for Odisha's waterways. Meanwhile, the Central Water Commission proposed integrating hydroelectric-powered generators, which eventually led to the construction of the Krishnarajasagar Dam in Karnataka and the Tungabhadra Dam in Andhra Pradesh.

The present-day Sagarmala Project builds upon this legacy, with the government planning to construct strategic barrages to establish alternative waterways for cargo transport. This initiative seeks to harness Odisha's coastal potential for economic growth while promoting water-based transportation networks. Although India boasts an extensive rail network, the project aims to reduce reliance on road transport by enhancing waterway infrastructure for both passenger and freight movement. The proposed scheme envisions a comprehensive waterway network stretching from Gujarat to Bhubaneswar. However, before independence, interstate waterways fell under princely state jurisdiction. Under Dr. Ambedkar's leadership, key policies were formulated to modernize water transport, including the development of artificial canals, deployment of steam-engine-powered vessels, introduction of powerful tugboats, and expansion of electric-powered shipping. These measures were designed to revolutionize India's water transport system, aligning it with global advancements.

The Hirakud Dam Project

The Hirakud Dam stands as a landmark project in India's journey toward sustainable development, conceived as a multipurpose river valley scheme to harness the potential of Odisha's waterways. This visionary initiative traces its roots to Dr. B.R. Ambedkar's address at the Cuttack Conference on November 8, 1945, where he outlined a comprehensive plan for the region's socio-economic progress through irrigation, hydroelectric power generation, and inland water

transport systems. Inspired by successful river management models along the Missouri, Miami, and Tennessee rivers in the United States, where dams facilitated flood control and multipurpose water usage, Dr. Ambedkar advocated for similar strategic development of Odisha's river systems. The Hirakud Dam Project emerged as a shining example of this sustainable approach, combining resource management with economic growth. The project's technical planning was spearheaded by Dr. A.N. Khosla, Chairman of the Central Waterways, Irrigation, and Navigation Commission. After extensive surveys, three optimal locations were identified: Naraj, Vikrampara, and Sambalpur. Preliminary work began in February 1946, with construction commencing in October 1946 following meticulous feasibility studies. Dr. Khosla's masterplan for the Mahanadi River basin encompassed four key objectives - Agricultural development through an extensive canal irrigation network; Commercial navigation along a 500 km waterway; Renewable energy production via hydroelectric installations ; Ancillary benefits including fisheries development and tourism promotion. The dam system was strategically positioned at Sambalpur (15 km from Hirakud), Tikarpara (210 km downstream) and Naraj (near Cuttack)(8)

Upon completion, the Hirakud Dam revolutionized the region's agricultural landscape, bringing 800,000 acres of farmland in Sambalpur and Sonepur districts under irrigation. Its power generation capacity of 50,000 kilowatts electrified a 300 km radius, while creating new economic opportunities through water transport and fisheries. The project's formal inauguration on March 15, 1946 by Governor Levis marked a watershed moment in Odisha's development history. The historic correspondence between Dr. Ambedkar and Governor Levis during this period reflects the project's strategic importance and the visionary leadership behind it.

Contd.....

AI and Water: what is the relationship?

Shri. Sunil Bhatambrekar

Mo : 9890620949



Some readers may have wondered why the title of this article is “AI and Water”. Giving the title “AI and Water” would be like giving the title of an article using two different words like “Potato and Highway” or “Wall and Signal”. What is the relationship between potato and highway? Where did the wall come from when looking at the signal? Similarly, where is AI and where is water - you must be wondering.

But jokes apart, it is certain that there is a very influential relationship between AI and water, even if it is not very close. Now, between AI and water, the water is of course familiar to all of us. According to many water experts, despite being educated about the use of water, many of us are still very careless or uneducated to understand the usage of water. Even if we accept this, there is a lot of public awareness about water and it will continue to happen. So, let us not discuss much about water here.

But AI, however, is quite new technological buzzword. Before the advent of the computer age, that is, until the 1970s, the pace of technological progress was somewhat limited, if not unimaginable. Once a technology was put into use, it would take a while for it to mature before something else would come along. That technology would have time to soak deep into the human mind, take root, and breathe a little. But since the advent of computers, it seems that there has been no limit to this pace. The speed at which changes have been taking place in both the communication and computing sectors in the last 40-50 years is truly beyond imagination.

You see - who would have thought that computers and mobile phones would come in 1975-80? Digitization, various apps, dot com companies, websites, YouTube, WhatsApp, Instagram, online-offline, video conferencing, internet, Wi-Fi, net-pack, nothing was known about them and all these things have now become an integral part of our lives. Now, AI, a new technology, has been added to it. Well, since these simple things have become essential in our daily lives, no matter how uneducated you are, you cannot remain ignorant of them. You cannot say, 'I don't want this computer etc.'. Therefore, you have to get the necessary introductory knowledge of every new technology.

Before exploring AI's role in water management, it's essential to first understand what AI truly is.

The long form of AI is "Artificial Intelligence"! This is a technology that is one step ahead in technology. Digital technology made it easy to process data at a high speed. But digital technology could not make big decisions. Digital technology did not fully understand the language of “if-then”. Moreover, that technology could not even think like a human and communicate like a chat.

So, AI is just a type of computer, but through the program inside that computer, that computer imitates human thoughts, human intelligence, and human decisions. Imitation is not something humorous, ironic, etc., but an exact copy of human thoughts! That is, if a computer makes the same decision as we would make in response to something in practice with a simple, straightforward, and clean mind, your work would

be much easier! Let's take a very simple example. You are sitting in a house. All the windows are open. Suddenly, a strong wind blows. It also starts to rain. So, what will be your first reaction? Naturally, you will close the windows and not let the wind or rain enter the house. Imagine, the windows are open and just like that, the wind and rain come and you are not at home or you are at home but you are tired of getting up and closing the windows, then who will close those windows? Suppose, a computer-based system is installed on the windows and it is given the knowledge that if there is wind or rain – “Hey window, close yourself” and the windows actually close like that? What do you call this? This is nothing but AI!

Now, of course, this inanimate window has no brain! But AI uses technology to teach the mechanism for opening and closing those windows a little bit of human intelligence, human logic, and human judgment, and thus technology can take the small decisions of the human brain! This is artificial intelligence, i.e. AI!

In short, AI is the process of training computer systems to make their own decisions in some aspects of human intelligence! AI is writing algorithms to think the way humans think in a computer program! Then the computer and all the devices based on it start thinking, making decisions, interpreting language and so on, without any fuss, automatically and on their own. Of course, AI is not just about analyzing and making decisions, but also helping with anything like human intelligence.

Much more can be written on AI, but now let's see how it relates to water.

In relation to water, AI is enormously beneficial and at the same time a little harmful. Now, the intensity of the adjectives "enormously " and "little" in this can vary depending on the use of AI, this part is different!

First, let's understand how it is beneficial.

1. Proper and efficient use of water:

We use water mainly for three purposes. That is, for drinking and domestic use, secondly for agriculture and thirdly for factories and power generation. Beyond this, we do not need much water. About 70% of this is used for agriculture, 20% for factories and power generation and 10% for domestic use. If we consider the water used for agriculture, can we say for sure that we are providing the required amount of water, when required, and of the required quality for agriculture? We can only say as much as our intelligence works or as much as our logic allows. But AI has a huge power to think deeply. If it is used properly, there can be a huge saving in the water we are using now.

Integrating AI-powered sensors and predictive models into water supply systems can revolutionize irrigation efficiency. These smart technologies enable precise water management by responding to real-time conditions. For instance, irrigation can be triggered only when soil moisture falls below a critical threshold. Water flow can be automatically adjusted based on plant growth patterns and rates. Atmospheric humidity levels can be continuously monitored to fine-tune water delivery—ensuring neither excess nor shortage.

Thanks to AI's vast data-handling capacity, it can analyze a wide range of variables to make informed decisions: the water needs of specific crops across large fields, historical consumption trends, plant growth trajectories, past rainfall patterns, and even future weather forecasts. By synthesizing this information, AI can optimize water usage with remarkable accuracy—saving resources while boosting agricultural productivity.

Just as water consumption can be reduced and controlled in agriculture, it can also be done in factories. AI has already started being used in many large factories. Since the scope of work of factories is limited, this is easily possible there.

The same thing can be done for drinking water and water for domestic use. By installing smart meters

and sensors, the wasteful use of that water can certainly be prevented with the help of AI.

2. Water quality monitoring:

We know that water needs to have the same quality as its requirement. Drinking water needs to have a different quality, agricultural water needs to have a different quality, and industrial water needs to have a different quality. Now, to bring this quality, it is necessary to process the water in some way. Here too, the same process is not followed everywhere. At present, humans control this according to their intelligence, in which there is a possibility of doing more or less processing than desired. Now, if the planning and the actual process are told to AI, then surely there will be savings in time and money there too.

Is it possible for humans to predict contamination, chemical imbalance or bacterial growth in water by analyzing data from AI sensors, satellites and processing plants? But AI can.

Analyzing this and providing real-time alerts - so that corrective actions can be taken before large-scale contamination occurs (such as dosing chemicals, filtering or rerouting water) - can all be done using AI - no - it is possible if AI is used.

3. Zero Liquid Discharge (ZLD) and Water Reuse:

Everyone expects factories to use water efficiently. There are even well-known international standards that spell out such expectations. But how to do this? Using AI! For example: AI can predict fouling, scaling and efficiency degradation of membrane filtration, water evaporation, crystallization and other ZLD technologies, and achieve zero liquid discharge (ZLD) of water to a large extent.

AI certainly helps industries to recycle wastewater more efficiently and reduce discharge into rivers/lakes. This control over water reduces the energy costs of ZLD.

Apart from this, it is always beneficial to use

artificial intelligence i.e. AI instead of human intelligence for many tasks such as water leakage, different processes on water, real-time study of water usage, current & future needs, water availability and more accurate & efficient control of water supply.

While AI offers numerous advantages, its indiscriminate use is neither wise nor sustainable. In certain contexts, AI can even contribute to water scarcity. The backbone of AI—massive data processing—demands vast infrastructure. This means countless data centers; each packed with heat-generating electronic components. Just as our phones, TVs, or radios overheat with prolonged use, these centers too become hot and must be cooled continuously.

But cooling isn't a trivial task—it consumes not thousands, but millions of liters of water. Training a single large AI model can require thousands of gallons of water and immense energy in just one week. In essence, AI computing is highly energy-intensive, and the electricity it consumes indirectly amplifies water demand. So, while AI may seem invisible and efficient, its environmental footprint—especially on water resources—is far from negligible.

Therefore, human creativity and emotional intelligence must remain at the heart of our endeavors. Artificial Intelligence should be employed judiciously—only when truly necessary. Overreliance on AI for trivial matters or questions that demand basic common sense not only squanders energy but also diminishes our own innate capabilities. Let us not outsource our thinking to machines for tasks we are perfectly equipped to handle ourselves.

Using AI for superficial or unnecessary purposes is, in essence, a disservice to human intellect. Moreover, excessive dependence on artificial systems—whether mechanical or digital—amounts to a misuse of nature's energy and a disregard for the profound potential within us

Norway is turning the ocean into an Oasis

If we want sustainable development that will last for centuries to come, then it is our duty today to balance and wisely use all types of energies, including use of AI.

If anyone wants to go deeper and learn about AI at a reasonable price, a laboratory named as C4i4 (www.C4i4.org) is working on behalf of the Government of India. Its main center is in Pune and there are other centers all over India.

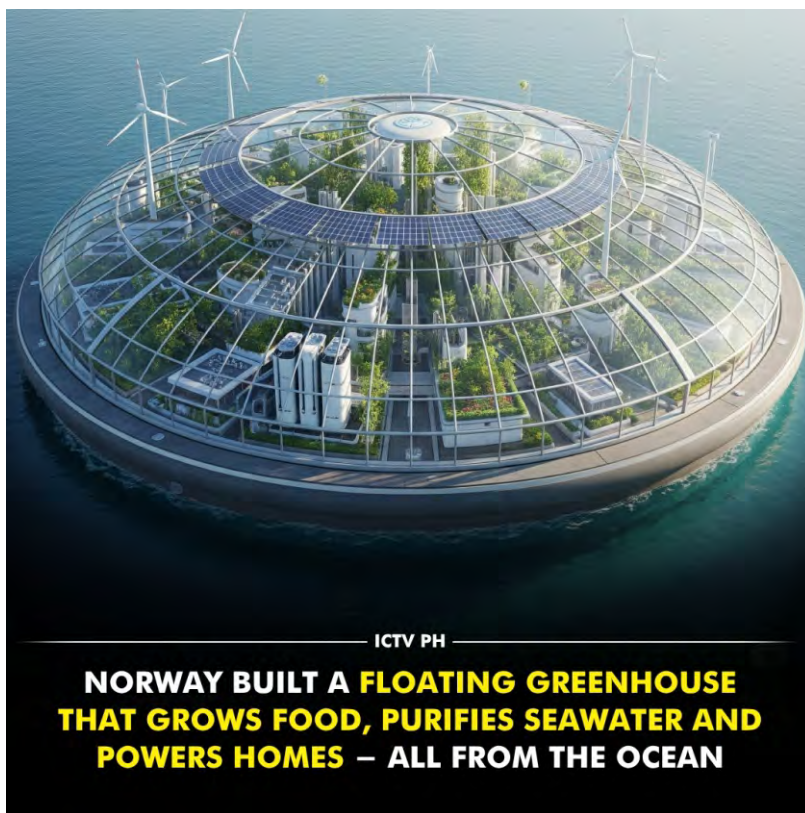
Now you must have realized that AI is not just a simple assistant, but it is a very intelligent, decisive and directly challenging human intelligence. It is our responsibility to decide how much and how to incorporate it in our daily lives. Otherwise, this servant will take on the role of the master and will likely sideline him.

That's why the issue can't be resolved merely by using water wisely—we must also deploy AI judiciously. This will truly enhance overall water management!

Finally, one thing should be remembered - God has given humans the necessary natural wisdom to use artificial intelligence, i.e. AI, in a limited and appropriate manner. We have to use this gift wisely. Then only we will have sustainable lifestyle for generation to come!

This is Ocean Bloom — a futuristic floating greenhouse that grows fresh food, purifies seawater, and generates renewable energy — all in one self-sustaining platform floating off Norway's coast.

This circular meta-island uses hydroponics and aquaponics to grow vegetables using fish waste as natural fertilizer. Powered by solar, wind, and



ICTV PH

**NORWAY BUILT A FLOATING GREENHOUSE
THAT GROWS FOOD, PURIFIES SEAWATER AND
POWERS HOMES – ALL FROM THE OCEAN**

wave energy, it also converts seawater into drinkable water, while any extra power supports nearby homes.

Ocean Bloom could be a game-changer for island nations, coastal cities, and areas hit hardest by climate change.

A real-life glimpse into a sustainable, floating future. #renewableenergy

The book that brought ponds back to Life

(translated into 8 languages and available in braille)

By Avijit Ghosh

Anupam Mishra's Book has quietly part a revolution in water conservation across villages - one phone at a time

What do you call a book that was first published without the authors name on the cover, which has no copyright and encourages the reader to use it for free in any form, inspires common people to spend money from their own pocket and translate it, can be red in at least 9 languages including Marathi, Bengali, Tamil and also in braille, has been broadcast by at least 20 radio stations with over 2 lakh copies published as almost become a Holi book for water warrior and yet remains to the educated public.

Anupam Mishra's **Aaj Bhi Khare Hain Talab** (The ponds are still Relevant) was not launched in the farmhouse or nominated for Major literary awards. But the book has become a movement. Spread over a frugal 119 pages, it reveals how ponds and lakes were fundamental to life and livelihoods across the country, and how their

construction , preservation and regeneration was embedded in community fabric - guided both by science and deeper philosophical values.

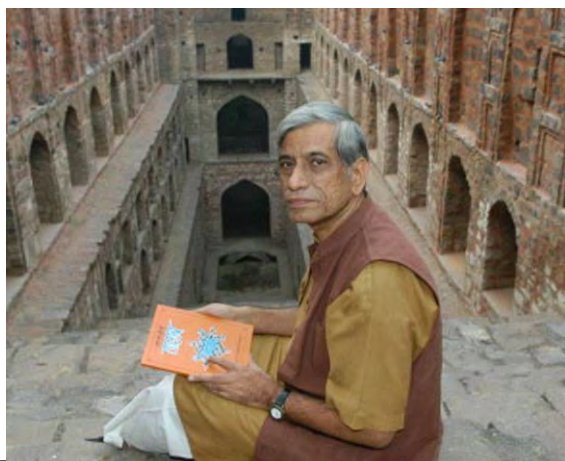
First published by the Gandhi peace foundation in Hindi in 1993, the book continues to find fresh readers in new languages and forms. This year, it has been made accessible online in a disabled-friendly e - text, says Kailash Pandey of Delhi Blind School.

Ramon magsaysay award recipient Rajendra Singh says that at a time when headlines rapidly shift from drought to flood, the book remains as relevant as ever. The change in weather patterns is an outcome of climate change and global warming. The book shows how to adapt to and mitigate the current crisis, says Singh, whose NGO Tarun Bharat Sangh also shaped Mishra's early ideas.

Chasing indigenous Wisdom :

Aj Bhi.... was born out of Mishra's extensive travels as a seeker and surveyor of India's interiors in the 1980s. Mishra spoke less, listened more, A Gandhian by belief and environmentalist in action, he discovered a tradition of water - saving techniques in arid Rajasthan. In areas he couldn't visit, Mishra sought the aid of friends and fellow travelers, naming each of them in the book. The book harnessed indigenous water wisdom scattered across the country, says social activist and old time colleague Rakesh Dewan.

At the turn of the 20th century, India has 11-12 lakh ponds, the book says. Mishra referenced



the 1907 gazetteer to show that the princely state of Rewa in north - eastern Madhya Pradesh has 5,000 ponds. Early 20th century Madras Presidency was home to 53,000 ponds. Who would believe that in the early 20th century, Delhi has 350 ponds, as a 1930 map illustrates. Dewan says that officers posted to Jabalpur during the British Raj were advised not to bring fans because the ponds there ensured a cool weather.

The book also details the craft of building ponds and devotes a chapter to their anonymous creators. Mishra illustrates how, for centuries, communities such as the Odhs, the Gonds, and the Ramnamis had dedicatedly constructed ponds. Such acts often cut across the caste spectrum. Building ponds was also part of the financial system. Those who built ponds in the kingdom of Gond rajas got a tax break. This tradition was strong in Sambalpur region, he writes. Digging ponds was among the punishments meted out by the caste panchayats of Bundelkhand. Ponds permeate every sinew of life.

Deep impact :

Many found the book addictive. Some finished it in one go and keep revisiting it. People were mesmerised, says Bhopal based journalist Sabbir Qadri, who translated the book into Urdu and distributed it for free at madarsas and panchayats.

Mishra, who passed away in 2016, would build a personal relationship with his readers. I correspond with about 3,000 odd readers. The idea is to create awareness and build a movement through the book. You cannot do that without forming a long-standing relationship with them, he told this reporter in 2004.

One such reader was Surendra Bansal, then a freelance graphic designer in Punjab's Malerkotla. He learnt about the book from a piece by journalist Prabhas Joshi in Jansatta newspaper. I read that article four times and wrote to Anupam ji. He says I didn't have the address so I just wrote Anupam



Mishra, Delhi. Miraculously, the letter reached its destination, Mishra sent him two of his books with a handwritten note in his signature style.

Bansal read the book and, then, translated it into Gurmukhi. He published it by selling off his prized cacti collection for Rs. 11,000. When Anupam ji came to know about it, he first scolded me. Then he wept, remembers Bansal, who now works for Haryana Govt's PR department. He has published five editions of the book in Gurmukhi. And he hasn't stopped. Bansal regularly scans Punjabi magazines and sends free copies of the book to those he believes might be interested in water conservation. I also distribute it to youth clubs and village libraries he says. Bansal has given away 6,200 copies so far.

The book has also been used to groom community leaders. Aj Bhi.... was introduced as part of the syllabus in Chitrakoot's Mahatma



Jodhpur and Barmer districts. A sarpanch from Bikaner's Nakhoda village called me after reading the book seeking help to build ponds, he recalls.

Chhatar Singh, a master of desert water conservation in Jaisalmer district, restored about 500 ponds, beris, and wells. A beri is a shallow well that harvests rainwater.

Reading the book I felt my forefathers were talking to me. It was written in away that inspired action, says Chhatar, who was also impressed by

Gandhi Gramin Vishwavidyalaya. It was taught to graduate students in 313 centres in a leadership course, says retired civil servant B Rajagopal Naidu. The book was also part of the Hindu syllabus for grauuates in Maumbai University between 2017 and 2019.

Mishra's book, Rajasthan ki Rajat Boondein (The silver Drops of Rajasthan). He explains Mishra's approach : If you had any doubts about building ponds, Anupam ji would organise a gathering. HE knew the answer, but would let the answer emerge from us.

Why it still Matters

Rajendra Singh, known as the Waterman of India says Aaj Bhi.... made a deep impact in MP and Rajasthan. Naidu, whose tenure as DM of Sagar in MP during 2002 - 04 was marked by a host of water management initiatives, says the book helped mobilise people and build awareness around check dams, and small drinking water ponds.

He also remembers how the clean up of Sagar's sprawling Lakha Banjara lake got stuck due to a funds crunch. Help came in an unusual way. Film lyricist and congress politician Vithalbhai Patel, who penned the 1973 hit Bobby's famous song Jhoot Bole Kawwa Kate, went around every morning to the town's different wards, asking people to donate Re 1 for the talab. The amount raised helped restore a huge portion of the lake.

Such examples abound. Singh of Tarun Bharat Sangh, who constructed at least 7500 ponds, says that dozens of initiatives were undertaken in

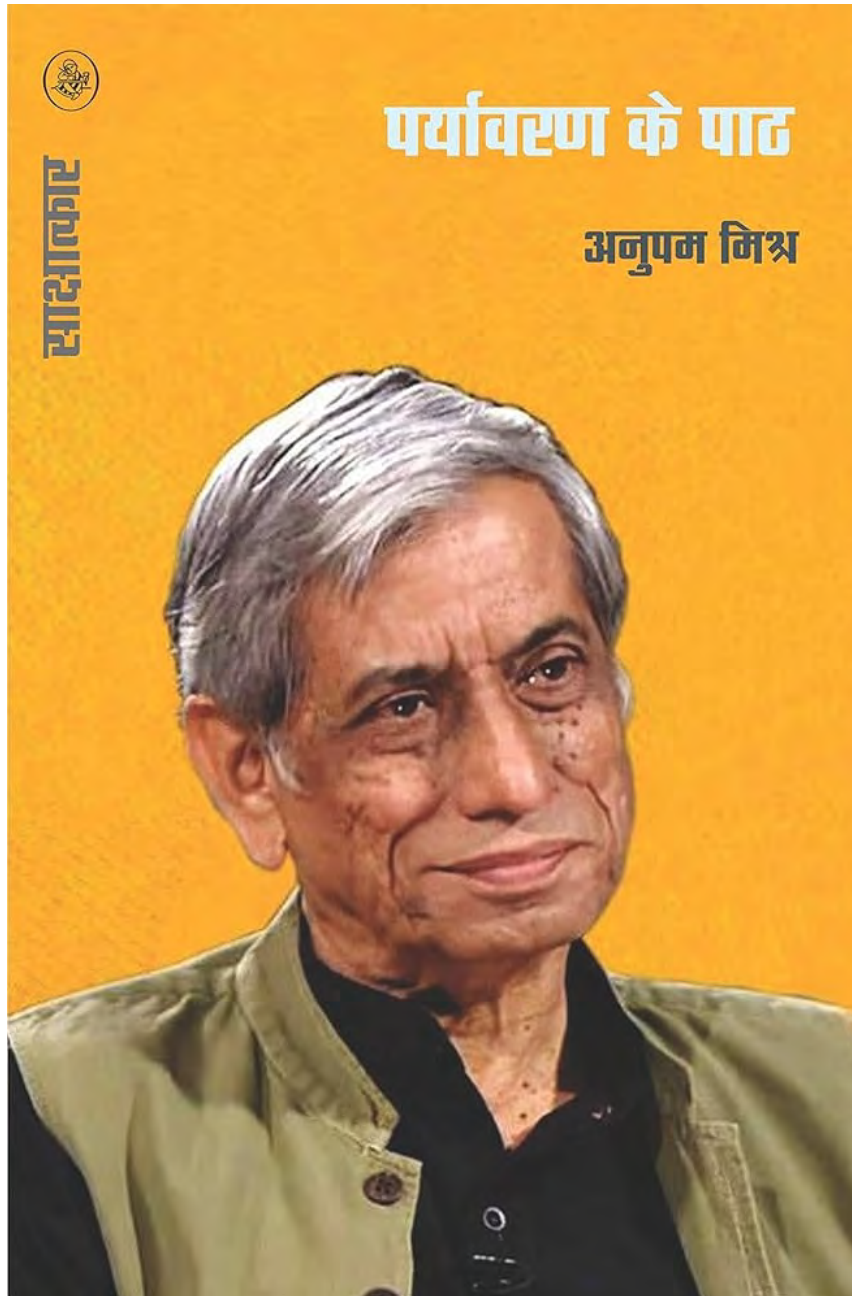
Eastern Rajasthan's Lapodia village is a famous conservation success story. Its head Laxman Singh read Aaj Bhi.... and encountered fellow villagers to do so too. Impressed by its message of reviving traditional methods, they undertook a textbook application of rainwater harvesting and water management techniques to transform a sun - fried area into a village of three fecund ponds - Dev Sagar, Phool Sagar and Anna Sagar, with a 300 bigha meadow.

Laxman Singh says Mishra visited Lapodia twice every year for 30 years. He was our guide and guru. Pehle woh taiyar karte thhey, phir dharti (First, he readied people, then the land) Laxman told this reporter in 2016. When the book's Braille edition came out around 2009, Mishra visited Delhi Blind School, inspiring students to perform Shramdan, or voluntary labour, recalls Pande.

Academic Annie Montaut, who has translated Rajasthan Ki Rajay Boondien into French,

writes how even prisoners of a French jail could relate to Mishra's lecture on water conservation. Some recalled their own childhood in Morocco, I was surprised by the reaction, he wasn't. Anupam ji told me that he had learnt a lot from the uneducated, she wrote in Hindi to Mishra's wife, Manjushree, for an upcoming book in tribute to her husband.

It is almost a cliché that a book can change your world. Mishra's slim volume certainly reaffirms that adage. With global water shortage now an impending reality, the book's significance has magnified in recent years. Today Aaj Bhi... is to water conservation what Das Capital is to Marxists. A ratna of Bharat, Mishra never received even a Padmashri. But his book continues to usher in a silent revolution, one pond at a time.



Work done by Jeevit nadi Abhiyan

By Shubha Kulkarni

Mo : 9930809046



9.9.2025

Through Jeevitnadi, we have adopted a stretch of the river (around 800 meters) where we have been working for the past 8 years. We do a regular clean up every weekend (except the months it is raining heavily), and also do sessions and events by the river for the general public.

This stretch has given me many new friends. Some are flying around the stretch, some sleep upside down, some crawl on the ground and others are mounted on the trees. There are also some who visit us at particular seasons and some that just give us a peek once in a while, and we haven't seen them back again.

It's a magical space and we look up to witnessing and soaking in this magic every time we go there. There are two rivers that flow at this location.

1. Mula river and
2. Ram river

The 800 meters that we have adopted is situated in Aundh area in Pune and is a lush green, riparian zone with a rich cover of riparian trees, shrubs and lianas. The bank of the Ram river, witnesses a bunch of trees like tamarind, mango, wood apple – most of which are planted there ; as this bank used to be utilized for irrigation. Conversely when we come to the bank of Mula river, we witness vegetation that

comes up with real magic ... we have no idea who planted these there and how they continue to regenerate. This is the actual riparian zone/ bank one can see in an urban scenario.

Mula is a seasonal river, so it flows in its full capacity only during the months of monsoon/ rainfall. During the other 8-10 months, we see a very small width of this river flowing and the remaining part of the river-bed houses few wetlands that exist there all through the year. The wetlands have water all 12 months and are mostly fed by an aquifer/ spring from below (unseen to the naked eye).

Ram river on the other hand is a smaller river flowing through the newly developed part of Pune city. Sadly it brings along with it, the sewage of the city it passes through. We see the end of Ram river at this stretch, where it meets its destination – river Mula.





Another urban intervention we see at this stretch is the Sewage treatment plant on its one bank (on Ram river) and we can also see the release of 'so called' treated water back into the river. Ironically, we see the placement of this plant at the end of the Ram river, and the release of treated water, speeds up a slowing down river. There is a clear confrontation of natural processes with human interfered urban solutions. Even with all these interventions and urban issues, the river, its bank and the whole ecosystem there, shows us resilience and teaches us the way of life.

We will be introducing you all to the various species, aspects and life in this stretch. Every month, we hope to introduce you all to one or two species that live here in this magical ecosystem. This month we talk about one important riparian tree called Indian willow or Walnui (in marathi) also with a butterfly species – Common leopard which uses the walnui as a host plant.

Walnui or Indian Willow :

This is a tree found along rivers and is native to the Indian peninsula. It is a large deciduous tree with deep vertical fissured blackish bark with dropping foliage. The tree has around a 4 meter diameter canopy and grows around 10-15 meters tall. Leaves are elongated and the backside of the leaves are silvery. The tree is a little different from other trees, because in this species, the male and female flowers grow on separate trees. Scientifically it is called – dioecious – where the

male and female reproductive organs are in separate individuals. So, it actually needs an out of caste union to grow! Because of this, it is very difficult to cultivate this species and they are naturally pollinated by wind or insects in winter.

Flowers come in small bunches called 'catkins'. The male catkins are 5-10 cms long, and female catkins are 8-12 cms long. Dissection of the flowers are needed to identify if they are male or female flowers. Male flowers have pollen grains and female have an ovary and stigma on them. The roots of the tree acts as sponges and sustains the varying water situation at the banks. The tree thus prevents the erosion of the banks. The tree is also a very famous house for birds to roost and nest and its root allows for thriving of aquatic life.

The scientific name is 'Salix tetrasperma' – meaning 'near water with four seeds'. We have around 6-7 Walnui trees in our stretch – all of which are male species.





They are a host plant for species of butterfly also. Common Leopard, whose scientific name is *Phalanta phalantha*; uses this tree as a host plant. This butterfly is a rich orange brown above and ornamented with black spots and streaks. The underside is a lighter orange with a purple sheen in side light. It is very commonly found and noticed

throughout its active period – which is from spring through late autumn or from March/ April – until October/ November. The active time coincides with the blooming of wildflowers. Midday sun is the best time to go butterfly watching. Butterflies are cold-blooded species – meaning they cannot generate their own heat. Thus, they rely on external sources like the sun to warm up and regulate their body temperature for activities such as flying.

Their body temperature fluctuates with the surrounding environment; thus, this species is particularly vulnerable to climate change.

These two symbiotic species are seen at our stretch. Due to urbanization, and climate change effects, a shift in their patterns are also being noticed here.



Delhi must seek a water treaty with Beijing

Mohan V. Katarki



Disregarding India's downstream riparian rights, China has unilaterally decided to build a mega hydroelectric project on the lower reaches of its Yarlung Tsangpo river, which flows as Siang and Brahmaputra into Arunachal Pradesh and Assam in India respectively.

The Brahmaputra basin is perennial and sourced from monsoons and melting snow. A 2014 study shows that the average yield of the river is about 527.24 BCM. The flow is 25 times more than Cauvery. Nonetheless, the utilizable yield is about 24 BCM, and out of this, a crucial 20 % is from China in the non - monsoon period.

The bone of contentions is the transboundary harm to the acquired historic rights in non - monsoon or summer flows, harm to the fragile ecology, irreparable loss from flooding if the dam breaks due to earthquakes, and of course, the threat arising out of likely weaponization during the time of hostility.

The race for hydropower generation to achieve decarbonization targets under the Paris Climate Agreement is apparent in the plans of Asian giants. China has planned to generate 60,000 MW by building the mega dam. India also has plans to tap 57,000 MW hydropower potential in Arunachal Pradesh with several projects to exploit historic rights in Brahmaputra and reduce its dependence on fossil fuel by increasing its hydropower share from 12 % to 50 % to comply with commitments made at COP26 in Glasgow in 2022.

India and China are not parties to the UN

Convention on the Law of the Non - Navigational Uses of International Water Courses (1997). However, there is no legal vacuum. The customary rules of international law do apply. The equitable utilization doctrine has evolved as a customary rule of international law after rejecting the Harmon doctrine, which gave unlimited rights to the upstream State, and the natural flow theory, which benefitted the downstream State. The Helsinki Rules of 1996 and Berlin Rules of 2004 condify the law by balancing equity and protection of historic rights. However, the challenge comes in the application of rules to complex techno - legal issues.

While exercising the riparian right to use water in its territory, the States are under an obligation not to cause significant harm as pronounced by the International Court of Justice in the Gabčíkovo case (1997) and the Pulp Mill case (2010). As a precautionary step, China is under a threshold obligation to conduct a transboundary environment impact assessment before beginning the negotiations.

India cannot invoke the adjudicatory process directly. The compulsory adjudication is still alien to international law. If the States consent, the world court may adjudicate as happened in the Gabčíkovo case (1997). However, a treaty is the preferred approach in water conflicts rather than adjudication.

If China goes ahead disregarding international norms, India may have to consider countering its communist neighbour with a physical solution by erecting a dam downstream to absorb

floods and provide non - monsoon releases. India must brace for hard bargain with China.

(The writer is a senior advocate designated by the Supreme Court of India, with expertise on transboundary water disputes)

Chile Launches World's First Solar-to-Hydrogen Desert Refinery: A New Era for Clean Energy

In a groundbreaking move, Chile has launched the world's first solar-to-hydrogen refinery in the heart of the Atacama Desert, proving that clean hydrogen production is possible even in the world's driest regions.

The H2Atacama Project, a collaboration between the Universidad de Antofagasta and German partners, aims to create green hydrogen without relying on external water sources, addressing one of the key challenges in the global hydrogen production process.

Unlike traditional methods that use electrolysis, the refinery employs thermocatalytic solar reactors with metal oxide frameworks. These advanced reactors capture water vapor from the desert air, which is then split into hydrogen in solid-state reaction chambers powered by high-concentration sunlight.

This innovative process allows for hydrogen production without the need for traditional water supplies, making it perfect for water-scarce environments.

Operating entirely off-grid, the refinery produces 120 kg of hydrogen per day, with plans to scale this by tenfold. The modular nature of the system means it could be deployed in remote locations like mining zones, island nations, or arid military bases, areas where clean hydrogen fuels were previously

unfeasible.

Chile's pioneering efforts reinforce its position as a clean energy leader in South America, and a joint German-Chilean roadmap aims to establish five more such units across the region by 2027.

As the global hydrogen market is projected to reach \$500 billion by 2050, this innovative approach could shape the future of decentralized, waterless hydrogen production and accelerate the transition to sustainable energy worldwide.

#CleanEnergy #GreenHydrogen #SolarEnergy
#HydrogenRevolution #ChileEnergy
#DesertInnovation #SustainableFuture
#EnergyPioneers #HydrogenEconomy



**In the driest desert on Earth,
Chile just created hydrogen –
without a single drop of liquid
water.**

Rain water Harvesting : The solution

Salonee Mistry

Rapid and unchecked urban growth has for years left Pune residents grappling with water woes - not just in peripheral areas but also the heart of the city.

Many residential units have said that irregular or contaminated supply increased their dependence on tankers, leading to huge expenditure.

At such a juncture, societies investing in rainwater harvesting systems are already accruing multiple benefits of this crucial infra structural update.

Many complexes that set up this facility cited reduced dependence on tankers and so, less annual spending. Others said that whether you rely on tankers or get regular civic supply, rainwater harvesting is still a sustainable solution for long term benefits.

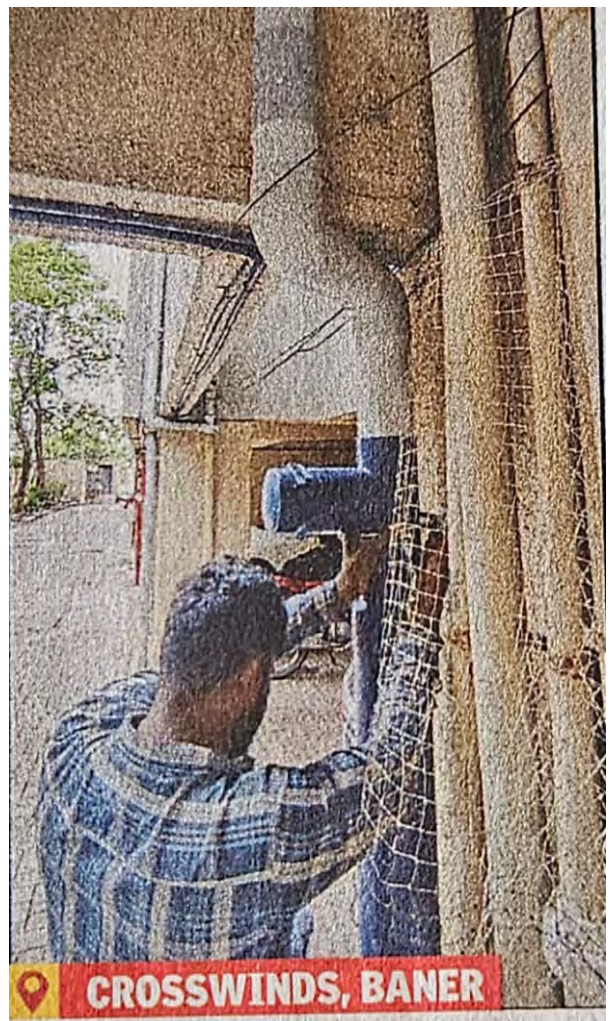
Col Shashikant Dalvi (retd), who has advocated for rainwater harvesting systems for over a decade, has helped direct more than 100 crore liters annually into Pune's depleting groundwater table. His efforts have till date aided at least 140 villages and several societies in urban areas to go tanker free.

He told TOI, Since March, the city is facing water scarcity, as the heat intensified, it only got worse. Rising temperatures increased evaporation rate of reservoir stock and local bodies struggled to meet daily water demands of citizens forcing the latter to over extract depleting groundwater or

depend on costly tankers to meet their needs.

He emphasized, For Pune's over all growth, it is essential that water management be given top priority.

Invest now, save in abundance year on year :





From spending Rs.1.5 lakh monthly on tankers to just Rs. 25000 a month, Beryl Apartments in Kharadi has almost won the battle against water scarcity - all thanks to rainwater harvesting.

We invested Rs. 3 lakh and set up a rainwater harvesting system in 2024. In just one year, the benefits have been amazing. It was an excellent investment. This year, we just needed a few tankers over the last two months., said working committee member Rajendra Wagh.

This society not only collects rainwater in its borewell but also sends a portion to mix with flush tank water. A filter system cleans this water to make it usable for utility purposes.

Now, they have three water sources - the borewell, the rainwater collected in the flush tank and filtered, and the third from a separate tank set up only for rainwater.

We also collected water from the society podium to replenish ground water through soak pits. Groundwater can be used by other societies, too. It's not just about resolving our issues, but also that of the neighbourhood. It has to be collective effort to conserve our natural water resources and fight the scarcity Pune faces today, society secretary DK Rama Swamy added. The 210 flat society is almost tanker free and is now looking at more ways to conserve water.

Better quality water is guaranteed :

Crosswinds society in Baner, which housed 88 flats, also set up rainwater harvesting in 2002. They used to spend about Rs. 40,000 on tankers monthly when in need - but now they are tanker free.

Rainwater harvesting is a minimum citizens can do, in a time when civic bodies are unable to fulfill our water requirement. We are very happy with the decision to install the system when we did. In fact, both Pune (PMC) municipal corporations should mandate rainwater harvesting for all societies. The urban region is expanding exponentially, but essential resources and infrastructure to support it remain the same, society managing committee member Manoj Nair said.

According to him, the investment paid for itself and will continue to do so in the long run. Through it, we are also able to ensure better quality water, compared to supply through tankers. This offers each of us peace of mind that is priceless. We use this water mainly for utility purposes , Nair explained.

Invaluable resource for newly merged areas :

In Undri, Nyati Serenity Enclave society got no water supply from PMC and was entirely dependent on tankers. Setting up a rainwater harvesting system was a crucial step in ensuring reliable supply and reducing tanker expenditure. Management committee member Varun Shourie was instrumental in this process.

Society chairman Sanjeev Nair told TOI. It has undoubtedly helped us. We have 118 bungalows and used to call 400 tankers a month. Now, we have reduced this by 100 tankers per month during the two - three months of monsoon. We are also charging a couple of borewells during this time. We have also been looking at different ways in which we can improve the system.

The managing committee also hopes to build a sewage treatment plant (STP) to update the setup. This water, they said, could be utilised for the



garden. This return of investment is great, the best way to make use of available resources .

First monsoon with new system for many this year :

Residents of the Sai Platina society in Ravet are hopeful that in 2025, their water problem will be better managed as they are currently setting up a rainwater harvesting system.

Firstly we want to replenish groundwater levels in our area. Secondly, we want to ensure that we get good quality water., said society chairperson Amol Kalekar.

The society currently gets water from PCMC every days, They even have to turn supply off from 10 am to 5 pm. Despite these measures, on some days this summer, they were forced to call for two tankers daily on average.

Kalekar said, We are in the process of connecting our terrace to an existing borewell in the

society using pipes, to allow for water to be saved instead of just being run off. We were seeing a lot of messages on social media about benefits of rainwater harvesting and really hope it will help us.

Cost estimates :

Rs. 50 to Rs. 70 per sqft.

Prices may vary depending on -

- Distance between borewell and buildings
- Condition of pipes
- Number of buildings vis-a-vis location and number of borewells

The Indian rainwater harvesting market size is predicted to increase by \$89 million between 2024 and 2029, according to a report published on Technavio, a market research platform.

8% of rainwater is harvested in India, according to Nelda, an independent non profit company based in Sahakarnagar.

70 % of water needs for a household or company can be provided by rainwater harvesting alone.

Innumerable benefits for societies and the environment :

1. Water conservation :

Reduces immediate dependence on surface and groundwater, who are depleting because of overuse.

2. Reducing flood risk :

Reduced run off can prevent urban flooding and protect properties.

3. Managing storm water run off :

This helps prevent erosion, flooding and pollution.

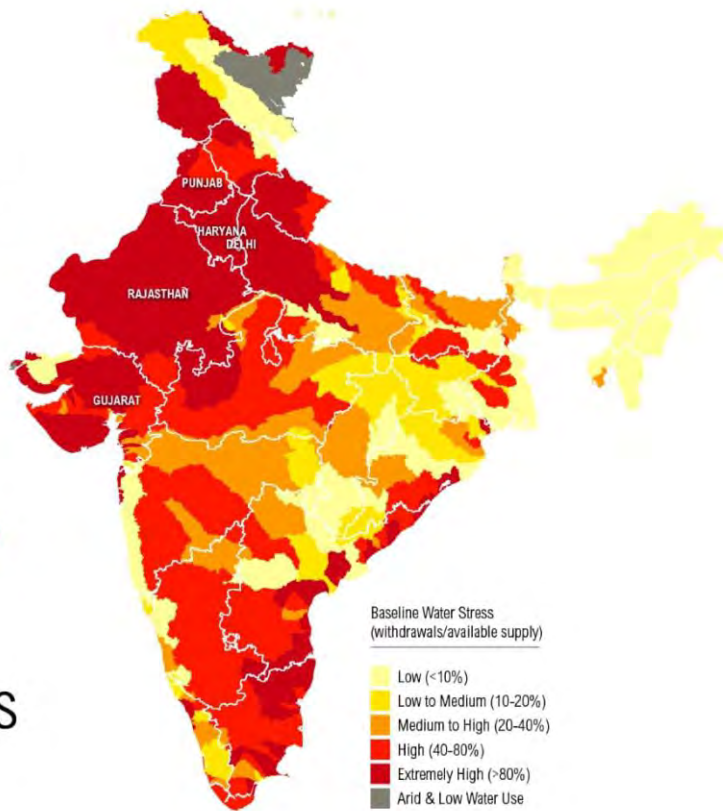
4. Groundwater recharge :

The self - sustaining system replenishes groundwater in the long - term and reduced dependence on tankers or civic bodies for water.

5. Environmental benefits :

Reduces energy required to treat and transport water and leads to lower carbon emissions.

54%
of India
Faces
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Extremely
High**
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३१. डॉ. दत्ता देशकर : गोष्ट पाण्याची (भाग ५, भाग ६, भाग ७, भाग ८)

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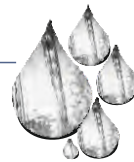
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