



Cover Story

Shri Vinod Hande



जलसंवाद



जलसंवाद तर्फे इ पुस्तके

- (१) मी एक जलप्रेमी : डॉ. दत्ता देशकर
- (२) जाणून घ्या आपले पाणी : डॉ. दत्ता देशकर
- (३) जल-सुसंस्कृततेच्या दिशेने : श्री. गजानन देशपांडे (आगामी)
- (४) Towards Excellence in Water and Culture :
Shri Gajanan Deshpande (आगामी)
- (५) उद्योजकता : (स्वतःचे भविष्य स्वतःचे हाती) : डॉ. दत्ता देशकर (आगामी)
- (६) जलक्षेत्रातील यशोगाथा : संपादन : डॉ. दत्ता देशकर (आगामी)
- (७) जलक्षेत्रात काम करणाऱ्या संस्थांचा परिचय : श्री. विनोद हांडे (आगामी)
- (८) पाण्या तुझा रंग कसा? : श्री. विनोद हांडे (आगामी)
- (९) स्टॉकहोम पुरस्काराचे मानकरी : श्री. गजानन देशपांडे (आगामी)
- (१०) Recipients of Stockholm Water Prize :
Shri Gajanan Deshpande (आगामी)

Jalsamvad



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It has been the practice of United Nations to declare a theme on World Water Day which works as a guideline for the World to take up projects of water literacy throughout the year. The theme for 2024 is Water for Peace. The world cannot enjoy the fruits of economic development if peace does not prevail. Water gives us peace and prosperity if required quantity of water is assured to every living being on the earth.

You would be astonished to know that nearly 3 billion people get water from sources like rivers, lakes and aquifers which cross the national boundaries. Take the example of Nile River which flows through 11 countries. There are 153 countries in the world which share their rivers, lakes and aquifers with other countries. And it is surprising to know that out of these, only 24 countries have formal agreements with the water sharing countries.

We have such water sharing agreement with our good (?) neighbour Pakistan. Out of the six rivers which flow in northern India from India to Pakistan, water of Ravi, Sutlej and Beas is allotted to India and water of Zelam, Chenab and Sindhu is allotted to Pakistan. It is really surprising that even after series of tensions between these two countries, this treaty has remained intact.

Even in one country, there can be disputes between states. Even when a proper machinery exists in our country, we are not able to solve water disputes between Maharashtra and Karnataka, Karnataka and Tamilnadu. Dissatisfaction exists even after solutions are given by proper authorities.

In recent years, water is being treated as a tool to create disturbances in other countries. The best example is that of China. Some rivers flow from China to Thailand and Myanmar. China has constructed number of dams on these rivers restricting the regular flow of water to these countries. These are rice growing countries. Because of inadequate supply of water, they are facing huge shortage of water. As a result, production of rice is falling down continuously. Both these countries export rice to the western world. But now, their export is reduced significantly. One water activist has recently said that if China decides to release water suddenly from its dams, it can destroy these two countries by over flooding. India is also a victim of China as water flow in India from rivers coming from China is very much affected in recent years.

I hope, you remember the role of Lord Buddha in settling the water issue of Rohini River. Two communities had decided to solve the water issue by waging war. Lord Buddha amicably settled that issue and found out the solution peacefully. You always read in the newspapers that the cause of third world war would be water. We should be able to tell the readers that for water, there should be no war as the issue can be settled amicably by discussion. We have seen the disasters caused by two world wars and we have to learn that war cannot be a solution to solve the water issues.

Let us greet the United Nations or taking this decision and decide to support its stand. Let the world live peacefully.

Dr. D. G. Deshkar
Editor

Organization - Indian Water Works Association

Shri Vinod Hande

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'Indian Water Works Association' (IWWA) is a voluntary body of professionals which is concerned and connected with water supply for municipal, industrial, agriculture uses and treatment and disposal of wastewater. IWWA focuses on the entire water issues about environment, social, institutional and financing issues.

IWWA was established in 1968 with headquarter at Mumbai. IWWA has 35 Centres spread across the country and are very active in the area of water supply and wastewater treatment and disposal. IWWA has a membership of 11000 plus professionals spread over the country and abroad also. IWWA publishes quarter journal and a bi-monthly news letter called Mid-stream. IWWA is

authorities for water and waste water sector. Engineers, Scientists, Hydro-Geologists, Environmentalists, Chemist and Biologists ect. are implementing authorities. Till date 14490 members got registration in IWWA. Late D.R. Bhise was the Founder president of IWWA.

Now next point comes the beneficiary sectors of IWWA. Municipalities, water supply sewerage Board, Pollution Control Boards, Irrigation Departments, Engg. and Science Collages, Research Institutions ect. are the beneficiary of IWWA. Industrial Houses, Equipment Manufacturers, Consultant, Contractors ect. are the supporting sectors of IWWA.



also concerned with waste water collection, treatment, disposal and reuse. There are two different authorities for decision making and policy implementing. Chief Engineers and Head of the Department of Government and Seni- Govt. are the

Objectives and Activities of IWWA

The objectives of IWWA is to stimulate and promote the development of Science, Technology, Economics, Environment, Ecology, and Social science in managing Water i.e. both fresh and waste

water. IWWA also provides a common platform for the individuals and organizations working in this sector to exchange views, share ideas, spread information and knowledge about new and appropriate technologies for improving and upgrading services. At international level IWWA is having relations with similar associations which help members to exchange and promote ideas at international level. International associations are listed as below,

- International Water Associations (IWA)
- American Water Works Association (AWWA)
- Japan Water Works Association (JWWA)
- Global Water Partnership (GWP)
- World Water Council (WWC)
- India Water Partnership (IWP)

In India IWWA is having centres at following places namely Ahmedabad, Akola, Amaravati, Aurangabad, Bangalore, Bhopal, Chennai, Coimbatore, Dehradun, Delhi, Goa, Guwahati, Gwalior, Hamirpur, Hyderabad, Indore, Jabalpur, Jaipur, Jalandhar, Jodhpur, Kerala, Kolkata, Lucknow, Madurai, Mysore, Mumbai, Nagpur, Odisha, Patna, Prayagraj, Pune, Raipur, Rachi, Srinagar, Tiruanantpuram, Vadodara.

Chairman of IWWA is Dr. H.K. Ramaraju and Zonal co-ordinator sits at Raipur who co-ordinates with four zones. These four zones are of IWWA namely West zone, North zone, South zone and Central zone which covers above mentioned centres of India.

For **West zone** office is at Mumbai that covers Ahmedabad, Jodhpur, Jaipur, Pune, Aurangabad, and Vadodra.

For **North zone** office is at Delhi that covers Srinagar, Jalandhar, Harimpur, Deharadun and Lacknow.

For **South zone** office is at Bangalore which covers Hyderabad, Coimbatore, Goa, Madurai, Chennai and Tiruanantpuram.

For **central zone** office is at Indore which covers Bhopal, Gwalior, Nagpur and Amaravati.

Journal of IWWA (JIWWA) publishes papers, reviews, original research papers on all aspects of science, technology and management of water and waste water and it's management.

Mainly journal includes,

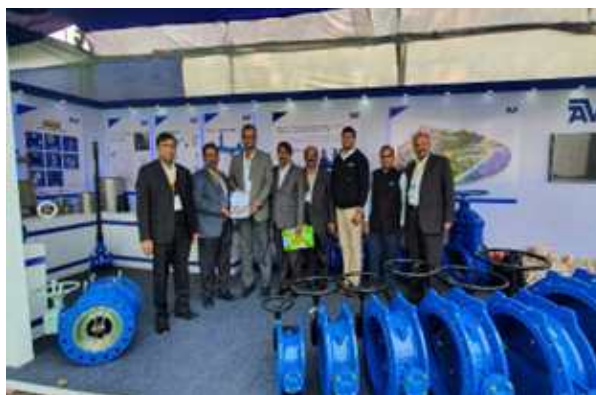
- Augmentation and collection of water.
- Water treatment
- Water supply to domestic and industrial purposes.
- Sources of water pollution.
- Groundwater, point and non-point sources of pollution and remedies.

Analysis and monitoring of water quality, water quality standards and the analysis, monitoring and assessment of water quality by chemical, physical and biological method.

Studies on inland, tidal or coastal water including surface and ground water and sources of pollution. The application of mathematical and modelling techniques in water treatment and water distribution in,

- Public health.
- Municipal water collection and treatment.
- Industrial wastewater treatment, disposal and reuse.

Apart from above areas Journal of IWWA also publishes papers on interdisciplinary subjects related to public health, environment.



P a p e r S u b m i s s i o n

- Earlier there was facility of online submission of paper but

this facility is discontinued by IWWA for technical problems. Now the paper can be submitted in MS & PDF format as per guidelines available on IWWA website.

Responsibilities for the contents of the technical paper or short communications rests upon the author and not upon the Editor or Publisher. Papers are accepted on the understanding that these have been submitted only to the Journal of IWWA (JIWWA) and to no other Journal. It is also important that the author must not publish the manuscript once accepted by the IWWA. After receiving written approval from IWWA, selected portion of the published paper in IWWA can be reproduced. Preference is given to the papers received from members of IWWA. There is limit on the length of paper. In case of technical paper it is limited to 4000 words and short notes and reviews are restricted to 1000 words. Similarly abstract shall not exceed 100 words. Abstracts are not required for short notes and reviews. Regarding contents of the manuscript of paper and what it should contain is also specified by IWWA. Content should contain as follows.

- Introduction covering background, scope, and objectives of paper.
- Main body.
- Summary and conclusion.
- References.
- List of tables, properly numbered and mentioned at the appropriate location in the text.
- List of Figures properly numbered and referred in text appropriately.
- Units- Authors must use Standard Indian units.

Journals are printed and published quarterly i.e. Jan-Mar., April-June, July-Sept and Oct-Dec. All authors whose papers are accepted by for printing are informed accordingly. They will also receive complimentary copy of the journal by post.

Publication of Journals

First Journal was published in 1969 for the period January to March and six papers were included and titles of those six papers were,

- **National Laboratories and Universities-A Plan for Greater Collaboration.**
- **Forward planning for Water Supply-Badoda**

Region.

- **Bombay Water Supply – Estimation of Reservoir Yields by “Synthetic Srough” techniques.**
- **Balancing of water Distribution Networks-A review.**
- **Water Fluoridation: facts not Myth**
- **Grafical Methods of Forecasting System Behaviour.**



Forward planning for Water Supply-Baroda Region

When it was the capital of a State, Baroda enjoyed an adequate and good water supply, but it has now outgrown the public utilities due to rapid industrialization. Baroda has become one of the focal centres of industrial development in Gujarat and western India. It has to its credit A) Chemical and Pharmaceuticals with Alembic Chemical Works and Sarabhai group of Industries in collaboration with Squibbs, Merck and Geigy. B) Engineering

Industries like Jyoti Limited, Tensile Steel, Hindostan Brown Roved etc. C) The Gujarat Refinery, D) Gujarat Fertilizers, Biggest in India. Effect of above industries on water supply system and there by needed ways are mentioned by author in his paper.

Water Fluoridation: facts not Myth

This paper was also published in first quarter of 1969. Author was Unwala. Author mentioned in his paper that enormous advances have been made in leading cities of India in preserving children's lives and health through sanitation, vaccination and antibiotic drugs. Unfortunately little effective progress has been made in the cities in solving the problem of dental decay. This was true to a large extent till recent times, even in advanced nation like United States of America. However as stated by president Johnson in his message of 21st January 1968 on National Children's Denial Health week. Progress through established programs for the prevention of dental disease, such as water fluoridation continues to be impressive. The number of Americans drinking fluoridated water has increased by more than 20 million persons in the last five years. Today some 73 million people are protected in this manner. Fluoridation has thus recently come to be established as a major health benefit, concludes President Johnson in his massage.

In second quarter of 1969 i.e. April-June six papers were published in IWWA Journal and they were,

- **New 6 MGD Water- Treatment Plant for Quality Control.**
- **Water Sampling for Quality Control.**
- **Strengthening of Tulsi Dam.**
- **Diatomite Filtration: Practice**
- **A Rational Approach to the Design of Tube Wells.**
- **Different Flow Meters.**

A Rational Approach to the Design of Tube Wells :

Prof. R.V. Murthy is the author of this paper. In the introduction of this paper author writes: A successful performance of a tube well depends on the following factors. 1) Evaluation of aquifer potential (i.e. transmissibility, storage coefficients, existence of boundaries, recharge etc.), 2) Design of

well structure (i.e. well casing and well screening), 3) Construction, development and operation of well and 4) Selection of pumping equipment. In this paper salient design features of the screened well have been discussed by the author. A good design of tube well aims at optimum combination of performance, long service life and reasonable cost says author.

Different Flow Meters

F.A. Attarwala is the author of this paper. He writes in the introduction of this paper: The necessity of efficiency and economy in industrial processes demands accurate measurement of liquids. In water treatment plants metering helps in determining the quantities of water flowing through different units of plant. Flow measurement are also made to ascertain the quantity of water that is being supplied for domestic or industrial use. It provides useful information for periodic planning of the distribution system and helps in making distribution as equitable as possible. In modern water works practice, meters are extensively used



in detection of wastage and leakages also.

In the last quarter of 1969, 11 papers were published in IWWA Journal and they are listed as below.

- Rural Water supply Problems of Maharashtra State.
- Desalination for Rural Water Supply
- Rural Well Water Disinfection
- Rural Water Supply in India
- Geophysical Investigation in Rural Water Supply
- Plastic Pipe for Rural Water Supply.
- Operational Cost of Water Treatment Plants serving the Greater Bombay Area.
- Studies on Chemical Coagulation of Ganga-Water at Kanpur
- Reduction of Micro-organism at Different Stages of Water Treatment.
- Balancing of flows in New York with Over-hanging Mains
- The Purification of Swimming Pool Water.

Rural Water supply Problems of Maharashtra State-

Hon.Mr. N.M.Tidke, Minister for Labour and Rural Development, Maharashtra State, was the author of this paper published in last quarter of 1969. In the introduction of paper author says: According to census of 1961, Maharashtra State has a population of 3.96 crores of which the rural population is 2.84 crores in 35851 villages giving percentage of 71.8 of total population. For centuries, the rural population has been depending upon water supply locally available. In certain areas men and women have been walking for several miles to fetch drinking water. It is strange, yet true, that in spite of the successful completion of the two Five Year plans, it was noticed in the Third Five Year Plan that inhabitation of nearly 9722 villages, out of 35851 did not have adequate drinking water supply. The importance of this problem had been stressed and its solution attracted serious attention it deserved for the first time only during the Third Five Year plan period.

Rural Well Water Disinfection :

M.D. Patil is the author of this paper which was published in Journal of IWWA in last quarter of 1969. Introduction by the author: The role of water

in spread of enteric(intestinal) diseases has been proved beyond doubt. Open dug wells, form a major source of water supply in many villages in India where 80 percent of population live. An attempt was therefore made to find a cheap and simple device for disinfecting these wells using bleaching powder. Holes were made in the earthen pots for diffusion of chlorine instead of depending on the porosity of the material used. A 'double pot' system was developed which could chlorinate small household wells of 1000 gallons capacity for a period of 2 to 3 weeks. The system was not suitable for large community wells. A single pot system with multiple holes was found to work in wells containing 3000 to 6000 gallons of water for a period of two weeks.



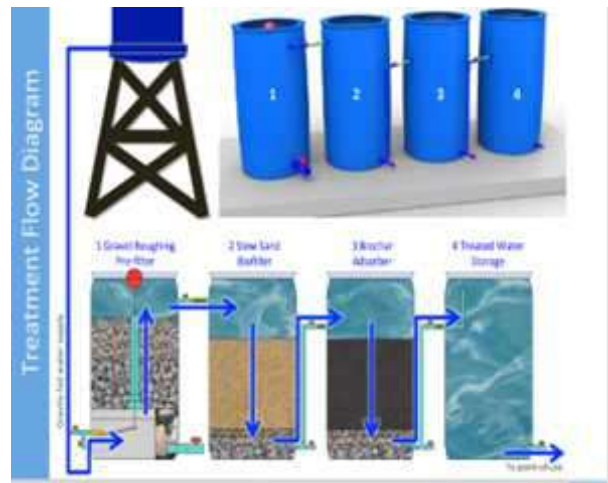
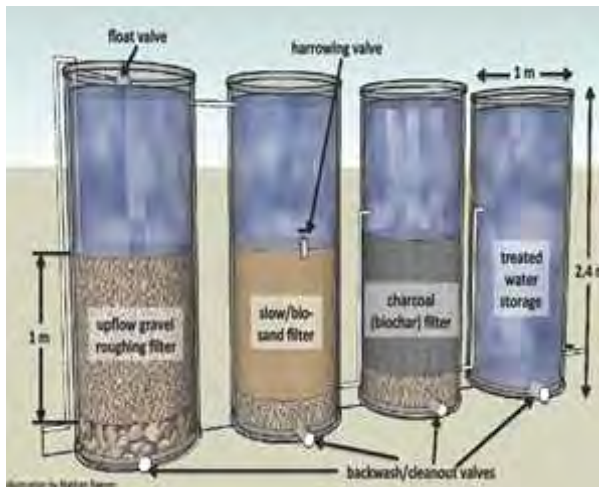
The Purification of Swimming Pool Water

This paper was published in last quarter of 1969 in IWWA Journal. C.L. Shastry is author of

paper. Author writes in introduction that: Water in swimming pool remains reasonably clean and pure till no person bathes in it. Each successive bather contaminates the water and it gradually deteriorates both in bacteriological purity and in appearance depending upon the number of users. The factor for deciding the change in water was its appearance but long before this stage is reached water becomes so highly contaminated as to be risky to the health of bather.

In the first quarter of 2019 a paper was published about Biochar filter with several advantages over other low-cost method like sand filtration, boiling, solar disinfection and chlorination. It is low cost and environmentally sustainable drinking water treatment for rural India. Some advantages of Biochar filter are mentioned as below,

- can be made from cheap and readily available biomass materials using local skill.
- Existing methods remove pathogens, but Biochar remove chemical, biological and physical contaminants.
- It maintains organoleptic properties (such as taste, colour, Odor) of water. And many more.
- Excellent capacity to remove several contaminants.



Books Published by IWWA

IWWA and IWWA Centres have published following books which are available at reasonable tares.

IWWA's Publications

sr.no.	Name of Publication	Price in Rs.
1	Chlorination and use of Chlorinators	100/-
2	Design of Large Diameter Steel Pipelines	120/-
3	Leak Detection and Waste Prevention in Water Distribution Systems	120/-
4	Directory of Members of Council of Management and other Committees	50/-
5	Hydraulics Designs Tables	90/-
6	Analysis and Design of Pre-stressed Concrete Pipe	1200/-
7	Manual on Eutrophication	100/-
8	Manual on Augmentation and Upgradation of Water	200/-
9	Our planet in Peril Save it	200/-

IWWA Centre's Publication

sr.no.	Name of Publication	Price in Rs.
1	Proceedings of the Seminar on Pumps, Valves & Accessories (Mumbai Centre)	100/-
2	Design of Water Treatment Plant (Nagpur Centre)	500/-
3	Manual on Drinking Water Quality (Mumbai Centre)	50/-
4	Rain Water Harvesting (Mumbai Centre)	50/-
5	Achieving 24 x 7 Continuous Water Supply (Mumbai Centre)	450/-
6	Manual on Guidelines for Reuse of City Effluents in Agriculture (Mumbai Centre)	500/-
7	Rain Water Harvesting Systems, Planning, Design, Construction, Maintenance (Mumbai Centre)	100/-
8	An Environment to be proud of (Mumbai Centre)	375/-
9	Improving Service Delivery in Water Supply (Mumbai Centre)	225/-
10	Low Cost Sanitation by R.G. Deo, Published by (Goa Centre)	200/-
11	Technical Data Book (Pune Centre)	350/-
12	Lexicon - Water & Waste Water Engineering (Bangalore Centre)	1000/-

IWWA's Journal is available to the non-members by subscribing annual fee of Rs.200/- or Rs. 50/- for single issue. Further details can be obtained from IWWA Centres or writing them on following address.

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जलसंवाद हे मासिक मालक व प्रकाशक डॉ. दत्ता
देशकर यांनी
ऐ - २०१, व्यंकटेश मीराबेल अपार्टमेंट्स,
पॅनकार्ड क्लब जवळ, बाणेर हिल्स, पुणे -
४११०४५ येथे प्रसिध्द केले.
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Kiva Family, Germany

Dr. Rajendra Singh

(M) : 9414066765



14,15 August 2024

On 14 August 2024, the sailor reached Germany from India under the leadership of Waterman Rajendra Singh ji. Here from 15th August sailing will stay for a week with the international family 'Kiwa'. Jalman ji told that, Kiva is not an organization; but a global family. In which there are members of all four continents of Europe, America, Africa and Asia. This

family is working with understanding of their spiritual and culture to save the pilgrimage in Indian way. Here communities all over the world have their own prayers; just like prayed to earth to punish the one who hurts nature in Atharvveda of India; in the same way all these people should not hurt nature; so are people living life. Taking less from nature for your life and giving with your hard work.



The Kiva family is a big unique family for the whole world because they live self-dependent life. Not meat; eat natural food. Family conferences take place every year in the month of August like it is still happening in Germany. I have proposed that, now this conference should be held in other countries around the world outside Germany. This is seriously being considered.

The Kiva family believes in India's pilgrimage tradition "Kumbh and Ganga". That is why their tradition has a deep connection with Indian faith and protection of environment. Millions of people around the world are joining this family. In Indian sage tradition, Satvik is going on the principle of sacrifice, accepting sacrifice, donating knowledge and knowledge. Here proven every time to remove poison from the body toxins for staying healthy. First tasting process used in India also, it had a very important place in Ayurveda. That swedan process stones are heated like a fireball, locked in a cloth, brought into the coop three times and then put

forest medicine on it, sprayed water. Songs, mantra healing, prayers that involve in the process of Swedan keep singing. By speaking its chief director mantra, he moves forward the process of healthy living.

60-61 people can sit together in the dome in this picture and there are four such dome. These people are all engaged in worshipping and emitting energy from medicine after getting the prepared cells of fire inside the pandal.

It's a family of a simple respectable world. The whole world respects this Kiva family. In the Kiva family, only people who sacrifice, penance, knowledge creation, knowledge donation. If you want to save this world, then this is how the world needs family. Who will work like a family, not an organization.

Note- This picture was sent by Jalman himself.

#KIVA #watermanofindia #RajendraSingh #TarunBharatSangh



City on the brink: Dar es Salaam's

Kizito Makoye

In the densely packed Tandale slum, water scarcity is a shared burden for many residents Kizito Makoye Africa

City on the brink: Dar es Salaam's residents bear the brunt of crumbling water infrastructure

For residents of Dar es Salaam, Tanzania, the daily quest for clean water has become a grueling ordeal. A combination of factors — aging pipes, persistent leaks, and a booming population — has pushed the city's water infrastructure to a breaking point. The result: a crippling water shortage that forces residents into impossible choices.

Fatuma Mchome starts her day long before sunrise, her bare feet shuffling through the dust as she joins a long queue to fetch water. "You have to be the first one in line," said Mchome, balancing a bright yellow jerry can on her hip. "If you come late, you might go home with nothing."

For the 33-year-old mother of four living in the densely packed Tandale slum, the search for water is a daily struggle. Water scarcity in this impoverished neighbourhood is a shared burden for many residents. The taps are often dry, and the local water vendor's cart, piled high with plastic containers, becomes the last resort. "It's too costly, but what choice do we have?" Mchome asks.

Nearby, John Nyondo, a father of four, shakes his head as he talks about his family's worsening plight. "The water we get is not even clean," he said, holding up a murky, brownish sample. "But we have to use it for everything — cooking, washing, drinking."

The shortage of clean water has serious implications for the health of Tandale residents.

Children frequently contract diarrhoea, putting additional strain on already overburdened health services. "It's a vicious cycle," said Aisha Mbasha, a community health worker in Tandale. "People get sick because they don't have clean water, and then they can't afford to get treated."

The crisis in Tandale reflects broader issues plaguing Dar es Salaam's water supply, riddled with ageing infrastructure, broken pipes, and outdated systems. These problems are exacerbated by sabotage and vandalism of the water distribution network. Despite the dire need, efforts to upgrade and repair the city's water infrastructure are often slow and insufficient due to inadequate funding.

The cost of this crisis is starkly visible in Tandale. In a dimly lit shack, Maria Kasanga tends to her elderly mother. "She is too frail to walk to the water points," Kasanga explains, gently wiping her mother's forehead with a damp cloth. "So I have to do it for her, even if it means missing work."

Kasanga's struggle highlights the daily sacrifices made by many residents. Missing work means losing a day's wages — money that could have been used to buy food or medicine. "It's a constant juggling act," she said. "We have to choose between water and other necessities."

For children like 12-year-old Samuel, the water crisis affects their education. "I often have to skip school to help my mother fetch water," he said. "I want to study and become a doctor one day, but it's hard when you have to worry about water."

Campaigners urge the government to end the crisis. "This is not just a technical issue — it's a human rights issue," said Linda Mushi, a water rights activist. "The government must urgently solve this problem."

While the Dar es Salaam Water and Sanitation Authority (DAWASA) has recently unveiled multiple initiatives to address the city's water crisis, there's no end in sight for Tandale residents. Local residents in this impoverished neighbourhood are increasingly angered by what they describe as empty promises. "We have been waiting in vain for years, but the water situation has not improved," said Nyondo. "We need real action, not just words."

Urban strain

As one of Africa's fastest-growing cities, Dar es Salaam is grappling with rapid urban sprawl. With its population now exceeding six million, the city's ageing water infrastructure is buckling under the pressure.

This strain on resources highlights the city's infrastructural challenges and underscores the broader implications of unchecked urban growth.

Decades-old pipes leak profusely, and frequent power outages cripple pumping stations, leaving vast swathes of the city without a reliable water supply.

The city's water demand far outstrips supply, leading to frequent shortages and rationing. Moreover, rapid urbanisation and population growth have strained the existing water resources, pushing the city's water management systems to the brink.

For 42-year-old Hadija Mbwana, who sells charcoal to earn a living, the water shortage presents a difficult moral dilemma: Her children must choose between drinking murky water and risking illness or suffering from extreme thirst. "I cannot afford to buy piped water. Groundwater is cheaper, but it's dirty, smelly, and too salty to drink," she said

Herbert Kashililah, a water expert and



chairman of the Tanzania Water & Sanitation Network, said the city's old pipelines were riddled with leaks and illegal connections. "We must modernise this infrastructure by replacing old pipes, building new reservoirs, and upgrading treatment plants to ensure water quality and reliability," he said

Kashililah also stressed the importance of better management and regulation of water resources to reduce corruption and ensure that water reaches those who need it most. He also highlighted the role of community involvement in addressing the water crisis. "Communities must be part of the solution. Public awareness campaigns can educate people on the importance of storing water and how they can reduce wastage," he explained.

He also brought up rainwater harvesting as a supplementary solution. "By encouraging households and businesses to collect and store rainwater, we can significantly reduce the strain on the city's main water supply," the expert underlined.

Government efforts insufficient

The government has announced a series of measures to address the water shortage. Plans are underway to rehabilitate and expand the city's water infrastructure, crack down on sabotage, and increase water supply from alternative sources.

Speaking with this reporter, Mkama Bwire, DAWASA's acting chief executive officer, vowed to end the worsening plight of water consumers in the bustling city. "We are aware of the water crisis and are committed to devising short-term and long-term solutions to solve this issue," he said.

DAWASA is implementing various initiatives to boost the capacity of existing water treatment plants by increasing their output by an additional 196 million litres per day, Bwire said. The agency is also planning to drill new boreholes in strategic locations to provide a crucial buffer during periods of high consumption and low supply.

"We are targeting areas that are currently underserved to ensure equitable water distribution," he said. DAWASA is also revitalising its distribution network by replacing ageing pipes to

reduce water loss. "Our goal is to reduce water loss from 47 per cent to less than 20 per cent over the next five years," he said.

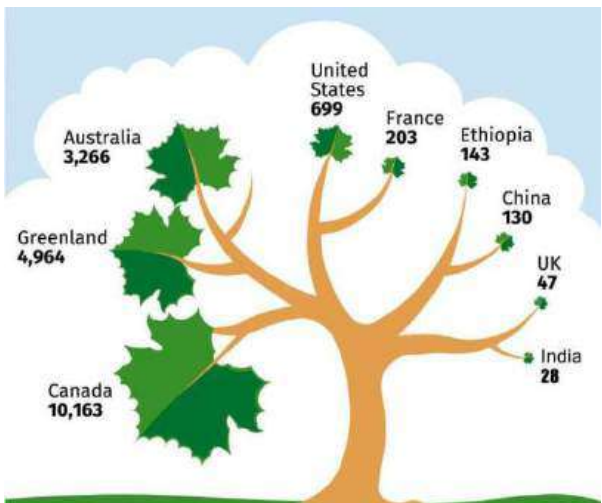
Tackling inefficiencies

Tanzania's Minister for Water, Jumaa Aweso, recently inspected DAWASA's production plants, revealing deliberate damage that has worsened water scarcity in the city.

The government has invested in machinery capable of producing 590 million litres of water daily, but due to inefficiencies, they're currently producing 320 million litres daily, leaving a shortfall of 270 million litres, according to Aweso.

Government data shows that DAWASA sells 210 million litres daily but loses 110 million. Aweso has also promised to tackle these inefficiencies as part of the government's broader strategy to improve water access in Dar es Salaam.

However, these improvements are still in their early stages, and residents such as Mchome remain sceptical of any real results. "I don't think the situation will change anytime soon," she said.



The Pioneer of Modern Economics – Dr. Babasaheb Ambedkar

Dr. Dattatrya Gaikwad (Part - 2)

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

Indian Water Culture: An Overview

Human civilization has long settled near river valleys. A large natural flow of water travels along a channel to the sea, a lake, or another river. Generally, rivers provide a reliable source of water for agriculture and human needs. The fertile land along the riverbanks made farming easier, fulfilling the need for food. Additionally, the transportation of goods and people became more convenient. People also engaged in fishing and hunting animals that came to drink water. Consequently, river valley cultures continued to thrive. A valley is a low area between hills or mountains, especially with a river or stream flowing through it.

Today, the entire country is facing conflicts arising from increasing urbanization, population growth, the decline of rural culture, misuse of water, water pollution, disputes over lakes and reservoirs, and the urban-rural divide. Politics is becoming intertwined with water issues, and water itself has become a political tool in the current water crisis.

Many large cities around the world are situated along riverbanks. The city of Tokyo is located along the Sumida River. Rivers like the Rhine flowing through Düsseldorf and Cologne in Germany, the Seine flowing through Paris, the Thames in London, the Yamuna in Delhi, the Hudson in New York, the Nile in Cairo, the Hooghly in Kolkata, and the Rimac in Lima have all become symbols of their respective cities. However, the condition of the Mithi River in Mumbai is pitiable. The Sumida River in Tokyo is a tributary of the Arakawa River and later flows into Tokyo Bay. This river is perennial. (Sharad Kale, Chintan Part II. Granthali, Mumbai, December 25, 2021, p. 411).

Nature and human beings, human beings and society, human beings and themselves, human beings and water, and the various relationships between water and society in the context of sustainable development, administration and water distribution, usage and scarcity, water tankers in villages, and many other water-related issues can be traced back to fundamental questions. Issues such as river basin development and societal development, groundwater and society, rain and society, tribal and nomadic communities and water, farmers, farm labourers and water, water management of forts, the rainfall and flooding of rivers spanning two states, drought and water, water literacy, and settlements along riverbanks all landing in on discussions of water culture. Therefore, understanding the relationship between Indian water culture and society is extremely important and significant.

'World Water Day' is celebrated on March 22. This day is observed to understand the misuse of water and its importance. Various events are organized to raise awareness about the significance of water. The aim is to convey the message of caring for natural sources of clean and fresh water and working towards their sustainable protection.

Water is essential in every field. Society, countries, the world, and people are all interconnected with water. It is essential to create awareness about overuse, misuse, natural water, water sources, and water conservation. Water is an integral component of sustainable development. Recognizing that development cannot occur without water, many scientists and experts have expressed the possibility of a third world war over water issues.

In the development of globalization, rampant industrialization, and the excessive stress and exploitation of natural resources have forced people to confront pressing water issues. This has created a need for a public movement to address the importance and utility of water for living beings and various industries. The lack of water leads to numerous problems. Government efforts are falling short, putting people's existence at risk. Therefore, water use must be managed carefully, pollution must be avoided, and water conservation efforts must be accelerated through water literacy campaigns. It is true that we worship lakes and account for the water in them. This water is to be used throughout the year for local livestock, dairy farming, wildlife, human life, and agriculture. This should be remembered (Chitale Madhav, June 8, 2018).

We are forgetting the connection between rivers, civilization, and human health. On one hand, cultures and rivers are drying up. When rivers dry up, civilizations also wither (Rajendra Singh, Nisarg and Manus, Saptarang Sakal, June 25, 2023). Additionally, Madhav Chitale has written thought-provoking articles on this subject. His reflections on water are readable, noteworthy, and important.

The importance of water in human life is extraordinary, which is why humans established their settlements along riverbanks. This led to a constant relationship with water, making it evident that water is life. The lives of people living by the riverside became more culturally rich and prosperous, leading them to revere the river as a water deity, and these values continued to develop. In reality, many human problems have arisen from water, and social movements have emerged because of water.

Water brought the issue of sustainable development to the forefront, emphasizing the need for responsible use over mere exploitation. In earlier times, the use of water, forests, and land was minimal. Movements originated from water, and issues like the Sardar Sarovar project arose from water, highlighting both its benefits and harms. Civil rights were awakened through water. Water

became a barrier to achieving an egalitarian, secular, and sustainable society. Development projects emerged because of water, and water also posed challenges to the Indian economy.

Water led to discrimination against humans and the establishment of feudalism. As a result, the marginalized, oppressed, and downtrodden endured neglect, humiliation, disgrace, and suffering. Ultimately, it was water that responded to the outcry of the oppressed. This is why Mahatma Phule opened his water tank to untouchables in 1868, even during times of drought. The philosopher who championed the philosophy of equality stood by the reservoir. In 1927, Dr. Babasaheb Ambedkar drank water from the Chavdar Lake in Mahad.

Dr. Babasaheb Ambedkar took a firm stance on temple entry. He said, 'As long as we are considered Hindus, and you consider us Hindus, we believe it is our right to enter temples and view the deity. We do not want separate temples based on castes; ours is not blocked from the temple. We devote without temple. It's not like that. Temples are not necessary for personal worship; they are needed for social worship, gatherings, and unity. If separate temples need to be built, the untouchables themselves will build them, without needing permission from others. We will resolve this issue sooner or later. We want equal rights in society and will obtain them by staying within the Hindu community as much as possible, and if necessary, by rejecting so-called Hinduism. If it comes to giving up on Hinduism, we will certainly not go down the path of temples' (Mahad Muktisangram, BARTI 2015; p. 84).

However, Bivalkar and Kamble further observe that the satyagraha at Chavdar Lake began. The struggle or confrontation was not with Hindus over the Dhammasangra, nor was it about opposing the government. The challenge was to awaken the ignorant, oppressed, and innocent untouchable community and to prepare them for the revolution of equality and the struggle for liberation, requiring a new strategy to be formulated.

The water dams played a crucial role in enriching the village's water culture. The 'rehabilitation first,

then the dam's movement emerged as a response to water-related issues. Large dams were constructed to store rainwater, ensuring ample water supply for agriculture, industry, and drinking. However, the lands of tribal villagers were often acquired for dam construction, resulting in the displacement of their homes and villages. A piece of land was reserved for those affected by the project. Daya Pawar writes about the plight of a family affected by the dam in his works:

The woman describes her life of continuous hard work and struggle in building dams. This relentless labour has worn her down, making her existence akin to a repetitive, ritualistic death. Despite her efforts, she is left with poor-quality resources, symbolized by the bad flour she has to cook with.

Movements addressing water issues, such as the Narmada Bachao Andolan which advocated for the rehabilitation of those affected by dam projects, alongside initiatives by Paani Foundation, Nam Foundation, Jal Yukta Shivar, and the efforts of the Waterman of India have significantly contributed to water conservation and sparked a social revolution. The conflict over the water distribution of the Rohini River, and the struggles between the Koliya and Shakya communities along its banks led Lord Gautama Buddha to leave his country, making a form of self-imposed exile. Buddha categorically stated that war does not resolve any conflicts. Waging war will not serve our purpose; it will only plant the seeds of further violence. The slayer eventually meets his end; the conqueror is eventually conquered; and those who despoils will ultimately be despoiled in return.

The social revolutions led by great figures like Buddha, Phule, and Ambedkar often found their starting point in water. Human suffering, in many cases, began with water issues. The concept of water culture emerged from the interplay between water and community life. Mahatma Phule highlighted the plight of farmers in plays such as *Shetkaryanchya Asud* and *Trutiya Ratna*, advocating for the construction of dams for agricultural purposes. Shahu Maharaj built the Radhanagari

Dam, while Babasaheb Ambedkar planned the development of multi-purpose river basins like the Damodar, Son, and Mahanadi River Basins, and proposed the concept of interlinking rivers (Samyak Vichar, Think Tank, Solapur, pp. 60-61).

Water gave rise to culture. The water cycle was understood, hydrotherapy was developed, and the different states of water—liquid, solid, and vapor—were examined from a therapeutic perspective. Systems of water management, water travel, and water flow were established. Water management centers were set up to oversee storage, extraction, and distribution through pumps and large pipes. As a result, water management emerged as a field addressing issues like rainfall centrality, its variability, and regional imbalances, which required planning for rainwater consumption. Water-related activities and the resulting challenges led to the development of a water-conscious culture. Water became an integral part of culture, influencing art, law, morality, traditions, faith, and knowledge, and establishing a deep connection between people and water. A system of respected norms and practices regarding water was formed.

Water storage, distribution systems, and related functions, as well as awareness of these aspects, have become part of water culture. Questions such as what water is, where it should be sought, its location, and how it should be preserved, have continued to shape human life and evolve.

While having a bird's eye view, of references on water culture, I came across Dr. R. S. Morvanchikar's books *Bhartiya Jalsanskriti: Swaroop Aani Wyapti* (Indian Water Culture: Form and Scope) and *Shushka Nadyanche Akrosh* (The Cry of Dry Rivers). Dr. Morvanchikar meticulously studied and portrayed the overall personality of Indian water culture by visiting various villages and conducting in-depth research. The inspiration for his writing came from Mr. Narendra Chapalgaonkar (former judge), Dr. Madhavrao Chitale (former secretary), and Mr. Dinkarrao More. Dr. Madhavrao Chitale consistently advocated for a book on Indian water culture to be created at an international level. In his

work, Dr. Morvanchikar has thoroughly illuminated what water culture is, the tools for studying it, geographical realities, historical evolution, the history of water management, the cultural contributions of rivers, ancient hydrology, water conservation, civil engineering and architectural developments, urban water management, and the interaction of water culture with folk culture. This comprehensive coverage has greatly enhanced the usefulness and originality of the book.

Up to 2018, the Bharatiya Jalsankruti Mandal (Indian Water Culture Association) organized eleven All India Water Literature Conferences, according to online sources. The first conference was held in Nagpur under the chairmanship of Shri N. D. Mahanor. Subsequent conferences were chaired by Madhur Mangesh Karnik (2005); Mangesh Padgaonkar (Malgaon Ratnagiri); Dr. Madhavrao Chitale (Nashik, 2008); Dr. Madhav Gadgil (Jalgaon, 2009); Dr. Vikas Amte (Chandrapur, 2010); Praveen Davne (Nanded, 2011); Dr. Chandrakumar Nalgade (Kolhapur, 2013); Justice Narendra Chapalgaonkar (Aurangabad, 2014); Dr. Ashok Kukde (Chiplun, 2017); and Secretary Shri Uvale (Dhule, 2018). According to Dr. Dutta Deshkar, no conferences were held afterward due to the COVID-19 pandemic.

The water literature conferences have also contributed to the development of water culture by raising awareness and facilitating discussions. In March 2000, the World Water Council conference was held in The Hague, with 5,700 scholars and 1,500 participants engaging in discussions. The conference was attended by 114 ministers and representatives from 130 countries. Simultaneously, the 'World Water Fair' attracted 32,500 visitors. The conference addressed topics related to water, including action programs, water resources, development and opportunities, management and economic frameworks, poverty, socio-cultural and economic development, and environmental aspects of water (2nd World Water Forum, The Hague, March 2000 From Vision to Action).

It would not be an exaggeration to say that human

life is deeply intertwined with water. Water is used for various purposes in human life—drinking, sanitation, cooling, evaporation, transportation, irrigation, and aquaculture. Canals, river basins, water tanks, ponds, reservoirs, and other water features have also been utilized for boating, water sports, and other activities.

The 'Water is Life' awareness campaign has been actively promoted. Phrases like 'Water is Life' and 'It is difficult to imagine life without water' have begun to resonate with the public, leading to the establishment of a water-conscious culture

What is Water Culture?



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.

Southeast Asia's largest wastewater plant

halfway done in HCMC

By Quynh Tran, Gia Minh

The largest wastewater facility in Southeast Asia, Ho Chi Minh City's Nhieu Loc – Thi Nghe Plant, is on schedule and nearly halfway complete, projects managers have announced.



The project spans 39 hectares of filter systems, sludge treatment tanks, pump stations, drainage pipes, embankments, and an operations building.

Located in the commercial hub's "city within a city" - Thu Duc City - and near the confluence of the Saigon and Soai Rap rivers, the plant's capacity of 480,000 cubic meters per day will treat all domestic wastewater in the six central districts of the southern metropolis - Districts 1, 2, 3, Binh Thanh, Phu Nhuan, and Tan Binh.

Construction on the VND6-trillion (US\$233 million) facility began in 2020 and appears to be right on schedule for completion in June 2025.

The plant is part of the second phase of HCMC's Environmental Sanitation Project funded entirely by the municipal public budget. The larger \$524-million-project's master plan includes eight construction packages, the largest of which is the water treatment center.

Its treated wastewater will be discharged into the Saigon River.



These wastewater treatment tanks, the plant's most crucial components, have taken on their basic shape.

According to the project's managers at the HCMC Urban Project Management Board, the plant will apply advanced biological treatment technology, using mobile carriers for

microorganisms to remove organic substances from the wastewater.

The wastewater will first be pumped into a biological treatment tank before passing through cleaning and sedimentation tanks. As a final step, ultraviolet (UV) light exposure will disinfect the water.



Dense scaffolding installed over the filter tanks reveals some of the construction undertaking's massive scale.



Workers toil in the sun over the sludge treatment

tanks that are also taking shape. Some 40 laborers work in this area daily.

Operating as a large-scale disinfectant, this UV



treatment tank is where wastewater undergoes its final treatment phase before being discharged into the river.

Some components, such as discharge pipes and



embankments, are being built with the assistance of barges carrying cranes.



The contractor, Acciona - Vinci Joint Venture Construction based in Thu Duc City, said these days 600 workers and engineers are working around-the-clock to ensure progress.

Major electromechanical equipment has been ordered and is expected to arrive at the construction site by August for the second half of construction.

A private contractor consortium will operate the plant until 2029 under the built-transfer contract, after which it will be handed over to local public HCMC authorities.

According to the Ho Chi Minh City Urban Infrastructure Construction Investment Project Management Board, the entire city's current total urban domestic wastewater treatment capacity of 644,000 cubic meters per day meets only about 40% of the metropolis' daily wastewater volume.

The completion of the plant will increase the urban domestic wastewater treatment capacity to at least over 1.1 million cubic meters per day.

HCMC currently has three other large wastewater treatment plants in operation: Binh Hung with a capacity of 469,000 cubic meters, the Tham Luong – Ben Cat Canal complex (capacity of 131,000 cubic meters), and the Binh Hung Hoa center (30,000 cubic meters).



The Nhieu Loc – Thi Nghe Canal.



Flood Alert: This 'water storm' has arisen after decades in the calmly flowing rivers, is it a sign of some big disaster? by:Abhishek Dixit

This time, the water level in many rivers of the country has increased after decades and is causing great devastation. A report of the Union Ministry of Water Power has revealed that the way water has increased in the eight rivers flowing through Uttar Pradesh and Bihar this time, has not happened in the last several decades.

This time a big 'water storm' has arisen in the rivers which usually flow calmly. The situation has become such that in the rivers flowing through different areas of Uttar Pradesh and Bihar, the water level has reached dangerous levels after 75 years. And somewhere after 50 years, flood water in the rivers is moving ahead destroying villages and cities. Scientists say that the way the flood water in the rivers has increased after several decades this time and is continuously reaching dangerous conditions, is very worrying. This trend of increased water in the rivers has been shared by the Ministry of Jal Shakti with the Union Home Ministry. At the same time, many other scientific institutions including the Central Government are also monitoring the situation of continuously increasing water flow. Scientists believe that if this situation of increased water flow continues in the next few years, then there can be a big disaster. At present, the main reason behind the increased water level in the rivers after

decades is the frequent cloud bursts.

This time, the water level in many rivers of the country has increased after decades and is causing great devastation. A report of the Union Ministry of Water Power has revealed that the way the water level has increased in the eight rivers flowing through Uttar Pradesh and Bihar this time has not happened in the last several decades. According to this report, the water level of the Gandak river flowing in Vaishali, Bihar has again reached this dangerous level after 1948. According to the report of increased water level in rivers shared with the Union Home Ministry, the water level of the Gandak river in Vaishali has reached a dangerous level, which is similar to that of 1948. In 1948, the water flow here was 50.93 millimeters per second. Which



has reached close to 50 millimeters per second this year. Similarly, the water flow of the Kamla river flowing in Madhubani district of Bihar was the same as it was in 1965. Exactly 59 years later, the water level in the Kamla river has reached the same speed.

The report of the Union Ministry of Water Power states that in 1965, a water flow of 71.35 mm per second was seen in this river. In 2024, it has reached more than its dangerous level of about 70 mm per second. The central committee formed to monitor the sudden rise in water level in rivers has prepared a complete report by assessing the rivers of Bihar and Uttar Pradesh. On Wednesday, this report was also shared with the Union Home Ministry. According to this report, the water level of Ganga has increased again after almost 50 years, just close to the water level of Ganga in 1975. In 1975, the flow of Ganga here was 52.5 mm per second, which has reached close to 51 mm per second this time. The water level of Budhi Gandak flowing in Khagaria, Bihar, which was in 1976, has once again reached a dangerous level after 48 years. Devendra Dhar, senior member (technical) of the Central Flood Monitoring Committee, says that the condition of the Ramganga flowing in Shahjahanpur in Uttar Pradesh has also reached the same condition after almost 50 years, which it was in 1983. The Ghaghra flowing in Siwan in Bihar is also flowing at a dangerous level after 45 years.

Scientists of the Central Flood Monitoring Committee say that the flow of most rivers increases during the rainy season. But there are some rivers which flow calmly in normal conditions and their level never crosses the dangerous level. But this time some such circumstances arose, due to which even the calm rivers flowing in different states of the country got agitated. However, in the

initial phase, some major facts have come to light for the increased water level and water flow in these rivers. Sujit Saha, Convener of the National Center for Climate Change, says that this time it has been observed that the water flow has increased in many rivers after decades. These are the rivers which generally always flowed calmly with their large catchment area. But this time it did not happen. Saha says that the way cloudburst incidents are continuously happening at low heights on the mountains, such a situation is being created.

Saha says that in the last few years, there has been a sudden increase in the incidents of cloud burst. Due to this, the flow of water increased in the calm flowing rivers in the plains and the water level also increased. Arup Banerjee, a scientist at the National Center for Climate Change, says that usually when there is 15 cm of rain in a day, the water level of the rivers starts increasing rapidly. Apart from this, a major reason behind the increased water level in calm rivers is the lack of cleaning of silt in the rivers. Because in such a situation, there is an obstruction in the path of the rivers and not only does the water level increase but it also brings flood conditions in the surrounding areas. He says that if the trend continues in the coming years as the situation has been created, then a big danger is going to arise in human populated areas including many big cities.



The Water Crisis In India:

Everything You Need To Know

With the planet's second largest population at 1.3 billion, and expectant growth to 1.7 billion by 2050, India finds itself unable to serve the vast majority of that populace with safe, clean water.

Supporting 16% of the world's inhabitants is daunting enough, but it is even more so when recognizing that population is crammed into an area one-third the size of the United States. Then consider that India only possesses 4% of the world's fresh water and the crisis can be more fully realized.

India may not be the only nation in this predicament, but theirs is at a stage more critical than most. Severe lack of regulation, over privatization, general neglect and rampant government corruption have led to multiple generations thirsting for more than just a few drops of hazard free water.

The situation has grown to the point that regional disputes have risen over access to rivers in the country's interior. Those disputes take on a global scale in conflicts with Pakistan over the River Indus and River Sutley in the west and north and with China to the east with the River Brahmaputra.

Surface water isn't the only source reaching a breaking point.

Tracing back several generations, the critical situation in India can be linked to a myriad of causes. In modern times though, the concern has moved from the surface to the ground. And it's there where India's freshwater is under the greatest stress.

Causes: Groundwater and A History of Indifference

Over the past 50 years, policies have allowed what amounts to a free-for-all in groundwater development and as the crisis has grown it has been met with continued neglect, mismanagement and overall indifference.

Estimates put India's groundwater use at roughly one-quarter of the global usage with total usage surpassing that of China and the United States combined. With farmers provided electricity subsidies to help power the groundwater pumping, the water table has seen a drop of up to 4 meters in some parts of the country. This unfettered draining of groundwater sources has accelerated over the past two decades.

With the aggressive pumping, particularly in rural areas, where agriculture provides the livelihood for upwards of 600 million Indians, Mother Nature is often the difference in a good year and a devastating one. Relying on monsoon rains without proper irrigation or water management techniques has been a recipe for disaster.

Mismanagement and corruption often draw the largest headlines, but many of India's leaders have also been slow or unwilling to adapt to newer technologies or cohesive plans to address the issues.

The response can at best be described as irresponsible. Consider China, a country with roughly 50 million more people, uses a quarter less freshwater.

Growing Demand, Declining Health

Not only is India the world's second most populated country, but it has a fast growing middle class that is raising the demands on clean, safe water. Then consider close to half of the country practises open defecation and you have a dichotomy of two very different populations desperately pulling at the same limited resource.

One group wanting to grow and flourish and the other wanting to survive.

A few numbers from the World Bank highlight the plight the country is facing:

163 Million Indians lack access to safe drinking water

210 Million Indians lack access to improved sanitation

21% of communicable diseases are linked to unsafe water

500 children under the age of five die from diarrhea

each day in India

More than half of the rivers in India are highly polluted with numerous others at levels considered unsafe by modern standards. The waters of the Yamuna, Ganga and Sabarmati flow the dirtiest with a deadly mix of pollutants both hazardous and organic.

Aside from commonplace industrial pollution and waste, India's rivers are open use across much of the country. From dumping human waste as previously noted to bathing to washing clothes, the human element contributes to the epidemic of health related concerns.

Adding to the human toll is the reliance on seasonal rains, which are often sporadic in some years and over abundant in others. Rain totals can vary greatly and do not always arrive in the places they are needed most. The drought and flooding that results from this inconsistent cycle often leads to crop failures and farmer suicides.



Much of the above affects rural citizens where poverty is rampant, but even more developed urban areas face their own challenges.

Even with a robustly growing middle class, when combining rural and urban populations, over half of India still lives at or below the poverty level. Furthermore, no city in India can provide clean, consumable tap water full-time.

Should the crisis continue unabated, the scarcity of water will have a negative impact on the industrial health of the country.

Recent drops in manufacturing jobs can be tied to companies being unable to access clean water. Along with the inability to properly cultivate agriculture areas and the water crisis quickly becomes an economic one.

It may seem a foregone conclusion that the water will soon enough dry up and along with it India as a whole. That need not be the case.

There are even bright spots in the current environment. The Rivers Narmada and Chamabal run clean with water fit for consumption. Several projects are currently underway that aim to move water to areas that need it the most.

But it will take a long-term commitment of the Indian government not previously shown and the heavy assistance of outside resources.

Common sense practices and training will also aid in reducing the damage done to groundwater sources. Teaching farmers updated irrigation techniques, such as drip irrigation, and utilizing more rainwater harvesting are small, effective steps in stemming the loss of freshwater sources.

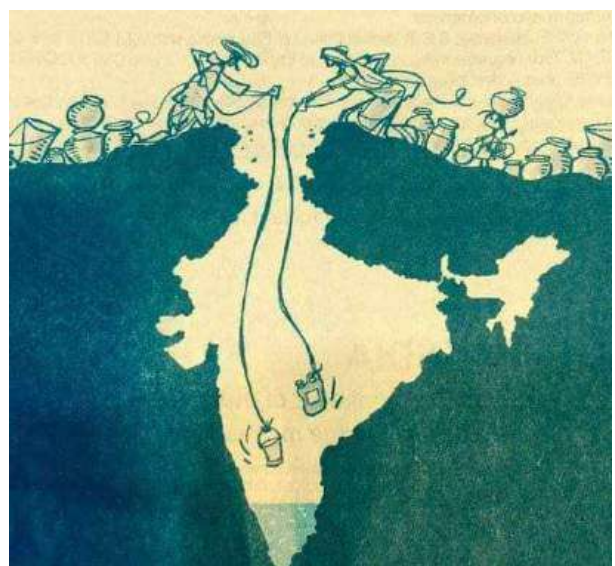
Much of India will also need modern sanitation policies that both conserve and wisely utilize water sources. Recognizing physical and economic growth directly ties to the amount of safe, usable water is another step in right direction.

Conclusion

Yes, all of these changes take the long view, but a crisis of this magnitude will not be solved with lip service and short sided solutions.

However daunting, the goals are not unattainable. India is still a developing society, and there is time to reverse the crisis that has been decades in the making.

Given the right commitment and dedication, India can soon enough have safe, clean water.<https://businessconnectworld.com/2018/01/11/water-crisis-in-india/>

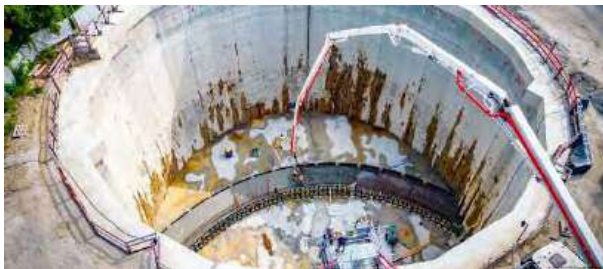


Nature and environment in Germany

Why are big wells being built in Berlin

Anne Sophie Brandlin

Berlin, the capital of Germany, is also facing the problem of rising temperatures and drought. Therefore, the local administration here has found a solution to store rainwater by turning the city into a sponge city.



Big wells are being built in the German capital to collect waste and rainwater

Berlin, the capital of Germany, is located in a dry area. Every year, it has to face water problems in the summer. This is why the city is now adopting measures to absorb and store rainwater like a sponge. Later, this collected water is used when needed.

To solve the water problem, first of all several large underground overflow basins were built. These basins work like parking for waste water. When it rains, water from the surrounding area collects in the basins and is then taken to a treatment plant. From there it is cleaned and released into the rivers.

Construction of underground water reservoir

Nine water storage facilities have been built in Berlin, including one under Mauerpark, a popular walking spot in the Prenzlauer Berg district where

parts of the Berlin Wall once stood.

The largest basin is currently under construction. Its size will be more than double the Mauerpark basin. This circular concrete basin, 30 meters deep in the ground, will be ready by 2026. It will be able to store about 17,000 cubic meters of water. This is equivalent to seven Olympic swimming pools.

When it rains heavily and puts pressure on Berlin's sewage system, the excess water is collected in these basins.



Large scale measures are being taken to collect rain water in Berlin

Photo: Pedro Becerra/STAGEVIEW

Astrid Hackenesh-Rump, spokeswoman for Berlin's water department BWB, says that this will prevent sewage and dirty water from flowing into the Spree River during heavy rains. In fact, BWB supplies drinking water to the entire city. Also, this department is responsible for cleaning dirty water and water management in the city.

"This program was created to conserve rainwater, combat drought, reduce pressure on the sewage system, and prevent sewer overflows," says Hackenesh-Rump.

This overflow occurs in combined sewage systems, where rainwater and domestic sewage collect in the same pipes. These systems were originally designed to carry all wastewater to treatment plants, where they can be cleaned and then released into canals or rivers.

However, during heavy rains, the amount of water increases significantly and it starts overflowing. Because of this, this dirty water goes directly into the nearby rivers.

Overflow in the sewer system

Hackenesh-Romp said that out of the 10,000 kilometer long sewer system in the city, about 2,000 kilometer is a combined sewage system. There is a problem of overflow at 180 places in these. These are basically openings in the sewage system from which water flows out into the Spree River.



Waste and collected rain water will be released into rivers after being cleaned

Photo: Alex Anton/Zoonar/picture alliance

The rivers in Berlin flow at a much slower speed than the rivers in other cities. Therefore, they cannot clean themselves. On the other hand, large rivers that flow fast clean themselves. For example, take the Rhine river which flows through many urban areas including Bonn, Cologne. Its average

flow rate is 2,200 cubic meters per second and with this help it can clean itself.

"The Berlin river has a flow rate of less than 10 cubic metres per second," Hackenesh-Rump says. "So whatever reaches here stays there for some time. The overflow of sewage causes a lack of oxygen in the water and fish start dying."

However, those planning water management strategies soon realized that building basins could only solve part of the problem, since much of the city was sealed with concrete and impervious surfaces.

"This means that we did not achieve our goal of reducing overflows. Instead, we maintained the status quo. That is, if we had not built the basins, the situation would have been even worse," Rump said.

Turning Berlin into a Sponge City

Most open spaces in Berlin have been built over. So water no longer seeps into the ground. When it rains a lot, instead of being absorbed by the soil and plants, the water runs off the cement or asphalt and mixes with the sewage.



A thermos of 50 million liters of water is being made in Berlin

In order to be prepared for the future disruption of Russian gas supply, a giant thermos is being built in Berlin. With the help of this, it is planned to keep the houses of the city warm in winter.

"A one percent increase in ceilings leads to a three percent increase in overflows," Hackenhahn-Rump says. So the Berlin Senate and the BWB created the Rain Water Agency, which advises city builders on how to design environmentally friendly roofs and buildings, as well as new ways to collect and store rainwater so it doesn't mix with sewage.

The city of Berlin has passed a law that says only a small amount of rainwater from a new building can go into the sewage system. For the rest, the building must be designed to seep into the ground or evaporate.

For example, a new apartment also has a large pond built where rainwater collects. Plants around help purify the water, which can then be used for irrigation.

Such environmentally friendly measures also help reduce temperatures and prevent flash floods. "New thinking and collective efforts are needed to tackle the water crisis. People have to think beyond their limits," says Hackenesh-Romp.



 Rotary India Water Conservation Trust



**This is Baobab tree.
It can hold over 32000
gallons (1,18,400 Lit)
of water in its trunk !!**

Save water save Planet

Post By Satish Khade 9823030218



These Countries do not have Rivers



Water is the most essential thing for life. In countries where there are enough rivers, lakes and ponds, people do not have to struggle for drinking water. But think how people would drink clean water where there are no rivers. You may think that there is no country in the world where there are no rivers. But you are wrong. Today we are going to tell you about 8 countries (8 countries without river) where there are no rivers. Now the thing to think about is that when there are no rivers here, how would people get drinking water? You will be



surprised to know the name of the country which is at number five in this list. (Photo: Canva)

Saudi Arabia - According to the Times of India, Saudi Arabia, located in the Arabian Peninsula, is one of the largest countries where there are no rivers. This country has deserts spread over miles. Despite that, the government here has devised special methods of water management. This country makes sea water drinkable. 70 percent of drinking water is obtained from desalination. Also, there are good facilities for reuse of water here. (Photo: Canva)



Qatar- No matter how rich a country Qatar is, it cannot create rivers, due to which this country also has to clean sea water and make it drinkable. According to the report, Qatar has the highest per capita water consumption in the world, due to which 99 percent of drinking water here is obtained from desalination. (Photo: Canva)



United Arab Emirates- The world's rich and famous cities like Dubai, Abu Dhabi are in this country (United Arab Emirates). Hundreds of billionaires live here, but this country also does not have rivers. Because of this, drinking water is made by cleaning sea water. Dirty water is cleaned and used in factories here. (Photo: Canva)



Arab countries mentioned above. This is why there are serious problems in collecting drinking water here. This is why the only solution here is to collect rainwater and clean the water in the plant and sell it in packaged bottles. Here, even the tourists visiting every island are given bottled water. (Photo: Canva)



Kuwait- Kuwait, a country located in the northern part of the Arabian Gulf, also operates without rivers. Here too, sea water is cleaned and made drinkable. Like other countries, desalination is used here too. (Photo: Canva)



Bahrain- Bahrain, an island country located in the Persian Gulf, does not have natural rivers, but there are many types of ground water sources and springs from which water is available. However, this water is not sufficient for drinking, so sea water is cleaned and used here. (Photo: Canva)

Maldives- Imagine a country which is completely dependent on tourism and is surrounded by the Indian Ocean. There is not a single river in that country. This is why the name Maldives is quite surprising. However, this country is not as rich as the

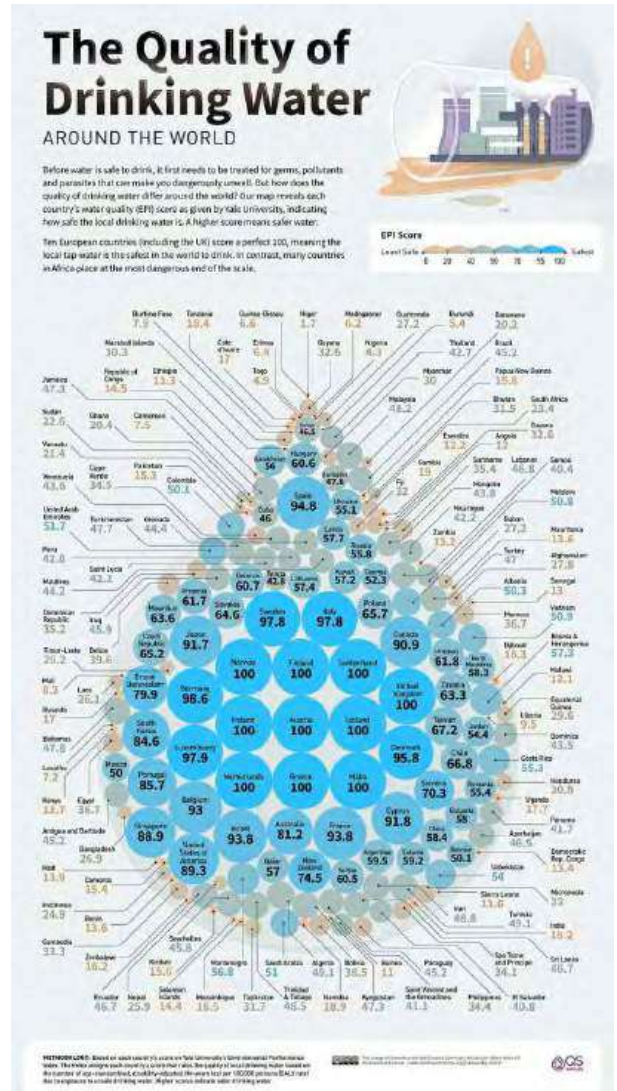
Oman- Oman, located on the southeastern coast of the Arabian Peninsula, does not have any permanent river. However, there are many valleys where water fills up during the rainy season and



they take the form of rivers. The country has adopted many farming techniques that save water. (Photo: Canva)



Vatican City- The world's smallest independent country, Vatican City also has no rivers flowing in it. This country is dependent on Italian water supply.



डॉ. दत्ता देशकर यांनी लिहिलेल्या विविध पुस्तिका

- (१) चला, जलसाक्षर होवू या.
- (२) संकल्पना शाश्वत शेतीची.
- (३) चला , जलपुनर्भरण करू या.
- (४) पाण्याचे गणित.
- (५) बळीराजा सावध हो, दुष्काळ भेडसावतोय.
- (६) वनशेती. (*)
- (७) शेततळी. (*)
- (८) पाणी वापरा, पण जरा जपून. (*)
- (९) हिसाब, किताब, पानीका.
- (१०) चला, जलसाक्षर होवू या (चित्रमय पुस्तिका)



(*) ही पुस्तके महाराष्ट्र सरकारच्या प्रौढ शिक्षण संस्थेने प्रकाशित केली आहेत.

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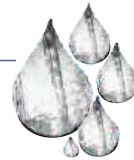
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