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Jalasamvad

A Dialogue on Water
Editor: Dr. Datta Deshkar








Cover Story

Dilasa Sansthan - Shri Vinod Hande

जलसंवाद तर्फे इ पुस्तके

(१) मी एक जलप्रेमी : डॉ. दत्ता देशकर

(२) जाणून घ्या आपले पाणी : डॉ. दत्ता देशकर

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(४) Towards Excellence in Water and Culture :
Shri Gajanan Deshpande (आगामी)

(५) उद्योजकता : (स्वतःचे भविष्य स्वतःचे हाती) : डॉ. दत्ता देशकर (आगामी)

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(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)

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Jalsamvad

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Contents

Editorial .....

In what way I am concerned ?

Last week there was one announcement by IMD that rainfall in the coming year would be satisfactory. It estimated, the rainfall would be more than average i.e. 106 percent. O. K. In what way I am concerned with this? Show me any year when there was no rainfall. Some times, it is more than the average, some times less. I am least bothered with these figures as I have nothing to do with this. I know that a major portion of this would be taken away by the sun in the form of evaporation. I also know that remaining would flow back to the sea. The sea has given water to me in the form of rainfall. It is my humble duty to return that back to the sea.

This apathy towards water and the problems associated with it will lead us to disaster. Before the British came to India the position was quite different. We treated water as God. Varuna Deva commanded all respect. So many stanzas pleasing this God are written in Rigveda. We treated water as a part of our culture. It would not be wrong if it is said that this culture owes its origin to water. All the water bodies were well maintained and every individual was taking active interest in that maintenance. We had accepted all the rivers as our mother. They were so close to us that many women in the country were named after them. For example, the name of my mother was Yamuna. There are innumerable women in the country whose names are those of famous rivers in the country like Ganga, Yamuna, Saraswati, Narmada, Kaveri, Godavari and so on. Can you find similar examples in other countries? No women in America will bear the name of Mississippi, none from China bear the name of Yangatsi, or woman from Germany would bear the name of Danune.

We are all disassociated with rivers and other water bodies. Ask a small child where from we get water. He would definitely say that it is the tap which gives us water. Ask a school going boy from Pune to name the river which passes below the Lakdi Pool. I am dam sure that he does not know it. Ask a college going student how may rivers pass through Pune city. It would not be possible for him to name them. Perhaps that is the reason why we have lost the emotional contact with the rivers. We are least bothered whether they are in good or bad condition.

I would give a small example. I was travelling from Indore to Bhopal by bus. The person sitting beside me casually asked me, Sir, what is my profession. I just told him that am a water activist working in the field of water literacy. We discussed water issue at length. After some time passed, he showed me one small lake by road side. He said. three years ago, 20 of my friends cleaned lake, removed the silt, deepened it and increased the storage capacity of the lake. All of us regularly visit this place and see that it is maintained properly. He was so attached to that lake that at least for half an hour he was telling me different stories related to that lake.

Are you, by any chance, attached to any water body? In Pune, there is one organization by name Jiveet Nadi Abhiyan where thousands of people are associated with rivers and lakes in Pune. They meet every Saturday and have a river walk so that their attachment with rivers increases. Take care of water and it would take your care.

Dr. D. G. Deshkar
Editor

Organization - Dilasa Sansthan

Shri Vinod Hande

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"Dilasa" is a Non-Governmental Voluntary Organization established in 1994. It works in close cooperation with 25 other small NGOs in Vidharbh and Marathavada region. Dilasa runs farmer's support centre to provide information on various Government schemes meant for the benefit of the farmers and rural population. The goal of "Dilasa" is to ensure food, water, livelihoods and income security together with good quality life to weak and disadvantaged communities on sustainable and equitable basis.

Commitment, Transparency, Inclusiveness, Integrity, self-criticism, sensitivity, Humbleness, Creativity, Gender sensitivity and Equity are the core values of Dilasa Organization on which they work. Dilasa is focusing its attention on creating sustainable livelihood for distressed farmers by providing special irrigation through Phad project, Bodi Phad Doha model, Farm pits, Farm ponds and Minor Irrigation projects by way of arresting and storage of rain water. This facilitates irrigation during the dry spell for survival of crops and also to grow crop during the year. This will support in improving the overall economic condition of farmers and also prevent suicides of farmers in 6 districts of Vidarbha.

'Dilasa' has reached to 845 villages of Maharashtra and it's total beneficiaries are 59000. It has been proposed to extend it's services in Andhra Predesh to reach 115000 beneficiaries from 1200 villages .

The strategy of Dilasa is to harvest as much as rain water for livelihood so that they can work for next many years to come. Development plan for Vidarbh and Marathwada can't be same considering changing climate pattern said president of 'Dilasa'. Their focus is on creating water availability for drinking purposes as well as for irrigation with active participation of people especially farmers. They also search new opportunities with their partners to come out from present sufferings of people in the area of their working means in Vidarbh and Marathwada. For their success Dilasa gives credit to their partners with whom they worked with full coordination and with clear guidance. President and founder of 'Dilasa' Shri Madhukar Dhas also extends his thanks to their supporters, donors, partners, staff and volunteers for their contributions. Madhukar Dhas

had been honoured with the 'Panidar Manus' Award by the Chief Minister of Maharashtra for his contribution to water management and conservation. Villagers affectionately call him Madhu-bhau, meaning elder brother. As said earlier 'Dilasa' is founded by Madhukar Dhas working on water conservation in 1200 villages of 14 districts of Maharashtra. Meaning of 'Dilasa' is providing strength. It provides strength to communities by ensuring access to water.

Little about Founder and why Ghatanji?

Madhukar's parents Nivrutti and Shanta Bai were labours in the Kalamb taluka of Osmanabad district of Maharashtra. He was born in 1967. He worked in sugarcane farms, poultry farms and in construction sites as a daily wage labour for three years to support his collage education. After graduation in 1989 he joined 'Janiv–Sanghatna' of Pune and worked for the rights of marginalised in rural area. He worked in Beed district till 1990 and received salary of Rs.300/- per month. This was raised to Rs.1200/- when he joined 'Jan Shayog Trust' but was getting with a gap of three months. It was difficult for him to run family without money. He rented a house with condition that payment of rent will be made after three months. He searched house from Yavatmal at Ner and at Pusad. Finally he found house in Ghatanji. That's why Ghatanji became his work centre.

While in Yavatmal he met Vijaya working for Vanchit Vikas, a registered body of 'Janiv Sansthan'. Vijaya's work involved visiting red light area of Pusad to understand the problems of commercial sex workers and impact of surrounding on their children. She also found that girls were sold off to cities and boys were working as pimp. Most women including mother, aunts and grandmother were involved in this trade. This situation disturbed Vijaya. She discussed with Madhukar. Madhukar was thinking of starting an organization where he would have liberty of working on this issue. There was opposition initially from society. But ultimately Madhukar and Vijaya formed 'Hasre Gharkul' meaning happy home for the children of commercial sex worker. Madhukar had different ideas about his role in development. So 'Dilasa' was registered as a multipurpose society in Sept. 1995 with Madhukar as a Director and Vijaya as Secretary. 'Dilasa' had nine workers initially but today there are 191 full-time workers, 11 part-time workers and ten watershed experts.

Achievements of Dilasa

• 7000 SHG with total membership of 84000 in seven districts of Vidarbha and Marathavada.

• Credit linked 1350 groups of 11 NGOs who have received loan of 13.20 cr. In 2011-12.

• Created irrigation facility in more than 4500 acres of land through 102 Phad projects.

• 750 acres of land brought under irrigation through

two minor irrigation projects.

• Implemented standard package of practice that involved 3000 farmers. This resulted in reduction of agriculture production cost to a Rs.2000/- par acre.

• Crop production cost decreased to Rs.3000/- per acre under IPM (Integrated Pest Management) package.

• More than two lakhs of farmers have got monetary benefit of over Rs.2000 -3000/- per head by adopting PATA mix crop method.

• Education, food and residential arrangement provided to 40 children at Pusad Hasre Gharkul centre since last 14 years.

• Prayogdham training centre has been established Choramba near Ghatanji.

• Watershed development work has been carried out on 5700 ha. of land through NABARD.

• Shirpur water storage model developed in 5 villages.

• 27 Bodi Phad developed in Gadchiroli dist. by which 155 farmers benefited.

Dilasa works in two projects. First their regular projects and second on More Innovated projects.

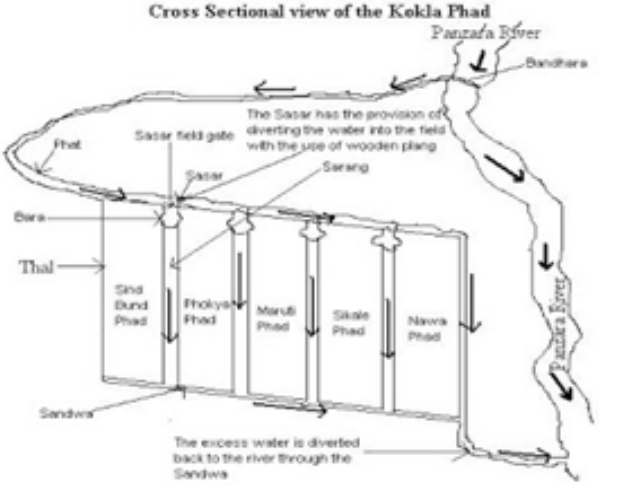
Regular projects like,

• Krishidoot
• Saving and credit Programme
• Information about children at Harsh Gharkul
• Farmer's Support centre
• Farmer's Suicide – measure by Dilasa
• Impact of agrarian crises on children
• Soil & Water Conservation
• General Insurance Corporation
• SBI Foundation

More Innovative projects- Following projects come under this category.

• Phad Technology
• Pata Method
• Bodi Phad Project
• Dairy Development
• Traditional Seed and Seed Bank
• Promotion of Seed Bank

Phad Technology- It is nothing but a irrigation method. The term Phad means a block of land used for irrigation purpose. Usually in command area there were 3-5 Phads on an average. Each Phad has a name given by the village community. The collection of Phads is known as 'Thal'. The Phad receives water from the Bandhara diverted through canal or Pat, at the main source of water flow. This Pat has Various field distributaries known as 'sarang'. Which reach till the tail end of each Phad and excess water is diverted back to the main river through 'Sandwa' or the waste water. Between each Phad there is small opening called 'Bara' with the main inlet where the water enters the field. The method of distribution of water through the gravity is generally done from one Phad to another. During the water distribution process the 'Patkari/waterman use to open field gate known as 'Sasar' for release of water at each Phad. The Phad irrigation has laid conditions that, unless the first Phad is not supplied adequate water according to the crop grown, the second Phad does not get the charge. During the water distribution, remaining Phad waiting for water release is blocked with the help of 'Sasar' i.e. field gate.



Dilasa has constructed 292 Phad models in Vidarbha & Marathawada from 1995 which helped in irrigating 11718 acres of land of more than 3906 farmers and their families.

Pata Method- 'Pata' method of vegetable cultivation to meet the nutritional needs of the family and was adopted on a large scale of farmers. In this method various crops comprising vegetable,

pulses and other crops used to be sown together in three rows in the farm. This enabled availability of pulses to the farming family for self consumption in order to get better healthy food comprising of nutritional elements. As a result of their efforts more than 3 lakhs farmers adopted Pata method of cultivation. Various crops like Pearl millet, Maize, Sorghum, Black gram, green gram, Lady's finger were planted together in rows.

Bodi Phad Project

Rainwater harvesting is very important for enhancing availability of water not only for irrigation but also for drinking purpose. This is the new method of arresting rainwater. Rain water is stored in Bodi & diverted it to the farm enabling farmers to carry out protective irrigation for their crops. Total 10 Bodi Phad projects were under taken with support from Axis bank Foundation in Bhamragad-5, Aheri-2, Etapalli-1, Lagam Alapalli-2.

Dairy Development

Through Phad projects 23 tribal farmers got irrigation facilities for three seasons. Under dairy development activity beneficiaries from Digras & Yavatmal blocks were provided with milch cattle buffalos. Now the farmers are getting around 12 liters of milk each from these milch cattle. The beneficiary women sell 10 liters of milk at Yavatmal a district place.

Women Development

The Development of women comes from 'Self-Help Groups'(SHG). This group is specially for ladies. Each SHG has a maximum of 20 women. Today Dilasa and it's 11 partners are working with 7000 SHG with total membership of 84000 in seven districts of Vidarbha and Marathavada. The SHGs are provided with skill training and now 100 SHGs are running income generated activities like garment manufacturing, Goat farming, vegetable vending, grocery shop, stationery and daily needs. ect. 1600 SHGs received credit of Rs.46 crores benefiting 46316 members.

Watershed Development

'Dilasa' started it's work in six villages of Ghatanji. Vidarbh region comprises of the Nagpur and Amravati division covering 11 districts. The operation area of 'Dilasa' falls in the Yavatmal district under Amaravati division. Cotton crop in the region left the farmers poorer as the input cost was much higher than income. Using different energy pump for irrigation was not possible due to poor tribal area. So demand came for small irrigation structure to mitigate the irrigation problem. While working in 'Janiv Sanathan' Madhukar attended a workshop by Vilasrao Salunke who is also known as 'Panni Baba' (water man). Vilasrao Salunke is supposed to be a champion of harvesting and equal distribution of water. Salunke asked Madhukar to work on water conservation in the area where he was working. Madhukar deeply impressed by Salunke started working in water conservation sector.

Madhukar adopted 'Phad' method for irrigation, which was a traditional Diversion Based Irrigation (DBI) in the Dhangarwadi village. Today 'Phad' is considered as a perfect method for low-cost irrigation. 'Phad' was replicated in six blocks of Yavatmal from grant received from Tata Trust and

then 23 more 'Phads' in Yavatmal, Nagpur, Amravati and Nanded districts.

Madhukar also worked with his friend Mansoor Qureshi who had deeply studied 'doha'. 'Doha' means doh in Marathi. This provides water conservation through groundwater recharge. Madhukar popularised the 'doha' model. After the 2015 drought in Marathwada 'Dilasa' completed 70 doha models in Beed and Osmanabad district of Maharashtra. They have started with six villages now reached to 1200 villages in 14 districts of Maharashtra. Mansoor Qureshi said "Any significant change in rural sector can be done only by reducing dependency on monsoon". Only 12 % area has assured irrigation and rest is dependent on monsoon every year. 'Dilasa' also introduced Wello Wheel Drums which contains 60 litres of water and can be pulled by 12 year old girl.

Natural Resource Management

'Dilasa' worked on a watershed development project in 1995 in six villages of Ghatanji block with support from DRDA(District Rural Development Agency). Another watershed development was taken up in 20 villages of Ghatanji through financial support from Aga Khan Foundation. In 2009 'Dilasa' secured NABARD projects on watershed development in Phandharkawada block in Yavatmal district to cover 2500 ha of land in three villages namely Pahapal, Kegaon and wadner.

Other major activities carried out by 'Dilas' include farm bunding, contour bunding, agro-horticulture development, water harvesting structure, livelihood development, animal husbandry etc.

Another major work undertaken by 'Dilasa' was that of construction of farm pits measuring pit size 10 feet in depth and 5 feet radius. Rajani village has 70 such farm pits. This village further started using sprinklers for irrigation. 'Dilasa' donated two sets of diesel pumps and sprinklers to the village. Farm pits were constructed on the land of individual farmer with permission from panchayat. Stored rain water is used by farmer during Kharif and Rabi period. This scheme has a huge impact as farmers are now getting increased yield from cotton.

'Dilasa' undertook people's participation in desilting a Jeev Rekha dam in Jaffrabad. Farmers here shared 75 % of total expenditure. From 115000 tractor loads of silt was removed from the dam which was used in farms. In 2005 International Water Management Institute (IWMI) and Tata Water Policy Program asked Madhukar to conduct a study on how the Dhangars fulfil the water need of their sheep farm in summer. In the naxal area of Gadchiroli 'Dilasa' helped 948 households in getting irrigation.

Madhukar also started guiding community to follow best agriculture practices that included soil testing, building farm bands, seed distribution and preparation of organic manure. This project was implemented in 22 villages of Ralegaon and Zari blocks of Yavatmal dist. In addition 'Dilasa' also conducts drought relief measures that includes distribution of food ration, medicine kits, fodder and cloths etc.

'Dilasa' gets financial and technical support from partners and other organizations. All can't be named here as list is big. Few of them are listed below from the list.

- PASC
- JSW
- Larsen & Toubro
- Mastek Foundation
- Oxfam
- Axis Bank Foundation
- Arpan

- Shri Ratan Tata Trust
- NABARD

In addition to 'Dilasa's' financial partners who help them in completing various projects Sansthan also accepts donation from individuals or from company. Donation paid to 'Dilasa' are eligible for Tax exemption under income tax Act under section 80G.

Information about all above projects run by 'Dilasa' is not possible here for lack of time and particularly space, so of few of them are considered here from above. To know about other projects and their outcome interested readers can write on their contact details.

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Groundwater is vanishing worldwide, but it can be rescued - By Mark Gongloff

The bulk of Earth's water, about 97 percent, is in salty oceans and thus useless for drinking or growing food. Of the 3 per cent that is fresh, most is locked in ice sheets and glaciers, many of which are melting rapidly into the oceans thanks to climate change.

Unless thirsty aliens come and take it, Earth's water isn't going anywhere. It's just becoming increasingly difficult for thirsty humans to access. But there's reason to hope we can do better job of that even as the planet warms.

The bulk of Earth's water, about 97 percent, is in salty oceans and thus useless for drinking or growing food. Of the 3 percent that is fresh, most is locked in ice sheets and glaciers, many of which are melting rapidly into the oceans thanks to climate change. A relative few drops of fresh water are available in ponds, lakes and rivers, which are easily accessible but also vulnerable to pollution, overuse and drought.

Humanity's biggest source of fresh water - representing just 0.8 per cent of Earth's total water - is on underground aquifers. Decades of drought, pollution and overuse are shrinking even that precious supply, and rising sea levels threaten to spoil even more of it with saltwater incursions. A recent survey of groundwater levels at hundreds of wells world wide found that 71 percent have fallen since the start of the 21st century. Groundwater loss worsened at more than half of the studied wells during that time.

But the survey also revealed, encouragingly, that groundwater disappearance isn't universal. Losses are most common in areas that are both dry and heavily farmed. Some of those places have managed to protect and even start replenishing their aquifers. The Abbas-e Shargi basin in arid southwestern Iran was losing groundwater at a rate of nearly a foot a year before the turn of the century, according to the study data. It has regained nearly 3 feet of water a year in the past two decades thanks to diverted water from the Karkheh Dam.

The Upper Santa Cruz basin near Tucson, Arizona, was drying up as quickly as the Abbas-e Shargi until water authorities started a campaign to recharge local aquifers. Using water from the Colorado and other nearby rivers, along with treated wastewater, many groundwater reservoirs in dry southwestern Arizona are now growing despite a warming climate and the worst megadrought in 1,200 years.

"Tucson was able to basically turn off some wells," said Sharon Megdal director of the Water Resources Research Center at the University of Arizona in Tucson, who was not involved in the study. "That water was no longer needed to serve the public because the city was storing and recovering surface water."

Of course, surface-water supplies like the Colorado River increasingly have their own problems with climate, mismanagement, pollution, saltwater incursion and drought. They are no magic fountain for replenishing groundwater supply. Demand-side fixes - taxes, often, but also conservation drives - are necessary, too, even if they are more politically painful.

The Bangkok basin in Thailand, part of a system that supplies water to more than 11 million people, suffered from groundwater loss for decades - more than 2 feet a year between 1980 and 2000, according to the study data. The land under Bangkok was sinking, and the quality of drinking water was deteriorating.

Soon after the turn of the century, the Thai government started to ratchet up ground water-use charges it had first imposed in the 1980s, increasing them from 3.5 baht per cubic meter to 17 baht. Lo and behold, local aquifers recovered, so much that the government was able to slightly lower the charges in 2012. Rising costs recently forced Thai authorities to raise rates for the first time in 23 years.

One thing Tucson and Bangkok have in common, aside maybe from relentless heat and beautiful landscapes, is what Megdal calls "water consciousness." Both struggled to manage water supplies for a long time before finding solutions, making it easier to ask people to sacrifice. As the planet warms and rainfall becomes less predictable, more sacrifices are inevitable.

"Somebody in Tucson might say we use less water than others ," Megdal said. "But there's still room to use even less. There are lots of actions authorities can take to stress the need to reduce water use."

In some lucky places, nature will do much of the work: More than half the aquifers that have refilled since the turn of the century were in areas where rainfall had increased, according to the study. Unfortunately, such areas are increasingly rare. As the planet warms, more people will need to develop water consciousness: understanding the scarcity of this resource and, when necessary and done fairly, pricing that resource to reflect its true value.

Relationship between water and forests

Ryan Smith & Francis Segmour

Many people point to forest restoration as a way to curb climate change, where restored forests sequester carbon in trees and soils. But emerging evidence shows that restoration can provide non-carbon climate benefits, too — in particular, reducing heat and regulating rainfall.

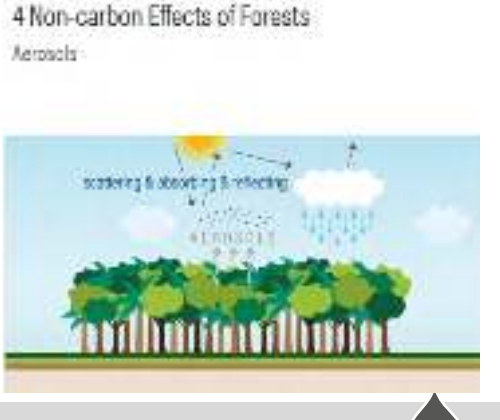
Here's what we know, why it matters, and several opportunities on the horizon to expand our knowledge of the benefits of restoration for bringing back cooler, wetter conditions.

The Relationship Between Forests and Rainfall

Through the process of evapotranspiration, forests help recycle moisture that has blown in from seas and fallen as rain. Trees pump moisture from the soil back to the atmosphere, where it then condenses again and falls as rain, hundreds or even thousands of kilometers downwind. Water vapor released by forests can travel as far as 2,000 km away in the tropics and as far as 5,000 km in the temperate zone. In parts of the Western Amazon Basin, up to 50% of annual precipitation originates from the forest itself; up to 70% late in the dry season.

Given the important role forests have in recycling rainfall, removing them can disrupt rainfall patterns within and across national boundaries. In Borneo, watersheds that had lost more than 15% of their forests between 1973 and 2007 had a greater than 15% reduction in rainfall during that time. A model of deforestation in the Amazon predicted that if deforestation continues on its current trajectory, average annual rainfall by 2050 would drop by 8.1% across the region.

4 Non-carbon Effects of Forests



Can Forest Restoration Restore Rainfall?

While few studies have successfully measured the impacts of large-scale restoration on rainfall — and those that have been done have mostly focused on temperate latitude — emerging evidence shows that restoring degraded lands can improve precipitation.

One recent study showed that following the Chinese government's massive Green for Grain program — the largest afforestation program in the world, where trees were planted on retired farmlands to reduce flooding and soil erosion — precipitation increased by 58%, or an average 54.62 mm per year over the afforested area. After trees were planted, atmospheric moisture entering the region decreased, but the amount of moisture falling as rain increased, as did the proportion of fallen rainfall that was recycled into future rainfall over the region.

In addition, several models predict that increasing tree cover would also increase precipitation. For example, models show that restoring Australia's savanna ecosystems (which include trees) would increase rainfall by almost 10%, while increasing forest cover in Europe would increase average downwind precipitation by 7.6% during the summer months.

For the tropics, models predict that reforestation over the Sahel region could increase rainfall locally and downwind, increasing the intensity of heavy rain events, shortening the length of the dry season, and reversing the Niger River Basin's overall drying trend. Contributors to the Science Panel for the Amazon, a leading authority on scientific, economic and moral issues related to conservation of the Amazon, anticipate that "forest restoration could help the Amazon maintain its hydrological integrity, with evapotranspiration from restored forests contributing to the east-west transfer of moisture."

The Relationship Between Forests and Local Temperatures

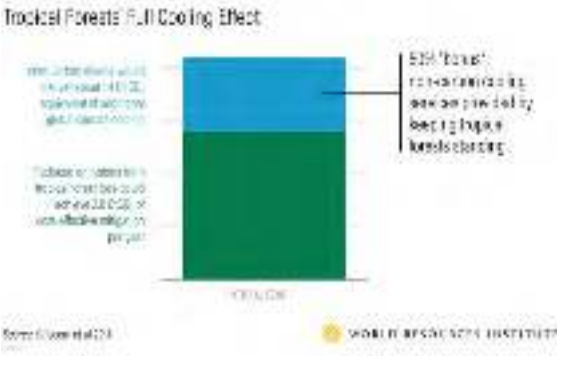
Forests in temperate and tropical latitudes reduce local temperatures by directly blocking sunlight from reaching the ground. Additionally, through evapotranspiration and by creating wind turbulence, forests move moisture and latent heat higher into the atmosphere, cooling the earth's surface and moderating local and regional temperature extremes. Surface temperatures in the tropics are on average .2 – 2.4 degrees C (.4 – 4.3 degrees F) cooler in forests than in nearby cleared areas, but temperature differences as high as 8.3 degrees C (14.9 degrees F) have been measured during the hottest part of the day.

In the Brazilian Amazon and Cerrado, researchers have detected the effects of deforestation on increased daily temperatures up to 50 km away from deforested areas.

Forests are especially effective at moderating temperature extremes during drier periods, improving local resilience to global warming. Reduced cloud coverage during dry spells increases solar radiation, causing trees to photosynthesize more and therefore pump more moisture from deep in the soil to the atmosphere, cooling the air.

Forest cover in the tropics provides the greatest cooling benefits. The combined biophysical cooling effects of tropical forests are so significant that, when combined with the effects of global emissions-related warming, their loss can double the local warming caused by global emissions alone. At the global scale, tropical forest loss effectively amplifies the warming effects of deforestation-related emissions by about 50%.

Can Forest Restoration Also Restore Cooler Temperatures?



An increasing body of evidence shows that

restoring tree cover can reverse the effects of deforestation on local temperatures. However, that effect can vary, depending on the latitude at which the deforestation occurs, among other factors.

One study found that reforestation and afforestation in the tropics and temperate regions from 2000-2010 reduced the warming effects of deforestation by 0.2 degrees C (0.3 degrees F). Increasing tree cover in the boreal region had no effect, likely because snow-covered ground reflects more heat away from the earth's surface than a forest. Models show that increasing tree cover in the Sahel could reduce local temperatures in some areas and increase them in others. In urban heat islands — areas of higher temperatures within cities — large trees planted for shade can mitigate the most intense heat by shielding the sun and cooling via evapotranspiration.

Adding trees to agricultural landscapes (where ecologically appropriate) can also mitigate local temperature extremes and boost yields. Livestock are vulnerable to heat stress, which can negatively affect growth, meat and milk production, reproduction and disease. One study comparing tropical savannas where livestock grazing occurs found that the cooling benefits of trees increased linearly with the amount of carbon stored in trees: each additional 10 metric tons of carbon stored per hectare were associated with cooler local temperatures of 0.83 degrees C (1.5 degrees F) in Africa and 1.1 degrees C (2.0 degrees F) in the Americas.

While such findings do not prove that adding trees to degraded landscapes results in cooling, recent research based on historical data suggests that it can: Trees planted during the 1930s Great Plains Shelterbelt initiative, which spanned from Northern Texas to the U.S.-Canada border, lowered regional temperature averages by 1.7-2.1%, reduced the number of extreme heat days by 12.9%, and increased precipitation by 4.4-8.0%. Ultimately, these changes increased corn yields by 54.3% and influenced farmer decisions about which crops to grow.

In the tropics, there is evidence that increased temperatures due to tree cover loss can decrease crop yields, while adding trees to farms — a practice known as agroforestry — can protect crops from heat stress. In Brazil, land conversion and forest losses from 1985-2021 decreased soy productivity by 6-12%, equivalent to lost profits of $158 per hectare. Meanwhile, agroforestry systems in Ethiopia have been modeled to increase national maize yields under future climate conditions by 3.1 – 7.5% compared to maize farms without trees.

These studies demonstrate that, in some cases, the addition of trees to agricultural landscapes can help crops and animals adapt to stresses brought on by greenhouse gas-induced climate change. Scientists contributing to the Science Panel for the Amazon concluded that increasing forest cover could provide additional benefits for society beyond agricultural producers by mitigating higher temperatures.

Why Do the Answers to These Questions Matter?

The dynamic between forest restoration and local cooling and precipitation has critical implications for people's health, economies, agriculture and climate resilience.

Higher temperatures pose extreme risks to human health. One model showed that by 2100, conversion of the Brazilian Amazon to savanna could expose an additional 11 million people to heat stress. In Indonesia, a study demonstrated that worker productivity declined by over 8% in deforested areas due to reduced work quality and workers needing to operate more slowly and take more frequent breaks.

The biophysical effects of restored forests on local climate could add up to significant benefits for regional economies and food production. For example, of the 29 megacities in the world, 19 depend on rainfall recycled from land for greater than a third of their water supply. The potential for trees in agricultural landscapes to buffer yields are additional to other forms of agricultural adaptation to climate change, such as reducing soil erosion and providing pollinator habitat.

Mitigating the local impacts of global climate change is especially important for

communities that are most vulnerable to such changes, such as Indigenous Peoples and local communities who are dependent on forest-based goods and services for meeting their basic needs, and others dependent on rain-fed agriculture in the tropics. The non-carbon benefits of forests for climate stability may be more immediately relevant to local, national and regional constituencies than forests' carbon benefits, due to their ability to help humans adapt to warmer climates with more extreme weather.

Yet there is still much left to be learned about the degree to which forest restoration can help restore the non-carbon benefits of forests, thereby buffering local communities and national economies from the adverse effects of global greenhouse warming.

What Are the Opportunities to Learn More About Restoration's Benefits?

There currently is unprecedented international interest in forest restoration. Initiatives such as the Bonn Challenge, AFR100 and Initiative 20x20 have set continental- to global-scale targets for ecosystem restoration. The UN declared 2021–2030 the UN Decade on Ecosystem Restoration. At the One Planet Summit in 2021, financial institutions committed $19.6 billion to restore degraded land and forests in Africa. And most recently, the Kunming-Montreal Global Biodiversity Framework, agreed at the Conventional on Biological Diversity COP15 in December 2022, set the global target of placing 30% of degraded ecosystems under restoration by 2030.

To continue to build widespread support for forest restoration across scales, the international restoration community must fully understand and communicate restoration's full climate benefits. This includes the extent to which restored forests can regulate temperature and precipitation through non-carbon pathways, which is far less understood than the GHG effects of trees removing carbon from the atmosphere as they grow.

Importantly, incorporating non-carbon benefits into restoration planning could create new constituencies for forest restoration. While local communities and officials may feel powerless to affect the trajectory of global climate change, restoring forests and planting trees to stabilize local climates is something they can dig into. Research into this topic may give us answers that could help make a stronger case for restoration's role in fighting climate change.

Several key questions to be answered through research include:

To what extent can restored forests or increased tree cover in agricultural and urban areas predictably increase precipitation and mitigate extreme temperatures?

At what resolution can we map pathways from where moisture evaporates over land to where it falls as rain, and the impacts of forest cover change?

Can we quantify the extent to which the non-carbon climate benefits of restoration contribute to human health, agriculture and the economy, and put a price tag on those benefits?

How can non-carbon benefits be incorporated into spatial planning for restoration?

To what extent can large-scale forest restoration in the southern Amazon help the forest avoid passing its tipping point?

Large-scale restoration landscapes such as those in Brazil's Atlantic Forest and the African Sahel, and afforestation initiatives such as China's Green for Grain program, are coming into maturity and could be the basis of future studies that help us understand restoration's full impacts on climate. Advances in remote sensing offer opportunities to explore these questions through empirical data. A portion of the energy and finance behind ongoing international initiatives can and should be channeled into supporting critical research.

The restoration research agenda is already quite broad. The addition of forests' non-carbon benefits to this agenda would fill a critical gap.

Thanks to Carlos Nobre and Michael Wolosin, who also contributed to this article.

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Water: A Source of Harmony Amidst Conflict

Prof. Neelam Pandit

(M) : 9823948048

Every year, on March 22nd, the global community commemorates World Water Day, a poignant reminder of the indispensable role water plays in sustaining life. In 2024, themed 'Water for Prosperity and Peace,' the world comes together to acknowledge the intricate link between water security, prosperity, and peace.

Water transcends its utilitarian role; it embodies dignity, stability, and robust health for communities worldwide. However, amidst its abundance lies the specter of scarcity, pollution and unequal access, threatening peace and stability.

The dual nature of water becomes apparent in times of scarcity or contamination, where it can either foster tranquillity or ignite discord. Recognizing access to clean water as a fundamental human right is crucial, urging us to safeguard and preserve this invaluable resource through inclusive collaboration in water management.

Harnessing the power of water as a unifying force is key to unlocking a future defined by harmony and prosperity for all. Transboundary cooperation offers a pathway to de-escalate tensions and forge peaceful treaties over shared water resources. Water diplomacy emerges as a potent tool, facilitating dialogue and fostering cooperation among diverse stakeholders.

Moreover, adopting a climate-security policy framework is imperative to address interconnected challenges posed by climate change, environmental degradation and population growth. Inclusive perspectives pave the way for resilient, sustainable solutions that transcend borders and generations.

In confronting the complexity of water management, we must rethink traditional approaches and embrace innovative strategies rooted in inclusivity and cooperation. By transforming water from a potential weapon of conflict into a catalyst for peace, we embark on a journey towards a future where prosperity and harmony flourish, nourished by the life-giving waters that bind us all.

The Importance of Water:

Water is not merely a natural resource; it is a fundamental human right and a prerequisite for achieving sustainable development goals. It sustains life, supports ecosystems, and drives economic activities across various sectors. Moreover, access to clean water and sanitation is intrinsically linked to public health, education, and gender equality.

Water Scarcity and Conflict:

Despite its abundance, freshwater resources are unevenly distributed, exacerbating water scarcity in many regions. According to the United Nations World Water Development Report 2018, global water demand is projected to increase by 20 to 30 percent by 2050, driven by population growth and economic development. Consequently, competition over dwindling water supplies intensifies, leading to tensions and conflicts within and between nations.

Water for Peace:

Amidst these challenges, the concept of "Water for Peace" emerges as a promising pathway towards conflict resolution and sustainable development. At its core, Water for Peace emphasizes cooperation, dialogue, and joint management of transboundary water resources to foster peace and stability.

Data from the Stockholm International Water Institute reveals that 60 percent of the world's freshwater flows through transboundary rivers, lakes and aquifers, emphasizing the interconnected nature of water resources. Collaborative mechanisms such as river basin organizations, treaties and joint infrastructure projects offer viable solutions for managing shared water bodies effectively.

Case studies from around the world demonstrate the potential of water cooperation in mitigating conflicts and promoting peace. For instance, the Senegal River Basin Development Organization, established by Senegal, Mauritania, Mali and Guinea, has facilitated joint investment in irrigation schemes, hydropower projects, and flood management, contributing to regional stability and economic growth. Similarly, the Indus Waters Treaty between India and Pakistan, brokered by the World Bank in 1960, has endured decades of geopolitical tensions, ensuring the equitable distribution of the Indus River's waters despite periodic hostilities between the two countries.

Conclusion:

Water holds the key to peace and prosperity in a world grappling with scarcity and conflict. By embracing principles of cooperation, equity, and sustainability, nations can harness the transformative power of water for peacebuilding and sustainable development. Let us recognize water not as a source of division, but as a catalyst for unity, resilience, and peace on a global scale.

Prof. Neelam Pandit,
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9823948048

Drought solutions in agriculture lie in smartly bridging the demand-supply gap of water

BY SOURANGSHU BANERJEE

If the supply is less in the form of rainfall, demand for water in terms of crop choice and technique has to be calibrated

Time and water wait for no one; if not utilised promptly, they are wasted. This reality holds particular significance in the realm of agriculture. In regions where the natural resources required for agriculture are scarce, the importance of judicious use becomes paramount. The IPCC (Intergovernmental Panel on Climate Change) has stated that climate change leads to increased desertification, loss of biodiversity, frequent droughts, cyclones, and flooding. The repercussions of climate change manifest in poverty induced by crop loss, heightened infestation, and a decline in employment opportunities.

The only practical wisdom lies in climate adaptation and resilience building, alongside reducing emissions of CHGs (Greenhouse gas). A parochial view focused solely on emission reduction cannot achieve climate goals. Regardless of the collective emission cuts enacted by all nations, the Earth will continue to warm for decades. Failing to address this now will inevitably result in exacerbated poverty. Climate change poses a threat to the livelihoods of 93 million agrarian households in India, varying in degrees of potential loss.

Bankura district women farmers' example

In this context, it is crucial to identify and facilitate climate-resilient practices among rural communities, the section which is directly impacted by the effects of climate change. In this context, it is worth examining an example set by the women farmers of Hirbandh block of Bankura district in West Bengal. Women had started inculcating climate resilience into their livelihoods, by converting 26 per cent of total paddy land into early-season mustard cultivation (source: Office of Assistant Director of Agriculture, West Bengal), effectively safeguarding their livelihoods from the threat of complete crop loss due to erratic rainfall.

During the 2023 monsoon in West Bengal, the government declared drought, particularly in the Jungle Mahal region (comprising Purulia, Bankura, and Jhargram districts), exhibited significant irregularities. In the entire Hirbandh community development block, only 29 per cent of land where paddy is cultivated, could be sown. Upon scrutinising the rainfall pattern, it became evident that although the received precipitation fell short for paddy cultivation, the available water was sufficient for cultivating less water-intensive crops, thus averting a complete loss for the farmers. Unfortunately, farmers often lack this backup plan (Plan B) and end up succumbing to inadequate rainfall. The problems lie with the fact that agricultural practices are deeply ingrained in cultural rhythms, aligning with periodic crop-specific activities. If the rainfall deficit during a crop cycle is severe enough to render the water supply inadequate for planned cultivation, farmers face the distressing prospect of potential crop loss, which the local community perceive as drought.

Innovative conversion

There is a need to transform a relationship, where water and crops are both independent but co-related variables, and there is a sustained engagement with the community and cultivating on the indigenous knowledge and practical demonstration. Marginalised women of Bankura in association with PRADAN (a national level NGO) professionals and HUF (Hindustan Unilever Foundation) in the "Evergreen in the East" project have demonstrated this transformed relationship quite aptly in this kharif season.

A total of 1,635 hectares of paddy land in Hirbandh block where paddy couldn't be transplanted due to water shortage; the land was converted to early season mustard cultivation. Considering, the crop was sown in September 2023, it was very less susceptible to aphids. There has been a 120 per cent increase in the area of mustard sown compared to 2022. Their efforts effectively illustrate that drought is not merely an absolute lack of water; instead, the adaptation strategy revolves around a timely balance of water's demand and supply. If the supply is less in the form of rainfall, demand for water in terms of crop choice and technique has to be calibrated. Crucial aspect of climate adaptation lies in promptly rising to the situation to address the unpredictable nature of environmental fluctuations and not left bewildered.

Climate change is no longer a remote occurrence; its impact is now evident in daily life. The women from the Hirbandh block of Bankura district demonstrated that the crucial element for enhancing resilience lies indeed at the local level. Utilizing indigenous knowledge, preparedness, and fostering community unity can effectively address climate change distress to a significant extent.

The author is Team Coordinator - West Bengal at Professional Assistance for Development Action (PRADAN).

Necessity to redevelop electricity transmission system

India's robust economic growth has been accompanied by a significant surge in electricity consumption, which has risen by 5% annually from 2017 to 2022. Projections indicate that this demand will escalate further, reaching a 6.4% annual increase from 2022 to 2027. To ensure the smooth flow of electricity from generation sources to distribution centers and to optimize resource utilization, the establishment of an efficient transmission system is imperative. Transmission planning involves identifying needs arising from new generation capacities, escalating demand, and reinforcing system reliability.

The transmission infrastructure in India consists of the Inter-State Transmission System (ISTS) and the Intra-State Transmission System (Intra-STS), managed respectively by Inter-State Transmission Licensees and State Transmission Utilities. The Central Electricity Authority (CEA) is responsible for formulating the National Electricity Plan (NEP) every five years, following the National Electricity Policy.

The NEP Volume I, focusing on Generation Planning, was released on 31st May 2023, while Volume II, which pertains to Transmission, is currently open for stakeholder feedback. This draft plan covers a review of transmission system development from 2017 to 2022, detailed planning for 2022 to 2027, and a perspective plan for 2027 to 2032.

During the 2017-2022 period, targets were set to add 1,10,281 circuit kilometers (ckm) of transmission lines and 3,83,690 Mega Volt Amperes (MVA) of transformation capacity in substations. Approximately 80.6% of the targeted transmission lines and 91% of the targeted transformation capacity were achieved.

Looking ahead to March 2027, additional renewable energy (RE) capacity is expected to be added, necessitating further transmission planning. Wind and solar generation capacities, along with additional Battery Energy Storage Systems (BESS), are under consideration for transmission planning purposes.

By March 2032, transmission systems are being planned to accommodate capacities from wind, solar, hydro, and nuclear sources. Various technology options are being explored to enhance the power system's overall development, including hybrid substations, digital substations, and voltage-sourced converters (VSC) based High Voltage Direct Current (HVDC) systems.

India's renewable energy capacity has seen significant growth, comprising 42% of the total installed electricity generating capacity as of October 2023. To facilitate the expansion of renewable energy, high-potential solar and wind energy areas are being connected to the Inter-State Transmission System (ISTS).

The Central Electricity Regulatory Commission (CERC) has issued regulations for connectivity and general network access to the inter-state transmission system, aiming to

streamline access for various entities including renewable energy generators.

Inverter-based generators, particularly in wind, solar, and hybrid plants, must articulate their response during grid disturbances to ensure grid stability. Compliance with technical standards for grid connectivity is mandatory for all renewable energy projects.

Transmission corridor capacity requirements are being assessed based on peak electricity demand and region-wise generation capacity additions. Storage capacity enhancements and green hydrogen production facilities near RE zones are being considered to reduce transmission requirements.

State-wise solar and wind potential zones are being identified for transmission planning purposes, with ongoing projects such as the Green Energy Corridor-I and II facilitating integration into intra-state networks.

Detailed Project Reports (DPRs) for transmission schemes have been prepared, with the GEC-II scheme approved for implementation. Transmission plans are aligned with the government's energy transition goals, aiming for a substantial increase in renewable energy capacity by 2030. India's transmission planning endeavors reflect a concerted effort to accommodate escalating electricity demand and facilitate the integration of renewable energy sources, paving the way for a sustainable and reliable energy future.

Ratle Hydro Electric Project

About Ratle Hydro Electric Project:

The government recently announced diversion of Chenab river water through diversion tunnels to expedite the 850-MW Ratle Hydro Electric Project in Jammu & Kashmir.

About Ratle Hydro Electric Project:

It is an 850 MW run-of-river hydroelectric power project being built on the Chenab River in the Kishtwar District of Jammu and Kashmir.

The project is being developed by Ratle Hydroelectric Power Corporation (RHPCL), which was formed as a joint venture (JV) between Jammu & Kashmir State Power Development Corporation (JKSPDC) and India's state-owned National Hydroelectric Power Corporation (NHPC).

The project comprises a 133-metre-tall and 194.8-meter-long concrete gravity dam, a diversion dam, and an underground powerhouse on the right bank of the river.

Key Facts about Chenab River:

It is a major river of India and Pakistan.

Origin: It is formed by the confluence of two streams, Chandra and Bhaga, at Tandi in the upper Himalayas in the Lahaul and Spiti Districts of Himachal Pradesh.

In its upper reaches, it is also known as the Chandrabhaga.

It is a tributary of the Indus River.

Course:

It flows west through Jammu and Kashmir union

territory, between the steep cliffs of the Siwalik Range (south) and the Lesser Himalayas (north).
Turning southwest, it continues into Pakistan, descending from the uplands into the broad alluvial lowlands of Punjab province.
After receiving the Jhelum River near Trimmu, the Chenab empties into the Sutlej River, a tributary of the Indus River.
Its total length is about 605 miles (974 km), and it feeds several irrigation canals.
Tributaries: The tributaries of the Chenab River include Miyar Nalla, Sohal, Thirot, Bhut Nalla, Marusudar, and Lidrari.
Source : Govt diverts Chenab river water to expedite hydroelectric project in Jammu and Kashmir

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Key Facts about Painganga River

Protests were staged against a proposed dam project on the Painganga river in the Vidarbha region of Maharashtra recently.

About the Painganga River:

The Painganga River (also known as the Penganga River) is the chief river of the Yavatmal district in Maharashtra and flows along the south-east boundaries of the district in a winding, meandering course.
Origin: It originates in the Ajantha ranges in Aurangabad district in Maharashtra.
It is a major tributary of the Wardha River, the other major river in the district. The Wardha River flows into the Wain Ganga Riverto form the Pranhita River, which finally joins the Godavari River.
It is acutely deep-rooted and difficult to navigate.
The total length of the river is 676 km.
Major Tributaries: Include the Adan, Kas, Arunavati,Kayadhu, and Pus Rivers.
The Penganga River gets flooded in the rainy and winter seasons and partially flooded in the summer.
It provides irrigation to the Washim and Yavatmal districts in Maharashtra.
There are two dams being constructed on the river, namely Upper Painganga and Lower Painganga. This dam is also known as Isapur Dam.

Cleaning of six major river basins on cards, Shekhawat

The Government signed agreements with technical institutes for preparintg outlines of river basin management plans for the Narmada, Godavari, Krishna, Cauvery, Periyar and Mahanadi.

New Delhi : The Government will undertake the work of cleaning sic major river basins on the lines of the Ganga and has roped in 12 top technical institutions to conduct a study and formulate a manangement plan, Union Jal Shakti Minister Gajendra Singh Shekhawat said.

Following the success of the Ganga River Basin Management Plan framed by a consortium of seven IITs led by IIT Kanpur, the government signed agreements with different technical institutes for preparing the outlines of river basin management plans for the Narmada, Godavari, Kriahna, Cauvery, Periyar and the Mahanadi.

The agreements were signed between the institutes and the National River Conservation Directorate (NRCD) under the Ministry of Jal Shakti.

The Mahanadi River Basin Management Plan will be undertaken by IIT Raipur and IIT Rourkela, Narmada by IIT Indore and IIT Gandhinagar, Godavari by IIT Hyderabad and NEERI Nagpur, Cauvery by IISc Bengaluru and NIT Trichy, and the Periyar River Basin Mangement Plan by IIT Palakkad and NIT Calicut.

Speaking at the event, Shekhawat highlighted that an announcement in this regard was first made by then President Ram Nath Kovind in an address to a joint sitting of Parliament in 2019.

In 2019, then President Ram Nath Kovind had spoken about working on six river basins in the country on the same level as the work done in the Ganga basin. He had talked about studying the basins... so that status can be evaluated and a management plan can be made, he said

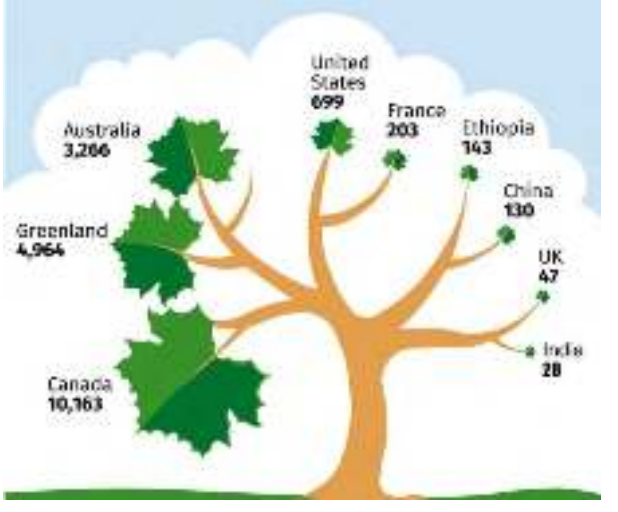
Kovind had said the government would endeavour to clean up the rivers.

We are starting a new era in river basin management, Shekhawat said, stressing on completing studies of the basins at a new spread and scale.

The way India has worked on different issued related to water... a holistic approach has been taken. Almost all initiatives taken are among the largest in the world, whether it is drinking water, cleaning rivers or groundwater recharge and aquifers, he said.

He said the work done by the Centre for Ganga River Basin Management and Studies, which was established in 2016 at IIT Kanpur, will be the benckmark for the work to be done in these river basins.

The minister also emphasized the importance of the academia and the government working together for river basin management.



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An ancient system that could bring water to dry areas

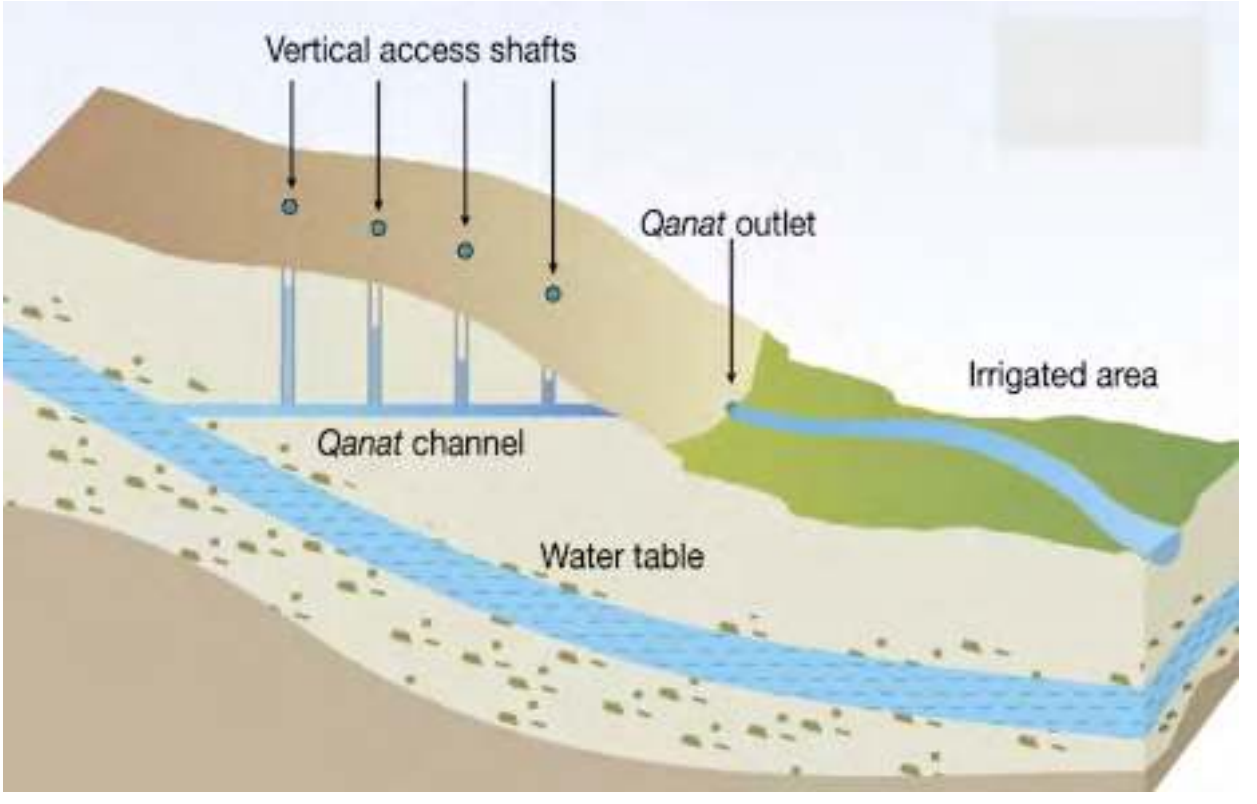
Some of Africa's dry areas face serious water shortages due to minimal rainfall. An ancient system of drawing water from aquifers, the "qanat system", could help. Gaathier Mahed, an environmental scientist and expert on the management of groundwater, has studied the feasibility of these systems. He tells us more.

How does the qanat system work?

There are bodies of water underground known as aquifers, some of which can be found at the tops of valleys or near mountains. A qanat system taps these aquifers and, using underground tunnels, moves the water, using gravity, over many kilometres. The tunnel then exits at a lower-lying area.

When the water exits the tunnel, farmers can use it to irrigate their crops. People can also access the water along the stretch of the tunnel using wells.

It's a system that's managed by everyone, and its benefits are shared. Everybody has a vested interest and a role to play. Community bonds can be strengthened – in stark contrast to tensions we see over water resources today.



It's a highly complex communal system to manage. Laws governing the system have existed since the 9th century. These laws relate to the construction and proximity of qanat tunnels to each other. They also govern the exits of the qanats. For instance, land owners at the exits can use the water first and must aid in managing them.

Where did it come from and where is it used?

The qanats have been used for centuries in arid and semi-arid parts of north Africa, the Middle East and Asia, where water supplies are limited. It's known by a variety of names, "foggara" in north Africa, "falaj" in Oman and "qarez" in parts of Asia.

It's thought to have been developed in Persia in the first millennium BC. As the Islamic Empire spread across the Arabian Peninsula, the Levant, north Africa, and parts of Europe from 661 to 750 CE, so did knowledge about qanats.

Today, some of the region's qanat systems, like those in Iran, are protected under heritage status. Some of these qanats, although declining in number, are still used. They are largely protected for historical and cultural reasons.

Why is it not being more widely used?

There are several reasons why the tunnel system is not more widely used in Africa.

Qanats need to be built somewhere with the right geological formations. These generally seem to be fractured sandstones. The level of groundwater is also important for the flow of water in the qanat. The volume of water in the aquifer stems from the rainfall in the mountainous regions.

Qanats can only be built where there's a slope, like a mountain or a valley. And the slope must have a specific angle. If it's too steep, erosion of the qanat will occur and it will collapse. If it's not steep enough the water will not flow fast enough and could become chemically altered due to interaction with minerals in the ground.

The digging of the tunnel and development of the system over large areas of land is labour intensive and can take many years. The qanats cover many kilometres and need to be maintained every year, by cleaning out the silt build-up.

Knowledge of building qanats and maintaining them is being lost. People have

migrated from rural areas to cities and adopted boreholes in certain areas instead.

Some qanats are drying up due to over exploitation of the water resource.

Why should the system be used more widely?

In most instances people in arid areas drill wells to access groundwater. These boreholes have a lifespan and eventually new wells have to be drilled. Pumps and materials don't last forever, and wells can get clogged by microbial organisms and fine material in the subsurface.

First, the qanat is sustainable as it works with gravity and no electricity is needed. It can even be used to create clean energy. For instance, in Iran cold air that comes out of qanat tunnels is used to cool the interior of large buildings.

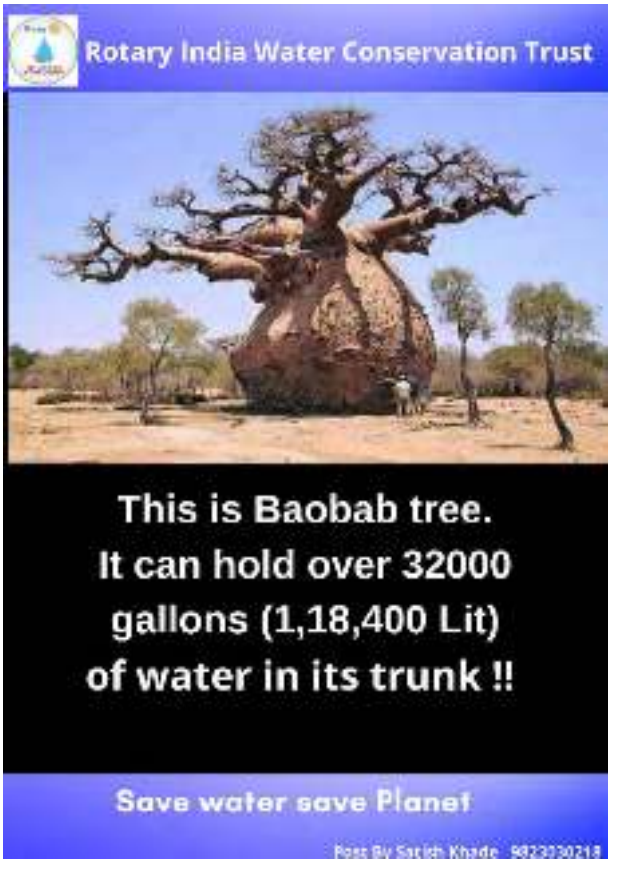
Second, water lost to evaporation is minimal in comparison to surface water supplies.

Third, it can have a wide scale impact. Qanats are multiple kilometres long and once this water hits a floodplain, it can irrigate multiple hectares of land.

Fourth, it fosters social cohesion. Many people, with different skills, are involved in maintaining the system.

Fifth, the lifespan of the system extends beyond that of a deep water well, which is only about 20 years. Tunnels do not clog as easily as wells.

Finally, the quality of water coming from the mountains is much better than water on the plains. It'll have lower salinity and be better for crops and people.

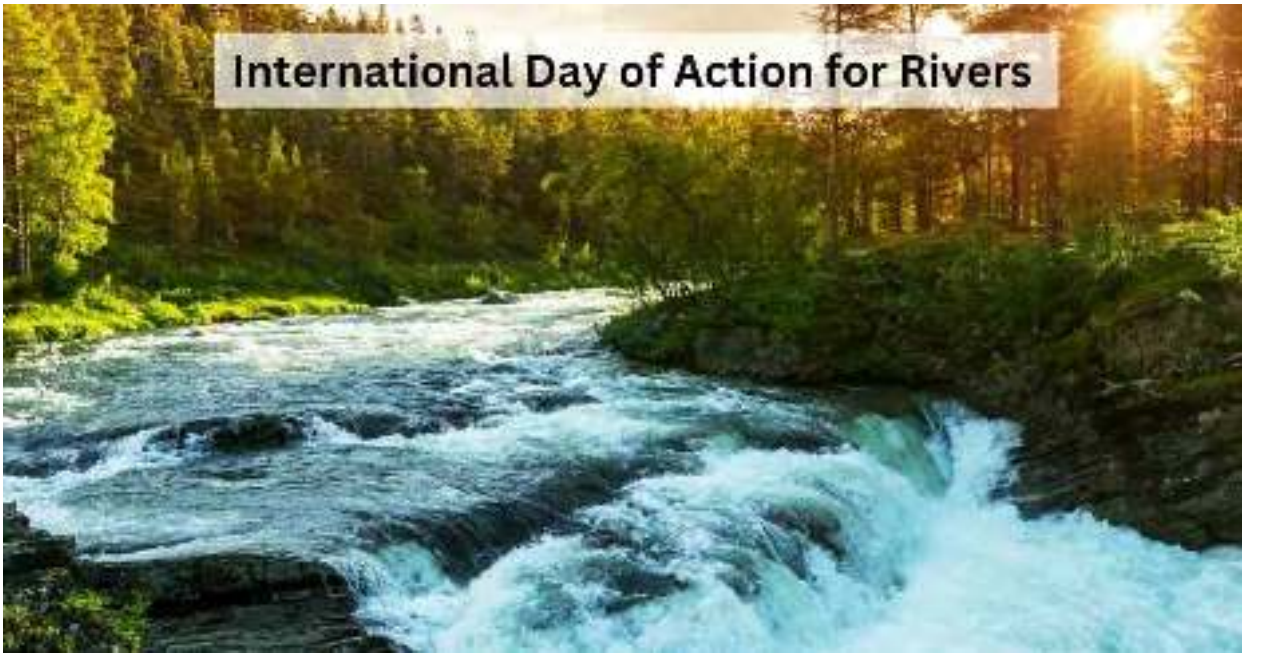


Note : While designing the issue of Jalsamvad - English we find very interesting news, information and articles specially on water and its management. That tempts us to include the same in our issues. Getting formal permission for this inclusion is that way difficult. Therefore our effort is to print 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.

International Day of Action for Rivers 2024:

Nikhil Batra



International Day of Action for Rivers 2024: How India is using Japanese Technology to Clean Rivers
March 14th is International Day of Action for Rivers! Raise awareness about the threats rivers face & the critical role they play in our lives.

nternational Day of Action for Rivers 2024
Every year on 14th March, we celebrate the International Day of Action for Rivers. This day serves as a global call to action that unites communities around the world in raising awareness about the vital role rivers play in our lives and demanding their protection.

The International Rivers Organisation mentions:
"The International Day of Action for Rivers is a day dedicated to solidarity – when diverse communities worldwide come together with one voice to affirm that rivers are vital and need our protection."

The International Day of Action for Rivers is a day of both celebration and concern. This day is celebrated to understand the importance of rivers as they sustain ecosystems, provide freshwater, and nourish civilisations.

Further, this day highlights the very real threats rivers face. Pollution, dam construction, and unsustainable water use are jeopardising the health of these vital waterways. Freshwater ecosystems are declining at an alarming rate, and access to clean water is becoming an increasing challenge for many communities.

International Day of Action for Rivers affirms that rivers needs protection. This year's theme focuses on "Water for All", contextually in last 9 years GOI has declared 111 National waterways & developed infrastructure in them to promote seamless movement of goods & passengers.

What is the History of The International Day of Action for Rivers?

The International Day of Action for Rivers has its roots in activism around protecting rivers and freshwater resources. Here's a breakdown of its history:

First Meeting of People Affected by Dams (1997): In Curitiba, Brazil, representatives from over 20 countries came together for this meeting in March 1997.

Day of Action Established: During this meeting, participants decided to establish an International Day of Action Against Dams and For Rivers, Water, and Life.

Date Selection: The date chosen for this day of action was March 14th, which already held significance in Brazil as their Day of Action Against Large Dams.

The International Rivers Organisation mentions: "The International Day of Action Against Dams and For Rivers, Water and Life was adopted by the participants of the first International Meeting of People Affected by Dams, March 1997 in Curitiba Brazil. Representatives from 20 countries decided that the International Day of Action would take place on March 14 – Brazil's Day of Action Against Large Dams."

What is the Significance of The International Day of Action for Rivers?

The International Day of Action for Rivers holds significance for several reasons:

Highlights River Importance: The day brings attention to the critical role rivers play in our lives. They provide freshwater for drinking, agriculture, and ecosystems.

Raises Awareness of Threats: It serves as a platform to raise awareness about the threats rivers face, such as pollution, habitat loss, and overexploitation of water resources.

Promotes Sustainable Management: The day advocates for sustainable practices in managing rivers. This includes ensuring equitable access to clean water and implementing policies that protect river health.

Calls for Action: It's a day to inspire individuals and organisations to take action towards river conservation. This could involve participating in clean-up drives, supporting organisations working on river protection, or advocating for policies that safeguard these vital waterways.

READ| International Day of Action for Rivers 2024: Check Date,Theme, History and Key Facts, & More

What is the Theme of The International Day of Action for Rivers 2024?

The theme for the International Day of Action for Rivers 2024 is "Water for All". This theme highlights the importance of ensuring equitable access to clean water resources and advocating for water rights.

The International Rivers Organisation mentions: "We're celebrating the 27th Anniversary of this Day for Rivers by also highlighting how critical access to water is in all our lives. This year's theme focuses on "Water for All". Whether your community is tackling water rights, clean water access, fighting against dams, water grabs, and water privatization or removing dams and restoring rivers and fish migration, we know water is life and is meant for all."

How India is using Japanese Technology to Clean Rivers?

India and Japan are collaborating on longer-term solutions for preventing river pollution at its source, which is sewage treatment. Experts and institutions from both countries have joined forces to demonstrate the effectiveness of a UASB-DHS integrated system for sewage treatment. This

collaboration lays the groundwork for its widespread adoption across India.

Recognizing the need to validate the DHS system's performance under real-world conditions in India, a five-year research project (2011-2016) titled "UASB-DHS Integrated System: A Sustainable Sewage Treatment Technology" was launched. This joint effort between the Indian and Japanese governments received financial and technical support from JICA (Japan International Cooperation Agency) and JST (Japan Science and Technology Agency) under the SATREPS programme.

This project involved several key activities:

Building a Prototype: A DHS reactor with a capacity of 5 million liters per day (MLD) was designed and constructed at an existing 78 MLD UASB-FPU sewage treatment plant in Agra, Uttar Pradesh. This pilot system was designed to cater to the needs of an estimated 28,000 people.

Optimising Media: Different types of polyurethane sponge media, crucial for the DHS reactor's functionality, were rigorously tested to identify the most efficient option. The procurement of the chosen media ensured optimal performance.

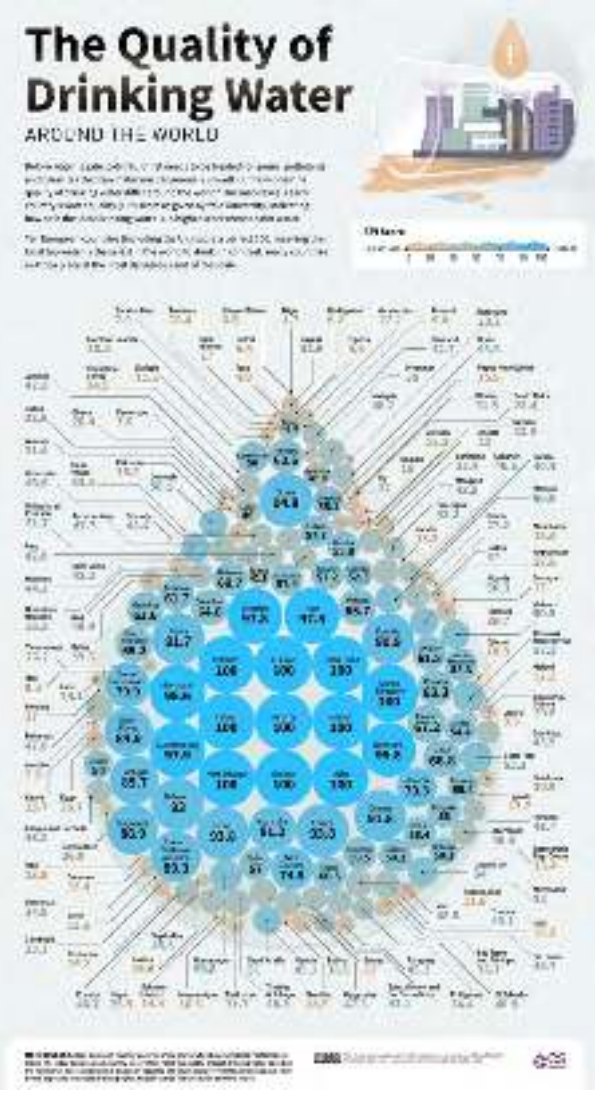
Integrating the System: The newly constructed DHS reactor was seamlessly integrated with the existing UASB reactor, creating a unified sewage treatment system.

Enhancing Research Capabilities: The existing laboratory at the Agra STP was upgraded to support ongoing research and experimentation related to the UASB-DHS system, paving the way for future advancements.

Continuous Monitoring: The integrated system was continuously operated to assess its long-term performance in meeting the Central Pollution Control Board (CPCB) norms for effluent quality.

Pushing the Limits: The project also conducted "allowable load capacity" experiments. This involved testing whether the system could handle higher capacities (up to 10 MLD) while maintaining effluent quality. This assessed the system's ability to handle fluctuations in sewage inflow.

By undertaking these comprehensive activities, the collaborative project between India and Japan aimed to not only validate the effectiveness of the UASB-DHS system but also establish a strong foundation for its future widespread adoption across India's sewage treatment infrastructure.



‘Telangana IAS Raises Water Table By 6 Metres in 3 Years, Solution Added to Textbooks

By Himanshu Nitnaware

IAS D. Krishna Bhaskar from Rajanna-Sircilla district of Telangana undertook various water conservation measures to make the region drought-free

The depleting water levels threaten agriculture, industries and access to drinking water needs. While there are many efforts taken by the government and individual platforms to revive groundwater levels, a district collector in Telangana state has succeeded in increasing the levels by six metres.

Devarakonda Krishna Bhaskar became the first district collector of Rajanna-Sircilla in 2016 after it was carved on the map of Telangana.

To replenish the groundwater, the district administrator has worked wonders with the effective implementation of government schemes.

“Water scarcity has been a never-ending issue for the district. All the taluks or mandals were labelled, in the category of drought-prone or semi drought-prone,” says 36-year-old Krishna, adding that the severe water scarcity made it exceptionally difficult to live through the harsh days of summer.

Multi-layered success

“Hundreds of grievances were filed for the demand of water tankers for supply, RO (reverse osmosis) plants for construction and overhead water storage reservoir sanctions. To tackle the water scarcity, many initiatives were launched on priority,” Krishna says.

From upgrading tanks to having piped water systems, land acquisition of reservoirs, desiltation of water storage bodies, digging trenches and building capacity for water storage, the district went on a massive drive to conserve water in water bodies.

“Over the last three years, a significant progress is achieved by effectively implementing government schemes like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and creating reservoirs,” Krishna says.

Explaining the initiatives the IAS officer, from the 2012 batch, says, “The Sri Rajarajeswara Reservoir with a capacity of 27 TMC (thousand million cubic feet) became operational after the project stayed

stuck for a decade because of legal issues. In the process, it became the biggest reservoir in the state."

Krishna adds that after completing the project in one and a half year, the operation of Annapurna reservoir also started in parallel.
"Carrying out the desiltation activities on Upper Manair reservoir, reviving small water bodies, ponds and filling water tanks were other measures taken at a micro level," he adds.

The officer said that desiltation was done for multiple minor tanks and filled on their proximity to the reservoir access. "Such small tanks helped support and sustain the local population. Some water tanks are reported to have revived after decades and now maintained by the local communities," Krishna tells The Better India.

There are about 699 water tanks identified across the district out of which 450 are brimming this year. "A unique initiative called Gudi Cheruvu was undertaken which involved acquiring land to increase water capacity of tanks inside the temples and reduce water scarcity at the local level," he adds.

'Gradual, but steady rise'

Krishna says that it was ensured that clean drinking water reaches every hamlet through a project Mission Bhagiratha.

With multiple approaches at all levels, the groundwater level of the district reportedly went up by six meters. "The levels went up steadily over a period spanning 12 to 18 months. The figures are confirmed and documented by the groundwater survey authorities," Krishna says and adds, "The result was that agriculture activities increased by 150% in the district. It has been a gradual rise but steady."

The officer says the water management practices implemented for three years in a row was recognised by the government of India. The Lal Bahadur Shastri Academy of Administration, Mussoorie, the premier training institute for government servants in the country took note of it and included it in their curriculum.

Krishna says that success was made possible only by prioritising the responsibilities and addressing them effectively.

"All the initiatives implemented already exist in the government system. Being a new district, the administration was under a lot of pressure to be active and deliver on the right notes. What we did was to prioritise and implement those schemes effectively on the ground," he adds.

The district collector says that as officers, there is always the temptation to try many things at once. "But it is important to realise priorities and focus on them accordingly to reap the benefits," Krishna says.

(Edited Yoshita Rao)

डॉ. दत्ता देशकर यांनी लिहिलेल्या विविध पुस्तिका

(१) चला, जलसाक्षर होवू या.

(२) संकल्पना शाश्वत शेतीची.

(३) चला , जलपुनर्भरण करु 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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