



Cover Story

TARUN BHARAT SANGH - 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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Dr. Datta Deshkar

Late. Shri. Pradeep Chitgopekar

■ Present Editors

Dr. Datta Deshkar - 09325203109

■ Cover Design

Ajay Deshkar

■ DTP & Page Setting

Aarti Kulkarni

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For last several years, whoever comes in power declares that he is going to help the famers to improve their income level. Very recently, Modi Government also did the same thing. The Government wanted to double the farm income. For that, various schemes were declared. Giving assistance in the form of better seeds, fertilizers, plant protection, assured water for irrigation, cheap loans, better and assured prices were some of the measures adopted by the Government. But all of them proved to be inadequate.

Unfortunately, not a single government tried to touch the basic problem. The basic problem is that of fragmented holdings. The farm unit has been reduced to such a great extent that every piece has become an uneconomic unit. Let us take a small example. Let us assume that a farming family needs Rs. 10,000 per month to maintain itself. How much is the average size of land available with a normal farmer? It is less than 2 hectares. Now tell me whether that much land is enough for maintenance of the family. Farmers yearly expenses are Rs. 1,20,000. Is it possible for any farmer to get that much income from his farm after deducting the cost of cultivation from such a small piece of land? Even if the income per hectare is increased two or three fold, will it be possible for the farmer to maintain his family in that much income?

There is something wrong in our succession laws. In England, as per the law of inheritance, the eldest son gets the land owned by the father after his death. If he refuses, then it is offered to the second son. Thereby the subdivision of land does not take place. In India the land is distributed to all the sons. If the land is 10 acres and he has five sons, each son gets two acres of land each. Thereby economic holding gets converted in uneconomic holding. Now the problem has become still more serious. Besides brothers, sisters also have started getting their share. If this process continues, who knows, every member of the family would get hardly a piece of 100 sft. in years to come. That has happened in Konkan area where there are hundreds of names in one 7/12 extract. In such a case any assistance to the farmer will prove to be ineffective. All the efforts to help the farmers will prove to be useless.

Though consolidation of holdings is a difficult task, farmers should come together and form cooperatives or farm companies where all the pieces would come together and large farm operations would become possible. If farmers come together they can even start processing industries, construct godowns, take advantage of internal markets, establish big dairies and thereby increase heir income from agriculture. If farmers come together they can fetch better price for their products as they would exercise more control over the supply.

I know formation of such companies or cooperatives is not an easy task. Government should come forward and help the farmers to form such organizations. As it is, cooperative activities have become notorious because of the foul play by the political leaders. Cooperative sugar factories, cooperative spinning mills, cooperative banks have become the dens of these leaders. Common men have lost faith in such organizations. Government should come forward and establish 500 such companies as a model so that the confidence lost is restored.

As it is, farming has become an uneconomic activity. If this situation continues, who knows, the whole base to the economic system would collapse.

Dr. D. G. Deshkar
Editor.

Organization - Tarun Bharat Sangh

Shri Vinod Hande

(M) 9423677795



Tarun Bharat Sangh(TBS) is a voluntary organization registered under Society Registration Act of Rajasthan. It is established in Jaipur in 1975 by a group of professor and students of Rajasthan University. Though the organization established in 1975 it started its real journey from 2nd October 1985 when four youths charged to transfer it from urban to rural India with a mission to move people out of their feeling of helplessness on their face. Among the four youths Rajendra Singh was one of them. Rajendra Singh is the present chairman of this organization. He was inspired by Gandhian model of rural development and went to a village of Alwar district of Rajasthan for rural development. The Organization started a school for children but got depressed soon seeing no response from villagers. Out of four three left thinking nothing can be done. Rajendra Singh was also depressed but was not willing to go back. In this depressed mood, a old wise man of village console him by saying "you have not understood what is needed here". We want water first. You need to build Johad (traditional rain water harvesting structure) so that the water does not run away but is held back to percolate in to the ground".

After the first small Johad was ready the villagers saw water and other ecological changes in the very next monsoon. It became the first approach of Tarun Bharat Sangh for rural development through restoring the ecology for better food production, vegetation rejuvenation and river restoration. The efforts of Tarun Bharat Sangh of organizing villagers and local communities across the country have resulted in the formation of Rashtriya Jal Biradari (RJB). Rashtriya Jal Biradari

is now a network of various like minded individuals, farmers groups, social groups, NGO's, voluntary organizations, community based organizations, research institutions, social workers, water experts having a deep interest in issue related to water. RJB organized its first convention in April 2001 at village Nimi near Jaipur which was attended by 7000 water warriors from all over the country. Leading man behind this convention was Rajendra Singh. RJB is now having its unit in each state of country. It is working on national level issues for making water policies with Central & State government and also creating awareness among people for water conservation.

The aim of Tarun Bharat Sangh to bring dignity and prosperity to the life of a poor section of the nation through sustainable development ways. It also aims for holistic development of men, women and children. TBS is working for making the community self-reliant.

A little about Dr. Rajendra Singh. He is graduate of Ayurvedic medicine and post graduate in Hindi literature. He is chairman of Tarun Bharat Sangh. Since 1985 he is working for restoring life and hope to barren land of Rajasthan. He is the winner of Stockholm Water Prize 2015; an award known as the "Nobel Prize for Water". He has been honored by Asia's most prestigious 'Ramon Magsaysay Award' 2001. He is also known as "Waterman Of India". He is also leading a national network of organizations working on water issues. His Rashtriya Jal Biradari is working for the restoration of all big and small rivers of the country.



Tarun Barat Sangh is also working for United Nation's Sustainable Development Goals program. Out of 17 goals to achieve TBS is working in eight goals and they are Goal 1- No poverty, Goal 2- Zero hunger, goal 3- Good health and well-being, goal 4- Quality education, Goal 6- Clean water and sanitation, Goal 13- Climate action, Goal 15- Life on land and Goal 17- Partnerships For the Goals. As of now TBS is working in three states of India and they are Rajasthan, Haryana and Maharashtra. By working on sustainable development environmental conservation programs TBS has got the recognition as one of the most trusted implementing agencies by reputed CSR initiatives of India. In 2021 TBS received the prestigious Energy Global Award.

Achievement of Tarun Bharat Sangh in globe, in India and three states of India i.e. Rajasthan, Haryana and Maharashtra are listed as below.

Global

100+ countries reached through World Water Walks by Waterman Rajendra Singh .

India

- ▶ 13 Rivulets rejuvenated.
- ▶ 21+ national Level Water Marches (Jal Yatra)
- ▶ 100+ dedicated members (Jal Biradari)
- ▶ 101+ Save River Campaigns
- ▶ 1000+ Water Awareness Campaign in schools, colleges.
- ▶ 2000+ River volunteers trained through lets know rivers.
- ▶ 5000+ Water Conferences
- ▶ Rain water harvesting structures

Rajasthan

90 billion liters of water harvested every year through 13800 rainwater harvesting structures. 5000+ farmers supported through efficient irrigation practices.

Haryana

260 million liters of water harvested every year. 500+ farmers supported with efficient irrigation practice.

Maharashtra

10 billion liters of water harvested every year 50+ km of Rivulets have been deepened widened.

Tarun Bharat Sangh is following works in the field of water.

- Water Conservation
- Efficient water use.
- Drinking water.
- Water literacy
- Afforestation

Water Conservation

By mobilizing organizations and local communities in the water scarce area of above mentioned three states water conservation work is carried out by building rainwater harvesting structures, by digging continuous trenches and by deepening and widening of rivers. Communities are encouraged to bear 25 percent cost of constructions as part of their participation.

Impact of work: 1) 13 dry rivers have been revived that ensures water security to 1500 villages. Results of 13800 rainwater harvesting structures have been seen from raised water level in wells and aquifers. Biomass production increased and 100 increase in agriculture production. Reduction in migration.



Efficient water use

India's crop per drop ratio is only 2 percent of agriculture water consumed. Only 7 percent of Indian's farmers use micro irrigation system, which

can save 50%-70% of water compared to flood irrigation. TBS begin with awareness among farmers about benefits of efficient irrigation method. Advantages of drip irrigation were also told to farmers. Here also farmers are required to contribute 25% - 50% of the cost of installing sprinkler system.

Impact-

1) More than 5000 farmers installed sprinkler system in Rajasthan's Alwar, Karauli, Dholpur and Kota districts, and Nuh district of Haryana. 2) It saved 50%-80% of water consumption and increased 20%-30% increase in annual income. 3) Wheat production increased by about 30% per Bigha.

Drinking water

Figure shows that 163 million people in India face daily struggle to access clean water. With no source of water within vicinity villagers are forced to bear Rs.3000/- per month from pocket to get water tanker supply. To overcome this issue TBS started identifying families which struggle to access clean water. TBS supported these families by constructing cement tank of 20,000 liters which fulfill the need of 5-6 families. This group of 5-6 families were encouraged to contribute 25% of construction cost.

Impact

1) More than 100 tanks have been constructed to benefit 500 families. 2) Water fetching time of women reduced by 2-3 hours.





Water literacy

As the country faces water crises TBS feels it necessary water literacy program as need of the hour. TBS has established Water Academy to teach water literacy. They have developed offline, online program for partners, students, youth, farmers, social workers, policy makers and professionals. Waterman Rajendra Singh leads water literacy campaign like Jal Biradari, Jal Jan Jodo, Virasat Yatra and Khoj Yatra. Each year he gives inspirational talk to at least 25000 youths of 250+ university, colleges, institutions, NGOs on global, national, water and river issues. Annually he connects with at least 1000000 people online.

Impact- 1) Nearly 10000 individuals trained through this mobilizing program, 2) 1000+ water warriors trained in 100+ schools last year, 3) 200+ individuals joined the river course.



Afforestation

India's current forest cover is only 21.7% against target of 33%. Deforestation is a serious problem as it relates environment, social and economic consequences. The loss of forest cover leads to loss of biodiversity, increased carbon dioxide levels in the atmosphere and change in local weather pattern. To overcome this issue TBS developed Miyawaki forests in Sangali district of Maharashtra. This forest Miyawaki method dense forests is created in a short period of time. TBS have planted over 100000 sapling across their water bodies to reduce harmful effect of emission caused due to rapid urbanization and industrialization. During COVID-19 they have distributed 1 Cr. Tulsi plants to fight against the disease.

Impact

1) 5 sq. km. of a dense, self sustaining forest developed, conserved and protected on barren and wasteland in a period of 2 years. 2) Developed "Bhairon Dev Lok Abhyaranya" is developed in Rajasthan which protected and managed by the people.

To achieve the aim and mission there has to be some process to follow. Similarly TBS has also their own ways to reach their goal. Following four are the programs that helps TBS to reach to their aim.

1-Promoting and Nurturing Gram sabhas

By this program TBS gets connected to the villages by organizing Gram Sabha. Gram Sabha is a

body comprised of representative of each house of the village. Each member of Gram Sabha is required to attend meeting which is held twice a month. There is no single leader or any core group in this sabha. It is a platform to sit together discuss openly. The Gram Sabha settles disputes within the village and organizes peaceful demonstration if needed. Youth and women are required to share responsibilities to maintain the development process.

2- Community Participation

Participation of people is must for any development activity. TBS does not undertake any activity unless the villagers agree to contribute maximum in terms of voluntary labor. This contribution gives them a sense of ownership. Villagers involvement in program helps restoration of their traditional water system. The role of TBS here is of catalyst and motivator.

3- Promoting Community Based Organization

The strategy of TBS is to establish, develop a healthy community based organization for sustainability in the development process which is undertaken in their working areas. Community based organizations such as Gram- sabhas, Forest Conservation Committees, Water Conservation committees, Women self-help groups, Women groups for Natural Resources Management, River Based Organizations are such organizations that have given the responsibility take care.

4-Grass Root Level Activities

TBS believes that development activities give best results if grass root human resource level are considered. Grass root level plays an important

role in agriculture, natural resources management, health and women empowerment sector. The members of TBS are scattered in the field and leading a simple life with villagers, so that they can help solving their day to day problems by giving right solutions.



Current projects on which TBS is working

Adaption to climate Change through water management in Eastern Rajasthan – In this project TBS is working in the 30 villages of Karauli district of Rajasthan. Karauli is in the topmost backward districts of India. In this region rainfall is inadequate, degrading groundwater level and water retention capacity of soil is low. TBS is implementing rainwater harvesting system and water management for sustainable development. By this TBS is expecting that some 900 families and 6000 will be directly or indirectly will be benefited.

Building Grassroots civil society cadres for effectiveness & Transparency- These camps are conducted by Jal Jan Jodo at the TBS campus in Alwar. The main contents of these training are





related to village water sources, community rights and duties, water management and importance of water conservation.

Efficient use of water in irrigation in rivulet Arvari and Sarsa basin. – TBS is working in 30 villages of 5 Gram panchayat of Alwar district situated on the rivulets of Aravai and sarsa. Inadequate water management and insufficient irrigation facilities are hurting agricultural productivity. Increase in efficiency of irrigation system leads to less dependency on monsoon, at the same time will reduce water related disputes which will again leads to communal harmony. With this project 40 percent of reduced water consumption is expected. 30 percent reduction in loss of water, 80 percent reduction in human labour time and 20 percent increase in income from agriculture. 1960 households are expected

beneficiary.

Making climate resilient communities in rivulet Agrani basin of Mahatashtra through integrated natural resource management- The project area covers 15 out of 21 villages of Jath Taluka which forms part of Agrani River Basin. This taluka is affected by poor rain chronic draught conditions. To overcome this situation TBS is implementing rain water harvesting program for sustainable development in all 15 villages.

Apart from above mentioned water related programs TBS is working in following mentioned sectors for upliftment of rural communities.

- Environment
- Livelihood
- Health
- Education
- Strengthening CSOs. (Civil Society organizations)

From 1990 to 2017, 30 awards were given to Tarun Bharat Sangh, of them few are listed as below,

- 1990- Sanskrit Award
- 1994- Paryavaran Puraskaar
- 1998- Rajendra Singh nominated as Man of the Year
- 2002- Godavari Gaurav Award



- 2016- Bhagirath Award
- 2017- Jeevan Gaurav Award. Etc.

wonder gift of God. Donors will get 50 percent Tax benefit as per Income Tax clause 80G.

Partners of TBS from 2020 onwards

- LIC Housing Finance Ltd.
- WaterHarvest
- Bharat Ptrolium
- YES Foundation
- Hans Foundation
- Shalina
- SBI Card
- Regenerosity. Etc.

Contact details and other information of Tarun Bharat Sangh

Tarun Bharat Sangh
Village Bheekampura-Kishori
Block-Thanagazi,
District- Alwar,
State Rajasthan, PIN-301022

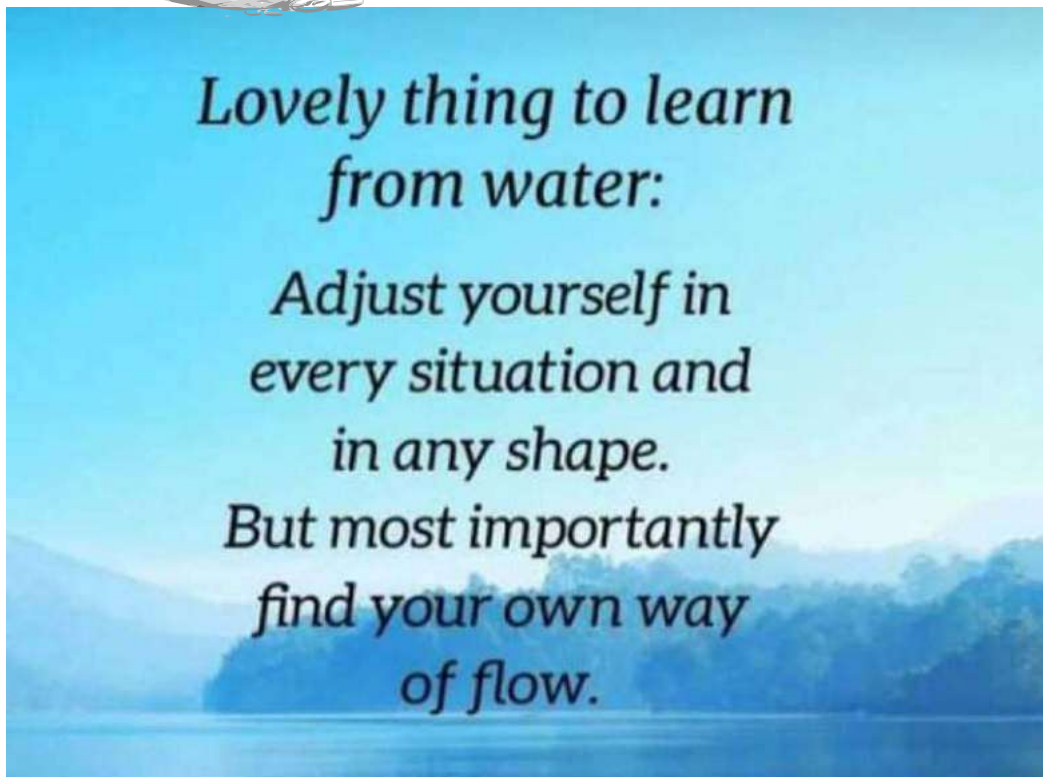
Phone- 7597914465, 9636775645

Email: office@tarunbharatsangh.in

www.tarunbharatsangh.in

Donation

Tarun Bharat Sangh appeals to the individuals to come forward to donate money to overcome the water crises in India. Your donation means a lot for families who are deprived of



World Water Day - 2022

Groundwater - Making the Invisible Visible

Shri. Gajanan Deshpande, Pune -(M) : 9822754768



(A new article series has been launched from August 2021 to learn more about the importance of World Water Day and the various water awareness programs implemented every year.)

Groundwater is an important water source that supplies half of all domestic water consumption worldwide. Also, it supplies about 38% of the world's irrigated area and about a third of the water needed for industry. India withdraws more groundwater than any other country in the world. Therefore, our ground water resources are in serious crisis. On the occasion of World Water Day-2022, a special theme on "Groundwater - Making The Invisible Visible" was ensured to seriously brainstorm on the topic.

Importance and Scope of Ground Water : The groundwater beneath the soil is 'invisible'. It is a hidden treasure that enriches our life. Almost all of the world's liquid fresh water is groundwater. Groundwater sustains ecosystems and helps maintain river flows during dry periods. Groundwater is also an important component of climate change adaptation. It is an alternative source of water during droughts and other calamities. We all depend on ground water. Hence its sustainable availability should be taken care of.

It is estimated that India will have only half of this water available by 2030, given the massive groundwater abstraction and current usage patterns. As the climate crisis escalates, its effects are causing significant changes in river flows. Hence, the availability of water for future water demand and supply of cities is a matter of real concern. Groundwater is a renewable resource and only if managed sustainably will it remain a reliable source of water supply for our cities in the future.

Groundwater Utilization Status of India : India has 16% of the world's population. But only 4% of the world's fresh water resources are in India. India is by far the world's largest user of groundwater with a global share of 25% in water withdrawals. 45% of water supply to cities in India comes from groundwater. 89% of groundwater is used for irrigation of agricultural sector, while 11% is used for domestic and industrial purposes. 230 billion cubic meters of groundwater is used for irrigation every year. Groundwater is rapidly depleting in many parts of the country. The total depletion of groundwater in India is estimated at 122-199 billion cubic meters.

Future Status of Groundwater : Groundwater will not run out. But, readily available fresh and clean groundwater may be depleted, making its availability and availability increasingly difficult. Prevention is the key to prevent further deterioration. If we do not act on it today, we will leave behind a weak legacy for our next generation.

In the near future, people will increasingly try to settle in areas where groundwater is safe and well managed. Where there is good ground water, resourcefulness can be proven to follow. But, since groundwater is an important resource, it can also be competitive for access. Therefore, there will be a need to create a system of more positive, fair and favorable approaches in such places.

Can agriculture survive without groundwater?

Groundwater is undoubtedly essential for food production. In the last half century, groundwater has filled the water gap created by the growing demand for food grains. We have to think creatively and find innovative solutions to support the ever-increasing demand for food. It is

estimated that by 2050 we will need to produce 60% more food to feed the world's 9.3 billion people. Also, agricultural water demand will also have to be compromised in the future due to increasing water needs of urban areas and industries. Therefore, modern technology that gives more production with less water by using ground water more strictly will have to be adopted, only then will agriculture be sustainable.

Important role in mitigating the effects of climate change : Groundwater plays an important role in mitigating the effects of climate change. It provides a more climate resilient resource. It is protected underground from excessive heat. During dry periods we can reach the ground water and use it. It is then refilled during monsoons. The main property of groundwater is to balance water during dry and wet periods and to combat climate change through that function.

Efforts to make groundwater 'visible':

Groundwater is invisible, but its influence is everywhere. Groundwater may be out of sight, but it should not be out of mind. Groundwater is facing many challenges. But, they rarely get visible evidence. As a result, groundwater problems are often not immediately apparent. It is only when it is studied extensively that its facts emerge.

Cities withdraw far more groundwater than is naturally recharged. Due to this, the ground water level of cities like Delhi, Bangalore and Hyderabad has decreased rapidly.

A better understanding of this 'hidden' resource from an urban perspective is essential. The city's overall water management strategy calls for mainstreaming groundwater in a sustainable manner. As most of our urban areas are heavily dependent on groundwater, it is essential to have a strong base of knowledge about this resource to bridge the supply-demand gap and inform about the sustainable policies. Citizen participation in this work is important.

Groundwater crisis and climate crisis have many similarities and are closely related. So it needs to be solved together. Conserving our groundwater is a major challenge facing our lives

along with the climate crisis. For this, we need to take an active role in the matter of groundwater from the individual level to the global level. Everyone can play their part in it. Efforts can start from our own backyard, where we can harvest rainwater, at the same time intentional or unintentional dumping of chemicals or hazardous waste into water should be avoided and awareness and vigilance should be created at all levels.

Due to human development, urbanization and intense water pressure for agriculture, groundwater quality is deteriorating overall. Problems that once existed in developed countries are now seen in developing countries as well. Soil and groundwater have a natural ability to 'self-remediate' poor water quality through various processes. But current levels of pathogens and chemicals seeping uncontrollably into the soil make this process inadequate. As a result it has adverse effects on people's health and environment.

At the same time coastal aquifers - on which half a billion people depend - are increasingly threatened, as groundwater is being withdrawn at an ever-increasing pace. Rising sea levels are causing flooding and salinity to encroach on former freshwater sources. Such hazardous and human-induced chemicals can be stored in groundwater for years. It can cause significant damage. These persistent new chemicals pose a long-term health hazard to humans and ecosystems. For that non-degradable chemicals should be banned.

Securing India's water future requires an emotional movement that involves everyone. We should go beyond being just 'water users' and everyone should be actively involved. It must be ensured that water use is not only environmentally or economically beneficial, but also socially and culturally appropriate.

Finally, countries and regions that manage their groundwater resources sustainably will enjoy future water security and resilience even under a changing climate.

Ministry Of Jal Shakti Organises

'Jal Itihas Utsav' In Delhi



The National Water Mission hosted 'Jal Itihas Utsav' in Delhi to raise awareness about safeguarding water heritage, instill ownership, and contribute to historical structure restoration.

The National Water Mission, under the Department of Water Resources, River Development, and Ganga Rejuvenation, Ministry of Jal Shakti, hosted the 'Jal Itihas Utsav' at Shamsi Talab, Jahaz Mahal in Mehrauli, Delhi, on December 1, 2023, with the aim of raising public awareness about safeguarding water heritage sites, instilling a sense of ownership among the masses, promoting tourism, and contributing to the restoration of these historical structures.

Water Heritage Fortnight and Jal Shakti Abhiyan

The 'Jal Itihas Utsav' marked the culmination of the "Water Heritage Fortnight," celebrated nationwide from November 15 to November 30, 2023, at 75 'Natural Water Heritage

Structures.' It also marked the successful conclusion of the nationwide campaign 'Jal Shakti Abhiyan: Catch the Rain' in 2023.

Jal Shakti Abhiyan Theme: "Source Sustainability for Drinking Water"

The campaign, themed "Source Sustainability for Drinking Water," aimed to prepare communities for the rainy season, encourage rainwater harvesting, and ensure the sustainability of drinking water sources. The focus was particularly on 150 Water Stressed Districts identified by the Jal Jeevan Mission.

Convergence of Efforts: Shamsi Talab Restoration

The restoration of Shamsi Talab, Jahaz Mahal in Mehrauli exemplifies successful collaboration between various Departments of the Central and State Government. The cleaning and leveling of the Talab and its surrounding park were undertaken in partnership with the Archaeological

Survey of India (ASI) and the Municipal Corporation of Delhi (MCD). This collaborative effort will be documented in an e-book, to be launched during the 'Jal Itihas Utsav.'

Showcasing Water Heritage: Jal Itihaas Journey

As part of the event, a short video titled "Jal Itihas Journey" will be presented, showcasing the 75 identified Water Heritage sites across the country. This visual journey aims to enlighten the audience about the historical significance of these water structures and the need for their preservation.

Flowing Strings: Musical Extravaganza

Adding a cultural dimension to the celebration, a musical event titled "Flowing Strings" will be presented by the world-renowned violinist Ms. Sunita Bhuyan. This enchanting performance aims to connect the audience emotionally with water heritage and promote a deeper appreciation for these historical structures.

Committee's Role in Identifying Water Heritage Structures

The Ministry of Jal Shakti constituted a Committee, chaired by Shri R. R. Mishra, Ex-DG, NMCG, to identify 75 'Natural Water Heritage Structures' as part of the Azadi Ka Amrit Mahotsav. These structures, showcased on the Jal Itihaas Sub-Portal on India-WRIS Portal, represent India's rich water heritage and cultural significance.

Lessons from Tradition: Water Wisdom for the Present

India's tradition of revering water resources, including rivers, has been a cornerstone of its cultural heritage. As the nation faces increasing pressure on its water resources, it becomes imperative for citizens to be water-wise and sensitive to water-related issues. The 'Jal Itihas Utsav' aims to highlight the lessons embedded in our traditional water systems, fostering a renewed connection between communities and water bodies.

Important Questions Related to Exams

Q. What is the purpose of the 'Jal Itihas Utsav' hosted by the National Water Mission on December 1, 2023?

Answer: The grand event aims to raise public awareness about safeguarding water heritage sites, instill a sense of ownership among the masses, promote tourism, and contribute to the restoration of historical structures.

Q. What was the theme of the 'Jal Shakti Abhiyan: Catch the Rain' 2023 campaign?

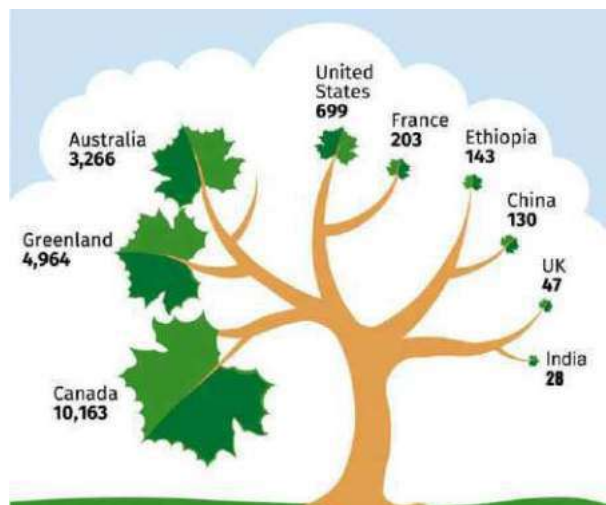
Answer: The theme was "Source Sustainability for Drinking Water."

Q. Which renowned violinist will be presenting a musical event titled "Flowing Strings" during the 'Jal Itihas Utsav'?

Answer: Ms. Sunita Bhuyan, the world-renowned violinist, will be presenting the musical event.

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.



Not just Chennai, a dozen Indian cities might

go 3 feet under water

Yudhajit Shankar Das



Mumbai, among other Indian metros, faces significant risks from sea-level rise, tropical cyclones and riverine flooding. (Image: Getty)

The flooding brought by cyclone Michaung has highlighted the threat to Indian cities from climate-induced disasters. Not just Chennai, a dozen Indian cities could be under three feet of water by the end of this century.

The recent deluge in Chennai, triggered by Cyclone Michaung, has once again brought to light the vulnerability of Indian cities to climate-induced disasters. With over 40 cm of rainfall inundating the city within 48 hours by December 4, 2023, Chennai's plight is a stark reminder of the escalating climate crisis facing urban India.

Cyclone Michaung killed over a dozen people and left a trail of destruction in Andhra Pradesh and Tamil Nadu. The most vivid images that emerged were of submerged residential buildings and cars being washed away in water currents on inundated roads.

Though the latest flooding and destruction were the result of a cyclone, it isn't the only reason

for the scale of devastation.

Chennai is no stranger to flooding; the city was submerged in a historic flood in 2015 due to heavy rainfall from the northeast monsoon. This event was a wake-up call, highlighting the consequences of inadequate urban planning and poor institutional capacity.

The causes of such flooding are multifaceted. Heavy rainfall, inadequate drainage systems, and the incapacity of rivers to manage high

discharge levels are primary contributors. Urbanisation plays a significant role, with encroachments on major water bodies and ecologically sensitive zones exacerbating the situation.

The flat terrain, in the case of Chennai, further complicated matters, as water failed to drain efficiently.

INDIA'S COASTAL CITIES AT FLOODING RISK

However, Chennai's struggles are part of a broader narrative of climate vulnerability across Indian cities. Kolkata and Mumbai, for example, face significant risks from sea-level rise, tropical cyclones, and riverine flooding. These densely populated metros are already witnessing the impacts of climate change, with increased intensity of rainfall and flooding, as well as heightened drought risks.

The World Bank Group's commissioned research by the Potsdam Institute for Climate Impact Research and Climate Analytics warns that India, being close to the Equator, will experience higher sea-level rises than higher latitudes. This

poses a severe threat to coastal cities through saltwater intrusion, impacting agriculture, degrading groundwater quality, and potentially leading to an increase in waterborne diseases.

A report by the Intergovernmental Panel on Climate Change (IPCC) in 2021 had dire warnings for India. The most dangerous risk factor, it said, is rising sea levels that threaten to submerge 12 coastal cities in the country by the end of the century.

A dozen Indian cities, including Mumbai, Chennai, Kochi and Visakhapatnam, could be nearly three feet underwater by the end of the century, IPCC report warned.

And the risks aren't just theoretical.

More than seven million coastal farming and fishing families are already feeling the effects. Coastal erosion, exacerbated by rising seas, is estimated to lead to the loss of about 1,500 square kilometres of land by 2050. This erosion eats away at valuable agricultural areas and threatens the very existence of coastal communities.

The vulnerability of Indian coastal zones is further highlighted by the fact that low-lying coastal areas and river deltas are highly susceptible to increased flooding. Mumbai, Kolkata, and Chennai, with their dense populations and infrastructural significance, face a heightened risk of more frequent and severe floods. This could displace millions, impacting livelihoods and infrastructure.

DELHI, HILL STATES ALSO AT FLOOD RISK

The risk of getting flooded due to climate change isn't just for coastal cities.

Inland, too, the story is no different. Cities in Bihar, Himachal Pradesh, and Uttarakhand have suffered from monsoon-triggered flooding and landslides. Delhi too saw heavy flooding earlier this year.

In July, waters in the Yamuna swelled to a staggering 208.48 metres and flooded Delhi's low-lying areas near the banks and inundating nearby streets and public and private infrastructure. The Yamuna had breached its earlier record of 1978.

Experts blamed encroachment of flood plains and accumulation of silt due to heavy rain in

a short period of time for the flood in Delhi.

The floods in July also brought the focus on illicit mining and construction activities on river banks in the hill state of Himachal Pradesh.

The pattern of extreme weather events is changing, with flood-prone areas becoming drought-prone and vice versa, affecting over 40% of Indian districts.

In hill states, a large part of the destruction is blamed on unplanned urban construction in fragile settings.

HENNAI FLOODS A CALL TO ACTION

The response to these challenges requires a multi-faceted approach. Building codes must be strictly enforced, and urban planning must anticipate climate-related disasters. Coastal embankments and strict enforcement of Coastal Regulation Zone codes are necessary to protect against sea-level rise. Additionally, watershed management and the adoption of the 'sponge city' concept could mitigate flood risks.

India's policymakers are not oblivious to these threats. The Mumbai Climate Action Plan (MCAP) 2022, for instance, aims to increase the city's climate resilience through evidence-based planning. Moreover, improvements in hydro-meteorological systems and the installation of flood warning systems can help citizens prepare for and respond to impending disasters.

Yet, the challenge remains daunting. Climate change is intensifying the natural water cycle, bringing more intense rainfall and associated flooding, as well as more intense drought in many regions. Indian cities must adapt to this new reality by integrating climate risk into their development plans and actions.

The recent flooding in Chennai is a stark reminder and a call to action to build cities capable of withstanding the unpredictable and severe impacts of a changing climate. As Indian cities continue to grow and attract more residents, there has never been a greater urgency for resilient infrastructure and sustainable urban planning.

Stockholm Water Prize-2020

Dr. John Cherry, Canada

Shri. Gajanan Deshpande, Pune (M) : 9822754768



(An article series has been launched in August 2020 to learn more about the World Water Prize winners and their work.)

Dr. John Cherry of Canada was awarded the 2020 Stockholm Water Prize for his research into groundwater vulnerability, which has revolutionized our understanding of groundwater. His research has raised awareness of how groundwater pollution is increasing around the world and has led to new and more efficient ways to combat the problem.

The Stockholm International Water Prize Nominating Committee said in its citation: "The Stockholm Water Prize is awarded to Dr. John Cherry for his contributions to science, education, implementation and his passionate and highly effective advocacy for groundwater. Science forums that inform current and future policies, legislation and public deliberation should be established by every government to protect this most essential and yet most threatened resource,

water".

Dr. John Cherry is a world-renowned hydro-geologist and is considered an authority on the dangers of groundwater contamination. As the creator of the academic discipline of Contaminant Geologist, he changed the scientific paradigm in groundwater research by showing how chemicals and wastes mix with groundwater.

Dr. Cherry has pioneered thorough his systematic research by providing measurement tools and insight into groundwater flow processes. Through their comprehensive field experiments, they have developed new ways to monitor, control and clean up contaminated groundwater.

Dr. Cherry says "Groundwater is also becoming more and more important for humans. Although more attention is being paid to the global water crisis today, it is often forgotten that 99 % of the liquid fresh water on Earth is in the form of groundwater. Many people still think of it as pure, but, in fact, it is threatened by human activities.



Today, nearly half of the world's population consumes groundwater. In the next few years, when our planet will have an additional two or three billion inhabitants, most of them will depend on groundwater. We urgently need to raise awareness about the importance of groundwater which is essential for ecological balance, which sustains everything like rivers, lakes, wetlands, etc".

Dr. John Cherry's 1979 textbook on groundwater, co-authored with RA Freeze, provided many students with a better understanding of groundwater. Making groundwater knowledge freely available to students and practitioners has always been close to his heart. For this he started an innovative groundwater project in 2020. Dr. Cherry, along with other leading groundwater scientists, was instrumental in creating a comprehensive resource forum, in which all materials are freely available.

Dr. Cherry has made us aware of how dependent we are on groundwater and how it is at risk of extreme contamination. He has made invaluable contributions to our understanding of how we can protect this groundwater from threats.

Dr. Cherry is an Adjunct Professor at the University of Guelph, Canada. He is director of the University's Consortium for Area-Based Groundwater Research and Associate Director of G360, an organization for groundwater research. He is also Emeritus Professor of the University of Waterloo.

Pune faces Impending Water Shortage, Officials advise Conservation Measures

Khadakwasla 11 December 2023, The Khadakwasla Project, which supplies drinking water to Pune, reported a concerning water reserve of 24.10 TMC (Thousand Million Cubic Feet) as of today. Out of this reserve, a mere 11.99 TMC will be allocated for drinking purposes in the city. This available water reserve is estimated to sustain the city for

approximately six months, concluding by the end of May 2023.

The current status has raised alarms about an imminent water shortage in Pune during the upcoming summer. In light of this, residents are urged to use water judiciously starting now to mitigate the impending crisis. While the ongoing winter session of the Maharashtra State Legislature has hampered the official release of information from the Water Resources Department of the Maharashtra Government, the reported data has been verified by the department.

Pune relies on water from the Khadakwasla, Temghar, Panshet and Varasgoan dams of the Khadakwasla project for its water supply. The total useful water storage across these dams is 29.15 TMC, with 24.10 TMC remaining.

Comparatively, there was 26.35 TMC of total water storage available in these four dams on the same date last year. This indicated a decrease of 2.25 TMC in the total water storage this year.

The water resources department allocated a drinking water quota of 14.61 TMC per year for Pune City. However, Pune citizens currently utilise 20.49 TMC annually. This discrepancy emphasizes the need for conservation, especially considering the expanding urbanization in the suburbs and the inclusion of 23 more villages under the Pune Municipal Corporation (PMC).

In light of these circumstances, Pune requires more than 2 TMC of water per month. Given the current water storage levels, officials speaking anonymously, project that the available reserves will suffice until the end of May.

Additionally, the Khadakwasla Dam supplies water to the Daund Municipal Council and several rural villages, supporting two cycles for Rabi and the Summer crop season. However, due to diminished rainfall in the district this year, only one summer cycle is anticipated.

Water Status in Khadakwasla Project :

- Total water storage in these projects : 29.15 TMC
- Current available stock : 24.10 TMC
- Water storage : 2.25 TMC less than last year.



Water Allocation Planning by Water Resources Department (Annual) :

- Drinking water for Pune city : 14.61 TMC
- Water loss (evaporation and conduction) : 2.72 TMC
- Water for Daund city and rural areas : 0.85 TMC
- Water available for irrigation : 8.54 TMC

India's CO2 emissions likely to register biggest rise for second year, says report - Amitabh Sinha

The study, one of the several that are released at the annual climate change conference, says there was a 50 per cent chance that in the next seven years, the world would start to breach the 1.5 degrees Celsius on a consistent basis if the current emission trends continued.

India's CO2 emissions are expected to be 233 million tonnes higher than previous year, 176 million tonnes of which is expected to be contributed by the coal-fired power plants.

For the second successive year, India is

likely to register the largest growth in carbon dioxide emissions among the major economies, the annual study of Global Carbon Project has revealed.

The study, one of the several that are released at the annual climate change conference, says there was a 50 per cent chance that in the next seven years, the world would start to breach the 1.5 degrees Celsius on a consistent basis if the current emission trends continued. Daily or weekly breaches are already happening, and at least one annual breach is almost certain in the next five years.

Carbon dioxide is the most important and extensive but only one of the six greenhouse gases whose rising concentrations in the atmosphere is leading to global warming.

The 8.2 per cent rise in India's annual CO2 emissions for 2023 would be more than double the expected increase in China, which is set to see a 4 per cent growth this year. Last year, India's emissions had grown by 6 per cent while China had seen a decline of one per cent.

However, China's CO2 emissions, which accounts for 31 per cent of the global CO2 emissions, are about 4 times that of India. In

absolute amounts, therefore, China's increase in emissions in 2023 would be much higher than that of India.

"In India, the growth is largely driven by the high growth in demand for power, with new renewable capacity far from sufficient to meet the demand. Consolidated data now confirms that India's CO2 emissions are now above those of the European Union since 2022," the study said.

China's growth, it said, was partly caused by a delayed rebound from the significant Covid-19 lockdowns.

India's CO2 emissions are expected to be 233 million tonnes higher than previous year, 176 million tonnes of which is expected to be contributed by the coal-fired power plants.

Global CO2 emissions are expected to touch 36.8 billion tonnes — a new record — and 1.1

per cent over last year, the study said. Emissions from all kinds of fossil fuels — oil, gas and coal — are expected to rise, with oil likely to register a growth of 1.5 per cent, the highest. Emissions were expected to decline in 26 countries this year, accounting for about 28 per cent of global emissions. Last year, it had declined in 22 countries.

"If current CO2 emission levels persist, the remaining carbon budget for a 50 per cent chance to limit warming to 1.5 degree Celsius could be exceeded in seven years, and in 15 years for 1.7 degree Celsius would also be breached. Returning global temperatures below these thresholds after they have been crossed would require a massive scale-up of carbon dioxide removal after global net zero emission has been reached," the study said.



A CASE STUDY OF REJUVENATION OF ICHALAHALLA STREAM

AND ITS IMPACT ON SUSTAINABLE AGRICULTURE PRODUCTION

IN DROUGHT PRONE AREA

I. INTRODUCTION

The natural streams in entire rainfed areas of Northern Karnataka remain dried up almost throughout the year except for a day or two after heavy rains, the streams flow. This is a clear indication of improper management in rain water harvesting both in agricultural fields and various primary, secondary & tertiary streams. In order to put up a model for rejuvenation of streams in Northern Karnataka, K.H. Patil Krishi Vigyan Kendra, Geological Society of India, Department of Water Resources, Government of Karnataka and Zilla Panchayat, Gadag took up the initiative in rejuvenating the stream. The inspiration and motivation were provided by Dr.Rajendrasingh, Magsaysay Award and Stockholm water prize winner, popularly known as Waterman of India and serving as the Chairman of 'People's World Commission on Drought and Flood' and Late Shri R.H. Sawakar, Secretary, Geological Society of India under the leadership of Shri D.R.Patil, Ex MLA & President, JalBiradari, Karnataka Chapter and Shri H.K.Patil, Honorable Minister for Law and Parliamentary and Department of Tourism, Government of Karnataka.

II. PLANNING AND ACTIVITIES

The planning process was initiated for rejuvenation of Ichalahalla stream flowing across nine villages in Gadag Block. Among these, five villages viz., Nagavi, Mallasamudra, Asundi, Hulkoti and Hirehandigol constituted the intervention sites for planning in 3700 hectares of area. The quick method of collecting necessary data was accomplished by employing various PRA (Participatory Rural Appraisal) tools. The data indicated that the Ichalahalla stream that

originates in the hillocks of Nagavi village in Gadag block was a life line few decades back for the farmers of these villages. Due to siltation over a period of time, the stream has dried up resulting in decreased water table in catchment area especially near both banks of the stream. This had severely affected the irrigation potential in the area. As a result, there has been decreased productivity of crops apart from increased marshy land owing to occurrence of flood during heavy rains.

III. INTERVENTIONS

1) Community mobilization, Awareness and Training programme Considering the importance of rejuvenation of Ichalahalla stream, KVK mobilized the village community of five villages and organized 13 awareness camps covering 1685 participants and four seminars were organized wherein 1150 farmers participated. For these programmes Mr. Rajendra Singh, was invited and water literacy camps were organized in the villages. About 38 training programmes were organized on rain water harvesting and 1336 farmers participated. Fifteen exposure visits were organized for 453 farmers (Table:1).

Table:1 - Awareness and Training programmes

Sl. No.	Activities	No.	No. of participants
i)	Awareness Camps	13	1685
ii)	Seminars	04	1150
iii)	Training programme on rain water harvesting	38	1336
iv)	Exposure visits	15	453



Awareness and training programmes

These activities have created a significant impact in the form of increased awareness on importance of rainwater harvesting for rejuvenation of the stream. As a result of these activities, the village community of Asundi and Harthi villages came forward to construct two percolation tanks with the voluntary contribution from all stakeholders.

2) Linkages established for Construction of Water Harvesting Structures :

The extension activities and the training programmes have largely helped the village community in building the positive attitude towards construction of water harvesting structures. KVK facilitated the necessary linkages for construction of water harvesting structures. Details of linkages established are presented in Table 2.

Table:2 – Linkages established

S.N	Linkage established	Type of linkage
i)	Geological society of India	Concept Note and Action Plan Preparation
ii)	Watershed Development Department, Gadag dist, Gadag	Construction of checkdams across Ichalahalla stream and water tanks in Nagavi village
iii)	Minor Irrigation Department	Construction of farm pond in watershed area
iv)	Zilla Panchayat (DRDA), Gadag dist, Gadag	
v)	Jala Samhardhan Project, Govt. of Karnataka	Construction of farm ponds in farmers' fields
vi)	Depart. of Water Resources Govt. of Karnataka	Financial Assistance for dredging the stream

3) Soil and Water Conservation Treatments carried out in Watershed areas

Linkages established with Zilla Panchyat, Geological Society of India, Department of Water Resources, Watershed Development Department and Jala Samhardhan Project under Govt. of Karnataka coupled with constant motivation by KVK has resulted in getting cooperation of village community in formation of field bunds, farm ponds, construction of waste weirs in the catchment area and water tanks across Ichalahalla stream and construction of check dams all along the stream. The following Table-3 depicts the number of structures built in the Ichalahalla Watershed area.



Table:3 – Details of treatments carried out for Rejuvenation of Ichalahalla stream

S.N.	Components	Quantity (Ha/no.)
1	Bunding (Ha.)	3700
2	Construction of waste weirs (No.)	985
3	Construction of farm ponds & sunken ponds (No.)	160
4	Boulder checks (No.)	137
5	Rubber checks (No.)	18
6	Gully checks (No.)	56
7	Loose Boulder Structures	27
8	Check dams (No.)	16
9	Check dams cum cause-way	2
10	Dredging and formation of earthen bund on either side of stream (Rmtr)	15500
11	Water tanks (No.) 25 ha. area	2

IV. OUTPUT AND OUTCOME

The rainfall experienced in the Ichalahalla project area from 2004 to 2022 was recorded. This shows that out of 19 years, 11 years faced less rainfall as against normal and 8 years got more rainfall than normal. As a result of soil and water conservation works like farm bunding, construction of waste weirs, farm ponds, check dams and water tanks across the Nala, the borewells and wells got recharged in the vicinity of structures. There has also been significant increase in number of newly dug borewells for a period of time.

Out of total 33 existing borewells in the catchment area, 31 borewells were recharged and 36 new borewells were dug by the farmers. There were 34 open wells before 2004 which were not functional. Over the period of time, now 32 open wells become functional.

Increased area under irrigation :

As a result of rain water harvesting structures made in the catchment & across the Nala, the area under irrigation is increased. The increased area under irrigation is given in the following table.

Table : 5 – Details of yearwise increase in irrigation area

Year	Extent of increase in area under irrigation (ha)	Cumulative total area under irrigation (ha)
2003 (Base year)	--	67.84
2005	34.60	102.44
2010	60.30	162.74
2015	59.88	222.62
2020	34.59	257.21
2023	36.48	293.69
Total	225.85	--

Area under irrigation in the Ichalahalla catchment area increased to almost three times in 2023 compared to base year 2003. Area under irrigation was increased from 67.84 hectares during pre-intervention period to 293.69 ha after



Rejuvenation of Open wells and Bore wells

intervention. Total 225.85 ha area under irrigation is increased due to the different rain water harvesting structures created in the catchment area and as well in the Nala. This has been a significant indicator of the outcome of the interventions made in rain water harvesting structures by all participating agencies.

V. IMPACT

The impact of rejuvenation of Ichalahalla stream is measured with various parameters such as Increased Flow Period of Stream, Evolution of New Cropping Pattern, Change in cropping intensity in watershed villages, Enhanced crop productivity & Increase in Net Returns.

1) Increased Flow Period of Stream : Apart from increased area under irrigation, the water logged area in the catchment area has been drastically reduced. It was reduced from 864 hectares during pre-intervention period to 28 hectares in post intervention period. Area affected by floods has also been reduced from 1258 hectares to 63 hectares. Period of availability and duration of water flow in Nala has increased from 5-6 months to 11-12 months in year. Quality of water was improved. This has been depicted in Table-6.

Table:6 - parameters indicating increased flow period of stream

Particulars/ Parameters	Before Rejuvenation	After Rejuvenation
i) Area under water logged condition	864 ha	28 ha
ii) Area affected by flood	1258 ha	63 ha
iii) Duration of water flow	6-7 Months	10-12 Months
iv) Availability of water in the stream for drinking purpose	6-7 Months	10-12 Months
v) Quality of water	Not good	Good



Flow of Nala during April 2023

View of recharged Open well even during drought 31st October 2023



View of rain water harvested in Nala



Luxurious crop growth in Ichalahalla catchment area even during drought

Drying of crops in Ichalahalla non catchment area during drought

2) Evolution of New Cropping Pattern : During pre intervention period, farmers used to cultivate greengram, jowar, wheat and to some extent groundnut under irrigated condition in the catchment area of Ichalahalla stream. Owing to interventions through rain water harvesting structures, there has been a change in cropping pattern. Commercial crops like Maize, Groundnut, Banana, Vegetables and Flower crops have been introduced. Area under cereals crops was reduced from 1354 ha during pre intervention period to 784 ha in post intervention period. Area under pulses was increased from 1268 ha to 1441 ha. Area under oilseed crops was increased to 1441 ha from 1052 ha. Seed production of onion is also a major activity taken up by the farmers in Nagavi and Mallasamudra villages [Table-7].

Table:7 - Change in cropping pattern at Ichalahalla catchment due to Rejuvenation

	Before rejuvenation (Ha.)	After rejuvenation (Ha.)
Cereals	1354	784
Pulses	1268	1441
Oil seeds	1052	1291
Horticulture & other commercial crops	437	595

The table clearly indicates that the availability of irrigation water has helped farmers to shift from cereals to pulses, oilseeds and horticultural crops which are commercial in nature and bring increased income to the farmers.

3) Change in cropping intensity in Ichalahalla catchment villages There has been significant increase in the cropping intensity in watershed villages. Area under single cropping has been reduced and area under double cropping is significantly increased. This is mainly due to availability of soil moisture to the crops. Area under double cropping was increased from 1023 ha during pre-intervention Introduction of new cropping system in Ichalahalla catchment area period to 2185 ha in post intervention period. Area under relay cropping was also enhanced from 610 ha to 890 ha. This is presented in Table –8.

Table: 8 – Change in Cropping Intensity

Cropping pattern	Before treatment (ha)	After treatment (ha)
Single cropping	2478	1036
Double cropping	1023	2185
Relay cropping	610	890
Total	4111	4111

4) Enhanced crop productivity

Due to availability of enhanced soil moisture in the fields through bund formation & waste weir and farm pond construction, increased irrigation water availability and adoption of integrated crop management technologies through training & front line demonstrations, the average yield of the major crops has increased to

considerable extent. Productivity of Greengram was enhanced from 5.0 quintal to 7.5 quintal per hectare. The productivity of Groundnut was significantly increased from 14.25 to 20.50 quintal per hectare. The productivity of Jowar was four times increased compared to pre-intervention period (Table-9).

Table-9: Enhanced Productivity in Major Crops

Crops	Yield (Qtl/ha.)	
	Before rejuvenation	After rejuvenation
1 Greengram	5.00	7.50
2 Groundnut	14.25	20.50
3 Maize	35.40	40.46
4 Jowar	5.20	20.00
5 Chilli	3.90	5.80
6 Onion	28.00	40.00
7 Bengalgram	5.60	6.50

5) Increase in Net Returns: As a result of enhanced productivity per unit area due to various measures, there was increase in net returns per hectare in various crops. This increase is enormous considering the net returns before rejuvenation was taken up. The increase in net returns is depicted in Table-10.

Table-10: Increase in Net Returns per hectare

Name of the crop	Net returns per /ha (Rs.)
i) Greengram	8750
ii) Groundnut	18750
iii) Maize	13500
iv) Jowar	8000
v) Chilli	15200
vi) Onion	10300
viii) Bengalgram	2700

VI. CONCLUSION

The efforts made by all stake-holders to rejuvenate Ichalahalla as a model in Northern Karnataka has been successful. Its impact on availability of irrigation and drinking water almost throughout the year is enormous in a drought affected district like Gadag. As a result of more

water availability, the cropping pattern was changed from cereals to oilseeds and horticultural crops. The productivity of various crops and the net returns per unit area were considerably significant. Hence, the efforts of all agencies including KVK were fruitful in solving the water problem and crop productivity constraints.

ACKNOWLEDGEMENT

The inspiration and motivation were provided by Dr. Rajendrasingh, Magsaysay Award and Stockholm water prize winner, popularly known as Waterman of India and serving as the Chairman of 'People's World Commission on Drought and Flood' and Late Shri R.H. Sawakar, Secretary, Geological Society of India and we accord our grateful thanks to both. Further, we acknowledge the able leadership provided by Shri H.K.Patil, the then Honorable Minister for Water Resources, Government of Karnataka and Shri D.R.Patil, the then MLA of Gadag & President, Karnataka State JalBiradari in fulfilling the objective

of improving crop productivity in project villages. We accord our sincere thanks to Zilla Panchayat, Gadag, Watershed Development Department, Department of Water Resources and Department of Rural Development under Government of Karnataka giving us the role of facilitation through organization of Water literacy camps and training programmes. Our thanks are also due to the farmers under the project villages for their cooperation.

Prepared by:

- i) Dr. L.G.Hiregoudar, Senior Scientist and Head, ICAR-K.H.Patil Krishi Vigyan Kendra, Hulkoti, Gadag district, Karnataka State
- ii) Mr. N.H.Bhandi, Subject Matter Specialist (Soil Science), ICAR-K.H.Patil Krishi Vigyan Kendra, Hulkoti, Gadag district, Karnataka State



PWCDF's Remarkable Journey: A Year of

Resilience and Hope

The People's World Commission on Drought & Flood (PWCDF), emerged as a crucial global initiative during World Water Week 2022 in Stockholm, Sweden. Driven by the visionary chairmanship of Dr. Rajendra Singh, known as the Waterman of India and a distinguished recipient of the 2015 Stockholm Water Prize and the Magsaysay Award (2001), this Commission was established with the noble mission of mitigating the risks posed by extreme weather events, such as droughts and floods, on lives, livelihoods, and ecosystems. This was extremely relevant given the water-related challenges posed, and solutions possible to address climate change.

The formation of this independent Commission had its roots in the long journey of Dr Rajendra Singh and his experiences and observations in more than 100 plus countries which increasingly pointed towards the role of water related disasters in migration and conflict, the extensive experience and work in India, the grassroot work of Tarun Bharat Sangh (TBS) and the experiences and sharing of the communities across the world who are inspired by him and who were sharing with him their concerns about the increasing challenges of drought and flood and how climate change was increasing these extreme weather events.

Back home in India, there was rising concern and interest in relooking at development and finding solutions to mitigating, adapting to drought and flood, and developing community resilience. Over the past few decades there was an increase in the extent, area and duration of drought and flood in India, which was being increased and

intensified due to climate change. There was a dire need to raise awareness, understand challenges and arrive at solutions.

It was with this conviction that the Chairman was successfully able to raise the connections between water, conflict and peace in a meeting in Dushambe, Tajikstan in June 2022. This was a precursor meeting for the UN Water Conference held in the UN Headquarters in New York, US in March 2023.

The concern around increasing drought and flood was expressed during the 2022 World Water Week. Victims of drought and floods from various parts of the world came together to find answers. Here, Dr Singh shared his four decades of experience with the public and offered motivation for others to adopt a similar approach. In response to this global issue, that PWCDF was launched to seek solutions, involving people from around the world, particularly those in Asia, Africa, Europe and the Americas who have been affected by the recent floods and droughts.

The inaugural meeting of the PWCDF focused on the escalating global drought crisis. Following extensive discussions, a unanimous decision was reached to launch a global exploration journey aimed at understanding and addressing the issues of droughts and floods worldwide. This journey was strategically organized to explore regions where successful experiences in drought mitigation and climate resilience had been demonstrated. Simultaneously efforts were made to raise awareness and expand the Commission in various parts of the world, to bring people together for deliberations and to develop a working

structure of the Commission.

After the launch of the Commission, the Chairman attended CoP 27 in Sharm-el-Sheikh in November 2022, wherein he participated in several meetings and addressed a press conference highlighting the connections between climate and water and the need to address drought and flood crises that was leading to instability, climate refugees and insecurity. A publication on Rejuvenation of Rivers was released and shared with various participants.

The exploration journey was launched in December and strengthened the conviction on the processes and approaches for drought and flood mitigation, adaptation and resilience.

II. Reflections and Review one year later

On completion of one year of the work of the PWCDF, the team reviewed the progress made by the PWCDF under the guidance of the Chairman, reflected on what was achieved and how this could form the basis of the next phase of the Commission's work. It is important to mention here the untiring efforts – every single day – of the Chairman in furthering the vision and the mission of the PWCDF.

One major validation and confidence building measure that was undertaken before embarking on the journey of the PWCDF was the 'Exploration Journey' undertaken by the Chairperson, sometimes accompanied by others to review the status and the lessons learnt from the decentralised and community-driven water conservation work that was undertaken several years ago by TBS and civil society organisations associated with TBS. Discussions with the village communities and these organisations helped reinforce that the way forward for drought and flood and climate change mitigation, adaptation and resilience was possible through these decentralised approaches. See Section Salient features of the Exploration Journey below.

Some of the highlights of the one-year PWCDF achievements are given below:

1. In the span of just one year, the PWCDF has made remarkable strides in fulfilling its mission and achieving its goal and objectives. The Commission's mission to reduce climate risks associated with droughts and floods while fostering community-centered nature rejuvenation has seen vigorous implementation through various initiatives and engagements. Its overarching goal, which aimed to unite diverse stakeholders including communities, scientists, engineers, technocrats, environmentalists, and youth to reduce the impacts of climate-related disasters and build grassroots resilience, was significantly advanced. This year's efforts effectively created a cohesive network of experts and community leaders, aligning with the commission's objectives of preparing annual state-of-the-art reports, documenting community-centered actions, advocating for increased resilience investments, and promoting environmental education among students. In addition to its existing objectives, the PWCDF has undertaken two more pivotal goals to further its mission and vision. Firstly, it aims to transform water-centric marginalized societies into comprehensive guardians of the natural living world, empowering water-dependent communities to become stewards of their local ecosystems. Secondly, it seeks to mitigate displacement by creating environmental adaptation and mitigation strategies in the face of climate change, preventing global conflicts and displacement.

2. One of the standout accomplishments of the PWCDF was the organization of international conferences on droughts and floods, bringing together around 4,000 participants from across the globe. These conferences have served as knowledge-sharing platforms, fostering collaboration among experts, policymakers, and community leaders and propelling the discourse on effective strategies for addressing extreme weather challenges.

3. In March 2023, the Chairperson led a 30+ international delegation to participate in the UN World Water Conference. Prior to this, two curtain

raiser events were held in Columbia and CUNY Universities. Discussions were held with several national and international participants around drought and flood and possible solutions to mitigate these. Post the Conference a delegation also visited Owens valley wherein discussions were held with the indigenous community. A team in LA is working towards handing over the land to the community. Two extremely well attended film workshops were held where the film Resurgence was shown followed by active discussions.

4. The PWCDF's commitment to understanding the intricate relationship between water scarcity, conflicts, and peacebuilding was evident through the hosting of two international conferences on water and peace, facilitating dialogues and advocating for sustainable solutions that prioritize both water resources and peace.

5. At the national level (India), the PWCDF has made an indelible impact by organizing 52 national conferences on droughts and floods, engaging 35,000 individuals and addressing region-specific challenges. Additionally, the commission addressed flood-related issues through nine dedicated national conferences, attracting 900 participants and bolstering expertise in flood mitigation strategies and preparedness.

6. The Commission's commitment to capacity building is evident through the 102 workshops conducted, reaching 50,000 participants, imparting practical skills and techniques for managing droughts and floods, and enhancing resilience. In the pursuit of its mission, the PWCDF initiated 107 skill development programs, benefiting 10,000 participants, and equipping them with specialized skills essential for effective drought and flood mitigation.

7. Perhaps one of the most significant endeavors of the PWCDF has been its engagement with the public through 260 public meetings, with a staggering participation of 200,000 individuals. These meetings have been instrumental in raising awareness, garnering support, and involving communities in drought and flood management initiatives, ensuring that local perspectives and

needs are central to decision-making processes. The initiation of action work in India, Portugal, South Africa, Egypt, and Kenya by the PWCDF is a significant step forward in addressing the pressing challenges posed by extreme weather events in these regions.

8. Through its various conferences, workshops, skill development programs, and public meetings, the PWCDF has fostered knowledge exchange, capacity building, and community engagement. These efforts have contributed to the reduction of risks associated with droughts and floods, ultimately leading to the protection of lives, livelihoods, and ecosystems. The PWCDF's commitment to community-driven nature rejuvenation and its dedication to building a sustainable future serve as a testament to the importance of collective action in addressing the challenges posed by climate change. The summary of the activities conducted by the PWCDF has been presented in Table 1.

9. The international efforts of influencing extended to the G-20 meetings also, under India's presidency. The PWCDF actively participated in the C-20 deliberations of the G-20 with Presidency with India. TBS was a knowledge partner for the two-day deliberations on water management and river rejuvenation. The importance of community-centred decentralised conservation was highlighted in a well-received presentation.

III. Salient features of the Exploration Journey: Inspiration behind the PWCDF

The solutions for drought mitigation, adaptation and resilience lay in decentralised community-centred rainwater conservation that would help fill aquifers and surface waterbodies and provide resilience against drought and flood. Tarun Bharat Sangh, with a rich history of over four decades in drought mitigation efforts, played a pivotal role in this endeavor. Consequently, the initial phase of the expedition launched after the formation of the PWCDF commenced in Gopalpura Village, situated in Alwar district of Rajasthan.

- Gopalpura Village had previously suffered from severe drought impacts because of depleted groundwater and poor rainfall. Now, after the water conservation work, there is prosperity. Trade of vegetables and milk is flourishing; migrant workers have returned to their villages and are content in their working agriculture. The village's problems of unemployment are being addressed. This village now has the capacity to generate employment opportunities for others and is no longer dependent on urban centers. The village has taken the lead in drought mitigation, climate change adaptation, and eradication of these issues through community water conservation. The villagers are now experiencing greater happiness, peace, prosperity, and hope for the future and this village exemplifies how water independence can bring peace.

- The work in Gogunda valley (Udaipur) is 35 years old. Due to the severe water scarcity in this area, girls were once kidnapped and trafficked. Individuals from neighboring states used to purchase these girls and take them away. However, with the arrival of water, feelings of helplessness, poverty, and disease have all receded.

Following the completion of water conservation work by Tarun Bharat Sangh and ALERT, the local population was able to initiate irrigation. This development also created employment opportunities in farming. As a result, trafficking of girls and their 'sale' has declined. Instead, these girls are now attending school, and the community has actively participated in forest preservation efforts.

- The work in the Chambal River valley have been around for 30 years. In the past, this entire region was marked by the scars of red stone mines, making it vulnerable to gun theft. Traditional farming and animal husbandry were rendered unfeasible. When people faced dire circumstances, some resorted to robbing the mines at gunpoint.

However, a turning point came on May 7, 1992, when a Supreme Court ruling led to the

closure of these mines. To continue mining, mine owners armed themselves, but Tarun Bharat Sangh's advocacy led to the cessation of mining operations. As mine owners began relinquishing their firearms, they redirected their efforts towards water conservation.

The availability of water brought about a transformation in agriculture. Despite having abundant land, the lack of water had hindered progress. With the arrival of water, farming provided employment, ushering in serenity, contentment, and prosperity that brought joy to people's lives. This region is now experiencing drought relief and a contented existence. Through their commitment to water conservation, this formerly turbulent region stands out as a unique example globally, achieving nonviolence—a testament to the United Nations' declaration of the theme of World Water Day 2024 as Leveraging Water for Peace.

In Maharajpura village, dedicated efforts were made to enhance the greenery through constructing ponds and safeguarding the surrounding forests and wildlife. This accomplishment enriched Maharajpura and rejuvenated the entire river ecosystem. Crop yields, including wheat, barley, and mustard, have significantly increased since the introduction of water. In the past, the village residents endured hardships, and joy and happiness seemed distant. The very existence of this community was closely tied to the vitality of the flowing stream and its drying up had severe consequences.

When the Sairani River regained its purity and flow due to the determined efforts of Maharajpura Village, violence receded, and the values of nonviolence and true morality thrived. According to Kunwar Pal Singh, the combination of farming and an emphasis on greenery helped alleviate the environmental challenges faced by the region. These efforts have also marked the beginning of initiatives aimed at adapting to and mitigating the effects of climate change.

Contd.....

Maharashtra village overcomes its water woes

through collective action

by Aarti Kelkar Khambete



Konambe village in Sinnar taluka of Nashik region in Maharashtra and situated in the rain shadow region of the Western Ghats, received meagre rainfall despite being in close proximity to water resources, and villagers had to depend on water tankers to meet their water needs. The farming practices in the region further worsened the situation as farmers installed water pumps to irrigate their fields leading to groundwater exploitation.

However, the situation in the village changed when the community got together for a unique water conservation initiative. The change was spearheaded by the former village sarpanch who worked with villagers, urban supporters, government agencies and NGOs, experts and started watershed works in the village.

The villagers also benefited from state government initiatives such as the Jalayukt Shivar Yojana, a water conservation scheme, and Gaalmukt Dharan Yojana, focusing on silt-free water reservoirs. Desilting of tanks increased groundwater tables and improved water availability during summer.

While the Konambe dam, built in 1971 existed on the Dev River in the village, the dam's capacity had reduced due to accumulation of silt. The desilting activities conducted by villagers improved water availability and produced around 20,000 cubic metres of soil, which was spread across 500 acres of fallow land and reclaimed for cultivation. Social mobilisation played an important role in these efforts.

The villagers also started a tree-planting initiative and planted around 18,000 trees of various varieties leading to an increase in biodiversity. The village now witnesses the presence of monkeys, rabbits, foxes, porcupines, deer and peacocks, with occasional sightings of leopards (Village Square).

IIT Madras researchers develop aerogel adsorbent that removes pollutants from wastewater

Researchers from the Indian Institute of Technology Madras (IIT Madras) and Tel Aviv University, Israel, have developed an aerogel adsorbent that can remove trace pollutants from wastewater. This graphene-modified silica aerogel removes 76 percent of trace pollutants (PPM level) in continuous flow conditions sustainably and can be useful for large-scale water purification initiatives.

Aerogels are lightweight solids composed mostly of air and are excellent adsorbents (a solid substance used to remove contaminants). They can be customised to target specific contaminants by modifying their surface chemistry, they can be regenerated and reused multiple times, reducing waste and operational costs, thus making them a sustainable solution for water purification. They have adjustable surface chemistry, low density, and a highly porous structure. These materials are often referred to as 'solid air' or 'frozen smoke', and can be easily fabricated.

Indigenous techniques for wastewater purification can be crucial in dealing with pollution and to preserve water quality, protect ecosystems

and mitigate health risks associated with contaminated water (India Today).

Citizens in Ladakh work together for conserving wildlife

Ladakh is characterised by extreme temperatures and limited rainfall, and harbours unique biodiversity with approximately 318 bird species and 31 mammal species. However, the region is witnessing the impacts of rising temperatures and anthropogenic pressures such as tourism that are posing a threat to the biodiversity of the region.

To safeguard the region's wildlife, the indigenous people of Ladakh have now formed a grassroots initiative named 'Wildlife Conservation and Birds Club of Ladakh' (WCBCL) that collects photographs, data and vital information regarding Ladakh's unique birds and animals.

The primary objective of the initiative is to educate the public about these species and promote their conservation. WCBCL has conducted numerous awareness programmes for wildlife conservation. Periodic bird censuses are also carried out in Ladakh, leading to the discovery of several new species in the region.

Photographers associated with the club organise several photo exhibitions in Leh, showcasing local wildlife. The club also creates awareness about wildlife behaviour. They not only work to protect wildlife but also collaborate with the forest department by reporting instances of rule violations. WCBCL now plans to create an indigenous checklist of birds and animals in Ladakh (Mongabay, India).

A Kashmiri resident turns plastic waste into a thriving industry

Plastic bottles and bags of chips are now increasingly littering the nooks and crannies of Kashmir's landscape in recent years. However, a

solution has arrived in the form of a 50-year-old visionary entrepreneur Manzoor Ah Dar, a 50-year-old visionary from Turka-Tachloo village in south Kashmir's Anantnag district. Manzoor decided to turn discarded plastic into a thriving industry by investing with his brother Bashir Ah Dar in two essential machines – a grinder capable of reducing plastic of various colours into small pieces and a compressor for squashing plastic bottles.

The Dar brothers encountered a number of obstacles such as inadequate supply of plastic and poor availability of skilled workers, but they expanded their operations gradually and connected with a network of suppliers and buyers. Their plastic venture aimed at cleansing the environment by reducing plastic waste and providing jobs to their fellow community members.

Following the success of his recycling venture in Turka-Tachloo village, Manzoor founded another plastic factory in the Vessu area, about 12 km from his home. Both of his plastic units are filled with bundles of scrap collected by two categories of people, people who visit littered areas for plastic and those who go door to door, purchasing plastic from households.

They also collaborate with individuals who have set up their own shops, where they purchase plastic from those who collect it through village-to-village travel. This has not only helped in acquiring raw materials, but also provided livelihoods of many involved in this eco-friendly supply chain. (Village Square).

A new technique utilises banana peels to remove fluoride from drinking water

A chemistry teacher at Dhubri Bhola Nath College in Assam has successfully reduced the fluoride content in drinking water through an innovative experiment involving banana peels. An expert in wastewater treatment, Dr Sen Gupta



requires thirty minutes to complete and effectively eliminates excess fluoride ions from the drinking water.

Excessive levels of fluoride ions in drinking water can lead to a range of serious health issues such as dental fluorosis, skeletal fluorosis, arthritis, bone damage, osteoporosis, muscular damage, fatigue, joint-related problems, and chronic health concerns.

While various methods for purification exist, this organic-based approach demonstrates significant promise. However, additional research to enhance cost efficiency and reliability is needed before the technique can be used in the community (India Today).

introduced critical parameters and mechanistic modifications using banana peels for defluoridation thus providing a ray of hope for a cost effective and organic way forward in developing this unique water purification technology.

The procedure includes three varieties of bananas (Bhim - *musa balbisiana colla*, Malbhog - *Musa paradisiaca*, Jahaji - *Musa chinensis*) and utilises their peels dried under sunlight for nearly six to seven days. The dried banana peels are then ground into a fine powder and mixed with water to initiate the defluoridation process. The method

This is a roundup on important news updates from 1st November to 15th November 2023. View the policy updates here.



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जलसंवाद हे मासिक मालक व प्रकाशक डॉ. दत्ता
देशकर यांनी
ऐ - २०१, व्यंकटेश मीराबेल अपार्टमेंट्स,
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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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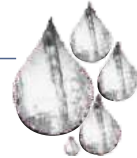
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