Central Water Commission
Water Systems Engineering Directorate
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June sees 33% rain shortfall, most of India under dry spell

But Monsoon Reviving, First Half Of July Will See Good Rains: IMD

Amit.Bhattacharya
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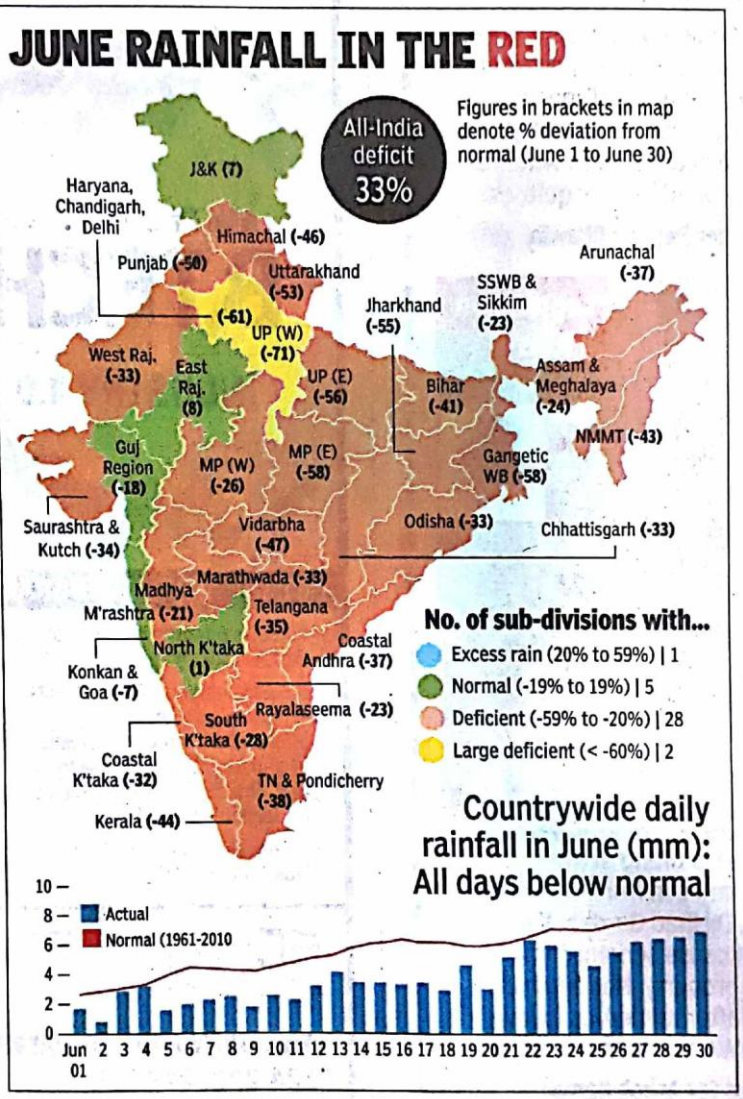
TOI-1

New Delhi: June has ended with a huge countrywide rainfall deficit of 33% of normal, making it the fifth driest month of June in the past 100 years, as indicated by **TOI** two days ago. While monsoon's performance has so far been way below expectations, met officials say there are indications of good rains in the first half of July.

Rainfall across India in June was recorded to be 112.1mm, as against the long period average (normal) of 166.9mm, according to the India Meteorological Department. In the past 100 years, June rainfall has been less than this in just four years — 2009 (85.7mm), 2014 (95.4), 1926 (98.7mm) and 1923 (102mm) — as per IMD records.

As many as 30 out of India's 36 meteorological sub-divisions registered deficient (lower than 20% below normal) or large deficient (60% or less below normal) rainfall during the month. With a huge deficit opening up in June, monsoon will now have to perform at over 102% of average over the next three months in order to finish at 96%, the lower end of the normal range, which was IMD's forecast for this year's monsoon.

Monsoon's failure in June, mainly because of late onset and tardy progress till June 19, comes on the back of weak pre-monsoon rainfall.



This led to added water stress in many parts of central and south India which are reeling under drought. As per the Central Water Commission's update late last week, reservoirs in Andhra Pradesh and Maharashtra were at critically low levels of 84% and 77%, respectively, below normal for this time of the year.

Reservoir levels across south India are running very low, with joint Andhra-Telangana projects at 52% below normal, Tamil and Kerala 47% below normal and both Karnataka and Telangana at -36%. Gujarat reservoirs too were at 23% below the normal level.

However, better news could be in store for the next couple of weeks, with all eyes on a low-pressure system that has formed in the Bay of Bengal and which could intensify into a depression over the next two days.

"This system is set to move inland and bring good rainfall over central India as well as some parts of east and north. Monsoon will very likely cover entire central in the next few days and move further into north India from its current position over east UP and Uttarakhand under the influence of this system. The week after that should also see an active monsoon," said D Sivananda Pai, IMD's lead monsoon forecaster.

IMD has issued red alerts for very heavy falls at several sub-divisions, including Odisha, Chhattisgarh, east MP, Vidarbha and Telangana over the next three-four days.

Private forecaster Skymet has also predicted a monsoon surge in the first half of July and advised farmers in central India to sow their kharif crops during this period. "Mumbai is at serious risk of flooding between July 3 and July 5. Close to 200mm or more rain per day is going to batter the city during this period. Chennai, on the other hand, which has not seen good rains for a very long time now, may continue to be dry in the first week of July," said Skymet MD Jatin Singh.

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PM pitches for water conservation

MANN KI BAAT 2.0 For mass drive to deal with crisis | Says don't take democracy 'for granted'

TRIBUNE NEWS SERVICE

NEW DELHI, JUNE 30 T-1.7

Bringing the lurking water crisis to the front, Prime Minister Narendra Modi, in his first address in the second edition of 'Mann ki Baat', today said there is a pressing need for a mass movement like "Swacch Bharat Abhiyan" to substantially improve upon the current level (8 per cent) of rain water conservation.

Noting that the "one-size-fits-all" approach would not be prudent for water conservation and rain water harvesting, Modi said, "In different regions, different methods may require to be adopted, but the aim would remain the same — to conserve every drop of water."

Appealing to the celebrities from different walks of life to join the water conservation campaign, the PM urged people to "share their knowledge of traditional approach in holding such exercise". "If you know about any individual or NGO working on water (conservation), do share the details by uploading their content on #janshakti4jalshakti."

1ST SHOW: Home Minister Amit Shah, Delhi BJP chief Manoj Tiwari, BJP MPs Parvesh Verma, Hans Raj Hans and others listen to 'Mann Ki Baat 2.0' at a stadium in New Delhi on Sunday. TRIBUNE PHOTO

At present, several cities are facing a water crisis with the water level in various reservoirs and water bodies has gone down significantly.

The PM also reminded people of Emergency imposes in 1970s and asked them not take civil rights given to them by the Constitution "for granted". He said the value of democracy and freedom can only be realised when they are taken away. It is a fact that one does not realise the value of food so long he/she gets it."

"Similarly, in day-to-day life, it is difficult to savour the joy of democratic rights, unless they are snatched away. During Emergency, every citizen of the country had started getting the feeling that something that belonged to him had been snatched away. If what was snatched had never been enjoyed by that person, ever, it had to eventually precipitate into a painful inner agony," he said. The PM also asked people to keep reminding themselves about the greatness of democracy and the right emanating from it.

To recognise and highlight the existing economic disparity, Modi talked of the writings of Hindi writer Munshi Premchand. "While reading one of his stories *Nashaa*, I couldn't help but notice the scourge of economic disparity plaguing society," he said, adding: "The moral of the story featuring the landlord's son Eeshwari and Beer from a poor family is that if you are not careful enough, you will never know when the bane of bad company engulfs you."

On his Kedarnath visit in the midst of electioneering, he said, "For me, it was an opportunity to meet myself...I undertook the journey to meet my inner self. I shall not reveal other things today, but I certainly want to tell you that perhaps in that solitary cave, I got an opportunity to fill the vacuum caused due to the long pause that 'Mann Ki Baat'."

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Meet Hazaribagh's water man who earned PM's praise

Abhijit Sen | TNN

It was because of the efforts of Dilip Kumar Ravidas that the once-parched Jharkhand village now has adequate water, without having to appeal to the collector or the chief minister

Hazaribagh: Dilip Kumar Ravidas, the mukhiya of Lupung panchayat in Katkamsandi block of Hazaribagh district, received a pat from Prime Minister Narendra Modi on Sunday during the PM's monthly "Mann ki Baat" national address.

Ravidas says he just could not believe his ears when Modi commended him for carrying along the whole village in conserving water in soak pits dug across the village. Due to his efforts, a village which was once parched, is now adequately provided for in water without having to appeal to the collector or the CM.

The 30-year-old farmer said he became the mukhiya by chance and that contesting polls was never on his agenda. "In 2015 panchayat polls, the villagers forced me to contest for the post of mukhiya, as I am educated, young and always active in trying to resolve people's problems. I casually agreed, but won handsomely," Ravidas says.

Ravidas is a graduate in arts from St Columba's College, Hazaribagh, in Jharkhand. He is married and has two children. Talking about his work for which Modi lauded him, Ravidas said his village was facing issues of water — for irrigation and domestic use — due to erratic weather. He brainstormed on ways to look for solutions.

"I was watching a 'Krishi Darshan' programme on TV and I learned about soak pits to conserve water. It appealed to me. I proposed to the gram sabha to construct soak pits and tried to convince and make people aware. Today, we have nearly 50 soak pits near schools and buildings," Ravidas says.

Ravidas said after he became mukhiya, he tried to ensure that no person in his panchayat misses out on social security benefits like old age pension, ration cards, etc. He also ensured proper execution of government schemes.

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Govt ropes in 255 bureaucrats for Jal Shakti drive

ET 1/7

RUCHIKA CHITRAVANSHI & SOMESH JHA
New Delhi 30 June

As India faces a deficit monsoon and widespread water shortages, the government is launching a pan-Indian campaign — the "Jal Shakti Abhiyan" — targeting water-stressed areas for stocktaking and conservation initiatives.

The campaign, to be launched on July 1 by Jal Shakti minister Gajendra Singh Shekhawat, has roped in 255 bureaucrats across different departments and ministries, nominating them for one water-stressed district each. "We have to start going on the field for "sanchay" and mobilise the public to take part in water conservation," a senior government official said.

The aim of the programme is to increase the water table in the stressed areas through dams, ponds, afforestation. The campaign will also involve cleaning up of water bodies, specially the old and neglected ones. In order to make it a public movement, a team of officials from the centre to the local level will head to water-stressed areas to involve the local community, students to drive the campaign.

"First step will be to draw an inventory of water resources and the ground water availability in these areas," another government official said.

Around 40 per cent of the country is staring at drought-like conditions ahead of the monsoon as water levels have receded sharply. The performance of the southwest monsoon, which started on June 1, has been well below expectations.

The rains reached the country after a delay of almost eight days on June 8, but thereafter, the progress hasn't been satisfactory. In the first two weeks, the southwest monsoon has been a whopping 46 per cent less than normal.

The programme will be implemented in two phases between July and September, during the monsoon season, during which government officials will visit their respective districts at least three times.

On similar lines, Prime Minister Narendra Modi had launched the Swachch Bharat Mission in 2016 on the eve of Mahatma Gandhi's birth anniversary. Scores of government officials and ministers took part in the campaign with targets for toilet construction to make India open-defecation free.

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Green panel clears ₹2,121-cr dam project on Godavari

PRESS TRUST OF INDIA
New Delhi, June 30

THE GOVERNMENT'S GREEN panel has given the environment clearance (EC) for constructing a dam across Godavari river in Jayashankar Bhupalapally district of Telangana at a cost of ₹2,121 crore, according to sources.

The proposed P V Narasimha Rao Kanthanapally Sujala Sravanthi Project (PVNRKSSP) involves construction of 23 metre high and 1,132 metre long barrage (dam) across Godavari river and will facilitate irrigation during rabi season benefiting three districts — Jayashankar Bhupalapally, Nalgonda and Khammam.

The central government-constituted green panel called Expert Appraisal Committee (EAC) assesses the projects and makes recommendations, based on which the Union environment ministry grants the final EC.

According to the sources, the Telangana government had in December 2018 submitted an application seeking EC for the PVNRKSSP. However, the EAC had deferred its decision for want of additional information. The state government submitted additional details and the EAC examined the proposal again last month and recommended giving environment clearance, they said.

The green panel has recommended the EC to the proposed project with some conditions, the sources added.

The Telangana government had approved the project with an estimated cost of ₹2,121 crore way back in February 2017. The project requires 674.18 hectare land, out of which 94 hectare is private land and 580.18 hectare is river bed area.

As per the Godavari Water Disputes Tribunal order (GWDT), the total allocation of water in the Godavari river to the Telangana and Andhra Pradesh is 1,480 TMC.

The net water availability at the proposed barrage site has been worked out to be 407.4 TMC, of which 180 TMC is allocated for Kaleshwaram Irrigation project (peddha), 4.5 TMC for Kaleshwaram LIS (tank filling) and 100 TMC for the proposed PVNRKSSP.

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Andhra, T'gana to finalise river water-sharing soon

NAVEEN S GAREWAL
TRIBUNE NEWS SERVICE

1-7

HYDERABAD, JUNE 30

Telangana Chief Minister K Chandrasekhar Rao (KCR) and his Andhra Pradesh counterpart YS Jagan Mohan Reddy will meet again in Amaravati in two weeks to resolve the inter-state disputes, with river water sharing topping the agenda. Andhra Pradesh has been demanding a major share of water being a lower riparian state.

AP Chief Secretary LV Subrahmanyam disclosed that the two-day conclave between the CM and officials of the two Telugu states had yielded good results with most of the inter-state pending issues taken up. Telangana is persuading the neighbouring state to accept the move to link Godavari and Krishna so that both can benefit from such an arrangement and water does not flow into the ocean.

The officials have been asked to come up with a report on water sharing that aim at resolving the issue. "KCR has already announced that the two states will work on the principal of "give and take" and Reddy has accepted that.

Reddy, who left for Vishakhapatnam after the first day's meeting announced that both governments were committed to resolving to utilise the Godavari to mitigate water problems in Rayalaseema region in AP and Palamuru Nalgonda areas in Telangana. This, he said, was based on reports submitted by officials, which suggest diverting four thousand million cubic feet (4 TMC) of water from the Godavari to Nagarjuna Sagar and Srisailam projects.

GIVE & TAKE POLICY

Telangana Chief Minister K Chandrasekhar Rao has already announced that the two states will work on the principal of "give and take" and his Andhra Pradesh counterpart YS Jagan Mohan Reddy has already accepted that

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EVERY DROP COUNTS

Punjab needs organically linked agriculture and water policies to tackle the alarming situation, says Ranjit Singh Ghuman

HOUGH Punjab's water crisis has been in the making for the past over three decades, no serious efforts have been made to address it. Paradoxically, all stakeholders, including political parties, have been hitherto in the denial mode about the gravity of water insecurity.

Fortunately, the state government now seems to be seized of the emerging water crisis, going by the convening of a brainstorming session on the problem by Chief Minister Capt Amarinder Singh in Chandigarh on June 21. The meeting was attended by various stakeholders, including farmer leaders, representatives of the industry, experts and scientists, besides Cabinet ministers and senior bureaucrats. The in-principle approval by the CM to constitute the Punjab Water Authority — though long overdue — is certainly a step forward.

Punjab was once comfortably placed in terms of water availability, but over the years, the situation deteriorated. In 1984, Punjab had 2.44 million acre ft (MAF) of groundwater, which dwindled to minus 11.63 MAF in 2013. It was mainly due to overexploitation of groundwater.

In 1984, there were five districts doing overdraft of groundwater; in 2013, there were 15. The range of overdraft was between 1.34 (Ludhiana) and 1.91 (Kapurthala) times in 1984, while it was 1.21 times (Gurdaspur) to 2.11 (Sangrur) times in 2013. The average total draft in Punjab was 149 in 2013.

The overexploitation of groundwater led to fast depletion of the water table, due to which the average depth of tubewells increased from 49 ft during 1960-70 to 128 ft in 2013-14 in nearly 15 districts of (predominantly paddy zone). Of them, the pre-monsoon depth of the water table went down by 7 metres to 22 metres in 10 districts during 1996-2016.

Genesis of depleting water table

Historically, Punjab has never been a paddy-growing area. Of the total irrigated area, paddy accounted for 9 per cent (2.37 lakh hectares) in 1939. Even in 1970-71, 9.62 per cent of the net sown area was under paddy. Nonetheless, paddy has been a major crop of Punjab since the 1980s and the area under it went up to 72 per cent of the net sown area in 2015-16.

The Green Revolution transformed Punjab's diversified cropping system into wheat-paddy rotation. The country's increasing demand for food and the vested interests of global agri-business, inter alia, were the major factors behind the Green Revolution and the promotion of paddy in Punjab. The assured supply of high-yielding varieties of seeds, fertilisers and public investment in irrigation were aimed at meeting these objectives. The public procurement under the MSP regime (since the mid-1960s) assured market clearance for the farmers' produce of wheat and paddy.

The area under tubewell irrigation increased from 56 per cent in 1970-71 to 71 per cent in 2014-15, while the area under canal irrigation declined from 45 per cent to 29 per cent. This can be attributed to the increasing demand for groundwater due to an extraordinary increase in the area under paddy and a significant increase in the gross cropped area. It is interesting to note that the area under rice and the number of tubewells increased concurrently.

Mind-boggling water consumption

Paddy is the main consumer of groundwater in Punjab. Water productivity of rice (quantity of water required to produce 1-kg rice) in the state in the triennium (TE) ending 2013-14 was 5,337 litres, whereas the all-India average was 3,875 litres. This is also due to applying higher number of irrigations than the recommended doses.

The water consumption for total rice production in Punjab increased from 16,642 (13,449 billion litres, 81%, for Central pool) billion litres irf 1980-81 to 59,047 (73% for Central pool) billion litres in 2013-14. It is the case of virtual water export from Punjab to the rest of India. Punjab provided much-needed food security to the nation at the cost of its groundwater (the most precious non-renewable natural resource). Even the quality of its sub-soil water has got polluted in the process.

Electricity usage

As compared to 1970-71, electricity consumption in the agricultural sector increased by 1,652 times in 2015-16, while the gross cropped area rose just by 1.38 times. Clearly, an increase in the gross cropped area does not justify such a huge consumption of electricity in agriculture.

Can it be attributed to the increase in irrigation intensity? Perhaps no, as 71 per cent of the net sown area was under irrigation in 1970-71. The ever-increasing demand for water for paddy (and overdependence on groundwater to meet this demand), the higher and higher number of tubewells, sharp depletion of the water table, the increasing depth of tubewells and the rising number of submersible motors (up from 6.2 lakh in 2009 to 8.4 lakh in 2014) seem to be behind such a huge consumption of electricity in agriculture. Injudicious use of water due to the provision of free electricity in agriculture is also the reason for the depleting water table and hence the increasing consumption of electricity.

Policy intervention

Though the state government has been trying to respond to the depleting water table, the only effective policy response came in 2009 when The Punjab Preservation of Sub-soil Water Act prohibited sowing of nursery of paddy before May 10 and transplantation before June 15. Other measures such as crop diversification, resource conservation technologies and micro-irrigation techniques are yet to show substantive results.

For crop diversification, the government constituted two committees (1986 and 2002), popularly known as Johl Committee 1 and 2. But not much has happened on the ground. The Union Government has been advising (without any policy intervention, alternative crops and financial support) Punjab to shift massive area from under paddy. The promotion of paddy in Punjab was mainly due to the policy mix (focused on country's food security). Now, how can we expect crop diversification in the absence of a compatible policy set?

The way out

Punjab needs to shift huge area from under paddy. That would require a compatible policy set and support (from the Union and state governments) and an alternative crop combination (with MSP and assured market clearance) which could give farmers at least the same amount of per-hectare returns which they are getting from paddy. The free power to agriculture would have to be rationalised if we really want to address the issue of diversification and depleting water table. It would not be possible without bringing farmers on board. There is a need to have a social movement by the farmers for rationalisation of free electricity and reducing area under paddy. It is of utmost importance for having sustainable agriculture, ensuring livelihood, saving water for future generations and saving Punjab from the looming desertification.

Generating awareness among the stakeholders is a sine qua non for mobilising any social movement for addressing the issue of water scarcity. Harvesting and conservation of water (through the mantra of Reduce, Recycle and Reuse) must be made mandatory. In my own empirical study of 10 districts of Punjab, I found little or no awareness (about depleting water table, wastage and injudicious use of water, harvesting and conservation) among farmers, domestic water users and industrialists.

The state needs to have comprehensive agriculture and water policies, organically linked with each other, as 97 per cent of the groundwater is being used in agriculture. The constitution of the Punjab Water Authority would also play a significant role in supporting and supplementing the government's efforts in addressing the emerging water crisis.

The author is a professor at CRRID (Centre for Research in Rural & Industrial Development), Chandigarh. Views are personal.

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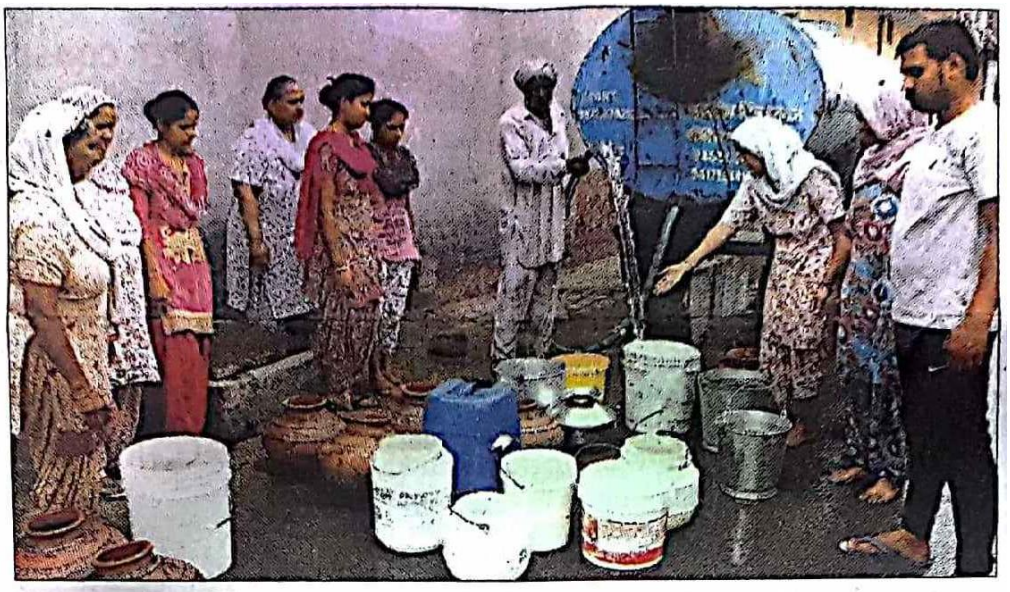
How to reclaim our lost water resources

CLIMATE change is water change. Whenever we talk about climate volatility, we also mean water volatility. It is predicted in the Asian Development Bank (ADB) report entitled 'Assessing the Costs of Climate Change and Adaptation in South Asia' that by 2050, the collective economy of six countries — Bangladesh, Bhutan, India, the Maldives, Nepal and Sri Lanka — will lose an average 1.8 per cent of its annual gross domestic product; by 2100, the loss will be 8.8 per cent. Are we prepared to bear such losses?

Countries are facing extremely high water stress and scarcity. Climate change is one of the main driving forces of change for water resources management, together with demographic, socio-economic, and environmental factors. Warmer temperatures are creating patterns of deeper droughts, land degradation and desertification, creating a stress on food security. The link between water and climate change has for long been ignored at global climate summits, but of late it has started taking centre stage on the international platform.

A heatwave is sweeping north India and an expected El Nino is a sign of a delayed monsoon. Water is being considered as the root of every environment problem. Does the Jal Shakti Mantralaya's ambitious promise to provide piped drinking water to every household by 2024 under the Nal Se Jal scheme hold the hope to quench the thirst of 1.3 billion?

Two questions must be considered under the umbrella of water security. First, as to how long our water resources will last in the light of the consumption patterns. Second, as to how these resources should be managed so that future generations have access to the same quality of life as the present one.



WATER STRESS: Sustainable management is needed.

During the lean season, water has a hideous mirror. This is glaringly witnessed through illegal water hijacking, water mafia, paying exorbitantly to water tankers that has escalated costs for the common man which is further compounded by hindered water availability having destructed the entire 'water security' of the nation. Community taps are running dry, resulting in queues for even potable water. Nobody had planned the growing water needs.

Why does there exist a culture of freebies or free water to all? Where do we look for other sources of water to satiate the needs? Haryana and Punjab's Green Revolution has resulted in depleting groundwater tables. Making water cheap is resulting in inefficiency and wastage. Any free resource consumption creates a cycle of vicious distortion.

What policy choice are we left with? Water has garnered an important stellar role in Prime Minister Narendra Modi's 100-day vision plan. Can this create a wave in churning the water dynamics with significant commitments?

Water is becoming increasingly scarce. Realise this grim scenario, the sooner the better. Policies have been in place to support conservation, reduce wastage and increase water use efficacy. The National Water Mission or Namami Ganga programme talks about conservation and preservation of water resources which have met with mixed results. The Draft National Water Framework Bill, 2016 is still basking for approval. What lies beyond laws, policies, institutions?

Clearly, the immediate priority is to make a paradigm shift to the supply side management and address those challenges that make water usage more efficient and discourage wastefulness. Priority must be laid on the allocation of resources, efficiency in water use and ensuring rejuvenation of the available water bodies, which shall go a long way to solving India's water woes.

Most water-related problems plaguing water security are solvable through sustainable water management, accompanied by better capacity building, knowledge dissemination and

ARVIND KUMAR
WATER CONSERVATION ACTIVIST

The immediate priority is to make a paradigm shift to the supply side management and address those challenges that make water usage more efficient and discourage wastefulness. Priority must be laid on the allocation of resources, efficiency in water use and ensuring rejuvenation of the available water bodies.

awareness generation. To sensitise the issue among the public, it is significant to galvanise the expertise of civil societies, resident welfare associations, self-help groups and domain experts in order to incentivise the notion of comprehensive water security.

Efforts of civil societies are often thwarted and the absence of sustainable funding often complicates their efforts. Bangladesh is much ahead of us, thanks to its strong civil societies network. Civil societies can be 'catalysts of change'and the missing link to converge government efforts of water management, raise the entrepreneurship of water culture and aid the efforts to convert non-resources to resources.

A common agenda for water management policies should include prioritising management of water resources which must be acknowledged by devising national water conservation strategy and action that understands the scenario of water resources availability. Further, a new water vision must involve the confluence of perspectives by incorporating gender, rights, economic, state and community perspective. It's time we seized the opportunity to implement 'right to water' to quench the thirst of 1.3 billion in our country.

SDG 6 (Clean Water) is the gateway to fulfilling the provisions of SDG Agenda 2030 and Paris Agreement which shall serve as a bridge to minimise the gap between the social, economic and environmental pillars of sustainable development. It is the golden key to unlocking the prospects of water security, peace and development and good nature resource governance. The regressive nature of free water supply needs to be corrected and the progressive system to encourage rejuvenation of water saving adopted. Resource (water sources) must be generated to secure the availability and utilisation to its roots (community). We can take a stand to rejuvenate water bodies, aquifers, ground water resources and restore the efficacy of its water bodies. This must be accompanied by the win approach of institutional support and community participation.

During water scarcity days, instead of a free threshold, a progressive idea of *Piau* (community water spots) or water ATMs charged with a reasonable price can be made available to the public, more to get rid of the water mafia and encourage water saving in the long run. We need to undertake a fundamental strategic shift in the way our water bodies are managed. Water augmenting strategies such as harnessing water conservation and power generation through multi-purpose reservoirs through integrated water shed management must be enabled to use both water and energy in a sustainable manner and cohesively ensure water-energy-food security.

Altogether, the perusal of judicious combination of advocacy, capacity building, knowledge dissemination, right policy framework and participatory governance shall go a long way in reclaiming our lost water resources.

The UN Climate Change chief, on the sidelines of Bonn Climate Change Conference, said climate change is an existential issue for humans. It is true. It is now understood that the dynamics of 'water security' often clashes with social and economic priorities of the government. Prioritising water saving and toughening management of water resources shall prove a big gamechanger. Water should never be a pendulum swinging between politics of consensus or conflict. Instead of 'pacification of the politics', we must shift towards 'solution of politics', sparking a ray of hope for a 'Water-smart Nation'.

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Incorporating and directly descended from THE FRIEND OF INDIA - Founded 1818

Waterless in Chennai

Water is a gift of nature. A research team of students of IIT Madras has come out with a device named Nero which produces potable water from thin air. Three rivers flow through Chennai. The city gets between 1,300 mm and 1,400 mm of rainfall annually. Rainwater harvesting was made mandatory in Tamil Nadu quite early, but follow-up action was sorely missing. Spread over 402 sq km, the city is littered with waterbodies, big and small. And it is located on the shores of the Bay of Bengal into which flows one thousand million cubic feet of water. In spite of these favourable points, the Chennai Metropolitan Water Supply and Sewerage Board is unable to quench the thirst of its citizens. Chief Minister Edappadi Palaniswamy dismisses the acute shortage of drinking water as an exaggeration by the media because the ministerial bungalows get more than their regular supplies without let or hindrance. Even their extensive lawns and gardens remain ever green and lush. The tragedy is the people of the State are docile and the political leadership is lethargic. When Chennai faced a similar drinking water shortage in 1982, then Chief Minister MG Ramachandran toyed with the idea of shifting the capital situated in the extreme north-eastern corner of the State to a central place on the banks of the Cauvery. Then Prime Minister Indira Gandhi convened an emergency meeting of the Chief Ministers of Maharashtra, Karnataka and Andhra Pradesh in Chennai and persuaded the three riparian States of the Krishna to contribute five tmcft of water each to be drawn from Srisilam dam in AP as a permanent solution to recurring shortage of Chennai's drinking water supply. The three Chief Ministers readily agreed and signed an agreement to this effect. The responsibility of constructing a canal from Srisilam dam to Chennai through the arid Rayalaseema region was left to Tamil Nadu. Instead of doing that, the Tamil Nadu government chose an easy way out by digging a canal up to Kandaleru, a stormwater lake in neighbouring Chittoor district of Andhra Pradesh, which is able to supply one or two tmcft water in a year. None of the signatories to the 1982 agreement in the presence of Indra Gandhi has gone back on it. It is the inability of the Tamil Nadu government to complete the Srisilam-Kandaleru link canal that stands in the way of Chennai getting an assured supply of 15 tmcft of Krishna water. It took Palaniswamy six years to lay the foundation stone for the 150 MLD plant. For the 400 MLD plant to become operational, the people of Chennai must wait indefinitely. The Metropolitan Water Supply Board is yet to appoint a project management consultant for the project. Such is the urgency the present Palanswamy government shows to the pressing problem of supplying drinking water to the capital city.

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From clogged drains to flowing canals: The Puducherry Water Rich Model

Kiran Bedi TOI. 1.7

At a time when water conservation has become of paramount importance, as highlighted by the Prime Minister in his Mann Ki Baat broadcast on Sunday, a model called Puducherry Water Rich could perhaps offer some key learnings.

The genesis of the model was in interactions by a team of officers from Raj Nivas Secretariat and other departments over weekends with the public. Two issues were repeatedly highlighted in these interactions

- The need for desilting rural canals for improving water retention carrying capacity.
- The urgency of desilting urban drains to ensure regular flow and prevent malaria and dengue.

Most of the drains had been in a state of utter neglect for decades. The irony is that the practice of community involvement in desilting of canals and maintaining them goes back centuries in Puducherry, to the reign of the Pallavas. The Cholas and French too took this issue very seriously.

On December 22, 1937, the administrative control of supplying water for irrigation purposes was placed under the public works department. Till date it is the PWD, which is in charge of this management.

As mentioned earlier, since a multi-department team was regularly monitoring the situation of water bodies, the PWD finally admitted that they did not have the funds to de-silt 86km of 23 feeder channels and desilt and

Kariyamanikkam tank-feeding channel before the desilting work began under the Puducherry Water Rich Model (L); the channel now (R)

feed 84 tanks and 609 ponds, as was the task allotted.

They also said most of the channels were dangerously choked and could not be cleared manually. JCB machinery was required to desilt these channels, for which they had no funds.

We decided to go public, and used social media. On September 24, 2018, the first such appeal was made through my personal Twitter handle. Support started to pour in instantly, from educational institutions, corporates, business chambers, market associations, and an RWA. Individual philanthropists came forward and an MLA offered help.

The desilting of the first canal began on September 29, 2018. Thereafter there was no looking back. Interestingly, in rural areas we needed water in irrigation channels and in urban areas we needed to prevent overflowing of drains.

We were ready just in the nick of time for the rains. The canals filled with water. Our lakes and tanks too received good water. People said they had seen this after decades. We also had no flooding in urban areas.

We awarded all donors Swachta Hi Sewa Awards. They all committed to renew

support for this year as well. Contractors too received their payments without any delay.

So what is the Puducherry Water Rich Model?

■ Ensure mapping and bring under watch all water bodies and drains. Use technology.

■ Use MNREGA where machinery is not required and human contact is safe. It empowers people and provides livelihood.

■ Link the local community for shramdaan and monitoring water bodies. Encourage participation as they are the real stakeholders.

■ Link them with the nearest donor support — any industry or institution.

■ Let the supporter and the service provider decide on the contractual cost. Government officials should only be facilitators, not in any way negotiate or deal with their money.

■ Allow farmers to take the silt away, as it is their soil which got washed away. It is rich in nutrients. Do not charge the farmers anything for it.

■ Make collectors and municipal commissioners accountable for this work.

We went literally from factory to factory, university to university, giving time limits for construction of water harvesting pits. It worked.

In many colonies where municipalities were spending money for supplying tanker water, it is now being saved because water table in the areas went up.

Water is prosperity. It's health. It quenches our thirst. It is life itself. Value it.

(The writer is Lieutenant-Governor of Puducherry)

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Quitting paddy cultivation

Big farmers should lead by example

T-107

DESPITE the spectre of groundwater depletion, Punjab's paddy farmers have shown reluctance to shift to sowing alternative crops, largely since these are not remunerative enough. With most of the small and medium peasants reeling under debt, it is difficult for them to look beyond the economics of their immediate liabilities of loans and home and farm expenditures. The attractive MSP of paddy and its assured procurement by the government continue to draw them. The grim report that at the present rate of consumption of subsoil water, Punjab's water table will dip critically and the state will become a desert soon has jolted the state government into action. But its exhortation to the farmers to shift from the water-intensive paddy to maize, cotton and pulses has had just a minor impact. The government's promise of helping the cultivators in the sale of cash crops pales in comparison with the assurance held out by the paddy MSP. Even last year, it failed to bring down the acreage under rice cultivation.

The agrarian crisis due to water stress and land degradation, caused by indiscriminate fertiliser and pesticide use since the days of the Green Revolution, is for real. Rising temperatures and falling precipitation have aggravated the situation. It would be indeed a sad day if the food bowl of the country is allowed to deteriorate into a begging bowl.

Water sustainability is the need of the hour. Measures that will reverse the present negative rate of recharge of aquifers, water reservoirs and other water bodies are urgently needed. It is the big farmers, many of whom are political leaders, who are guzzling the maximum amount of the precious resource. A check on their paddy cultivation and subsequent decrease in the amount of water that their pumps and tubewells draw from the ground — free of electricity cost — to irrigate their endless acres of farms would make the much-needed difference. The politicians of Punjab should set the example by eschewing paddy and adopting water-sustainable measures in their fields. Let the leaders lead from the front.

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WATER MINISTRY

The Modi government merged the ministries of water resources and drinking water and sanitation to form a new ministry called Jal Shakti. The new ministry's scope includes international and inter-state water disputes, the Clean Ganga Project, and making drinking water accessible for all.

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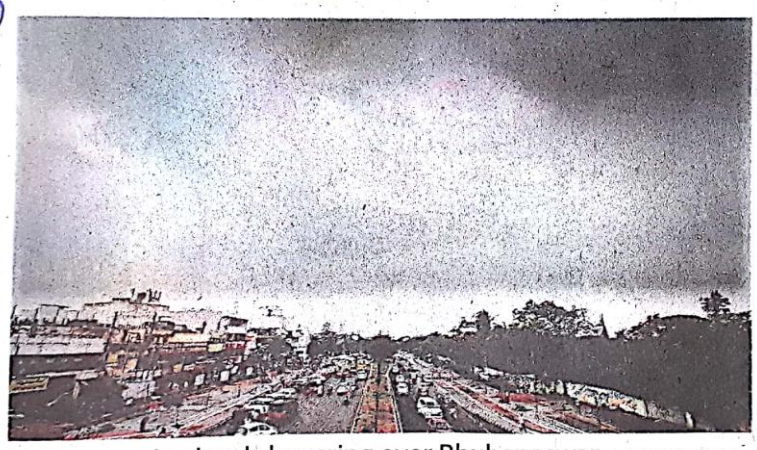
Odisha puts all District Collectors on rain alert

Low-pressure area may concentrate into a depression over north Bay of Bengal

STAFF REPORTER
BHUBANESWAR

The Odisha government on Saturday put all the 30 District Collectors on alert as the State is likely to receive heavy to very heavy rain over the next three days due to a low-pressure area that may concentrate into a depression over the Bay of Bengal.

In an emergency message, Special Relief Commissioner Bishnupada Sethi said that the India Meteorological Department sources indicated a low-pressure area was likely to form over north Bay of Bengal and its neighbourhood during the next 24 hours, which may concentrate into a depression during the subsequent 48 hours.



Monsoon rain clouds hovering over Bhubaneswar. ▪ FILE PHOTO

Under its influence, enhanced rainfall is likely to take place over Odisha districts, he added.

Issuing the advisory to the Collectors, the SRC said the administrative machinery of all districts, especially Kalahandi, Kandhamal, Gajapati, Ganjam, Nabarangpur, Mayurbhanj, Malkangiri and Balasore, should remain alert to meet any localised flood or waterlogging situation that may arise in the event of extremely heavy rainfall.

The Collectors have been advised to keep a close watch on the situation.

The SRC office said the rainfall, which would begin in some southern Odisha districts from Saturday night, would continue in the western districts till Tuesday. Almost all districts are likely to be impacted. "Squally weather with wind speed reaching 40-50 km per hour is likely to prevail over north and west-central Bay of Bengal during June 30 to July 2 and whoever in deep sea is advised to return to coast tonight," states the advisory.

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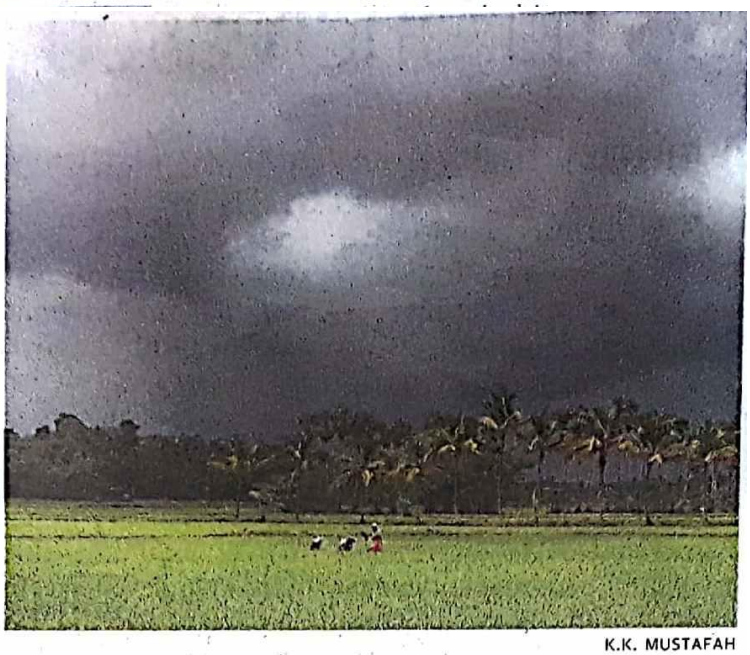
Why are monsoons difficult to predict?

H-30

Have the methods to forecast India's seasonal rain changed? What are the factors that can turn predictions awry?

JACOB KOSHY



K.K. MUSTAFAH

The story so far: The southwest monsoon made a late entry into Kerala on June 8, after a delay of nearly a week. However, things haven't looked rosy. With India having posted its lowest pre-monsoon rain from November 2018 to March 2019, reservoirs were depleted and a good monsoon was necessary. As of June 27, India got only slightly more than two-thirds of rain it normally gets in this month. Many places, including Chennai, are in the grip of a water crisis and about 80% of the country's meteorological divisions have registered deficient rainfall.

What is the prediction for the months ahead?

July and August are most important for the monsoon and contribute nearly 66% of the 89 cm of rainfall that India gets from June-September. This year, the India Meteorological Department (IMD) had forecast in May that July rainfall would be 95% of what it usually gets and August 99% of its normal. These numbers were calculated on the assumption, in April, that an El Niño– characterised by a warming of the Central Pacific Ocean – that seemed to be visible on the horizon, would slowly lose steam. An El Niño is generally associated with a weakening of monsoon rains in India though there are several other climatological factors that too could cause a drying up of monsoon rains. In May, the IMD said India would get 'normal' rains from June-September. The agency, however, refrains from giving a specific forecast for the month of June. Historically, there's no correlation between the amount of rainfall in June to what lies in the month ahead. Cyclone Vayu that formed in the Arabian Sea and threatened Gujarat was a major hurdle to the progress of the monsoon. Later a western disturbance – a rain-bearing system that passes over Pakistan, Jammu Kashmir and parts of north India – was also obstructing monsoonal currents.

The delayed progress of the monsoon, that is causing national consternation, is largely due to the laggardly branch of the monsoon that begins in Kerala and travels upwards along the western coast. The monsoon branch that enters eastern India, around the same time as the southern branch, is relatively better performing thanks to convective currents formed in the Bay of Bengal.

To what extent has the monsoon covered the country?

The monsoon has covered the whole of south as well as eastern India. By July 15 the monsoon should have ideally covered its last outpost in western Rajasthan, but this is unlikely given the delay in the monsoon's advent. In the week ahead, it's expected to make further inroads into central India and most of Gujarat and Uttar Pradesh. However, the geographic spread obscures the quantity of rain. Only two of India's 36 meteorological subdivisions have posted normal rainfall and 27 of them are grappling with deficient rainfall. By June 30, a low pressure pulse is expected to form over the Bay of Bengal and give a significant push to the monsoon.

How is the monsoon forecast?

Until about 2010, the only method employed by the IMD to forecast the monsoon was statistical models. These essentially involved identifying climate parameters linked to the performance of the monsoon – for instance, the sea surface temperature gradient between North Atlantic and North Pacific, the volume of warm water in the equatorial Pacific and the Eurasian snow cover. Their values in February and March are correlated to values of actual rainfall over a hundred years and then, using statistical techniques, extrapolated to forecast a particular year's monsoon. This has, however, proved wrong and the IMD missed its mark on forecasting major droughts and rain-deficits – particularly 2002, 2004 and 2006. The IMD responded by finding new parameters but keeping the technique essentially the same.

Only around 2015 did it start testing a dynamical system. This simulates the weather at a chosen set of locations on a given day – the land and ocean

temperature, moisture, windspeeds at various heights, etc. – and computers calculate how these weather variables will change over days, weeks, months. It's able to do this by solving physics equations that show how each of these weather variables is related to each other. Though meteorological agencies around the world are shifting to such techniques, they still aren't considered entirely reliable for forecasting the monsoon. The IMD and several private weather agencies are increasingly relying on more sophisticated and high-resolution computer models to give localised forecasts, or warn farmers of changes in weather 10-15 days ahead. Rather than long-range forecasts that only give a broad tenuous picture of the likely performance of the monsoon, these shorter forecasts are far more reliable and help farmers make decisions about sowing. These models are also useful for anticipating heat-wave or a cold-wave and therefore useful to urban planners and government. The statistical model continues to be the bedrock of the IMD's forecast philosophy but its days are numbered.

Does the monsoon have a bearing on India's water crisis?

Yes and no. India's water crisis, according to experts, is due to over-extraction of groundwater resources and not enough storage of rain water and surface water. The Central Water Commission, in its recommendation of how reservoirs should store and release water assumes that reservoirs will be empty on June 1 and gradually refill over the course of the monsoon, and be available for the non-monsoon months. Given that June contributes only 17cm or about 20% of the monsoon rainfall and is known to progress in spurts, farmers have already delayed sowing and relying on crop varieties that grow relatively quickly. Moreover, several farmers plant intensely water-guzzling crops that aren't suited to their climate or prevalent water table. While a July rainfall can temporarily alleviate parched ground, it can't solve the graver crisis of depleting groundwater and insufficiently charged aquifers.

Though meteorological agencies around the world are shifting to dynamical techniques, they still are not considered entirely reliable for forecasting the monsoon

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A world without water

GAINED IN TRANSLATION

G SUNDARRAJAN
கோ. சுந்தர்ராஜன்

FE-30

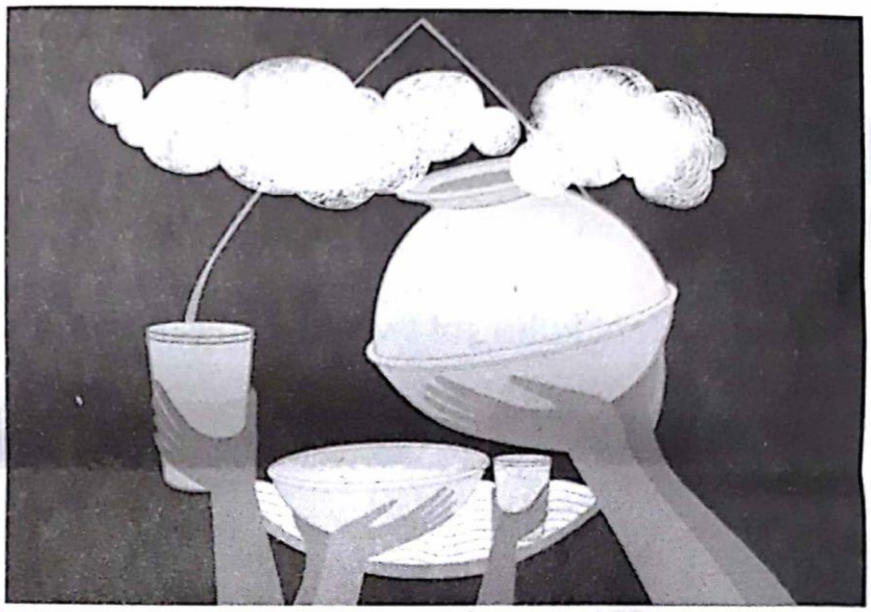

Illustration Suvajit Dey

AROUND 2,000 years ago, in his immense and matchless wisdom, the sage-poet Thiruvalluvar said there was no world without water, *Neer indri amaiyathu ulagu.* Today, even as Chennai has come to the streets searching for water, the words shine a light on the immortality of the truth yet again.

Chennai is parched. So is Tamil Nadu. Women of already water-stressed districts like Virudhunagar and Ramanathapuram have to walk several kilometres daily to fetch water. The walks offer no assurance of the availability of water. On many days, they have to do without the "luxury". Temporary wells have been dug in several villages in and around these districts for the poor to access some water. Early this March, the state government declared 24 districts as hit by hydrological drought, and allotted close to Rs 900 crore to handle the scarcity. That has not seen an end to women walking miles looking for water. Nor has it ended the midnight queues next to water tanks in Chennai.

Though the entire state is reeling under a debilitating water crisis, the focus is largely on Chennai. The state capital has a population of about a crore — the density making it enormously difficult to handle the crisis. The four reservoirs in and around Chennai — Red Hills, Sholavaram, Poondi and Chembarambakkam — have completely dried up. The four reservoirs were essential to quench the city's thirst. Not so long ago, in 2015, Chembarambakkam had filled up and the overflow had flooded Chennai. But the flood that brought the city's residents to the streets is now a distant, fading memory for those who have returned to the streets, this time to demand water.

As an environmentalist, I have reasons to believe that this drought is the result of human follies. Chennai has seen some rain-deficient years in the past. While it received less rainfall last year than usual, it could still manage the drought. So, to blame low rainfall is clearly an attempt by the authorities to pass the buck. Such excuses offer a convenient blindfold against actual solutions. The crisis Chennai is currently facing is drought-accumulation stress: in other words, our own failure to take concrete steps over the the past decades. Several of us saw this coming. Chennai's water need is about 12 TMC (thousand million cubic feet) per year and desilting all the four reservoirs would take its capacity to well over the city's requirements. That has not happened!

Chennai has lost over 350 lakes in the past several years. Over the years, Chennai has also lost its green cover which, in turn, has led to the loss of groundwater. With no path for rainwater to seep down, Chennai is facing the danger of exploiting all its groundwater by 2020, according to a NITI Aayog report. This year, the groundwater level has gone down drastically in many districts, including Chennai, compounding the crisis.

It is perhaps time the state turned to ancient wisdom for solutions.

The Chola kingdom was particularly known for exemplary water management by way of constructing lakes. Kallanai constructed by the Chola king, Karikalan, remains a fine example of constructing a dam without causing environmental damage. Two lakes constructed by the Chola kings over a thousand years ago — in Maduranthakam and Veeranam — cater to the needs of the public till date.

Ancient Tamil literature, especially of the Sangam era, is replete with ideas on water management and its importance. Elango Adigal, the author of *Silappadhikaram*, one of the five great epics of Tamil, describes the qualities of a good king thus: *Idiyudai perumazhai eitha ega pisiyaavilaiyul peruvalam tharappa mazhaipinithu aanda mannavan* (A good king is one who saves rainwater in tanks and lakes, and enriches his land).

A poem from the Sangam-era anthology *Akanaanooru* compares a mother watching over her child without sleeping to a soldier guarding a lake: *Perungula kaavalan pola arungadi annaiyum thuyil maranthanale.* Another Sangam poem says that a king will remain victorious and immortal if he takes steps to ensure water resources in low-lying areas: *Aadupor sezhiya igazhaathu valle nilaneli marungin neernilai peruga.*

And, of course, Thirukkural speaks at length on the importance of water and its management.

When elders have handed down such priceless wisdom, it is ironic that our rulers think it fit to hold *yagnas* to propitiate the rain gods. Reports suggest that a permanent solution to the water woes of Chennai — and Tamil Nadu — lies with the monsoon. Metro water authorities are raving how only rain can solve this crisis. But that is only half-truth. It is our ability to harvest rains for our own future needs that can address the crisis. During the December 2015 deluge in Chennai, 320 TMC water drained into the sea. Our consistent failure to harvest rainwater for our use and needs of future generations will only result in recurrent drought and eventually, a permanently parched Tamil Nadu.

Sundarrajan writes on ecology and volunteers with Poovulagin Nanbargal, a voluntary environmental collective in Tamil Nadu

Translated by the author from Tamil

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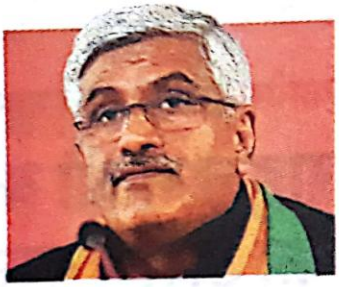
जलशक्ति मंत्री का दावा : मिशन मोड पर तैयारी

2022 तक गंगा में नहीं गिरेंगे गंदे नाले : शेखावत

नदियों की सफाई के लिए चलेगा अभियान

RP 29/6



पत्रिका ब्यूरो
patrika.com

नई दिल्ली. केंद्रीय जलशक्ति मंत्री गजेंद्र सिंह शेखावत ने शुक्रवार को दावा किया है कि 2022 तक गंगा नदी में गंदे नालों का गिरना पूरी तरह बंद हो जाएगा।

उन्होंने कहा कि सरकार इस लक्ष्य को हासिल करने के लिए मिशन मोड पर काम कर रही है।

जल समाधान के नए तरीकों पर आयोजित सम्मेलन में मंत्री ने कहा कि उत्तराखंड और झारखंड में गंगा में गंदे नालों का गिरना पूरी तरह रोक दिया गया है। औद्योगिक इकाइयों से निकलने वाले प्रदूषित जल और अन्य रसायनों को नदियों में छोड़े जाने के मामलों पर प्रभावी नीति तय करने के बारे में चर्चा की जाएगी।

नई दिल्ली. केन्द्रीय जल शक्ति मंत्री गजेन्द्र सिंह शेखावत ने शुक्र वार सुबह ओखला बैराज के पास स्थित कालिंदी कुंज घाट पर 'नमामि गंगे' के एक 'क्लीनेथॉन' कार्यक्र म में भाग लिया। उन्होंने कहा कि राजधानी में यमुना नदी की 22 किलोमीटर लम्बाई में 90 प्रतिशत से अधिक प्रदूषण होता है इससे सफाई में हमें अत्यधिक कठनाई होती है। जलशक्ति मंत्री ने कहा कि 2 अक्टूबर, 2014 को स्वच्छ भारत अभियान की शुरूआत करते समय जब प्रधानमंत्री नरेंद्र मोदी ने स्वयं अपने हाथों से झाड़ू उठाई इससे यह अभियान अब जनआंदोलन बन गया है। उन्होंने कहा कि शौचालयों की उपलब्धता 2019 में करीब 99 प्रतिशत हो गई है। इसी प्रकार गंगा नदी और इसकी सहायक नदियों की सफाई के काम को एक अभियान के रूप में किया जाएगा। शेखावत ने कहा कि सरकार केवल एक उत्प्रेरक हो सकती है, किन्तु प्रधानमंत्री के 'अविरल धारा', 'निर्मल धारा' और 'स्वच्छ किनारा' के सपने को साकार करने के लिए क्लीनेथॉन परियोजना को सचमुच एक जन आंदोलन बनना चाहिए। इससे पूर्व, एक समिति की रिपोर्ट में यह पाया गया है कि दिल्ली में पल्ला से बदरपुर तक केवल 54 किलोमीटर में यमुना नदी प्रभावित है। वजीराबाद से ओखला तक नदी की लम्बाई 22 किलोमीटर है, जो यमुनोत्री से प्रयागराज तक की कुल 1370 किलोमीटर लम्बाई की तुलना में 2 प्रतिशत से भी कम है, लेकिन नदी के प्रदूषण स्तर में वजीराबाद से ओखला तक बहने वाली 22 किलोमीटर नदी की हिस्सेदारी 76 प्रतिशत है। वजीराबाद से ओखला तक की 2 प्रतिशत लम्बाई में बिना उपचारित औद्योगिक और घरेलू कचरे सबसे अधिक बहाए जाते हैं।

देश में दुनिया की कुल आबादी का 18 प्रतिशत तथा इतनी ही संख्या में पशुधन मौजूद होने के बावजूद वैश्विक अनुपात के हिसाब से पानी के मामले में हमारी हिस्सेदारी 4 % से भी कम है। उसका भी बड़ा हिस्सा प्रदूषित है। इस बारे में हमें गहराई से सोचने की जरूरत है।

News item/letter/article/editorial published on 30.06.2019 in the **Dainik Jagran, New Delhi** and documented at WSE Dte, CWC.

सूखा पड़ने पर ग्रामीणों ने 20 दिन में बढ़ा दिया भू-जल स्तर

अभिषेक चौबे ● इंदौर

माह भर पहले जिस गांव में सूखे जैसे हालात थे, वहां ग्रामीणों ने अपना पसीना बहाकर भू-जल स्तर बढ़ा दिया। रात-दिन जुटे ग्रामीणों ने न केवल 20 दिन में स्टॉप डैम (छोटा बांध) बना दिया, बल्कि नदी भी गहरी कर दी। अब नदी के एक किमी हिस्से में चार से पांच फीट पानी भरा हुआ है। आसपास के भू-जल स्तर में भी इजाफा हो रहा है। आलम यह है कि जहां पूरे गांव में सिर्फ एक नलकूप पानी दे रहा था, वहां अब डेढ़ सौ से ज्यादा बोरिंग रिचार्ज हो गई हैं।

जल संरक्षण

कनाड़िया में कंकावती नदी पर बनाए गए स्टॉप डैम का अवलोकन करते ग्रामीण● राजू पवार

यह कहानी है मध्य प्रदेश के इंदौर से 20 किमी दूर स्थित कनाड़िया गांव की है। पिछले महीने गांव वालों ने पानी के मोल को गहराई से समझा। गांव में सिर्फ एक नलकूप ही पानी दे रहा था, बाकी सूख गए थे। आठ हजार की आबादी वाले गांव के बाशिंदे पानी के लिए इतने तरसे कि कुछ कर गुजरने की ठान ली।

अब पाल पर छाएगी हरियाली

ग्रामीणों ने बताया कि नदी के दोनों तरफ पाल मजबूत करने के लिए पौधरोपण किया जाएगा। 20 जुलाई को एक साथ पौधे रोपे जाएंगे। एक परिवार को पांच-पांच पौधे गोद दिए जाएंगे, ताकि उनकी निगरानी हो सके। ग्रामीणों ने तय किया है कि सरकारी मदद के बगैर अब गांव में विकास के दूसरे कामों को भी हाथ में लेंगे। जहां निजी बोरिंग हैं, वहां वाटर रिचार्जिंग का अभियान भी चलाएंगे।

> पिछले साल जलसंकट दूर करने के लिए दो दिन ट्रैक्टरों के साथ दो युवाओं को पानी बांटने की ड्यूटी लगाई गई थी। गर्मी के दिनों में गांव का भूजलस्तर 500 फीट से नीचे चला जाता है। अब नदी में बांध बनने के बाद जलसंकट नहीं झेलना पड़ेगा। पानी रोकने का असर अभी से नजर आ रहा है।
> – मनोज चौहान, ग्रामीण, कनाड़िया गांव

> मेरे घर का नलकूप (बोरिंग) सूख गया था। नदी में पानी रुकने के बाद बोरिंग में फिर पानी आ गया। – राधेश्याम मंडलोई, ग्रामीण, कनाड़िया गांव

जलसंकट की चिंता में डूबे गांव के युवा 26 मई को एक स्थानीय धर्मशाला में बैठे और गांव की कंकावती नदी का पानी रोकने की योजना बनाई। बैठक में किसी ने कहा कि सरकारी विभाग के भरोसे बैठे रहे तो फाइल तैयार होने, पैसा मंजूरी में ही एक-दो साल लग जाएंगे। तब तक कौन जलसंकट झेलेगा? क्यों न हम खुद ही पैसा लगाएं और बांध बनाएं। सभी इसके लिए राजी हो गए और पहली बैठक में ही 50 हजार रुपये इकट्ठा हो गए। शाम होते-होते ठेकेदार तय हो गया और अगले दिन से काम शुरू। खर्च की बात आई तो घर-घर से पैसा मिलने लगा। गांव के जागीरदार परिवार ने एक लाख रुपये दिए तो किसी ने पांच हजार। पूरे गांव से 20 लाख रुपये का चंदा हो गया। नदी को गहरा करने के लिए एक पोकलेन मशीन किराए पर ली गई। दूसरी पोकलेन की व्यवस्था नगर निगम ने कर दी।

20 दिन में तैयार हो गया बांध : बांध बनाने और नदी को गहरा करने का काम 20 दिन में पूरा हो गया, ताकि बारिश आने के पहले ही पानी रोका जा सके। ठेकेदार से रात में भी काम करवाया गया।

News item/letter/article/editorial published on 29.06.2019 in **The Times of India, New Delhi** and documented at WSE Dte, CWC.

This June set to be among the five driest in 100 years

Wet Start Likely To Crucial Month Of July

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New Delhi: This month is set to be among India's five driest months of June in the past 100 years, Met records reveal. Countrywide rains in June have so far been 35% below normal, and with just two days to go before the month ends, there's little chance of the deficit being substantially dented.

▶8 people killed as rain lashes Maharashtra, P 12
▶Monsoon may hit city in July 1st week or later, P 3

The all-India average weighted rainfall in June so far has been 97.9mm against a normal (till June 28) of 151.1mm. June is likely to end with rainfall in the range of 106 to 112mm. Only in four years since 1920 has rainfall in June been less than this — 2009 (85.7mm), 2014 (95.4mm), 1926 (98.7mm) and 1923 (102mm).

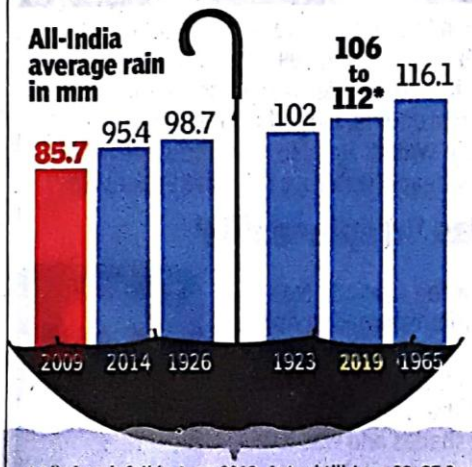
In both 2009 and 2014, the monsoon in June was under the shadow of an El Nino event, just as this year (although El Nino actually set in after the monsoon in 2014). During an El Nino, the east and central equatorial Pacific Ocean heats up abnormally, leading to changes in wind circulations that often adversely impact the Indian monsoon.

This year, Met officials see the likely role of El Nino in the monsoon's late onset and tardy progress. Though it has picked up slightly in the past week or so while covering a lot of ground very fast and bringing some rain in the drought-hit regions of Marathwada and Vidarbha, daily rainfall continues to be below normal.

However, there could still be some positive news. A low-pressure system is expected to form in the Bay of Bengal on June 30, intensify into a depression and move into Odisha, bringing good rains in central and parts of northwest India in the first week of July.

▶Continued on P 12

JUNE: LOWEST RAINFALL YEARS



South, West Reservoirs Critically Low

(Live water storage status in big reservoirs as on June 27, 2019)

All India
11% less than normal

North (includes HP, Punjab, Rajasthan)
42% higher than normal

East (includes J'khand, Odisha, Bengal, Tripura)
6% higher

West (includes Gujarat, Maharashtra)
47% lower than normal

Central (includes UP, U'khand, MP, C'garh) 5% higher than normal

South
44% lower than normal

* Likely rainfall in June 2019. Actual till June 28: 97.9mm; Source: IMD & Central Water Commission; Graphic: Sunil Singh

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Over 90 major reservoirs record dip in water levels

TOI-29

▶ Continued from P 1

We expect a good surge in monsoon after June 30. There's high possibility of it advancing into fresh areas in central India, like the remaining parts of Gujarat and MP, and more areas in northwest India ," said K Sathi Devi, senior IMD official.

The expected low-pressure system could provide a good start to the monsoon in July, a crucial month for sowing of the summer (kharif) crop and normally the wettest month of the monsoon season. A look at the 10 driest months of June in the past 100 years reveals an ominous trend. Four of these have come in nearly the past decade. These years are 2009, 2012, 2014 and the current year.

The monsoon's failure in June this year has added to water stress in many parts of west and south India. In the past week, water levels in 91 major reservoirs dropped from 17% of total capacity to 16%, as per the Central Water Commission's update on Thursday. In the western region (Gujarat and Maharashtra), reservoirs are down to 9% of total capacity as compared with 13% last year and an average of 17% in the last 10 years. This means reservoirs currently are at nearly half (47%) of their normal levels at this time of the year.

Similarly, major reservoirs in south India are at 10% of total capacity, 44% below their normal levels at this time of the year.

Reuters

Women wade through a waterlogged street as heavy rains lash Mumbai on Friday

8 killed in rain-related incidents in Maha

Eight people were killed and five injured in rain-related incidents in Maharashtra where several parts of the state were lashed by heavy rains on Friday.

In Mumbai, three persons were killed and five injured in rain-related incidents as the city was lashed by heavy showers. Three persons died of electric shocks, while two others were injured in two separate incidents in western suburbs, a spokesperson of Brihanmumbai Municipal Corporation said.

In Palghar, a minor boy died after being struck by lightning while two farm labourers were killed in Akola. Two persons were killed in rain-related incidents in Nashik, which was lashed by heavy showers for the fourth consecutive day. PTI

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Stop Mekedatu dam on river Cauvery, says AIADMK MP

H-29

SPECIAL CORRESPONDENT

NEW DELHI

The All India Anna Dravida Munnetra Kazhagam party has urged Prime Minister Narendra Modi to intervene and prevent Karnataka's plan to construct the Mekedatu dam on the Cauvery river, citing Tamil Nadu's water woes.

AIADMK MP A. Navaneethakrishnan raised the issue during Zero Hour in the Rajya Sabha on Friday. "In the Cauvery issue, the Supreme Court has modified the Tribunal Order and water allocations have been made, but the Supreme Court has held that this arrangement may be enforced for 15 years. But now, Karnataka is making attempts to construct a dam at Mekedatu," he said.

The Mekedatu project, announced by the Karnataka government in 2013, is meant to provide drinking water to Bengaluru and its environs as well as generate hydropower to contribute to the State's electricity needs.

Mr. Navaneethakrishnan said a detailed project report for the dam has already been prepared, despite opposition from the Tamil Nadu government. Karnataka has now applied to the Centre for an environmental clearance.

"Legally, dams cannot be constructed there without the consent of Tamil Nadu. Tamil Nadu is strongly opposing it," he said, noting that the State has severe water crisis.

"I urge the Prime Minister to intervene in this matter immediately. Environmental clearance should not be granted to Karnataka," he said. His submission was supported by six other MPs from the State.