

I/170020/2024

The Hindu – 22 April-2024

Preparing India for water stress, climate resilience

As the India Meteorological Department (IMD) predicts a hotter summer and longer heat waves from April to June, India must also prepare for water stress. The challenge is that we are programmed to consider acute stresses (heat, water, or extreme weather) as temporary, to be handled often as disaster relief. We must move from panic reactions when disaster strikes (like the water crisis in Bengaluru), to understand and respond to the chronic nature of risks we face. Moreover, climate action cannot be left to a few sectors or businesses. Nor can environmental sustainability be reduced to sapling plantation drives over a few days.

This Earth Day (April 22) should be a wake-up call. The climate is the economy now, and the economic production frontier will expand or shrink depending on how we understand the intersections between land, food, energy and water.

India houses 18% of the world's population on 2.4% of the earth's surface area and has just 4% of global freshwater resources. Nearly half its rivers are polluted, and 150 of its primary reservoirs are currently at just 38% of their total live storage capacity. Further, it is the largest user of groundwater in the world. And three-quarters of India's districts are hotspots for extreme climate events.

Against this backdrop, India has invested heavily in disaster preparedness, but the nature of climatic shocks will continue to change. There will be sudden shocks (heavy rainfall, rapid declines in water availability) as well as slow onset but periodic stresses (reduced water retention in soils, changes in trend lines for rainfall). Seasonal disaster preparedness and responses are no longer sufficient to tackle climate risks.

Water flows through the economy

For long, we have not taken cognisance of the many ways by which water flows through our economy and, instead, addressed water (and other natural resources) in silos. Water connects our hydrological, food, and energy systems, impacting millions of people.

How does this connection work? Precipitation is the primary source of soil moisture and water stored in vegetation (green water) and the water available in rivers and aquifers (blue water). Both blue and green water impact the food we grow – irrigating crops, influencing harvests, and being critical to the economy. But this sector that employs the most is increasingly climate vulnerable. The India Employment Report 2024 shows that agriculture still employs around 45% of the population and absorbs most of the country's labour force. At the same time, a Council on Energy, Environment and Water (CEEW) study showed that monsoon rainfall is



Arunabha Ghosh

is the CEO, Council on Energy, Environment and Water (CEEW) and Commissioner, Global Commission on the Economics of Water



Nitin Bassi

is the Senior Programme Lead at the Council on Energy, Environment and Water (CEEW)

The climate is the economy now, and understanding the crucial intersections between land, food, energy and water will influence how the economy functions

changing patterns in India, with 55% of 'tehsils' or sub-districts seeing a significant increase of more than 10% in southwest monsoon rainfall in the last decade, compared to the previous three. But this increased rainfall is frequently coming from short-duration, heavy rain, affecting crop sowing, irrigation and harvesting. Making the agricultural sector more resilient to climatic and water stresses matters for jobs, growth and sustainability.

Water is also a key component of the world's clean energy transition. Green hydrogen, seen as a crucial pillar for decarbonising industry and long-distance transport sectors, is produced using water and electricity sourced from renewables. Pumped storage hydropower – which acts as a natural battery and is essential to balance the power grid load – is an important component of a clean but reliable power system.

Then there is the climate crisis and its impact on hydrometeorological disasters. According to the UN World Water Development Report 2020, almost 75% of natural disasters in the last two decades were related to water. According to CEEW analysis, between 1970 and 2019, the number of flood associated events (such as landslides, thunderstorms and cloud bursts) increased by up to 20 times in India. Freshwater, one of the nine planetary boundaries, has been transgressed (2023 study).

The ingredients of water security

What India does to ensure water for domestic supply, food security, and the clean energy transition will matter to its economy. But its experiences will hold lessons for other water-stressed developing countries and emerging economies. Attaining this water security will need a mix of the right policies, judicious use of water, including reuse of urban wastewater, and finance for adapting to a changing world.

First, effective water governance needs policies that recognise its interactions with food and energy systems. However, CEEW and International Water Management Institute (IWMI) analysis shows that although India has adopted several policies, most do not recognise this nexus while planning or at the implementation stage. For instance, while the scaling up of green hydrogen is desirable, the link with water availability is not always considered. Similarly, the impact of scaling up solar irrigation pumps on groundwater levels must be analysed to deploy the technology where there is an optimal mix of solar resource and higher groundwater levels. Policies should incorporate the food-land-water nexus through localised evidence and community engagement.

Second, India needs to focus on the judicious

use of blue and green water through water accounting and efficient reuse. The National Water Mission targets increasing water use efficiency by 20% by 2025. Similarly, the Atal Mission on Rejuvenation and Urban Transformation (AMRUT) 2.0 calls for reducing non-revenue water, which is lost before it reaches the end user, to less than 20% in urban local

bodies. However, these are not backed by any baseline set using water accounting principles that will help quantify the, say, "20 per cent" change in freshwater use. For instance, in the absence of water use data for the reference year, it is difficult to quantify the potential water saving in one sector, such as agriculture, that can then be diverted to other sectors, such as industries or domestic purposes, which will drive India's water demand. Water accounting is essential for promoting water use efficiency and creating incentives for investments in treated wastewater reuse.

Third, leverage financial tools to raise money for climate adaptation in the water sector. Following global trends, India's climate action has been largely focused on mitigation in the industrial, energy, and transport sectors. Financial commitments for climate change adaptation in the water and agriculture sectors are still relatively small. In 2019-20, for which aggregate estimates are available, the per capita annual spending on climate change mitigation was about ₹2,200, whereas for adaptation, it was only ₹260. More funding is needed for adaptation-specific interventions such as strengthening wastewater management, providing incentives to promote climate-resilient agricultural practices (micro irrigation and crop diversification), and scaling up desalination plants as an alternative water source for thermal plants and green hydrogen production. Market innovations such as India's Green Credit Programme have the potential to partially bridge the adaptation funding gap by encouraging investment in wastewater treatment, desalination plants, and agricultural extension services. Considering the investments in India under Corporate Social Responsibility (between 2014-15 and 2020-21), there is a potential to leverage about ₹12,000 crore worth of investments every year.

Expectations that systemic change will occur overnight are unrealistic. But it is possible to make a start by pursuing more coherence in water, energy and climate policies, creating data-driven baselines to increase water savings, and enabling new financial instruments and markets for adaptation investments. A water-secure economy is the first step towards a climate-resilient one.

The views expressed are personal



Dainik Bhaskar – 22 April-2024

आर्टिफिशियल ग्लेशियर... पहाड़ों पर पानी की कृत्रिम दुनिया



गर्मी शुरू होते ही खाली हो जाते थे लद्दाख के 200 गांव, आइस स्तूप ने पानी का संकट खत्म कर इन्हें फिर बसाया

शेवांग रिगजिन | लेह

लद्दाख में करीब 12 हजार फीट ऊपर बसे सुदूरवर्ती गांव हर साल गर्मियों में सूने हो जाते थे। लेकिन, एक कृत्रिम करिश्मे ने इन्हें नया जीवन दिया है। तस्वीर 120 फीट ऊंचे आइस स्तूप की है, जो अगले दो महीने लेह से करीब 100 किमी दूर बसे तिरचित गांव की प्यास बुझाएगा। इसमें 1.30 करोड़ लीटर पानी है। ऐसे ही 19 स्तूप कुलुम, अपाथी जैसे 16 गांवों

में बने हैं। इन्हें हिमालयन इंस्टीट्यूट ऑफ अल्टरनेटिव्स लद्दाख की मदद से गांव वालों ने बनाया है। कुलुम के कुंजेंग फेबी बताते हैं, गर्मियों में हर साल करीब 200 गांवों के लोग पानी वाले इलाकों में चले जाते थे। 2018 से इन आर्टिफिशियल ग्लेशियर्स ने संकट खत्म कर दिया। अब हमारे पास पानी है। पलायन बंद है। इन्हें बनाना बेहद आसान है। दरअसल, ऊंचाई से नीचे बहने वाला पानी जमता नहीं है। -शेष पेज 07 पर



आइस स्तूप लद्दाख में अब पूजनीय हैं। ग्रामीण हर साल आइस स्तूप कॉम्पटीशन भी करते हैं। इस बार यह रविवार को तिरचित में हुई। यहां के स्तूप को 3 लाख रुपए का इनाम मिला है।