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# How to tackle the water crisis

**ACT QUICK.** Adopt micro-irrigation extensively, curtail area under water-guzzling crops, revive small water bodies



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India has been facing water crises for many years now. The unprecedented water crisis in Bengaluru now is a case in point. The NITI Aayog's report, 'Composite Water Management Index (2018)', has underlined that currently 600 million people face high to extreme water stress, about two lakh die every year due to inadequate access to safe water, about three-fourths of the households do not get drinking water at their premises and about 70 per cent of water is contaminated.

A joint report by the World Health Organisation and UNICEF on 'Progress on Sanitation and Drinking Water' estimates that about 97 million Indians lack access to safe drinking water. Water riots continue to take place in many rural pockets of India regularly. Due to the increased water crisis, an estimated 150 million women's days and ₹10 billion are lost annually in fetching water alone.

The Central Water Commission (CWC) estimates that the average annual utilisable water (surface and groundwater) of the country is only about 1,123 billion cubic metres (bcm), whereas the water demand is expected to reach 1,447 bcm/year by 2025, suggesting a huge supply-demand gap. Not only has the total availability of water resources in the country been declining but also the per capita availability. For instance, the per capita availability of water was 1,816 cubic metres in 2001, but declined to 1,544 cubic metres in 2011. It is projected to fall further to 1,140 cubic metres by 2050. Since areas with water availability of less than 1,700 m<sup>3</sup> per capita/annum are treated water stressed globally, most regions/population in India will experience severe water stress by 2050, CWC has projected (see Table). How to overcome this situation?

## THE WAY OUT

CWC data show the agriculture sector alone consumes close to 85 per cent of water, most of which is groundwater. But the groundwater is fast depleting. Of the 6,965 blocks assessed by the Central Groundwater Board in 2020, about 35 per cent of the blocks (2,441) have been classified as semi-critical, critical or over-exploited with the situation deteriorating rapidly. With the total water potential of the country reducing fast, strict measures need to be introduced to save water and reduce overall water stress.

One of the important and readily

Basin-wise per capita annual availability of water in India, 2010, 2025 & 2050

River basin	Annual water resources potential (bcm)	Estimate population (million)			Estimated per capita average annual water availability (M <sup>3</sup> )		
		2010	2025	2050	2010	2025	2050
Indus (up to Border)	73.3	57.69	69.2	81.41	1,270.58	1,059.25	900.38
Ganga-Brahmaputra-Meghna							
a) Ganga	525	494.47	593.04	697.69	1,061.74	885.27	752.48
b) Brahmaputra	537.2	40.07	48.06	56.54	13,406.54	11,177.69	9,501.24
c) Barak & Others	48.4	8.54	10.24	12.05	5,667.45	4,726.56	4,016.59
Godavari	110.5	74.36	89.18	104.92	1,486.01	1,239.07	1,053.18
Krishna	78.1	83.72	100.41	118.13	932.87	777.81	661.14
Cauvery	21.4	40.34	48.39	56.93	530.49	442.24	375.9
Subarnarekha	12.4	12.94	15.52	18.26	958.27	798.97	679.08
Brahmani & Baitarni	28.5	13.49	16.18	19.04	2,112.68	1,761.43	1,496.85
Mahanadi	66.9	36.63	43.93	51.68	1,826.37	1,522.88	1,294.51
Pennar	6.3	13.36	16.02	18.85	471.56	393.26	334.22
Mahi	11	14.46	17.34	20.4	760.72	634.37	539.22
Sabarnati	3.8	14.46	17.34	20.4	262.79	219.15	186.27
Narmada	45.6	20.24	24.28	28.56	2,252.96	1,878.09	1,596.64
Tapi	14.9	20.38	24.44	28.75	731.11	609.66	518.26
West flowing rivers from Tapi to Tadri	87.4	35.53	42.61	50.13	2,459.89	2,051.16	1,743.47
West flowing rivers from Tadri to Kanyakumari	113.5	44.89	53.84	63.34	2,528.4	2,108.09	1,791.92
East flowing rivers between Mahanadi & Pennar	22.5	32.5	38.97	45.85	692.31	577.37	490.73
East flowing rivers between Pennar & Kanyakumari	16.5	61.96	74.32	87.43	266.3	222.01	188.72
West flowing rivers of Kutch and Saurashtra including Luni	15.1	30.43	36.5	42.94	496.22	413.69	351.65
Area of inland drainage in Rajasthan	Negl.	9.78	11.73	13.79	-	-	-
Minor river draining into Myanmar (Burma) & Bangladesh	31	2.07	2.48	2.91	14,975.85	12,500	10,652.92
<b>Total</b>	<b>1,869.3</b>	<b>1,162.31</b>	<b>1,394.02</b>	<b>1,640</b>	<b>1,608.26</b>	<b>1,340.94</b>	<b>1,139.82</b>

Source: Central Water Commission (2015), Water and Related Statistics bcm - billion cubic metres

available options is micro-irrigation (drip and sprinkler), which has proved to be effective in conserving water and power. Quite a few field-level studies carried out in different regions including Tamil Nadu showed that drip and sprinkler irrigation saves about 50 per cent of water and electricity per acre, while increasing the productivity of crops substantially. The MS Swaminathan Committee Report, More Crop and Income Per Drop of Water (2006), has also underlined the importance of micro-irrigation. Maharashtra, Gujarat, Andhra Pradesh, Karnataka and Tamil Nadu have been seriously promoting drip irrigation among different crops including sugarcane. Large-scale

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adoption of this method can reduce the reckless exploitation of groundwater. Drip irrigation should be made mandatory for cultivating sugarcane.

The area under water-guzzling crops such as paddy, wheat, sugarcane, banana, vegetables, etc., has been increasing, which is not desirable. Appropriate minimum support price (MSP) policies are needed to control the area under such crops. Canals irrigate about 19 million hectares in India, but its water use efficiency is only 35-40 per cent. Area-based supply of water in canal irrigated areas is one of the main reasons for such poor efficiency. Therefore, as recommended by the Vaidyanathan Committee Report on 'Pricing of Irrigation Water (1992)', volumetric pricing of irrigation water may be implemented in full scale in canal areas to increase the efficient use of water.

States like Andhra Pradesh, Karnataka, Tamil Nadu and Telangana cannot tackle water scarcity without rejuvenating tanks; all these States have a large

number of tanks. The 'Minor Irrigation Census' shows that there are a total of 6.42 lakh tanks, lakes and ponds in India. However, most of the small water bodies are encroached upon by government and private bodies. The 'First Census of Water Bodies', published by the Ministry of Water Resources in 2023, has found that 38,486 water bodies have been encroached upon in India. Tough measures are needed to remove the encroachments.

Due to poor maintenance, sediment formation has increased in most reservoirs which reduces the water storage capacity. The government should take immediate steps to repair, restore and renovate all the water bodies in a phased manner. Climate change is resulting in unprecedented variations in the quantum of rainfall and the number of rainy days, which may dampen water availability in the future.

The writer is former full-time Member (Official), CACP, New Delhi. Views are personal

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**SQUASHED.** Tomato crops withering on a farm in Karnataka's Kolar district due to shortage of water. According to the Central Water Commission, the current storage in the State's 16 reservoirs is 25 per cent of the capacity, lower than last year and past 10 years' average. Currently, tomatoes are fetching ₹ 800-1,200 a quintal compared with around ₹ 600 a year ago BHAGYA PRAKASH K