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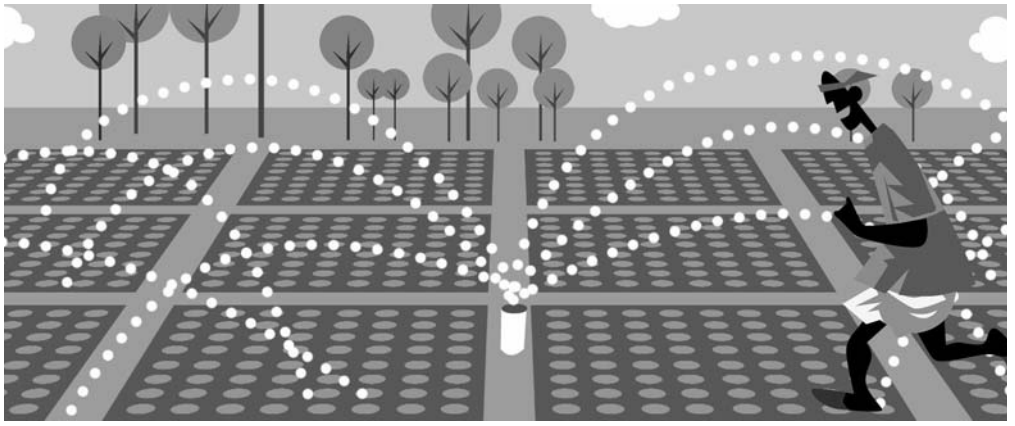

Water reform must begin at the farm

Building a more resilient, diverse and less water-consuming farm system has multiple collateral win-wins

India's water crisis has now assumed mind-boggling proportions. When some of our children in Punjab drink water laced with uranium and more and more groundwater in Bengal and Bihar has arsenic, we need to be seriously worried. With growing rates of urbanisation, the miserable state of urban water supply and sewage treatment is a matter of grave concern. The recurrent droughts and floods afflicting millions every year must surely bring into question the way we have been managing our water resources. No wonder, then, conflicts over water are now commonplace, not merely among states, but across town and country, farm and factory and among those living within the same village or urban locality.

WATER: REFORM OR PERISH

MIHIR SHAH

During my presentation to the Prime Minister's Office in 2017, summarising the main recommendations of the committee I chaired on Restructuring the Central Water Commission and Central Ground Water Board, I described the present conjuncture as "India's 1991 moment in water". These are reforms that needed to have happened decades ago. Of course, water reforms would not follow the 1991 template, as they must necessarily and carefully factor in the specifics of water. But the urgency of a paradigm shift is indisputable. I first proposed this in 2012 in the chapter on water in the 12th Plan document. But in the seven years since, the country has seen only faltering progress in this direction.

Over the next four months, every fortnight, this column will address multiple dimensions of India's water crisis and suggest the reforms we need to initiate. I will argue that India appears a water-short country primarily because we have not transitioned to a new way of managing the fairly abundant water we have. What is not often recognised is that water is India's most important, yet unreformed, infrastructure sector. Without far-reaching reforms, we cannot possibly hope to sustain the rates of growth the economy aspires for.

The reform package must begin with farming. According to the Food and Agricultural Organization's latest AQUASTAT database, agriculture takes up 90 per cent of India's water use. Without reducing this figure dramatically, we can never release enough water for rural and urban domestic needs, as also industry. Even more importantly, without water reform, we cannot address the snowballing agrarian crisis, with 300,000 farmers committing suicide over the past three decades, something without precedent in Indian history.

Irrigation in India is monopolised by a few water-intensive crops like wheat, rice and sugarcane, even in chronically drought-prone states like Maharashtra and Karnataka. Occupying just 4 per cent of cropped area, sugarcane uses up 65 per cent of irrigation water in Maharashtra. In Karnataka, rice and sugarcane, 20 per cent of cropped area, consume 70 per cent of irrigation water. Even a small reduction in the area under these crops, in a region-specific manner, that does not endanger food security, would go a long way in addressing India's water problem.

Farmers, even in water-scarce regions, continue to grow water-intensive crops mainly because these are the only crops with an assured market, either thanks to government procurement or private purchase. An integral element of the Green Revolution of the late 20th century was public procurement of wheat and rice. This is what enabled us to move towards food self-sufficiency.

But the wheels had already begun to come off the Green Revolution by the turn of the century. Highly water-consuming chemical agriculture, which is high-cost and high-risk, has become increasingly unviable for a majority of India's farmers, whose net incomes have started to turn negative, due to both diminishing returns and rising input costs. Any player in the stock market knows that to counter market volatility, we have to diversify our stock portfolio. Farming faces an additional risk: Unpredictability of the weather. For such a risky enterprise to adopt monoculture is patently suicidal. But that is what policy has implicitly driven farmers to do. We have failed to incentivise crop diversification.

For this to happen, public procurement must include more location-specific, less water-consuming crops, such as traditional millets and pulses. These include what the government now correctly calls "nutri-cereals", such as *bajra*, *ragi*, *jowar*, *navane* and Chhattisgarh's *kodon-kutki*, an effective anti-diabetic remedy. According to the Indian Council of Medical Research, foxtail millet has 81 per cent more protein than rice. Millets have higher fibre and iron content, and a low Glycemic Index. Millets also are climate-resilient crops suited for the drylands of India. If we were to introduce them into the diets of the Integrated Child Development Services and Mid-day Meal Programmes, globally the largest nutrition initiatives for children ever, we would create a large and steady demand for these crops, while also generating multiple win-wins: Greater water security, better soil health, higher, more stable net incomes for farmers and robust consumer health.

For the farm crisis is also a health emergency. Diabetics increased in every Indian state between 1990 and 2016, even among the poor, rising from 26 million in 1990 to 65 million in 2016. This number is projected to double by 2030. A key contributor: Displacement of whole foods in our diets by energy dense and nutrient-poor, ultra-processed food products. At the same time, excessive fertilisers and pesticides are being transported into our body *via* food and water. Recent research shows that they cause cancers such as leukemia and lymphoma, brain tumors, Wilm's tumors, Ewing's sarcoma and germ cell tumors. Cancer is the second most common disease in India, responsible for about 3 million deaths every year.

A move towards a more diversified cropping pattern must, therefore, also be accompanied by a rigorous search for alternatives to chemical agriculture, with a thrust towards water-saving technologies, especially for the water-intensive crops. This is already happening, most notably in Andhra Pradesh, which has resolved to shift its entire cultivable area of 80 lakh hectares to natural farming by 2027. A move that has been strongly commended by the Niti Aayog.

Building a more resilient, diverse and less water-consuming farm system is the first and single most important reform India must undertake in its water sector. It is also the most quickly implementable change, with multiple collateral win-wins.

The writer is Distinguished Professor, Shiv Nadar University and former Member, Planning Commission, Government of India. Every fortnight, he will outline multiple dimensions of long overdue reforms in the water sector