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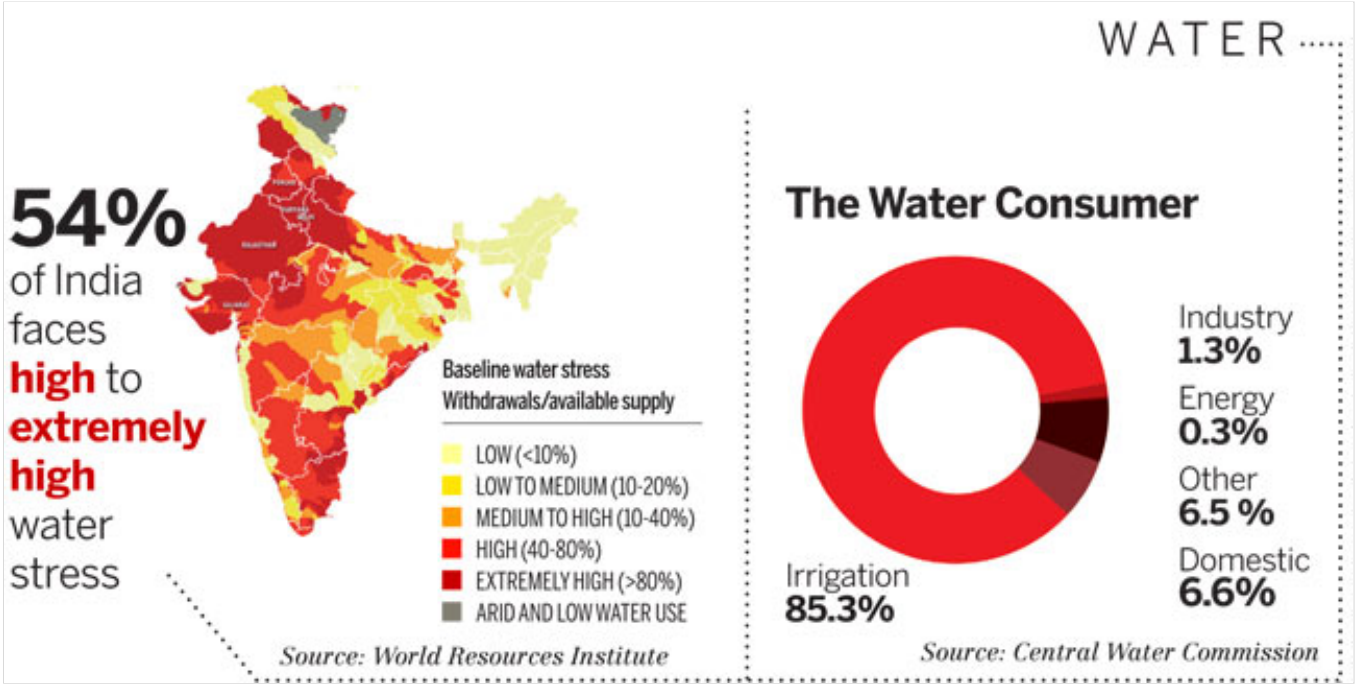
Invisible water, visible crisis

ROHINI NILEKANI | August 13, 2015 | 15:37

By now, everyone in India understands that we have a serious water crisis. Too many of our rivers are polluted, dammed, or dying. Rainfall is becoming increasingly erratic, and expected to become more so. Our groundwater is depleting fast. Our lakes are drying up or filling with sewage, especially in urban centres. Our water and sanitation infrastructure is old and creaking in many places and does not even exist in others. Agriculture, industry and urban settlements all compete for the same scarce resource. It is no longer a problem that can be discussed without remedy. Rich or poor, it affects us all, here and now.



But if we had to choose one area for immediate attention, it would have to be groundwater. Groundwater is fuelling much of India's growth in rural and urban areas. This has resulted in severe scarcity and quality issues, especially in these high growth areas (see map).

India has always been a groundwater civilisation. For thousands of years, different regions had the most aesthetically designed, functional open wells that tapped into the shallow aquifers. People had thumb rules that allowed them to use the water sustainably across cycles of good monsoons and drought. The coming of the deep rigs and the borewells in the 1970s completely changed the way India used its groundwater reserves. The most significant indicator is that the share of groundwater for irrigation went up from a mere 1 per cent during 1960-61 to 60 per cent during 2006-07.

India is now the largest user of groundwater in the world. We draw more groundwater than two giant economies-USA and China. We have approximately 30 million wells, including the new borewells and the old open wells, drawing 250 cubic km of water. Groundwater now contributes to about 85 per cent of India's drinking water security, 60 per cent of its agricultural requirements and 50 per cent of urban water needs.

Rohini Nilekani

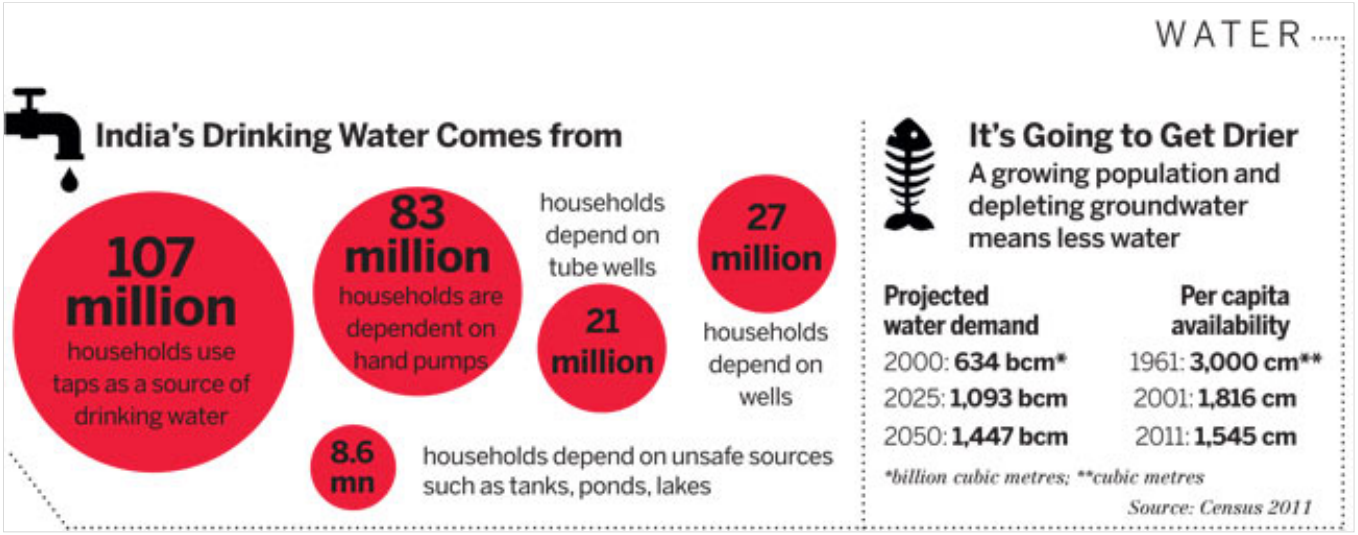
The big irony is that despite this reality, much of India's public investments have gone into surface water-dams and canals for irrigation, huge pipelines for drinking water, and increasingly for diversion to industry-especially to the energy sector. Essentially, groundwater extraction is a private enterprise in India. Most Indian wells and borewells are privately owned and operated. Overwhelmed by the arrival of a new technology that allowed rapid scale-up, the government's response has been slow. There is little and haphazard regulation of groundwater. This is a rare phenomenon in the world. Many countries have delinked land ownership from the ownership of the water beneath, and have complex systems of water rights, pricing and tight regulation.

Water is a state subject in India. Administration at the Centre as well as in the states has tried but failed to fully resolve the questions of who really owns the groundwater, how it should be mapped, extracted and replenished.

So, through ignorance and with impunity, farmers, governments, industry and ordinary citizens have drilled deeper, and just about anywhere with frightening results. Sixty per cent of India's districts have serious issues of either depletion or pollution, according to one study.

Excoriating the earth has unleashed geogenic chemicals such as fluoride and arsenic into our drinking water. Since authentic quality testing is difficult in most places, we do not yet know what we are doing and what awaits us.

According to a study by Jadavpur University, Kolkata, 66 million people are at risk from fluorosis and as many as 500 million from arsenic-induced health issues in the Ganga-Meghna-Brahmaputra plain. At the same time, poor sanitary practices have led to faecal contamination. Millions defecate in the open, and millions of others unknowingly contaminate groundwater through leaching from toilet pits.



A WaterAid report suggests this directly affects around 37 million Indians annually through water-borne diseases. If you like that sort of imagery, it evokes a manthan gone horribly wrong. It is imperative to look at what must be done, and done quickly. What are the top five things that the government, civil society organisations and citizens can do to make our groundwater civilisation more sustainable?

Make the groundwater Mapping visible

Right now, there is an asymmetry of information. We need to change that by putting aquifer data in the public domain. Make invisible groundwater visible to all, so that people can prevent abuse. The government has an aquifer-mapping programme. But it needs strengthening and re-alignment. It is a top-down

approach. It need not be. People need granular data to be water-wise. Aquifers can be mapped within five years with smart, crowdsourced, ground-up information, in combination with technologies such as satellite data.

Manage the demand

It is linked to the first point, and reminds us that a supply-side approach will not work. We need to use water more efficiently, and need better market signals for that. Groundwater in India is a private and under-regulated market, and does not have the benefits that transparent, embedded markets can bring.

There is also a deep nexus between groundwater and energy. If we will not price the water, we have to price the energy. Appropriate economic incentives must come sooner rather than later. There may be less resistance than the political class fears, and there are some good examples in the country already, such as the Jyotigram in Gujarat.

Rationalise groundwater use

This is linked to the points above. It is not good economics or good environmental stewardship to drain the aquifers of Punjab to grow rice, nor those of arid Kutch to grow sugarcane. These are no longer questions that economists can leisurely mull over. We have to incentivise the shift in production from water-scarce to water-surplus aquifers, but in a sustainable way. Let's shift public resources from surface water budgets if necessary to achieve a better water balance.

Enable civil society participation

It will be very difficult for the government to retrofit a sensible governance system on the current model of private, dispersed and democratised access to groundwater. NGOs do a better job of engaging people in a participatory approach, by encouraging stewardship rather than exploitation. Good public policy and laws help, but we truly need new behavioural responses that allow us to respect water.

Recharge and reuse

We need a massive national effort to recharge our aquifers. This requires the creation of appropriate institutions that allow us, as a society, to frame a new relationship with groundwater. Some institutional frameworks have been attempted, such as the Central Ground Water Board, with its mirrors in the states. But we need to repair and innovate these institutions. It is critical to set up new entities that help understand and manage urban groundwater better.

As a society, we are now faced with tough choices. It is worth betting big on groundwater, which can actually lead us to water security. And we can become a mature groundwater civilisation. Again.

-With Ayan Biswas and Arghyam

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