

## Water Challenges Asia's Rising Powers – Part II

India and China account for one third of the world's population; each consumes more freshwater than other nations. Per inhabitant per year, though, India uses less than half what's used in the US, China uses less than one third. This YaleGlobal series examines India and China's water use, their expectations for rising demand and recognition that shortages will disrupt economic progress. The Planning Commission of India repeatedly warns that water will become a more serious issue than land or energy for India in years to come, points out Rohini Nilekani, in the second article of the series. India's transition from an economy based on agriculture to a mixed one, with water use controlled by states rather than the federal constitution, already leads to conflicts. She urges planning for a low-water economy: Good governance and regulatory frameworks can prevent pollution and waste, while encouraging efficiency, reliable and fair allocation, and wise consumer choices. – YaleGlobal

India must prepare for future growth by planning a low-water economy

Rohini Nilekani

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Thirsty earth: Indian villagers in Gujarat gather to draw water from a well

BANGALORE: By July this year, the monsoon has established itself vigorously over much of the subcontinent. The anxieties of the long, intense summer months, when nations hold their collective breath in anticipation of the cooling, life-giving rain, have receded. But the region's 1.6 billion people know that next summer, the worries will return.

Water is ultimately a finite resource. With all finite resources, there is a continuous need for sustainable and equitable management, by capping demand, improving efficiencies in supply and developing substitutes. This exercise is complicated by the sociocultural beliefs, values and affinities around this precious resource.

Currently, Indian politics is dominated by controversies over natural-resource management, particularly land acquisition. Although economic liberalization is more than two decades old, there's little clarity or consensus on the governance and regulatory frameworks for the inevitable land transfers needed for the transition from a primarily domestic and agricultural economy to a mixed and globalized one.

consensus. Already, in the southern state of Kerala, a community has sued the Coca-Cola Company for depleting its aquifers. At the Sheonath River in the northern state of Chhatisgarh, there has been sustained protest against the privatization of a stretch of river through a Radius Water contract. Rural and urban communities battle over diversion of agricultural water for urban water supply, not to mention mega-conflicts among states over sharing river waters.

The Planning Commission of India has repeatedly warned that water will become a more serious issue than land or energy for India in the years to come. Preparing for India's 12<sup>th</sup> Five Year Plan, the commission has taken up a wide consultation to better govern water resources. But consensus and implementation remain huge challenges, especially since water is a state and not a federal subject under its Constitution.

Meanwhile, India may have to ready itself for perennial freshwater shortages. The country is among the wettest in the world, with an average annual rainfall of 1170 millimeters and total water resources of around 4000 billion cubic meters per year. Of this total, a little more than a quarter is pegged as usable. With India's high rate of population growth and intensifying water consumption, per capita availability of water, one of many indicators of an oncoming crisis, has declined steadily over the years. Thanks to indiscriminate withdrawal from rivers and underground aquifers, without adequate thought to recharge and regeneration, India could become an officially water-stressed country within this decade, dipping below the common indicator of 1700 cubic meters per person per year. Going beyond a merely human-centric position, it's critical to understand that water is a key element of nature in its own right.

Over-extraction and abuse of water has had a devastating impact on the environment. Ocean health is deteriorating, badly polluted water bodies can no longer support aquatic life, some rivers no longer reach the sea, and so on. Such setbacks have many implications. Water is a

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**Widespread and perennial conflicts over land in India are a curtain raiser to the coming conflicts over water.**

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Widespread and perennial conflicts over land are a curtain raiser to the coming conflicts over water, a sector that faces a similar lack of legal and policy

defining factor of the ecological base on which the economy rests. To protect both the ecology and the economy, India needs a national strategy to place water at the heart of development planning and implementation.

Just as countries talk of a low carbon economy to reduce fossil fuel dependency and reduce the threats of climate change, India must create a low-water economy to secure its future and fulfill responsibility to future generations.

A low-water economy should rest on the principle that water be left in its natural state in the environment as much as possible. Every drop extracted must be justified. Every drop used must be recycled and reused whenever possible.

Accepting this principle poses many challenges for the three major sectors of water use – agriculture, industry and domestic. Each sector offers creative possibilities to help redefine society's troubled relationship with the natural world alongside the pursuit of economic sustainability.

In agriculture, which currently accounts for more than 80 percent of the water demand, there are several ways to produce more crops per drop and generally reduce the water footprint. These ideas are not new, but bear repetition as they require a deeper commitment through policy, financing and knowledge generation. Keeping farmer interests at the core, India must sever the link between cheap power and water wastage on farmland; incentivize water-saving technologies on the farm; and rationalize production, procurement and export of crops. Some studies have shown that water currently moves from water-scarce regions to water-rich regions through the virtual water embedded in products such as milk, silk and cotton. This provides an opportunity to rethink virtual water trade to reverse inequitable trends. Agro-businesses have economic incentives to increase water efficiency throughout their supply chain, and government policy must pursue compliance.

Consumers, too, can make intelligent choices to support low-water agriculture. They can select among an array of healthy millets and other food crops grown with little water and remarkably drought-resistant. Awareness could snowball with strong policy support and leadership.

Industry has a crucial role as a partner in a low-water economy. Industry's water needs should come from current agricultural sources. The energy sector, a major water guzzler, must set clear goals for reducing its water footprint. Other industrial players can no longer pollute freshwater bodies with impunity. Incentives must be aligned, making it more difficult to pollute or draw water away from environmental, lifeline and livelihood needs. The popular movement to protect India's rivers can be fuelled by the vision of a low-water economy.

The rural domestic sector has little room for cutbacks. The government's own norms suggest about 55 liters per capita in use per day, and people need at least 50 liters a day for drinking, cooking and bathing. If anything, all homes should have piped water supply and sanitation, which could improve public-health indicators and reduce infant mortality.

In urban areas, the scope for rethink is huge. Cities mismanage water resources and supply systems with little equity, reliability or adequacy of supply. In Delhi, per capita availability can vary from 36 to 400 liters per day. Notwithstanding the mighty Yamuna flowing in its backyard, the capital incurs a huge unrecoverable cost of production for additional water sourced from hundreds of kilometers away. Little is done to treat wastewater for reuse. Nor does Delhi penalize water-consuming elites as others struggle for basic lifeline rights.

If the national capital leads in irresponsible water management, others will follow suit. When 300 million more Indians pour into 5000 cities and towns in the next three decades, municipalities will have to redesign water services. They must adopt an integrated approach to urban water from source to sink, using local water before making demands on external water, ensuring a pro-poor policy, taking a decentralized approach, encouraging use of recycled wastewater for non-potable needs and so on. Bangalore has led in some areas, including the introduction of a pro-poor policy to ensure that no one is denied access to basic water, together with volumetric tariffs and a surcharge on private bore wells. The next set of challenges is to optimize rainwater, regenerate lakes and reuse wastewater to reduce dependence on external sources.

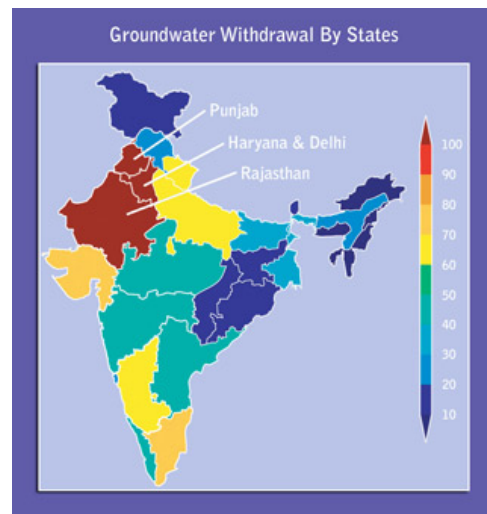
If initiatives are not pushed forward, water will become the constraining factor in the quest for inclusive and sustainable growth. Luckily, water, though finite, is infinitely renewable. India must now renew its ancient wisdom to grow economically while reducing its water use footprint.

Rohini Nilekani is chairperson of Arghyam, a charitable foundation in India that supports safe, sustainable water for all.

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**With India's high rate of population growth, per capita availability of water has declined steadily over the years.**



[\(sites/default/files/images/2011/07/india-mapBIG.jpg\)](#)

Groundwater Withdrawal By States: Bar shows groundwater withdrawals as a percentage of groundwater recharge.

Map: NASA/Matt Rodell. Enhancement: Debbie

Campoli/YaleGlobal. [Enlarge Image](#)

[\(sites/default/files/images/2011/07/india-mapBIG.jpg\)](#)

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**Without initiatives, water will become the constraining factor in India's quest for inclusive and sustainable growth.**







