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THIRSTY GIANT

In Teeming India, Water Crisis Means Dry Pipes and Foul Sludge

By [SOMINI SENGUPTA](#)

NEW DELHI, Sept. 28 — The quest for water can drive a woman mad.

Ask Ritu Prasher. Every day, Mrs. Prasher, a homemaker in a middle-class neighborhood of this capital, rises at 6:30 a.m. and begins fretting about water.

It is a rare morning when water trickles through the pipes. More often, not a drop will come. So Mrs. Prasher will have to call a private water tanker, wait for it to show up, call again, wait some more and worry about whether enough buckets are filled in the bathroom in case no water arrives.

“Your whole day goes just planning how you’ll get water,” a weary Mrs. Prasher, 45, recounted one morning this summer, cellphone in hand and ready to press redial for the water tanker. “You become so edgy all the time.”

In the richest city in [India](#), with the nation’s economy marching ahead at an enviable clip, middle-class people like Mrs. Prasher are reduced to foraging for water. Their predicament testifies to the government’s astonishing inability to deliver the most basic services to its citizens at a time when India asserts itself as a global power.

The crisis, decades in the making, has grown as fast as India in recent years. A soaring population, the warp-speed sprawl of cities, and a vast and thirsty farm belt have all put new strains on a feeble, ill-kept public water and sanitation network.

The combination has left water all too scarce in some places, contaminated in others and in cursed surfeit for millions who are flooded each year. Today the problems threaten India’s ability to fortify its sagging farms, sustain its economic growth and make its cities healthy and habitable. At stake is not only India’s economic ambition but its very image as the world’s largest democracy.

“If we become rich or poor as a nation, it’s because of water,” said Sunita Narain, director of the Center for Science and Environment in New Delhi.

Conflicts over water mirror the most vexing changes facing India: the competing demands of urban and rural areas, the stubborn divide between rich and poor, and the balance between the needs of a thriving economy and a fragile environment.

New Delhi’s water woes are typical of those of many Indian cities. Nationwide, the urban water distribution network is in such disrepair that no city can provide water from the public tap for more than a few hours a

day.

An even bigger problem than demand is disposal. New Delhi can neither quench its thirst, nor adequately get rid of the ever bigger heaps of sewage that it produces. Some 45 percent of the population is not connected to the public sewerage system.

Those issues are amplified nationwide. More than 700 million Indians, or roughly two-thirds of the population, do not have adequate sanitation. Largely for lack of clean water, 2.1 million children under the age of 5 die each year, according to the [United Nations](#).

The government says that 9 out of 10 Indians have access to the public water supply, but that may include sources that are going dry or are contaminated.

The [World Bank](#), in rare agreement with Ms. Narain, warned in a report published last October that India stood on the edge of “an era of severe water scarcity.”

“Unless dramatic changes are made — and made soon — in the way in which government manages water,” the World Bank report concluded, “India will have neither the cash to maintain and build new infrastructure, nor the water required for the economy and for people.”

The window to address the crisis is closing. [Climate change](#) is expected only to exacerbate the problems by causing extreme bouts of weather — heat, deluge or drought.

A River of Waste

The fabled Yamuna River, on whose banks this city was born more than 2,000 years ago, is a case study in the water management crisis confronting India.

In Hindu mythology, the Yamuna is considered to be a river that fell from heaven to earth. Today, it is a foul portrait of crippled infrastructure — and yet, still worshiped. From the bridges that soar across the river, the faithful toss coins and sweets, lovingly wrapped in plastic. They scatter the ashes of their dead.

In New Delhi the Yamuna itself is clinically dead.

As the Yamuna enters the capital, still relatively clean from its 246-mile descent from atop the Himalayas, the city’s public water agency, the New Delhi Jal Board, extracts 229 million gallons every day from the river, its largest single source of drinking water.

As the Yamuna leaves the city, it becomes the principal drain for New Delhi’s waste. Residents pour 950 million gallons of sewage into the river each day.

Coursing through the capital, the river becomes a noxious black thread. Clumps of raw sewage float on top. Methane gas gurgles on the surface.

It is hardly safe for fish, let alone bathing or drinking. A government audit found last year that the level of fecal coliform, one measure of filth, in the Yamuna was 100,000 times the safe limit for bathing.

In 1992, a retired Indian Navy officer who once sailed regattas on the Yamuna took his government to the Supreme Court. The retired officer, Sureshwar D. Sinha, charged that the state had killed the Yamuna and violated his constitutional right, as a practicing Hindu, to perform ritual baths in the river.

Since then, the Supreme Court ordered the city's water authority to treat all sewage flowing into the river and improve water quality. In 14 years, that command is still unmet.

New Delhi's population, now 16 million, has expanded by roughly 41 percent in the last 15 years, officials estimate. As the number of people living — and defecating — in the city soars, on average more than half of the sewage they pour into the river goes untreated.

A government audit last year indicted the Jal Board for having spent \$200 million and yielding “very little value.” The construction of more sewage treatment plants has done little to stanch the flow, in part because sewage lines are badly clogged and because power failures leave them inoperable for hours at a time.

“It has not improved at all because the quantity of sewage is constantly increasing,” said R. C. Trivedi, a director of the Central Pollution Control Board, which monitors the quality of the Yamuna River. “The gap is continually widening.”

Making matters worse, many New Delhi neighborhoods, like Janata Colony — Hindi for People's Colony — are not even connected to sewage pipes. Open sewers hem the narrow lanes of the slum. Every alley carries their stench.

Some canals are so clogged with trash and sludge that they are no more than green-black ribbons of muck. It is a mosquitoes' paradise. [Malaria](#) and dengue fever are regular visitors.

Not long ago, a 2-year-old boy named Arman Mustakeem fell into one such canal and drowned. His parents said they found him floating in the open sewer in front of their home.

These canals empty into a wide storm drain. It, in turn, runs through the eastern edges of the city, raking in more sewage and cascades of trash, before it merges with effluent from two sewage treatment plants, and finally, enters the Yamuna.

Carrying the capital's waste on its back, the Yamuna meanders south to cities like Mathura and Agra, home to the Taj Mahal. It is their principal source of drinking water, too. New Delhi's downstream neighbors are forced to treat the water heavily, hiking up the cost.

With New Delhi slated to host the Commonwealth Games in 2010, the government proposes to remake this riverfront with a sports and recreation complex. In the meantime, the Yamuna, vital and befouled as it is, bears the weight of New Delhi's ambitions.

At dawn each morning, men sink into the still, black waters to retrieve whatever can be bartered or sold: rings from a dead man's finger, coins dropped by the faithful, the remnants of rubber sandals, plastic water bottles.

The dhobis, who launder clothes, line up on one stretch of riverbank, pounding saris and bedsheets on stone

tablets. A man shovels sand from the river bottom: every bullock cart he fills for a cement maker will fetch him a coveted \$5.50. Men and boys bathe.

“This river is worshiped,” said a bewildered Sunny Verma, 24. “Is this the right way of worshiping it?”

So shaken was Mr. Verma on his first visit to the Yamuna this year that he now works full time to shake up others. He joined an environmental group called We for Yamuna.

“If you want to worship the river, you should give it more respect,” he said. “You should treat it the right way. You should question the government. You should ask the state to actually do something for the river.”

Deluge and Drought

Mrs. Prasher has the misfortune of living in a neighborhood on New Delhi’s poorly served southern fringe.

As the city’s water supply runs through a 5,600-mile network of battered public pipes, 25 to 40 percent leaks out. By the time it reaches her, there is hardly enough.

On average, she gets no more than 13 gallons a month from the tap and a water bill from the water board that fluctuates from \$6 to \$20, at its whimsy, she complains, since there is never a meter reading anyway.

That means she has to look for other sources, scrimp and scavenge to meet her family’s water needs.

She buys an additional 265 gallons from private tankers, for roughly \$20 a month. On top of that she pays \$2.50 toward the worker who pipes water from a private tube-well she and other residents of her apartment block have installed in the courtyard.

Nearly a fourth of New Delhi households, according to the government commissioned Delhi Human Development Report, rely at least in some part on such wells. It is one of the principal reasons groundwater in New Delhi is drying up faster than virtually anywhere in the country: 78 percent of it is considered overexploited.

Still, the new posh apartment buildings sprouting across New Delhi and its suburbs sell themselves by ensuring a 24-hour water supply — usually by drilling wells deep underground. “Imagine never being thirsty for water,” boasts a newspaper advertisement for one new development.

Warning of “an unparalleled water crisis,” the study released in August found that 25 percent of New Delhi households had no access to piped water, and that 27 percent got water for less than three hours a day. Nearly two million households, the report also found, had no toilet.

The daily New Delhi hustle for water only adds to the strains on the public system.

A few years ago, for instance, to compensate for the low water pressure in the public pipeline, Mrs. Prasher and her neighbors began tapping directly into the public water main with so-called booster pumps, each one sucking out as much water as possible.

It was a me-first approach to a limited and unreliable public resource, and it proliferated across this

me-first city, each booster pump further draining the water supply.

The situation for New Delhi, and all of India, is only expected to worsen. India now uses an estimated 829 billion cubic yards of water every year — that is more than guzzling an entire Lake Erie. But its water needs are growing by leaps. By 2050, official projections indicate, demand will more than double, and exceed the 1.4 trillion cubic yards that India has at its disposal.

Yet the most telling paradox of the city's water crisis is that New Delhi is not entirely lacking in water. The problem is distribution, hampered by a feeble infrastructure and a lack of resources, concedes Arun Mathur, chief executive of the Jal Board.

The Jal Board estimates that consumers pay no more than 40 percent of the actual cost of water. Raising the rates is unrealistic for now, as Mr. Mathur well knows. "It would be easier to ask people to pay up more if we can make water abundantly available," he said. A proposal to privatize water supply in some neighborhoods met with stiff opposition last year and was dropped.

So the city's pipe network remains a punctured mess. That means, like most everything else in this country, some people have more than enough, and others too little.

The slums built higgledy-piggledy behind Mrs. Prasher's neighborhood have no public pipes at all. The Jal Board sends tankers instead. The women here waste their days waiting for water, and its arrival sets off desperate wrestling in the streets.

Kamal Krishnan quit her job for the sake of securing her share. Five days a week, she would clean offices in the next neighborhood. Five nights a week, she would go home to find no water at home. The buckets would stand empty. Finally, her husband ordered her to quit. And wait.

"I want to work, but I can't," she said glumly. "I go mad waiting for water."

Elsewhere, in the central city, where the nation's top politicians have their official homes, the average daily water supply is three times what finally arrives even in Mrs. Prasher's neighborhood.

Mrs. Prasher rations her water day to day as if New Delhi were a desert. She uses the leftover water from the dog bowl to water the plants. She recycles soapy water from the laundry to mop the balcony.

And even when she gets it, the quality is another question altogether.

Her well water has turned salty as it has receded over the years. The water from the private tanker is mucky-brown. Still, Mrs. Prasher says, she can hardly afford to reject it. "Beggars can't be choosers," she said. "It's water."