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CHENNAI, INDIA

Five years ago, the Mylapore temple tank – a man-made pond located at the ancient Kapaleeswarar Temple in the south Indian city of Chennai (formerly Madras) – was little more than a vast, dry bed of cracked clay. Neighborhood boys traipsed down the symmetrical steps to the rectangular reservoir, the famed venue of religious “float” festivals, to play their evening game of cricket.

Today, the replenished tank teems with fish.

Water scarcity plagues this thirsty metropolis, home to 7.6 million people and an international hub for software development and business-processing operations.

Chennai’s efforts to tackle its water shortage bears watching. By 2030, about 60 percent of the world’s population is expected to be living in similar large metro areas with limited natural resources.

The renovated temple tank with its greenish water offers reassuring evidence that efforts to harvest rainwater here – a pragmatic step to fight water shortage – have begun to yield results.

Geography does not favor Chennai: No major river flows through this semi-arid city. But the city averages 48 inches of annual rainfall, six times more than Phoenix. Historically, importing water from neighboring states has been fraught with political tensions.

Wanting to come up with their own solutions, Chennai residents started digging bore wells deep into the earth, right in their backyards even as the surface water bodies – wells, ponds, and springs – dried up during years of drought.

But when groundwater is the primary water source, the challenge of replenishing the aquifer remains. Otherwise, well water could turn brackish or the well run dry. The water table has a chance of staying healthy if rainwater does not escape into the adjoining sea, but paved roads, concrete pathways, and storm drains make such runoff inevitable.

In September 2003, a government ordinance required Chennai’s buildings to capture rainwater.

Rainwater, which collects in driveways and rooftops of buildings, is now channeled through filtration pits and funneled into existing wells and tanks. In certain cases, it is allowed to percolate into the earth to replenish the aquifer via a network of pipes.

At Akash Ganga, a model home run



JAYBEE

LIQUID GOLD: A view of the Mylapore temple tank designed to catch rainwater in drought-afflicted Chennai, India. The rainwater will be used to replenish area groundwater.

– it can be withdrawn during lean, drought years.”

The aesthetically pleasing temple tank also serves a similar purpose and helps replenish groundwater in that neighborhood.

Even when rains are plentiful in Chennai, the demand for drinking water is high. Those with money turn to private suppliers, who bring in tankers of well water from the outskirts of the city. With all this rampant water-mining, the importance of replenishing the groundwater cannot be overemphasized, Raghavan says.

The Indian city of Bangalore has taken a leaf out of Chennai’s book. “Harvesting rainwater, once an alternate source of water, is fast becoming mainstream,” says Viswanath Srikantiah, founder of Bangalore’s Rainwater Club.

Though rainwater harvesting has come back into vogue, the water woes of India’s megacities will not vanish. Consumption patterns must change if water is to remain a renewable resource.

“When we had abundant supply of water, we used it a certain way. Now supply is less, we have to learn to live accordingly,” Professor Janakarajan says.

A saying in Tamil, Chennai’s local language, admonishes wastrels for spending money like water. Now, residents here may need to learn to spend water like money instead.

An answer in the rain

A thirsty Indian metropolis has devised ways to capture and reuse rainwater to help solve its shortage.

by the Chennai Rain Center, visitors can see several rain-harvesting techniques in use. (The center’s symbol is an upturned umbrella.) Director Sekhar Raghavan educates visitors on ways to recharge groundwater.

“Capturing rainwater where it falls is a straightforward option – environmentally sustainable and economically viable,” says Prof. S. Janakarajan of the Madras Institute of Developmental Studies in Chennai. Engineering marvels such as desalination plants or huge dams have not given permanent solutions to the water problem, he says, because the real answer is simpler. No significant environmental costs accompany this water recycling technique, he points out.

But despite the city ordinance, the full potential of collecting rainwater is yet to be tapped. “In many households it has been a half-hearted effort, and even less has been done for upkeep,” says Vincent D’Souza, editor of the Mylapore Times, an English-language newspaper here.

Over the past three decades, rainfall in the tropics – where nearly two-thirds of the earth’s rain falls – has increased by 5 percent, according to a study published last year in the American Meteorological Society’s Journal of Climate.

If the trend continues, there will be more rainwater for tropical cities like Chennai to harvest.

But unlike Chennai’s buildings, its potholed roads don’t even have a semblance of being ready for the rains.

The rainwater that stagnates on roads or journeys seaward through storm drains after downpours needs to be diverted into strategically located recharge pits, Dr. Raghavan says. “Recharging groundwater is like putting money in the bank

The temple ‘lakes’ of South India

HARVESTING RAINWATER is an age-old practice in India. Traditionally, it has meant storing water in tanks or reservoirs – known as *erys* in Tamil, the language of southeastern India.

“These tanks were marvelous examples of indigenous engineering skills and ingenuity,” says T.M. Mukundan, author of “The Ery Systems of South India.”

The soil type and topography of the site would dictate the layout of each *ery*. The reservoirs recharged the groundwater, and provided flood control during periods of heavy rainfall. Since the *erys* were interconnected, the overflow from one *ery* automatically drained into another.

During British rule of India (1858-1947), many of the *ery* systems fell into disuse and silted up as centralized water supplies took their place.

“Many of these *erys* have disappeared because of encroachment – due to urbanization or other reasons,” says Prof. S. Janakarajan of the Madras Institute of Development Studies. But the remaining agricultural tanks, about 2,500 of them, can be restored, he says, and their surplus water transferred to thirsty cities.

Governments should declare that the tanks and the areas around them are ecologically sensitive areas and penalize encroachers, as the first step in protecting these water resources, he says.

In southern India, many temple tanks once served as public spaces where the community would gather. The city of Chennai alone has 39 temple tanks: The Kapaleeswarar temple tank in its Mylapore district is one of the most prominent.

– V.V.

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