

# Preface

Water will determine if India becomes wealthy or remains poor. But the management of water is not simply about building more dams or pipelines to take the water to our cities and pipelines to flush the waste from our homes. The management of water is about building the relationship of society with its water, so that we can understand the value of each raindrop and understand that unless we are prudent, indeed frugal, with our use of this precious resource, there will never be enough water for all.

Water management is then about society and its ability to create technologies to maximise the use of water and more importantly, technologies to share water with all. It is for this reason that we must re-learn the water wisdom of the past. In the late 1990s, CSE published its book *Dying Wisdom: The Rise, Fall and Potential of India's Traditional Water Harvesting Systems*, which documented the extraordinary wealth and ingenuity of its people living across different ecological systems to manage water. The systems ranged from ways of harvesting glacier water in the cold deserts to delivering water with precision over long distances through bamboo drip irrigation systems in the northeastern hills of India.

The *kundi* of the hot desert of India incorporates the simplest of technologies for powerful impact. Rain is harvested on an artificially created piece of land, which is sloped towards a well to store precious water. The water maths is equally simple; As little as 100 mm of rainwater harvested on 1 ha of land will collect 1 million litres of water in this structure. On the other hand, in the other regions of the country, people harvested floodwaters.

In other words, people had learnt to live, with the excesses of water, and with its scarcity. They all worked on the principle of rainwater harvesting in a country which gets rain for only 100 hours of the 8,760 hours in a year. They knew that all the rain of the year could come in just one cloudburst. The solution was to capture that rain and to use it to recharge groundwater reserves for the remaining year. The answer ultimately was to use the land for storing and channelising the rain – over the ground, or under. Catching water where it falls and when it falls.

This tradition of yesterday has crucial relevance in today and tomorrow's urban India. Today, our cities get their water supply from further and further away – Delhi gets Ganga water from the Tehri dam, Bangalore is building the Cauvery IV project, pumping water 100 km to the city, Chennai water will traverse 200 km from Krishna river, Hyderabad from Manjira and so on. The

point is that the urban-industrial sector's demand for water is growing by leaps and bounds. But this sector does little to augment its water resources, it does even less to conserve and minimise its use. Worse, because of the abysmal lack of sewage and waste treatment facilities, it degrades scarce water even further. Groundwater levels are declining in urban areas as people bore deeper in search of the water that municipalities cannot supply.

In this way, water scarcity grows. The real tragedy is that when it does not rain, a city cries for water; when it does rain, it cries again because of floods.

In new India, the water imperative is that cities must begin to value their rainfall endowment. This means implementing rainwater harvesting in each house and colony. But it also means relearning about the hundreds of tanks and ponds that built, indeed nourished, the city. Almost every city had a treasure of tanks, which provided it the important flood cushion and allowed it to recharge its groundwater reserves. But urban planners cannot see beyond land. So, land for water has never been valued or protected. Today, these water bodies are a shame – encroached, full of sewage, garbage or just filled up and built over. The city forgot it needed water. It forgot its own lifeline. It lost the knowledge of how to value the raindrop.

Builders and architects have simply never been taught how to hold water. They have been trained to see water as waste and to build systems to dispose it as fast as possible. Of course, given the sheer mess of urban India, even the stormwater drains (where they exist) have become conduits for sewage or are choked. A whole generation of Indians will have to be retrained to understand water once again. It is sad how quickly a society can forget its own wisdom.

It is this wisdom, this knowledge that needs to be rebuilt. Our effort in publishing this toolkit is to retrain and reskill a generation of Indians who have lost touch with nature's most precious gift – rain. My colleagues have documented experiences of individuals, communities and building associations. Most importantly, they have documented the new innovations – from the design of filters to rainwater harvesting sumps. This innovation is what society needs as it rebuilds its knowledge of living with nature. We believe this re-skilling will happen only when the community of knowledge seekers and innovators can learn from each other. Build a new science and a new art – together.

I hope that this toolkit on urban rainwater harvesting will build new experiences and new learning. Enjoy the 'magic' of making rainwater a part of your life.

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