

Reviving namma 'sponge city'

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The BBC recently listed Bengaluru as one of the 11 cities across the globe likely to run dry soon. While experts dismissed the report as being too simplistic, there is no denying that water has become a much-discussed issue in the city.

From the Cauvery verdict, private water-tanker mafia and deteriorating groundwater levels all the way to lakes on fire, the city's water woes are numerous. But what is especially concerning is the continued and conspicuous absence of sustainable water management practices. Exploring the idea of sponge cities — a fresh approach to a perennial problem — could be one way to deal with our water conundrum.

The term 'sponge city' was introduced in China in 2013 as a new way to think about flooding and drought. The concept focussed on looking at flood water not as a problem, but as an opportunity and resource to augment a city's water supply during the dry season.

Such a city is designed to passively absorb, store and purify rainwater and release it gradually when required, much like a sponge. Under the Sponge City Initiative, China is investing in water absorbent projects in 30 cities. The initiative envisions that by 2020, 80% of the country's urban areas will be able to absorb and re-use at least 70% of rainwater.

Can Bengaluru replicate this idea? The answer to this can be found all around us — in Ulsoor, Sankey and Hebbal, in lakes (living and dead) sprawling across the city. Most of the city's lakes are actually irrigation tanks built by Kempegowda in the 16th century. These were inter-linked to ensure that the excess water from one lake flowed into the next and was not wasted.

A system of rajakaluves, or storm water drains, collected rainwater from the city and directed it into the lakes. The wetlands around the lakes acted like a sponge, recharging and rejuvenating the groundwater resource. For a city with no perennial river, the lakes not only ensured the sustenance of agriculture and fishing, but also controlled flooding and allowed groundwater to recharge. The 16th century Bengaluru was in fact designed as a sponge city!

With stadiums and bus-stops replacing his lakes, Kempegowda will not be able to recognise Bengaluru today. The sheer numbers of buildings and people have consumed any semblance of similarity to the

old Bendakalooru. The effect of rampant urbanisation on the city's water system is well known. Although reversing the trend of urbanisation is impossible, Kempegowda's ideas for water management are definitely still applicable.

Rainwater harvesting

For a city such as Bengaluru, which receives close to 1,000 mm of annual rainfall, rainwater harvesting (RWH) is one of the best solutions to its water issues. An IISc study reveals that RWH alone can meet almost 73% of the city's water demands. Examples within the city indicate how RWH can make a significant difference in the water situation.

Rainbow Drive, an apartment complex in Sarjapur Road, is one. The society made RWH mandatory for all buildings within its complex. This led to various benefits: groundwater levels rose, the fluctuating yields of borewells stabilised and even defunct borewells started yielding water.

A 50 sq m roof that receives 50 mm rainfall can harvest approximately 2,500 litres of water. When this water is not conserved through RWH, it flows directly into drains as runoff. This, coupled with an inadequate drainage capacity and an injured lake system, forms the perfect formula for an urban flood during heavy rainfall. The Rainbow Drive community also showcases that RWH can check urban floods, when implemented on a neighbourhood scale.

Along with RWH, design innovations like pervious pavements can reduce the runoff rate, allowing rainwater to infiltrate and recharge groundwater. Bio-swales (vegetated shallow channels used as an alternative to regular concrete-lined drains) also help replenish groundwater by reducing the runoff rate. Additionally, planting native vegetation in swales can help increase biodiversity and habitats in urban areas.

At a time of acute global water scarcity, our city must invest in dedicated efforts to efficiently and responsibly manage the water resources. With the foundation to become a sponge city already in place, all the city has to do is ensure the revival and maintenance of this system.

Such an undertaking, along with the committed adoption of sustainable water management principles by citizens and the administration alike, can surely pave the way for a water-secure Bengaluru.

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