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# TIME FOR A ‘SPONGE CITIES’ MISSION IN INDIA

Relevant for: Environment | Topic: Disaster and disaster management

Unpredictable nature, unbridled avarice and untrammelled urbanisation are back in currency, this time, in the wake of torrential rains in the third week of October in Hyderabad. Over 50 people died. Hundreds of riverbed hutments were flushed away. Thousands of homes remain submerged two weeks after the flood. The scale of destruction has been unprecedented. This experience is not unique to the city of Hyderabad but something that cities across India have been experiencing in recent years. Barely five years ago, it was Chennai that saw a massive flood costing much damage and lives; Gurugram over the past few years comes to a complete standstill during the monsoon months, and for Mumbai, the monsoon has become synonymous with flooding and enormous damages.

Almost 10 years ago, scientists from the Potsdam Institute for Climate Impact Research, Germany, built climate change adaptation tools for Hyderabad. However, the Hyderabad Metropolitan Development Authority of that time did not use it. Such tools are held in trust by many civil society organisations across the country in many of our cities. Anticipating significant increases in rainfall, they offered tools to build solutions. So what was it that really brought us down to our knees?

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Our persistence in using these cliched expressions year after year also restitutes a profoundly disabling account of the world. After all, what can one do against such trans-historic forces? Let us examine these claims closely.

The first is unprecedented rainfall. On September 21, 2016, breaking a 16-year record, Hyderabad received 16 cm of rain in a single day; in September 2017, the city witnessed a 450% increase compared to the average rainfall it receives during this month; in September 2019, the rainfall was the highest in 100 years, while in October it was in 62% in excess. The rainfall received in 2020 has been the highest for the month of October in a century. Every year, the rains bring something unprecedented with them. But our constant, unwavering attention to the rainfall levels draws our attention away from our inability to manage the city’s drainage systems. The floods of October 2020 occurred because we did not discharge the water in time. And when we did discharge the water, we did it in a sudden, uncontrolled manner. To put it bluntly, first our sluices did not open and then our bunds breached.

The second is antiquated infrastructure. Hyderabad’s century-old drainage system (developed in the 1920s) covered only a small part of the core city. In the last 20 years, the city has grown at least four times its original built-up area.

But the areas that suffered from the floods of 1908, 2001, and 2005 have not been hit by the 2020 floods. The narrative of antiquated infrastructure conceals the fact that the city has grown rapidly, and into areas where there was no drainage infrastructure to begin with. And as the city grew beyond its original limits, not much was done to address the absence of adequate drainage systems.

Government pronouncements, media representations and public protests have all focused repeatedly on factors which by their very description fall outside our capacity to influence. So what is to be done? The manner in which we talk about recurring floods in the city often reduces the problem to simple dichotomies of public versus private property and individual conduct

versus faceless governmental action. This means that we neglect the issues of incremental land use change, particularly of those commons which provide us with necessary ecological support — wetlands. This framing also disavows the role of local communities in managing local ecosystems — people with traditional rights for fishing and farming. This is a lesson that has been learnt by others around the world. We need to start paying attention to the management of our wetlands by involving local communities. The risk is going to increase year after year with changing rainfall patterns and a problem of urban terrain which is incapable of absorbing, holding and discharging water.

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Urban floods of this scale cannot be contained by the municipal authorities alone. Nor can they be dealt with by the State government. They cannot be managed without concerted and focused investments of energy and resources. Such investments can only be done in a mission mode organisation with active participation of civil society organisations at the metropolitan scale. In Hyderabad, this can be done by the Hyderabad Metropolitan Development Authority, but all metropolitan areas have similar organisations with constitutional mandates via the metropolitan planning committee. So what should the mission objectives be?

We need a mission that mitigates flood risk and provides a pathway to water security. The most promising idea across the world at this time appears to be the idea of “sponge cities”. The idea of a sponge city is to make cities more permeable so as to hold and use the water which falls upon it. Sponge cities absorb the rain water, which is then naturally filtered by the soil and allowed to reach urban aquifers. This allows for the extraction of water from the ground through urban or peri-urban wells. This water can be treated easily and used for city water supply. In built form, this implies contiguous open green spaces, interconnected waterways, and channels and ponds across neighbourhoods that can naturally detain and filter water. It implies support for urban ecosystems, bio-diversity and newer cultural and recreational opportunities, These can all be delivered effectively through an urban mission along the lines of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), National Heritage City Development and Augmentation Yojana (HRIDAY) and Smart Cities Mission. On a top priority, such a mission should address the following.

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The first subject is wetland policy. In most of our lakes, the shallow ends, which often lie beyond the full tank level, have disappeared. These shallow ends are best characterised as wetlands; sometimes owned by private individuals, other times existing as ecological commons. Regardless of ownership, land use on even this small scale needs to be regulated by development control.

Watershed management and emergency drainage plan is next. This should be clearly enunciated in policy and law. Urban watersheds are micro ecological drainage systems, shaped by contours of terrain.

Detailed documentation of these must be held by agencies which are not bound by municipal jurisdictions; instead, we need to consider natural boundaries such as watersheds instead of governance boundaries like electoral wards for shaping a drainage plan. The Metropolitan Development Authorities, National Disaster Management Authority, State revenue and irrigation departments along with municipal corporations should be involved in such work together.

Also read | How a city can tackle floods

Ban against terrain alteration is third. Lasting irreversible damage has been done to the city by builders, property owners, and public agencies by flattening terrain and altering drainage routes.

Without doubt, terrain alteration needs to be strictly regulated and a ban on any further alteration of terrain needs to be introduced. Our cities are becoming increasingly impervious to water, not just because of increasing built up but also because of the nature of materials used (hard, non-porous construction material that makes the soil impervious). To improve the city's capacity to absorb water, new porous materials and technologies must be encouraged or mandated across scales. Examples of these technologies are bioswales and retention systems, permeable material for roads and pavement, drainage systems which allow storm water to trickle into the ground, green roofs and harvesting systems in buildings. These not only reduce run-off and the load on infrastructure, but also help keep water in the city for later use.

Acknowledging the role of different actors for the city can create a practical space to begin this work. Doing so will not just help control recurring floods but also respond to other fault lines, provide for water security, more green spaces, and will make the city resilient and sustainable. The constant search for a scapegoat to blame, while a few people try what they can, limits our capacities and only creates cycles of devastation.

We must not allow nature, human conduct, and urbanisation to be mystified and rendered as trans-historic villains. We can learn to live with nature, we can regulate human conduct through the state and we can strategically design where we build. We need to urgently rebuild our cities such that they have the sponginess to absorb and release water without causing so much misery and so much damage to the most vulnerable of our citizens, as we have seen.

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