

LOOK WHAT CHOPPING OF TREES HAS DONE: MOST OF BENGALURU SOIL CANNOT TAKE OVER 20 MM OF RAIN

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By Gururaj B R

It isn't just the poor planning and encroachments along Bengaluru's natural water drainage pathways that are flooding the city each time it rains. The city's soil is saturated and cannot absorb the amount of rain battering Bengaluru, say experts at the Karnataka State Natural Disaster Monitoring Cell (KSNDMC).

Last year, KSNDMC identified 174 low-lying areas in Bengaluru that were flood-prone (apart from the usual suspects). However, in 2017, many new areas got flooded; that too of the never-seen-before sort. While some areas got inundated as lakes breached due to heavy rainfall, others suffered due to excess run off of rain water. And this, KSNDMC experts say, happened because continuous rainfall led to the soil getting saturated, resulting in lesser percolation. Consequently, there was excess run off with rain water trying to find its way to the pathways, resulting in flooding.

"Continuous rainfall leads to saturation of soil. Water percolating space will be less and infiltration of water will become nil. Water gets stagnated in wetland. It all depends upon the area," explained Shubha Avinash, Scientist (Hydrology) at KSNDMC.

"Several areas across South Bengaluru are prone to floods during rainfall as they are located in low-lying areas and the soil type in these areas cannot even withstand 10 mm to 20 mm rainfall," she continued.

In contrast, the soil type of northern Bengaluru is able to absorb 50-60 mm of rainfall and flooding occurs only if rainfall is heavier than that.

"Flooding due to excess run off can be prevented if the water is diverted towards storm water drains (SWDs) by cleaning and de-weeding the canals leading to lakes," she added.

But why exactly is the soil unable to handle even 10 mm of the rainfall now, when Bengaluru has handled heavy rains in the past? The answer lies in the city's green cover; rather the mindless destruction of it.



Ecologist and former bureaucrat AN Yallappa Reddy explains: "Bengaluru has a unique geological formation. In just one acre of land you will get to see 30 to 40 different varieties of soil. The predominant types of soil that you come across in Bengaluru include sandy loam, red soil, red loam and alluvial sediments. These varieties along with the rock formation have always resulted in greater absorption of rain water and subsequent storage in the form of groundwater table. The abundant green cover with deep rotted trees helped increase the absorption. But over the years, mindless destruction has depleted

our green cover and minimised the scope for absorption of rain water."



Last year, the KSNDMC had conducted studies on 'early warning and preparedness measures in managing urban floods across Bengaluru city' with technology inputs. Scientists had installed around 100 GPRS-enabled telemetric rain gauge sensors and 8 GPRS-enabled telemetric weather sensors at various points of the city.

Based in the input, a total of 174 low-lying and flood prone areas were identified and mapped along with historic records. The KSNDMC developed a hydrological model for Bengaluru urban in technical collaboration with the Indian Institute of Science. This model helped predict floods in the city and implement an evacuation plan. This year's rains have been unprecedented: in just two months, 756mm rain was received in the city.

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