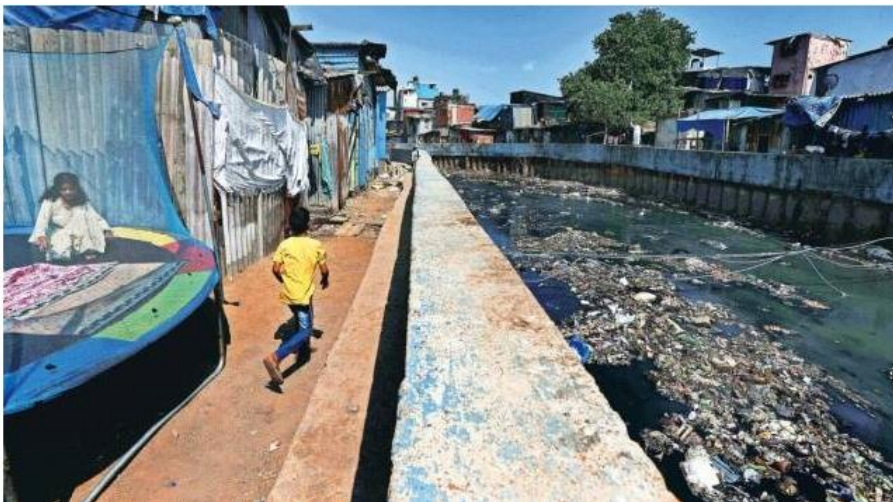


The muck stops here: As solid waste chokes Mumbai drains, is desilting enough?

Man-made causes are major factors behind flooding in the city as its drains are choked by solid waste dumped haphazardly. Despite the civic body's best efforts to desilt them, the drains get clogged in no time, leading to water-logging in low-lying areas during heavy rain.

Written by [Pratip Acharya](#)

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Banks of several drains in the city are encroached upon by slum dwellers while in other drains, waste is dumped to the extent that the water is hardly visible. Amit Chakravarty.

Surrounded by the Arabian Sea on three sides, the country's commercial capital and city of dreams is infamous for its flooding woes during monsoon season when it records torrential rains. Apart from tidal variations and mud flats, man-made causes such as enhanced silting of water bodies, choking of drains due to sewage and sullage inflows, and haphazard dumping of garbage have emerged as primary contributing factors behind water-logging in the city.

Despite the Brihanmumbai Municipal Corporation (BMC) spending whopping funds for desilting the drains every year, several parts of the city continue to get waterlogged during monsoon due to drains overflowing, even as the civic body maintains that desilting and clogging of drains are two different aspects.

To understand this deep-rooted recurring problem, The Indian Express visited multiple nullahs and their choke-points in the island city as well as in the eastern and western suburbs recently. It was found that almost all the major and minor drains that were visited were filled with solid waste, despite the BMC claiming to have achieved 100 per cent of its pre-monsoon desilting target, a week before the deadline.



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Drainage network and the need for desilting

Mumbai is equipped with a dense storm water drainage network, the origin of which dates back to the colonial era. However, this network of storm water drains (SWD) is majorly restricted to the island city, while the suburban belt has a network of open drains — most of which resemble a canal, and form a network that drains into the Arabian Sea through creeks and rivers. Mumbai's SWD system comprises a hierarchical network, with 2,000 kilometres of surface drains — most of them in the suburbs, 440 kilometres of labyrinth network of British-era underground drains in the island city and an additional 200 kilometres of major nullahs and 87 kilometres of minor nullahs that mostly run parallel to the roads and highways. In total, there is a 2,700-kilometre drainage network in Mumbai, which is approximately 700 kilometres more than the existing network of roads in the city.

The devastating deluge of July 26, 2005 in Mumbai that claimed more than 500 lives has been a constant reminder for the civic body for the upkeep of its drains. Following the catastrophe,

a fact-finding committee led by Madhav Chitale had suggested the BMC to carry out thorough desilting of the water bodies in Mumbai, throughout the year.

Desilting is the process of removing silt or sediments, including mud, sand and sludge that gets deposited in the bed of waterbodies. The removal of silt increases the depth and improves the carrying capacity of water and the speed of flow. If drains are desilted properly, then water could flow smoothly through them without any obstruction. However, lack of proper desilting affects the flow of water and results in clogging, leading to the overflowing of drains during heavy rain.

At present, the BMC earmarks a separate provision in its annual budget for desilting works. In the current financial year, the civic body has earmarked Rs 226 crore for desilting, while last year it had spent Rs 162 crore.

On May 24, the BMC said that they achieved 100 per cent target of its pre-monsoon desilting work, a week before its deadline, by removing 9.84 lakh metric tonnes (MT) of silt from the waterbodies.

The process of desilting, however, goes on till the end of monsoon. Till May 31, the civic body was able to achieve 104 per cent of its pre-monsoon desilting target in the island city, 106 per cent in the eastern suburbs and 107 per cent in the western suburbs. The civic body also claimed that 111 per cent of the minor nullahs in Mumbai has already been desilted.

Is desilting enough?

The Rafiqnagar Nullah is a major drain that flows through the densely populated areas of Ghatkopar, Chembur, Govandi and Mankhurd, in the eastern suburbs. This nullah intersects the Rafiqnagar Slums, after which it is named, and eventually flows downstream and merges into the Vashi creek, behind the Deonar landfill.

From a distance, one could easily mistake this nullah to be a narrow landfill, since the drain is filled with solid waste to the extent that the water is hardly visible. The floating waste consist of items such as plastic bottles, medical waste, polythene and wrappers, damaged furniture, biological waste, sponge, fabric, metals and construction debris.

The water was stagnant, becoming an ideal breeding spot for mosquitoes and pests. The pungent odour from the waste wafts across the slum cluster, which was under the threat of an overflowing drain during the rain. A hundred metres away, an amphibious vehicle of the BMC was seen desilting the drain.

“Even if all the waste is removed today, the drains will again get clogged by solid waste by tomorrow. Those living here treats the drain as a landfill and throw all the garbage into it,” says Faiyaz Alam Shaikh, a local resident, who has been living in Govandi for over two decades.

The slum has encroached upon the banks of the drain. While the Mumbai Municipal Corporation (MMC) Act says that no structure is to be built within six metres from a drain, in Rafiqnagar, the drain passes beneath the hutments. Slum-dwellers relieve themselves in the drain as most of the houses in the slum that were constructed over the past one decade don't have toilets.

Shaikh says that earlier the nullah was as wide as the creek and over the years, there was an influx of people settling in this part of the city. According to him, the banks of the drain got encroached as people started reclaiming the floodplains to build hutments and shanties.

Another resident Shoaib Qureshi says that there is hardly any space for the desilting vehicles to reach the drain. “The drains aren't properly desilted because the vehicles cannot reach the interior areas due to encroachments. There is hardly any space for two persons to walk side-by-side,” adds Qureshi.

A similar picture was seen in Andheri's Mogra nullah. Unlike the Govandi, Mankhurd areas, which houses the Lower Income Group (LIG), the Mogra nullah passes through the backyard of some of the posh residential societies that houses Bollywood celebrities as well as business tycoons.

This nullah originates from Andheri East and flows through Andheri West, Lokhandwala and merges into the Arabian Sea through the Versova creek.

One of the choke-points of this nullah was noticed in Link Road intersection, opposite Crystal Point Mall in Andheri west. At least a half-kilometre stretch of this nullah, with a posh gated society on one side and slums on the other, was filled with debris and solid waste.

The BMC's move to build a boundary wall to prevent encroachment of the nullah has gone in vain with encroachments even on the walls on temporary platforms made of plywood and bamboo.

The Mogra nullah, which earlier had a linear flow, now bends at multiple locations due to the rapid real-estate boom after the 1990s. Dhaval Shah, a local resident and member of the Lokhandwala-Oshiwara Citizen's Association (LOCA), says that overflow of Mogra is the primary factor behind flooding in Andheri every year, reasons of which are all man-made.

“The root-cause is unmonitored encroachment and haphazard real-estate construction. The width of the nullah has narrowed because of construction and encroachments on reclaimed floodplains. These activities are affecting the natural path of the nullah and the frequent bends restricts the smooth flow of water,” says Shah.

“Even though the BMC is desilting this drain annually, the depth of the nullah hasn’t increased, affecting its carrying capacity and leading to overflow after continuous rain,” he adds.

The Chitale Committee report had also suggested setting up of pumping stations and floodgates in Mumbai. One of the recommendations was also to construct a pumping station for the Mogra nullah. However, 18 years since the deadly floods, the Mogra pumping station is yet to see the light of the day.

The civic officials, however, attribute the delay to land acquisition problems.

Dumping vs desilting

Drains choke due to dumping of waste material, according to P Velrasu, additional municipal commissioner (Projects). It is not directly related to the BMC, yet the administration is forced to take it year after year, he says.

“The process of desilting is ongoing and it will continue throughout the monsoon and after that as well. However, citizens blame us for not being able to fully desilt the water bodies. By incomplete desilting, they refer to the problem of floating waste without understanding that this is not what desilting is about. Desilting refers to the process of silt removal from the beds of the waterbodies, during which we remove waste material as well. However, within the next two days, drains get filled with solid waste again,” Velrasu told The Indian Express

Adding that every year the BMC surpasses its pre-monsoon target of desilting, he says this year so far, the civic body has already achieved 105 per cent of its pre-monsoon target, yet the drains get choked because of the solid waste that are being dumped in the rivers and drains, thus putting the efforts of the civic body in vain.

“This year, I have asked the chief engineer from Solid Waste Management (SWM) to float a tender for appointing an agency who would collect the floating waste from the drains daily. We are also exploring the possibilities for setting up nets in some of the minor and major drains to prevent waste materials from entering into them, however, these are long term interventions and are needed to be executed by the SWM department,” he said.

Velrasu said that to minimize the flooding woes in Mumbai the BMC is converting the existing open SWD into box drains, which will be covered drains that will have better carrying capacity and will prevent garbage from entering into the surface. He also said that the BMC has created two holding ponds that has already resulted in mitigating the flooding woes by a heavy margin.

“We need to understand that Mumbai is also an island city and the quantum of rainfall that we receive is much higher than many cities combined. There might be accumulation of water in some parts but the time taken for the water to recede is being reduced now. It will reduce further as more box drains and holding tanks are being set up,” Velrasu added.

Choking waste

City-based urban planners and experts say improper waste management and haphazard garbage dumping choke city’s waterbodies.

According to urban planner Vivek Pai, a proper sewage network is the need of the hour in Mumbai. “A significant proportion of waste and sewage in Mumbai goes unchecked. There are

several bulk waste generating sources in the city, including slums, small scale industries and commercial units that don't have sewage lines.

They dump their garbage in the nullahs and creeks instead of segregating or treating them... the only way to resolve this is by creating a proper network of sewage lines in Mumbai," says Pai.

Besides setting up sewage lines, identifying the sources is also important at this point, he adds.

Milind Mhaske, CEO of Praja Foundation, which assesses city's civic infrastructure and prepares annual report, says high-rises generate more non-disposable waste than slums.

"According to our report 72% of the overall waste comes from food waste, the remaining proportion is dry waste and hazardous waste. Therefore, there needs to be an administrative will towards curbing the issues. Private stakeholders should be involved and encouraged to recycle waste material, generating revenue and putting an end to the problem," says Mhaske.

"We are all talking about the symptoms instead of identifying the disease. Once the disease — the source of the waste — is identified, we will be able to chalk out a remedial measure," he said.

Experts also said that covering the drains will not bring long term results as most of these waterbodies are filled with hazardous waste. Lack of sunlight will increase the toxicity and may lead to methane generation. Also it may lead to more encroachments.

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