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Drowned Democracy: Climate change and the creation of urban vulnerability

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Abstract:

Urban flooding in Indian cities is often framed as a natural disaster; however, this paper argues, that urban floods are the result of a crisis of governance and justice. When cities are flooded, it is not the water that rises, but the social inequality that becomes clearly visible. Indian cities are expanding rapidly, but in doing so, they are destroying important natural systems like - Wetlands, Drainage system, and Natural Flood buffers. While these changes increase the overall risk of flooding their impact is deeply unequal. Based on secondary data, policy reports, and media analysis, this paper highlights how marginalised communities including the urban poor, women, migrants and informal workers are the most affected during flood events. They not only face greater exposure but also have limited

access to relief, recovery, and institutional support from the system. Focusing on Delhi as a case study, it shows how floods are not simply a natural event but an outcome of human decision-making related to insufficient infrastructure, urban governance, and environmental misgovernance. This article argues the need to bridge the gap by situating floods not only as an ecological lens and infrastructural failures but also as tests of urban democracy and governance in India. This article hopes to contribute not only to academic debates on climate vulnerability and urban governance but also to the human struggle for dignity, justice, and equality in the face of rising waters. This article calls for rethinking of urban governance frameworks by prioritising inclusive planning, ecological sustainability, and democratic accountability.

Keywords: Urban Flooding, Social Inequality, Urban Governance, Environmental Justice, Democratic Accountability

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Introduction

Urban Floods In 21st Century India

Urban flooding has emerged as one of the most relentless and visible environmental crises in 21st century India. Cities that once symbolized modern infrastructure, economic growth, and administrative capacity are today increasingly crushed by submerged and flooded roads, overflowing drains, waterlogging, and recurrent displacement during the monsoon season *(CSE 2016)*. What was earlier considered an exceptional event has now become a seasonal certainty, deeply disrupting everyday urban life. When cities are flooded, the first thing that collapses are not infrastructure but trust of the system. Floodwaters reveal how uneven democracy is experienced in the urban cities. Though the law treats every citizen equal but in reality, only some neighbourhoods get rapid assistance - receive pumps, barricades, and emergency teams within hours, whereas others wait for days without electricity and clean drinking water. These gaps reflect that democracy may exist on paper, but its reach is uneven in urban areas. Scholars like *Amita Baviskar (2020)* and *Patrick Heller (2012)* have highlighted that the Indian city has become a centre of serious and deep contradiction where on one side reflects the democratic promise of inclusion and opportunity, and on the other side it produces new forms of inequality and exclusion. Experts increasingly argue that urban floods are not solely the outcome of heavy rainfall but the result of structural transformations in urban governance and planning. Rapid urbanisation, unregulated construction, disappearance of wetlands, and outdated drainage systems have significantly reduced cities' ability to absorb excess rainwater. For ordinary citizens, urban floods generate a profound sense of helplessness. Daily wage workers lose income, children miss school, hospitals become inaccessible, and households in low-lying areas face repeated losses of shelter and livelihood *(Tomar et al., 2021)*. Despite the regularity of such disasters, state responses remain largely reactive, focused on emergency relief rather than long-term prevention or resilience-building. Flood management policies are often fragmented across departments, lacking coordination, accountability, and participatory planning.

This article argues that urban floods cannot be understood merely as natural or climatic phenomena. They must also be analysed as social and political phenomena, shaped by planning priorities, power relations, and governance choices. Floods expose deep inequalities within cities, revealing whose lives and spaces are protected and whose are rendered disposable. The way forward lies not only in engineering solutions but in rethinking urban governance through the lens of environmental justice, democratic accountability, and climate-sensitive planning. *(Prakash, 2020)*

Urban Floods as a Pan- India Phenomenon

Urban flooding is no longer confined to a few vulnerable cities; instead, it has become a pan-India phenomenon affecting metropolitan centres across different geographical and climatic regions. Cities such as Delhi, Mumbai, Bengaluru and Chennai, each with long histories of municipal administration and urban planning now experience repeated flooding each monsoon.

Many of these cities developed extensive municipal systems during the colonial and post-colonial periods, yet their infrastructures have not entirely been upgraded to meet current climatic and demographic composition. Drainage and sewage networks in most Indian cities are decades old, designed for rainfall patterns that no longer exist. They are often clogged with silt, plastic waste, and unregulated construction debris *(Kumar et al., 2020)*. In many cities, desilting is carried out only on paper, which is just symbolic with funds allocated but work poorly executed and weakly monitored

As a result, the effective carrying capacity of drains is reduced by 30–50% or more. This means that even moderate rainfall can cause severe waterlogging and urban paralysis. Disasters are treated as isolated events, not as warnings and lessons. One of the most primary contributors to urban flooding is excessive concretisation. Rapid construction of roads, flyovers, housing complexes, and commercial hubs has replaced permeable surfaces with concrete, wiping out natural filtration. Wetlands, Green spaces, and urban “sponges” that once absorbed rainwater have gradually disappeared. As a result, even moderate and little rainfall leads to surface runoff, overloading drainage channels and causing waterlogging in the area. The government, traditional urban planning agency, and municipality consistently prioritises Grey Infrastructure like *(Dams and pipelines)* over Green Infrastructure *(parks, wetlands)*. There is an extreme focus on "Hard Engineered” concrete such as sea walls or storm-water drains. However, in cities like Delhi, these systems often fail because they are designed for historical average rainfall, not the current "cloudburst" patterns which are now common due to climate change.

Due to the lack of maintenance, urban populations are highly vulnerable to climate change and flooding. Even where infrastructure exists, poor maintenance creates vulnerability. This is an institutional failure where the "making" of risk happens during the dry season through neglect, only to manifest during the monsoon. The poor maintenance occurs due to extreme corruption, mismanagement of resources, and weak governance. The infrastructure is not regularly checked, inspected and repaired.

On a global scale, increased greenhouse gas emissions have contributed to global warming, which in turn drives climate change and extreme weather events like flooding. In the Indian context, this has translated into short-duration, high-intensity rainfall episodes. When such rainfall meets cities that are dominated by impermeable surfaces like grey infrastructure flooding becomes inevitable. Therefore, Urban floods represent the intersection of global climate patterns and local governance failures.

Importantly, these floods reveal how municipalisation is functioning in Indian cities. Fragmented authority, poor maintenance of drainage systems, lack of data-driven planning, and minimal citizen participation have created cities that are environmentally fragile and socially unequal. Urban flooding, therefore, is less about how many people live in a city and more about how cities are planned, governed, and maintained.

Delhi As a Case Study Geography, Governance, And Urban Inequality

This article studies urban flooding through a focused case study of Delhi, a city whose geography historically enabled natural water regulation but whose contemporary urban growth and encroachment has undermined it *(Anand et al.,2025).* Delhi is shaped by two defining geographical features: On one side is the Aravalli hills and the Yamuna River on the other. Once, these features guided the city's natural drainage and groundwater percolation patterns. The Aravalli range, with its sloping gradient, historically allowed rainwater to flow downward and gradually enter the Yamuna. This natural system facilitated groundwater recharge and regulated surface runoff. However, large-scale encroachment and concretisation in recent decades have disrupted this ecological balance. *(Kumar et al.,2019).* Rainwater flowing from the Aravalli's now hits impermeable surfaces, preventing its smooth passage to the river therefore resulting in waterlogging across large parts of the city and ultimately leading to floods. Delhi once served by the network of sixteen major stormwater drains designed to discharge surplus rainwater into the Yamuna. But, over time, these drains have deteriorated into heavily contaminated nalas, clogged with plastic waste, sewage, solid waste, and construction debris. Rather than mitigating floods, these nalas often exacerbate them by obstructing water flow and spilling foul, stagnant water into doorsteps of residential areas.

In Delhi, urban flooding is deeply political. Areas such as the Parliament complex and Lutyens' Delhi rarely experience severe flooding, indicating the concentration of political power, infrastructure investment, and administrative attention. Whereas, Informal settlements, low-lying regions, and parts of East and North-East Delhi experience recurrent flash flood. These areas often lack formal drainage systems, solid waste management, and legal recognition, making residents unevenly vulnerable to floods.

Interestingly, even elite localities and spots such as Defence Colony, and Civil Lines, one of Delhi's most affluent residential enclaves, are increasingly witnessing waterlogging and noxious smells from overflowing drains. This illustrates that while class and power shape vulnerability, ecological degradation eventually transcends social boundaries, affecting the city as a whole.

Natural drainage channels such as the Najafgarh Nala and Barapullah, which were once crucial for modulating water flow, have been severely degraded due to encroachment and pollution. Their deterioration symbolizes the broader neglect of Delhi's ecological infrastructure in favour of short-term urban development. They prioritize tangible results over blue-green infrastructure. The Najafgarh nala, which should be a life-giving artery for the city's runoff, is instead a stagnant sludge of plastic and silt *(Tauheeb Mehtab et al.,2023).* And when these are kept clear of debris and encroachment, it gently takes away the excess runoff and thus prevents floods. When it "backs up," it doesn't care if you live in a mansion in Dwarka or a slum in Kanhaiya Nagar; the water finds its way into every crack. Another spot is Wazirabad which is home to one of Delhi's largest Water Treatment Plants (WTPs). In the 2023 and 2025 floods, the very facility meant to provide clean water was submerged by the river, forcing a shutdown that left half the capital from Civil Lines to Karol Bagh with dry taps. While the river was everywhere, there wasn't a drop to drink and as a result leads to crises for millions of residents. Just a stone's throw away, in the Wazirabad relief camps, the refugees who came searching a better life find themselves displaced every single monsoon, their makeshift shelters reduced to mud by the same water that paralyzes the city's elite.

Today, Intense cloudbursts dumping over 100 mm of rain in a single hour are no longer rare. But the drains are still built to handle less than half that amount. They are overwhelmed within a minute. When this happens, the city comes to a standstill. Roads are submerged within a minute, Vehicles break down, Economic activity halts, Emergency services are delayed. What should be an exceptional crisis becomes an almost routine feature of urban life during monsoon. A huge portion of India's urban population works in the informal economy (e.g., street vendors in Delhi). For them, an "environmental" event like a flood or heatwave is an economic crisis as they cannot stay indoors to "adapt" without losing their daily meal, they are even tolerated and evicted simultaneously *(Roy,2009).*

The marginalized communities (Dalits and Adivasis) are often spatially segregated into the most hazardous "low-lying" areas or near toxic waste sites, meaning climate hazards don't just hit "the city" they hit the most socially vulnerable first and hardest. In Mumbai, large portions of urban poor (nearly 42%) live in informal settlements located in the most hazardous zones like nullahs(drains), riverbeds and coastal creeks.

The flood is a financial trap as well as "Poverty trap" where a wealthy and elite resident in South India might deal with a stalled car, but a slum dweller in Yamuna pushta loses their entire home, means of daily wages, and legal documents. For the poor a flood is not just an inconvenience, it is a poverty trap that takes years to recover from. And this has been reflected while doing surveys with the local slums near Yamuna Pushta, where they've shared the same problems, they experience during floods. *Partha Chatterjee's* concept of "the politics of the governed" (2004) becomes relevant here, which shows how the urban marginalized are included in governance only as subjects of welfare, not as citizens with voice and agency. They are not acknowledged in the decision making and policy discussion that affects their lives.

Interrogating The Solutions - Are Current Policies Enough?

Floods are not merely natural forces but results of human decision-making related to insufficient infrastructure, ineffective policies, environmental misgovernance and urban Development. The filling of wetlands for real estate and commercial projects, exclusion of marginalized communities in urban planning, and the prioritization of capital over ecology all contribute to the making of flood-prone cities. *Amita Baviskar (2020)* calls this as "uncivil city, "where modernity of city and exclusion of the poor goes hand in hand.

Government responses to urban flooding in Delhi frequently emphasize technological and infrastructural solutions, such as installing wastewater treatment plants, improving drainage systems, and cleaning the Yamuna River. While these measures are necessary, this article critically interrogates whether they are sufficient to tackle the root structural causes of flooding. Technocratic solutions often treat floods as isolated engineering problems rather than symptoms of deeper governance and institutional failure *(Madan et al.,2015). While* wastewater treatment plants may improve water quality, however, their impact on restoring floodplains or enhancing groundwater recharge remains minimal. Likewise, pre- monsoon drain cleaning exercises are often temporary and reactive in nature, failing to address deeper issues such as waste management, land use planning, and institutional coordination.

Moreover, these solutions often exclude affected communities in the planning process or decision-making. Climate governance without public participation may lead to continuing the same inequalities that make certain populations vulnerable in the first place. Without integrating ecological restoration, democratic accountability, urban flood management and social justice, it remains incomplete. What demands attention is not whether the state is acting, but how it is acting and for whom. Solutions that neglect the social and political dimensions of flooding are unlikely to produce lasting resilience.

Voices, And Vulnerability: Shaping the Future of Urban Democracy

Urban floods have become a defining feature of India's contemporary urban experience. For many residents, especially those living in marginalized neighbourhoods, floods symbolize state neglect, environmental injustice, and a lack of political voice. People repeatedly express frustration at temporary relief measures that fail to prevent recurring losses. The people who benefit from illegal constructions like developers, elites, and politicians, hardly suffer the consequences. Otherwise, the worst and greatest impacts are felt by ordinary citizens, especially the urban poor and marginalized. Informal settlements are often located along drains, low lying areas, and riverbanks because these are the only spaces left unclaimed by formal development. When floods strike, these homes are the first to be submerged. They only bear the brunt of flooding. Families lose their belongings, livelihoods, and sometimes their lives. After the disaster, despite being the victim, they are blamed for "encroachment," and ignoring the role of weak institutions and poor urban planning and strategy. Thus, weak institutions not only cause floods, but also reproduce a cycle of inequality, turning natural events into a crisis of social injustices.

Daily-wage workers, sanitation workers, street vendors, construction labourers, and domestic workers depend on everyday earnings. A single week of flooding can push a family into long-term debt and poverty. Women experience unique distress and hardships from managing children, cooking in flooded homes, protecting menstrual hygiene, to seeking privacy in highly crowded shelters. Migrants' labourers often lose documents like identity proofs and job contracts making resettlement even complex. Children fall ill quickly due to contaminated and stagnant water leading to disease like cholera and dengue and many more. Poor colonies are blamed for encroaching on drains and justifying it as illegal encroachment and even demolished in the name of cleaning the drains whereas the wealthy and large developers who encroach on wetlands for malls, or tech parks, face no penalties and no demolitions. Therefore, this reflects the 'Selective Demolition'. Evictions after floods are justified as 'disaster prevention, 'but alternative housing is rarely provided. Relief efforts focus on formal areas which are visible, pushing the poor into further invisibility. Thus, floods do not create inequality, they disclose and deepen it. It is also highlighted in the recent news reports that "Yamuna rising: Experts call for better urban planning, governance" Experts argue that Delhi's flood vulnerability is not just about rain, but about governance: "drainage is a governance challenge and not an engineering problem." The article looked towards the need for "green sponges" designed for absorbing, storing, filtering and gradually releasing rainwater to prevent flood, natural water retention, and a single accountable authority for drains and flood control. According to another news report at least 2,300 people die in the city every year due to extreme Heavy rains in Mumbai. This shows how a huge majority

of monsoon related death occurs among informal workers, slum dwellers, poor and marginalized, highlighting the unequal human cost of cities flood vulnerability. *(Ie (2015), Ht (2025)*

This article concludes that urban flooding represents a deeper crisis of urban democracy. It exposes how governance systems prioritize certain spaces and populations at the expense of others. Addressing floods requires more than infrastructure; it demands a reorientation of urban planning towards ecological care, inclusive governance, and climate justice. Unless cities recognize vulnerability as a political concern and acknowledge citizens as stakeholders rather than obstacles, Indian cities will continue to drown not only in water, but in democratic failure.

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