

# Critically Endangered Wetlands

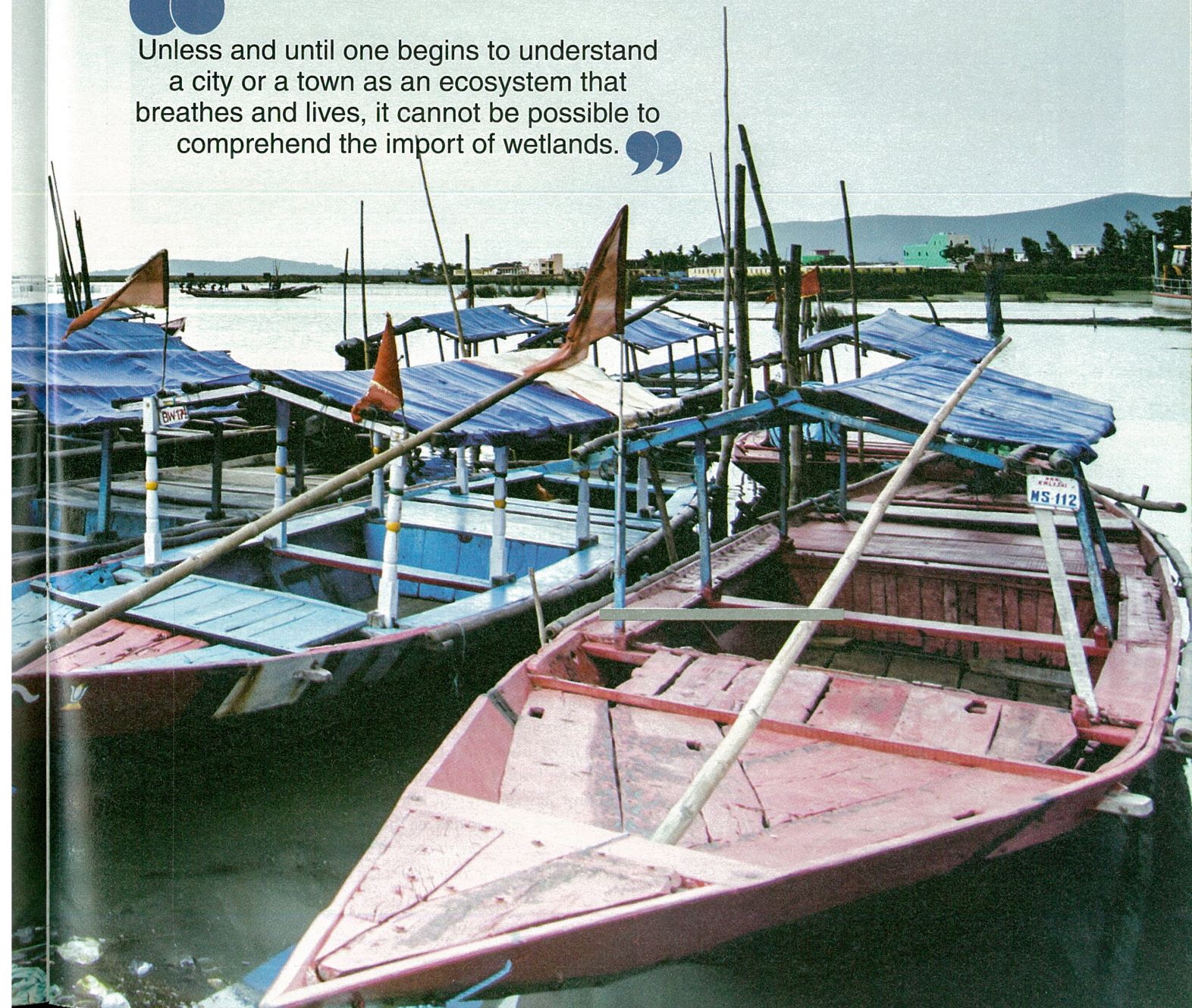
Environmental Impacts of Urban Growth



Natural disasters are often accentuated by man-made factors. Wetlands play a crucial role in flood control and recent examples of floods in Mumbai, Chennai, Bengaluru, and Kashmir bear testimony to the urgent need of understanding the importance of urban wetlands. The most crucial role that wetlands play is that of flood control since they act as natural sponges that soak in excess water. When wetlands are throttled, they lose the roles they play in nature. Wetlands also supply water and serve as natural rainwater harvesting systems. Moreover, it is estimated that freshwater wetlands hold more than 40 per cent of the entire world's species and 12 per cent of all animal species. Wetlands also play a significant role in providing livelihoods to the fishing communities in India. At a time, when Chennai is still reeling under the effects of torrential rains and floods, **Subir Ghosh** discusses and analyses the effects of urbanization in endangering the ecologically-sensitive urban wetlands.



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**T**here are natural disasters and there are those that are man-made. The ones usually most catastrophic are natural disasters that are compounded and accentuated by man-made factors.

When Mumbai was ravaged by just 900 mm of rain over a 24-hour period leading to almost 450 fatal casualties, one might have thought that planners and policymakers would have sat upright and taken note of the ecological degradation in their own backyards: that of the wetlands, both within the city limits as well as those on the fringes.

Recent experience suggests otherwise. The Srinagar floods of September 2014 and the Chennai deluge of December 2015, taken together with the frothing over of two big lakes in Bengaluru last year, are enough indicators of the fact that neither short-sighted planners nor environmentally-blind policymakers understand the importance of urban wetlands. There is something grossly wrong with a relevant mindset that, for instance, perceives ecologically-sensitive grasslands as wasteland and urban wetlands as pools in urgent need of being filled up.

Urbanization is inevitable, though not entirely desirable. But the fallout of urbanization, especially when unplanned and done callously, can be catastrophic. And that is neither desirable, nor should

be seen as inevitable. Just like communal riots masterminded and orchestrated by devious minds take their biggest toll on ordinary people, so do instances of environmental corruption and malgovernance. The flood victims of Srinagar and Chennai bear testimony to such an allegation.

Up north, the Srinagar floods were waiting to happen. More than half the water bodies in and around Srinagar have disappeared in the past century; between 1911 and 2014, this disappearance was estimated to be over 9,000 ha. The iconic Dal Lake that was spread over 2,547 ha in 1971 had been reduced to barely 1,620 ha in 2008. The drainage system that connected this lake to other water bodies is clogged and the lakes and swamps that once drew in excess water during the rains failed to do so in 2014. Most had either disappeared/degraded or were simply cut off.

Down south, Chennai had been asking for trouble too. For a city that once included over 650 water bodies, it now has only a fraction of that number. Like most urban hubs, Chennai traditionally depended on water bodies, canals, and rivers to drain water run-off during rains. During the last flood, however, the choked ecosystem failed to deliver. The Pallikarandai marshland, which was once spread over 50 sq. km and served as a natural reservoir for a 250 sq. km catchment area,

is today 4.3 sq. km in size and the natural drainage system of the city is clogged beyond repair.

There are countless other cities and towns spread across India that may unfortunately have the same story to tell in the days to come. Each is a disaster in the making, and most have one thing in common: they have ravenously, and insatiably so, gobbled up their own wetlands.

## Urban Wetlands and Cities

No, this is not a litany of woes about urban floods, but about the need to conserve wetlands. Urban floods can be caused by a number of contributing factors, with the degradation of wetlands being one of them. What is imperative is not to look at urban sprawls as mere concrete jungles, but as ecosystems, degraded albeit. Unless and until one begins to understand a city or a town as an ecosystem that breathes and lives, it cannot be possible to comprehend the import of wetlands.

### World Wetlands Day

World Wetland Day marks the date of the signing of the Convention on Wetlands, called the Ramsar Convention, on February 2, 1971, in the Iranian city of Ramsar that lies on the shores of the Caspian Sea. 'Wetlands for our Future: Sustainable Livelihoods' is the theme for World Wetlands Day in 2016.

The most crucial role that wetlands play is obviously that of flood control. From lakes to peatlands to marshes to swamps alongside rivers, all these act as natural sponges that soak in excess water. When these wetlands disappear or are throttled, they lose the roles they play in nature.

This argument is well summed by ecologist TV Ramachandra of the Energy and Wetlands Research Group, Centre for Ecological Sciences at the Indian Institute of Science. He looked at the case of Bengaluru, and remarked in a paper (Conservation of Wetlands to Mitigate Urban Floods): "The study reveals that frequent flooding (since 2000, even during normal rainfall) in Bengaluru is a consequence of the increase in impervious area with high-density urban development in the catchment and loss of wetlands and vegetation. This, coupled with lack of drainage upgrade, works with the changes in enhanced run-offs, the encroachment and filling in the floodplain on the waterways, obstruction by the sewer pipes

and manholes and relevant structures, deposits of building materials and solid wastes with subsequent blockage of the system, and also flow restrictions from under capacity road crossings (bridge and culverts). The lack of planning and enforcement has resulted in significant narrowing of the waterways and filling in of the floodplain by illegal developments." What he said of Bengaluru could well be true of many other Indian cities.

### India's Wetland Extent

- A total of 201,503 wetlands were identified and mapped on 1:50,000 scale.
- 555,557 wetlands (with area less than 2.25 ha, which is smaller than minimum measurable unit) were identified as point features.
- India has about 757.06 thousand wetlands with a total wetland area of 15.3 million ha, accounting for nearly 4.7 per cent of the total geographical area of the country.
- The area under inland wetlands accounts for 69 per cent, coastal wetlands 27 per cent, and other wetlands, (less than 2.25 ha) 4 per cent.
- In terms of average area under each type of wetland, natural coastal wetlands have the largest area.
- In terms of the proportion of geographical area, Gujarat has the highest (17.5 per cent) and Mizoram has the lowest (0.66 per cent) area under wetlands.
- Andhra Pradesh, Karnataka, and Tamil Nadu have the largest concentration of irrigation tanks at 0.12 million and account for nearly 60 per cent of India's tank-irrigated area.

Source: National Wetland Atlas 2011, Space Applications Centre (SAC)





The second role that wetlands serve is that of water supply. At a time when most urban centres suffer from water shortages that range from marginal to acute, it should be a no-brainer to look at wetlands. These serve as natural rainwater harvesting systems: they take in the water during the rains and return it to you for drinking purposes. How can anyone possibly fail to understand this?

New York City understood this well in the mid-1990s. The city's Department of Environmental Protection awarded a contract to the US Fish and Wildlife Service (USFWS) to map the wetlands and deep water habitats in what is called the New York City Watershed, a 2,000 square-mile area located both East and West of the Hudson river. This watershed supplies high quality drinking water to almost half the population of New York state, including eight million residents of New York



city and one million residents of four counties, besides millions of commuters and tourists.

Wetlands also provide livelihoods to fishing communities, which in turn should be seen as sources of food supply. Wetlands play a significant role in fish production in India, with the majority coming from inland water bodies (61 per cent of total production), i.e., rivers, canals, reservoirs, tanks, ponds, and lakes. Moreover, it is estimated that freshwater wetlands hold more than 40 per cent of the entire world's species and 12 per cent of all animal species. These also are a winter home to migratory birds. In an urban nightmare like Delhi alone, more than 450 species of birds are sighted every year—it has the largest number of birds that can be seen in a capital city after Nairobi. Simply put, wetlands are habitats—for species as well as communities. They need to be seen as so.

## Wetlands: Source of Sustainable Livelihoods

- Almost a billion households in Asia, Africa, and the Americas depend on rice growing and processing for their main livelihoods.
- More than 660 million people rely on fishing and aquaculture for a living; most commercial fish breed or spawn in coastal wetlands, and 40 per cent of all fish consumed are raised in aquaculture.
- An estimated half of the international tourists seek relaxation in wetland areas, especially coastal zones.
- The travel and tourism sectors support 266 million jobs and account for 8.9 per cent of the world's employment.
- Vast networks deliver fresh water and treat wastewater around the world, while employing significant workforces. For example, Bangkok's Metropolitan Waterworks Authority employs over 5,300 staff.

Source: Ramsar.org

## How Did it Come to This?

Before one jumps to the seemingly-inevitable conclusion about the need for tighter laws and stringent regulations, it would be prudent to see what's wrong with the existing system. The legal framework for wetlands is provided by the Wetlands (Conservation and Management) Rules, 2010; there



is no separate Act to save wetlands from devastation. In fact, wetlands made it into the policy discourse much later. When the National Wetland Conservation Programme was launched in 1987, it restricted itself to the notified Ramsar wetlands. Over 20 years later, in 2008, the Ministry of Environment, Forests and Climate Change, Government of India, issued a Draft Regulatory Framework for Wetlands Conservation under the provisions of the Environment (Protection) Act (EPA), 1986. These morphed into Wetlands (Conservation and Management) Rules, 2010.

## Principles for the Planning and Management of Urban and Peri-urban Wetlands

- **Policy principle 1:** Wetlands and the range of services they provide are essential elements of the supporting infrastructure of urban and peri-urban settlements.
- **Policy principle 2:** The wise use of wetlands contributes to socially and environmentally sustainable urban and peri-urban areas.
- **Policy principle 3:** Any further degradation or loss of wetlands as a result of urban development or management should be avoided and where it is not possible, impacts should be mitigated and any residual effect appropriately compensated for by offsets, such as wetland restoration.

- **Policy principle 4:** The full participation of indigenous and local communities, municipalities, and government sectors, involved in urban and peri-urban spatial planning and wetland management decision making is vital to creating sustainable urban and peri-urban settlements.
- **Policy principle 5:** The threat of natural calamities and human-made disasters and their impacts on urban populations and wetlands requires government priority and convergent actions to enhance resilience to disasters.

Source: Resolution XI.11, Ramsar Convention, February 2012





The rules were flawed from the beginning. For one, they did not take into account the livelihoods of communities and the adverse effect of degradation of wetland ecosystem services on poverty and vulnerability. This would seem cruel today since the theme for the 2016 World Wetlands Day is 'Wetlands for Our Future: Sustainable Livelihoods'. That's how anachronistic the situation is. The limitation also goes against the very grain of recommendation 6.3 of the 1996 Conference of the Parties which had called for active and informed participation of local and indigenous people at Ramsar listed sites and other wetlands and their catchments. The question of

delegation of responsibilities too was ignored, with 2010 Rules discarding the suggestions about district-level regulatory authorities and appraisal committees that had been made in the Draft Regulatory Framework of 2008 as well as the Draft Rules of 2009. Excluding rural bodies had been a blunder.

The biggest drawback, however, was that the rules sought to regulate only select wetlands: (i) Wetlands selected under Ramsar Convention; (ii) Wetlands in ecologically sensitive and important areas; (iii) Wetlands recognized as UNESCO World Heritage sites; (iv) High altitude wetlands (at or above an elevation of 2,500 m with an area equal to or greater than 5 ha); (v) Wetland complexes below an elevation of 2,500 m with an area equal to or greater than 500 ha; and (vi) Any other wetland identified by the Central Wetlands Regulatory Authority (CWRA). Therefore, in trying to see only the big wetlands, the Ministry lost sight of the bigger picture. This also opened the floodgates for urbanization to take over, and the floods to seep in later.

There is little doubt that urgent measures are required—at the policy, legal, and implementation levels—to first arrest the decline, and then work for the restoration of wetlands.

There would be little point crying after the wetlands are long gone. ■

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