

# Unsustainable Water Management in India



Inflowing streams to Chilika are heavily polluted with nutrients from the catchment runoff / WISA Photo Library

**Prof. Asit K. Biswas**

Distinguished Visiting Professor,  
University of Glasgow, UK, and  
Director, Water Management  
International Pte Ltd of Singapore

**INTRODUCTION**

India's water management has been on an unsustainable path for centuries. Its record on wetlands management has been even worse.

In the 16<sup>th</sup> century, the celebrated Mughal Emperor, Akbar, decided to build a new capital in the dry northern plains which was named Fatehpur Sikri (City of Victory). India's best architects and artisans were brought to build this new capital. When the capital was constructed and Akbar moved into it, it had become a remarkable city. In 1589, Robert Fitch, one of the earliest English travellers to India, wrote that Agra and Fatehpur Sikri *"were two great cities, either of them much greater than London and more populous."* The fact that within a very few years of the city's establishment it had overtaken an old established city like London, speaks volumes of the quality of the Indian architects and artisans some 450 years ago.

However, the history of the new capital was not so auspicious. Akbar used it only for 13 years. He then abandoned it ignominiously and returned to Delhi, never to return to Fatehpur Sikri again.

The primary reason for Akbar's humiliating retreat was that during these 13 years, the new capital used up all its readily available water sources. It was constructed southeast of an artificial lake. When this artificial lake dried up, along with the groundwater that was sustaining it, the city simply could not survive without reliable sources of water supply which was not available.

In retrospect, Fatehpur Sikri is a magnificent monument to India's poor water planning. This water-scarce abandoned city is now considered to be a World Heritage Site of UNESCO.

Over the past 500 years, India's water management practices have improved slowly and at best incrementally, even though its water demands have grown exponentially. Not surprisingly, India's water situation has deteriorated steadily

with time. It is now precarious.

India is now facing a water crisis that no earlier generation ever had to face in its entire history.

**WETLANDS**

Oxford Dictionary defines wetlands as *"lands consisting of marshes or swamps; saturated land."* The Ramsar Convention on wetlands, which is an intergovernmental treaty that provides a framework for the conservation and wise use of wetlands and their resources, considers wetlands to include all lakes, rivers, aquifers, swamps, marshes, wet grasslands, peatlands, oases, estuaries, deltas, tidal flats, mangroves and human-made sites like fish ponds, rice paddles, reservoirs, artificial lakes and salt pans.

Thus, if one considers Ramsar Convention on wetlands and their management, it would encompass a very significant part of water management practices and processes as generally considered at present. Thus, water and wetlands management are closely interlinked.

Like water management, good management of wetlands can bring enormous benefits to any society. Wetlands are amongst the most productive ecosystems of the world. They provide numerous services to the people and the environment. They are an integral component of the ecology of all watersheds. The combination of shallow levels of water, high levels of many nutrients, good biodiversity and high primary productivity, mean that properly managed wetlands benefit all societies where they are located, on a long-term sustainable basis.

Among the numerous benefits of wetlands, the following are noteworthy.

- Wetlands are an excellent mechanism through which groundwater can be recharged. Currently, when groundwater levels in nearly all urban and agricultural areas of India are declining precipitously, wetlands can recharge depleting aquifers effectively. The Indo-Gangetic

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aquifer, one of the world's most important, is now the second most depleted aquifer anywhere in the globe. There is no sign the overall situation is getting better. On the contrary, the overall situation of this massive groundwater system continues to deteriorate.

- Wetlands act as a natural sponge and thus trap and store floodwater. They reduce flood intensities by storing and absorbing floodwaters and also by sharply reducing velocity of water flows. For example, China has promoted growth of sponge cities which is not only contributing to significant groundwater recharge but also in reducing flood damages. There is no similar effort in India.
- Wetlands are also an effective and low-cost measure to reduce both point and nonpoint sources of pollution. Consider the Delhi Jal Board. At present, it discharges nearly all its untreated wastewater to the Yamuna River. Wastewater is an important source of water and energy. Wastewater can be properly treated and can be used as an important source of potable water. Take the city of Windhoek, capital of Namibia. This very arid African city that has significantly less economic, technical and human resources has been treating its wastewater properly and then adding it directly to its potable water supply systems for nearly forty years. During this time, Windhoek has not had even one health-related problem due to the use of treated wastewater as a source of drinking water. If Windhoek can successfully do it for forty years, why cannot Delhi or Chennai follow Windhoek's footsteps?

At the very least Delhi Jal Board can use wastewater treated to primary and secondary levels, and then use this treated wastewater to create artificial wetlands or rejuvenate existing ones. Such a practice will

not only contribute to significant groundwater recharge but also nature will purify the wastewater further to almost tertiary levels. This would contribute to improve Delhi's water security, further improve the quality of water and also enhance the ecological benefits of creating or strengthening wetlands. This type of policy action is very seldom seen in Indian megacities.

In addition, plants of wetlands would take out heavy metals that may be present in wastewater through bioaccumulation.

- Wetlands, like coral reefs, are highly biodiverse. They provide excellent conditions for immense varieties of species of microbes, insects, amphibians, reptiles, plants, birds, fish and mammals to survive and thrive. Primary productivities of wetlands are exceedingly high.
- Wetlands play important roles in global water, carbon, nitrogen and phosphorous cycles. They are very effective in terms of nutrient recycling.
- Wetlands provide ideal conditions for breeding of wildlife. They provide a refuge for migratory birds. For example, Bharatpur Bird Sanctuary in Rajasthan, Little Rann of Kutch and coastal areas of Saurashtra, Gujarat, are sanctuaries for migratory birds from Europe every winter.
- Wetlands are important sources of food and building materials for the local people. Wetland agriculture and aquaculture production are often the main sources of food and livelihood for the people around them.
- Wetlands often have high tourism and recreational potential, including birdwatching. As India's middle-class population has increased substantially, more and more people are visiting wetlands for historic, cultural, scientific and recreational values.

## WETLANDS UNDER DURESS

There is no question India's wetlands are now under serious duress. Sadly, not only in India but also in many other countries of the world, stakeholders have often considered wetlands as "wastelands" in the past and some even do it at present. There are many reasons for this anomaly, including apathy of central and state policymakers who still do not appreciate the benefits of wetlands to the overall society. Before 2000, policy support and resources provided to manage and conserve wetlands properly left much to be desired. Even now, while appreciation of the benefits is more than what was during the pre-2000 era, wetlands are still a stepchild of most Indian state governments in terms of attention they receive from policymakers, general public and the media.

There are many reasons for the decline of wetlands not only in India but also in most countries of the world. According to a study by Wetlands International South Asia, India has lost nearly one-third of its wetlands, between 1970 and 2014. The losses are primarily due to steady population increases, unplanned and rapid urbanisation, uncontrolled pollution from domestic, industrial and agricultural sources and absence of any form of land use planning. Mumbai lost maximum wetlands during this period (71.7%), followed by Ahmedabad (57%), Bengaluru (56%), Hyderabad (55%), Delhi and National Capital Region (38%) and Pune (37%).

Wetlands now cover around 4.6% of the geographical area of India. Around half of India's largest wetlands are under threat due to increasing encroachment, concretisation of surrounding areas due to continuing urbanisation and population increase, poor land-use practices, uncontrolled fertiliser runoffs and discharges of domestic and industrial wastes, increasing water utilisation and poor water management which have meant sources of surface water and groundwater to maintain and

Keoladeo National Park, Bharatpur, a paradise of nearly 350 species of birds in the winter season / Harsh Ganapath



conserve the wetlands have steadily declined. Other factors are also making the situation progressively worse.

## FUTURE OF WETLANDS IN INDIA

Based on current trends, most regrettably, the future of wetlands in India and their conservation for future generations are not bright. This is because there are no visible signs that the future of wetlands in India would improve during the next one or two decades. The future of water management in India is already dire because of centuries of poor water management practices and processes. For wetlands management, the situation is even worse! Wetlands need be considered as an integral component of water

and land use management and overall development planning. Instead, it is considered in isolation by a few non-powerful central and state institutions.

Wetlands' conservation has never been high up in India's political agenda during the past 500 years. Even water is not high up in the national or state political agendas on a sustainable basis. Water gets high up in the political agenda only when there is a serious flood or a prolonged drought. The day the floods subside or rainfalls alleviate droughts, the politicians' interest in water simply evaporates. However, water at least gets in the political agendas of states every few years during extreme hydrological conditions. India's water problems can never be solved unless there is a

sustainable interest of policymakers for a decade or two.

Wetlands, unfortunately, do not even enter the political agenda in any state, even for a few weeks every 5-6 years, as water does. Under these conditions, it is very difficult to see how India's wetlands management can be a priority national or state issue during the next one or two decades. This is sad prognosis for the Indian people and its environment.