Sundarbans mangroves struggle to find new ground

The India State of Forest Report (SFR) 2017 published recently has revealed that the mangrove cover in the country has increased by 181 sq. km. But the Indian Sundarbans that comprise almost 43% of total mangrove cover have shown only a marginal rise of 8 sq. km., at 2,114 sq. km. from 2,106 sq.km. in the 2015 SFR report.

This is in spite of large scale planting of mangroves by the State Forest department and NGOs over many years. The latest figures raise the question of whether enhanced human pressures on the only mangrove forest that harbours a healthy tiger population is affecting the ecosystem.

Unlike the rest of the country, large areas of mangrove forest in the Indian Sundarbans fall under the Sunderban Tiger Reserve where human activities are prohibited. The Indian part of the Sundarbans covers 4,263 sq. km.out of which 2,584 sq. km.is core and buffer area of the tiger reserve.

A detailed understanding of the threat to the mangroves of Indian Sundarbans has been highlighted in a ‘State of Art Report on Biodiversity in Indian Sundarbans’ published by World Wide Fund for Nature, India (WWF).

The publication reveals that along with climate change, the mangroves are threatened by habitat degradation due to industrial pollution and human disturbance, fuel-wood collection and lack of any high elevation spaces for the mangrove species to regenerate and thrive.

The report states that it is a matter of concern that if the present rates of change prevail, the Sundarbans mangroves could disappear as the sea level rises. This is because the forest’s natural response to retreat further inland is blocked by geographical features and man-made obstructions.

Experts like former director of Sundarban Tiger Reserve and a specialist in mangrove conservation, Subrat Mukherjee, and botanists like P. Venu, Neera Sen Sarkar and Anirban Saha who have authored the chapter on Mangroves & Associated Flora put the number of mangrove and associated flora species in the region at 180.

New mangrove areas

The authors have suggested a “rehabilitation of former mangrove areas and creation of new mangrove habitations through intensified afforestation programmes.”

Ratul Saha of the WWF, one of the authors of the publication, pointed out that the threat to each mangrove species varies in magnitude and it is important to fill these knowledge gaps through more research.

Of the 180 mangrove and associated species or halophytes (plants adapted to growing in saline conditions), 34 are true mangroves, of which 19 are major mangroves and 15, minor mangroves.

The species diversity of halophytes of Indian Sundarbans is recorded as 71 mangrove associates, 30 back mangroves, six species of epiphytes and parasites, 23 grass and sedges, four ferns and 12 herbaceous plants.

Mangroves are classified as plants having salt tolerance mechanisms like salt glands, aerial roots in the form of pneumatophores and viviparous germination (germinating before detaching from parent).

They grow mostly in the inter-tidal spaces and are dispersed by water buyout propagules (seeds or spores).

There are several prominent mangrove species.

Heritiera fomes or Sundari trees from which the Sundarbans draws its name, has a very restricted distribution in South Asia and is classified as Endangered in the IUCN Red list.

The publication lists five species of mangroves whose status, as per the IUCN Red List, ranges from Near Threatened to Critically Endangered. *Sonneratia griffithii* , one of the tallest trees of the Sundarbans referred to as Keora by locals is critically endangered while *Ceriops decandra* (Goran) is Near Threatened. *C. decandra* and Avicennia (locally known as Bain) are gathered in violation of law for supplementing fuel wood requirements by the residents.

Species like *Xylocarpus granatum* , which has a traditional medicinal use in treatment of cholera, diarrhoea and fever is also one of the species which faces threat due to illegal felling.

Among the many associates of mangrove, which grow as climbers and shrubs, some are used for firewood. The other category of flora, back mangroves, are not found in inter-tidal areas colonised by true mangroves. *Excoecaria agallocha* , commonly called Goria found towards the mainland along the small canal is one common example.

Among the salt marshes of Sundarbans, *Sesuvium portulacastrum,* with thick, fleshy leaves borne on succulent, reddish-green stems is a pioneer species. Salt marshes are found hosting the mangrove fern *Acrostichum aureum* .

Orchids disappear

The WWF publication points that among the twelve orchid species reported in the past from Sundarbans, most can no longer be found.

Climate change is being attributed to the decline of mangrove species worldwide and the authors emphasise the importance of involving the local population in conservation, keeping in mind the limited livelihood options and the extreme climate events that they have to grapple with.

The population density of the Indian Sundarbans outside the Tiger Reserve area is 1,000 people per sq. km., and there is high malnourishment reported from here.

Ajanta Dey, joint secretary of Nature Environment and Wildlife Society, an NGOworking for mangrove conservation, said that over the past few years, 4,000 hectares of mangroves were planted by the organisation in the Sundarbans.

Cleared for fisheries

Ms. Dey said illegal clearing of forests for fisheries has turned out to be a major issue over the past few years.

She said that large areas in North 24 Parganas have been cleared for fisheries, and as per the report, only 26 sq. km.of mangroves remain there. South 24 Parganas district which has the highest mangrove area of 2,084 sq. km. has only shown an increase of 7 sq. km.

Nationally, the SFR 2017 report estimates the maximum increase of mangrove cover from three States, Maharashtra, Andhra Pradesh and Gujarat.

While the maximum increase of 82 sq. km. has been recorded in Maharashtra, where Thane district alone has witnessed an increase of 31 sq. km., Raigarh has 29 sq. km. and Mumbai Suburban, 16 sq. km..

Andhra Pradesh has seen a rise of 37 sq. km. in the SFR survey, done every two years, with districts like Guntur and Krishna contributing the most.

Gujarat's tally rose by 33 sq. km. in Bhavnagar, Junagarh, Kutch and Jamnagar districts.

In all three States, the increase has been attributed to plantation and regeneration.

Tamil Nadu found an increase of 2 sq. km. of mangroves, taking the extent of such forests to 49 sq km, as recorded in the FSR report.

Among the striking features of Tamil Nadu's efforts is that Nagapattinam district recorded a decrease of 16 sq. km.while Tiruvarur district posted a rise of 16 sq. km.

Districts like Cuddalore, Pudukkottai and Thoothukudi also have recorded a small increase of 1 sq. km. of mangrove cover each, compared to 2015.

Ramanathapuram district found its cover decreasing by one sq. km.

Rehabilitation of former mangrove areas and creation of new mangrove habitations is needed

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