

SUNDARBAN Perspective: The Safeguard of Bangladesh Vs Human Actions



Mangrove, the principal appearance of the tropical and sub-tropical coastal zone, is the most productive intertidal forested wetland ecosystem found in 123 countries. It plays a role as a shelterbelt against different tropical natural disasters to protect these countries' coasts. The mangrove forest harbours different halophytic and salt-tolerant floral and faunal species along the estuaries and shorelines. The aquatic and non-aquatic animals rely on it for their shelter, breeding and nursery, and a considerable population of developing countries, directly and indirectly, depend on this ecosystem. Being a source of natural renewable resources, Mangroves significantly play a role in the local economy and coastal livelihood, eventually contributing to the national economy and regional environmental balance. Unfortunately, a downward shifting for the area has been observed from 16.1 million ha (1990) to 15.6 million ha (2010), and the removal is faster than other ecosystems. Overexploitation and encroachment for livelihood are the main reasons behind this disappearance and destruction of mangrove forests worldwide.

Sundarban is the largest deltaic salt-tolerant mangrove forest (10,000 km²) which shares its territory with Bangladesh (60%) and India (40%), whereas it occupies 4.2% of the total area of Bangladesh. This continuous mangrove bulk constitutes 44% of the country forestland. It covers an area of 6,017 km² in the southern part, where 4,143 km² is land. It is connected with a network of about 450 rivers occupying an area of 1757 km² to 1864 km². The Sundarban ecosystem is rich with terrestrial and aquatic flora and fauna. IUCN (2015) reveals that 315 species of birds and 289 terrestrial animal species are found in

Bangladesh part. Among 678 aquatic species, there are 11 crustaceans, 59 reptiles, 8 amphibians, 210 fish and 16 mollusc species. Its influential biological diversity supports the higher production of coastal as well as marine fisheries in the country.

The nutritionally enriched Sundarban provides shelter, food, breeding and nursery facilities to different lucrative fish species either for their whole life or part of life. The low salinity tolerant (*Hilsa ilisha*, *Lates calcarifer*), moderate salt-tolerant (*Coilia spp*, *Pmadasys hasta*, *Plynemus spp*, *Hilsa ilisha*) and highly salt-tolerant (*Harpadon nehereus*, *Pampus spp*, *Sardinella spp*) species produce the mentionable amount of fish every year. *Penaeus monodon*, *Metapenaeus Monoceros* and Mud crab *Scylla Serrata* are commercially important here. About 0.2 million fishers from the impact zone depend on the fisheries sources for their livelihood. Small-scale fishers with artisanal fishing gears are engaged in fishing here. Although fish production has declined since 1989 due to overfishing and habitat destruction, in 2019-2020, the production has increased 14.91% (total 0.21 lakh MT) and contributed 0.47% to the total production. Some environmental factors such as rainfall, water salinity, water temperature, tidal amplitude, and cross networking with many rivers influence the abundance of PL and juvenile of a couple of fishes and shellfish. Women and children collect PL haphazardly using mosquito nets, also destroying other fish fries.

Moreover, the extensive use of set-bag nets for shrimp fry collection damages the nursery ground of many aquatic plants and animals, posing a serious threat to the coastal ecosystem. In addition, the practice of poison fishing to catch fish, crabs and shrimps using a few drops of the lethal poison in the canals destroys fishes and contaminates the water, damaging planktons and roots of mangrove trees. It has a long-term negative impact on Sundarban ecology. Thus, environmental changes, reduced freshwater discharge in the lean period, increased salinity, destructive gears, overexploitation and pollution are the main hazards to Sundarban fisheries.

Furthermore, increasing population pressure on limited resources, seasonality of the profession, narrow alternative employment scope lead the community to walk into the dark road for their livelihood. Overexploitation of the mangrove resources to satisfy the growing demand has become a concern lately. The unemployment state of rural communities leads to the illicit removal of wood from the forest, and the absence of required sustainable management practices hinders forest conservation. Therefore, the unauthorized removal of wood and prohibited poaching of wildlife are the reasons behind the disappearance of the forest and biodiversity loss as well. On the contrary, ignorance about resource management and its sustainable use pushes the mangrove towards the risk of existence.

The following reasons push the fast shrinking and dying up of Sundarban ecosystem-

- Conversion of forest's territory for shrimp farming, agricultural and urbanization purposes
- Intensive resource exploitation
- Industrial and agricultural pollution, siltation and erosion
- Inadequate freshwater source
- Sea level rise and increased salinity
- Oil spillage and agrochemicals
- Illegal logging
- Farkka Barrage

Since industrial development, urbanization and agricultural activities must meet the excessive demand for the economic and livelihood improvement of the coastal people, the environmental protection principles should be taken into account. However, imposing a ban on fry and fingerlings collection, catching of threatened fishes, targeting fishes during fishing closure, stopping poison fishing and mesh size regulation could conserve the fisheries resources in Sundarban. Even though skilled, well-trained and virtuous personnel in respective official authority can play a vital role in controlling the wrongful actions happening there. Last but not the least, generating diverse income sources, short term professional training to the women and elders and alternative employment options may significantly improve the livelihood reducing the unnecessary pressure on resources.

Sundarban, a deltaic swamp, is considered as an important source of forestry. It contributes 3% to the GDP out of 5% of the country's total contribution in the forest sector despite forest damage. The national economy, food security, and livelihood of millions of lives largely depend on Sundarban. It also acts as a blockade against cyclones, coastal erosion and other natural disasters. In contrast, other ecosystem services include soil formation and protection, hydrological cycle regulation and balancing of moisture content and evaporation. Natural disasters due to climate change severely damage biodiversity, shatter the forest and hamper the community dependent on Sundarban. A preliminary assessment states that Sidre caused the loss of \$143 million and destroyed 26% of the Sundarban. People cannot overcome the loss yet, and more disasters are going on every year, keeping their cruel signatures on the mangrove forest and people living around. Undoubtedly, Sundarban is a blessing for us. Otherwise, the losses could have been the worst for us. We now have to pay the debt taking the utmost care of our coastal safeguard "Sundarban" by our actions.

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