Secrets and Mysteries of Sundarbans

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WE have been recognising and celebrating the beauty of nature, which holds a remarkable diversity of life. Nature is both tough and gentle, demonstrating that it can be nurturing to those who understand, appreciate and respect its boundaries. Even in challenging conditions, nature provides protection and support. However, to ensure that our bond with nature flourishes, we should be mindful and address the human tendencies that can lead to an imbalance in nature, causing various challenges. By encouraging a sense of responsibility, we can create a harmonious coexistence.

We look at the earth and its products with a utilitarian purpose, showing no love for nature. Precisely, in the words of EF Schumacher: "Modern man does not experience himself as a part of nature but as an outside force destined to dominate and conquer it. He even talks of a battle with nature, forgetting that, if he won the battle, he would find himself on the losing side." Around the globe, experts make efforts to prevent various major disasters from occurring, particularly in critical regions, with varying levels of success. One such region with a unique ecosystem is the Sundarbans.

Sundarbans, formerly SUNDERBUNDS, is a natural mangrove forest and saltwater swamp area in the vast Ganges Delta formed by the confluence of the Ganges, Brahmaputra and Meghna rivers. It constitutes a complex ecosystem that supports and nurtures rivers, water bodies, forests and fauna and a large human population of over 4.5 million (residing in the Indian Sundarbans). Records about the Sundarbans of undivided India show that in 1885, the total area of Sundarbans, including both land and water, encompassed roughly 10,000 square kilometres (KM^2). Of which 60 per cent belong to what is now Bangladesh and 40 per cent to West Bengal (India). The area spans from the Hooghly River in West Bengal (India) to the Baleswar River in Khulna division (Bangladesh). Presently, the Sundarbans in India, including the Sundarbans National Park and Biosphere Reserve, covers a total area of 9,630 KM^2, including both the mangrove forests and non-forest areas. Its swamps support one of the biggest tracts of estuary forest in the world. Nature is continuously changing the configuration of the delta through erosion and sedimentation.

The entire area is intersected by tidal rivers of estuaries from north to south and by innumerable narrow tidal creeks from east to west. In West Bengal, the area is composed of as many as 102 islands, of which only 40 are inhabited. To describe those islands beautifully, Amitav Ghosh wrote in his book entitled *The Hungry Tide*: "The islands are the trailing thread of India's fabric, the ragged fringe of her sari, the achal that follows her, half wetted by the sea."

All the rivers, estuaries and creeks carry saline water from the Bay of Bengal. They have little currents, except tidal outflow and inflow. There is a high tide approximately every 12.5 hours. Water enters the Sundarbans during high tide as long as the rivers and unprotected lands are lower than the sea level. Likewise, water flows to the sea as the system of waterways and unprotected areas is higher than sea level. The tidal amplitude reaches its maximum of about 3.5 metres even after two days of full moon. The current in the maze of river creeks in the region is caused by fluctuations in the sea levels in the Bay of Bengal. When seawater flows in, a strong current forms underwater. This forms channels generally located midstream in a wide river. In the case of smaller and winding rivers, current flows close to the riverbanks of the outside bend. When the flow is strong enough, the bottom and slope of the banks inevitably erode. The hungry tide triggers