



## **Climate change in Sundarbans: Loss of mangroves, adaptation and mitigation**

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**New Delhi:** Sundarbans, the largest delta in the world, consists of 10,200 sq km of mangrove forest, the largest mangrove forest in the world. While 4,200 sq km of the reserved forest lies in India, approximately 6,000 sq km of the reserved forest is in Bangladesh. Another 5,400 sq km of non-forest, inhabited region in India, along the north and north-western fringe of mangrove forest, is also known as the Sundarban region in India. However, Sundarbans, the land of tigers and mangroves, is facing the onslaught of climate change which is affecting the lives and livelihoods of the people. To understand the challenges being faced by Sundarbans and its people Banega Swasth India team spoke to Dr Pradeep Vyas, Indian Forest Service (Retired), Ex-Chief Wildlife Warden, West Bengal.

Sea-level rise or climate change-related temperature rise also increases the salinity and salinity influences the type of mangroves in various parts of the Sundarbans. There are two broad categories of mangroves – salt water loving and fresh water loving. Low salinity-loving mangroves serve as food to the herbivores. But, due to a rise in salinity, the area of fresh water loving mangroves is decreasing which affects the herbivore population which in turn may adversely impact the food chain and the tiger population that is dependent on herbivores for their survival.

There are two main reasons behind the lack of fresh water in Sundarbans. One is the natural reason that is in the 16th century, a neo-tectonic shift happened which resulted in the land moving downwards in Eastern Sundarbans that is in Bangladesh. As a result, more of Ganges water started flowing towards Bangladesh and the availability of fresh water in Western Sundarbans which comes in India now, reduced. Secondly, during the developmental phase, through canals, fresh water was drawn for agricultural purposes.

As explained by Dr Vyas, the three major impacts of climate change on Sundarbans are: frequent cyclones – the intensity may not be very big but the frequency has increased; rise in sea-level; increase in sea surface, which means more salt is getting dissolved and salinity is increasing.

In Sundarbans, one of the major sources of livelihood is fish culture and aquaculture. For the collection of tiger prawn larvae and crab, women and children enter waters, often waist and neck deep. It's the saline water which has multiple health impacts on people.

### **Nylon Net Fencing, A Way To Limit Human-Tiger Conflict In Sundarbans**

Human-tiger or human-crocodile conflict has been prevalent for centuries in Sundarbans. According to Dr Vyas, there are 150 years old records stating that once, in a year, more than 200 people were killed by tigers. One of the factors responsible for human-wildlife conflict is the difficult terrain of Sundarbans. He explains,

During his tenure between 2001 and 2013, Dr Vyas came up with the idea of putting up nylon net fencing to limit the interaction between humans and tigers. Explaining the concept behind it, he said,

### **Saving Sundarbans: The Need To Plant Mangroves**

Because of the lack of fresh water, Dr Vyas suggests planting those species of mangroves which can tolerate the high salinity currently prevailing in Indian Sundarbans. He also suggests going for climate

adaptation models and research so as to develop techniques through which fresh water loving mangrove species like Sundari can tolerate slightly levels of salinity than the present level of high salinity.

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