Government of Puducherry
Department of Science, Technology & Environment
Puducherry Pollution Control Committee
Puducherry EIACP PC HUB

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International Day for the Conservation of the Mangrove Ecosystem

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WHAT IS MANGROVE FOREST?

Mangroves are a unique type of vegetation found in intertidal areas where freshwater and saltwater combine. These salt-tolerant plants are commercially and environmentally significant, protecting coastal areas from tsunami storm surges and soil erosions. Their complex root systems dissipate sea wave energy, arresting coastal erosion and seawater pollution.

Sediment deposition is a visible feature that arrests coastal erosion and seawater pollution. Mangroves are special in that they may hide fish and other species in a habitat that is not harmful to the environment due to their complex root structure.

MANGROVES IN INDIA

According to the Indian State of Forest Report (IFSR) 2021, mangroves cover in India is around 4,992 square kilometers (0.49 million hectares), In India, mangroves are found in nine States and three Union Territories, with West Bengal having the largest mangrove cover (2,114 sq km). The mangrove cover has increased, from 4,046 sq km in 1987 to 4,992 sq km in 2021, according to the IFSR research.

INDIA'S MANGROVE TYPES

Mangroves grown in unique climatic conditions of India's vast coastline may be seen flourishing, including:

Red mangroves: Found growing along coastal, red mangroves are the toughest of the three primary species of mangrove plants.

Black mangroves: Mangroves referred to as "black" mangroves because of their dark bark. They often grow at a higher altitude than red mangroves. They can obtain more oxygen since their roots are more exposed.

White mangroves: They grow at higher elevations than red and black mangroves. Usually, they don't have aerial roots. But sometimes, as a result of floods, low oxygen levels can cause peg roots to develop in an odd manner.

FEATURES OF MANGROVE FOREST

- Nesting and breeding sites for fish and shellfish, migratory birds and sea turtles.
- Act as great carbon sinks.
- Protect the coast from storms, cyclones & tsunamis.
- Protect the coast from rising sea level & the effects of climate change.
- Absorb more carbon than any other forest.
- Prevent mixing of sea & fresh water & help to maintain water clarity.
- Mangroves are used for timber, mining, agriculture, harbour development and human settlements.
- Great fishing group for catching fish, prawns & crabs.
- It controls/reduces soil erosion.
- Can be used to treat ailments like rheumatism, small pox, kidney stones etc.

THREATS TO MANGROVES IN INDIA

Deforestation and Land Conversion: Industrial development, urbanization, agriculture, and aquaculture at mangrove ecosystem results in the fragmentation and loss of habitat.
Mangrove ecosystems are destroyed and their biodiversity is disrupted by illegal logging, clearing for shrimp farms, and infrastructure development.

Pollution: Mangrove's aerial roots through which they obtain oxygen can easily be smothered and clogged by sediment, solid waste and oil. Pollutants harm marine life, degrade the quality of the water, and hinder the growth and regeneration of mangroves.

Climate Change: Air temperature and rainfall regimes influence global mangrove distribution, abrupt changes in sea level rise are a primary cause of local and regional extinction. Mangrove development, reproduction, and distribution are impacted by variations in temperature and precipitation patterns.

Overexploitation: Fish, firewood, and other mangrove resources are overharvested, which reduces ecosystem productivity and upsets ecological balance. The viability of mangrove fisheries and marine biodiversity are threatened by unsustainable fishing practices, which include illicit and destructive fishing techniques.

Invasive Species: Native mangrove habitats are disrupted by the introduction of invasive species, including alien plants, animals, and illnesses. Invasive species decrease biodiversity, change the structure of their habitats, and outcompete native flora and animals. The biological integrity of mangroves depends on the management and control of invasive species.

HOW TO PROTECT MANGROVE ECOSYSTEM?

Protecting mangrove ecosystems is crucial for biodiversity, coastal protection, and carbon sequestration. Key strategies include:

1. Legal Protection
2. Protected Areas
3. Community Involvement
4. Sustainable Use
5. Education and Awareness
6. Monitoring and Enforcement
7. Restoration Projects
8. Climate Change Adaptation
9. International Cooperation
10. Research and Adaptive Management

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