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News: Mangrove Alliance for Climate

- During the COP27 climate summit in Sharm El Sheikh, Egypt, the UAE and Indonesia announced the "Mangrove Alliance for Climate."

Mangrove Alliance for Climate (MAC)

- Mangrove Alliance for Climate (MAC) is an **alliance announced by United Arab Emirates (the UAE) and Indonesia during the 27th CoP to UNFCCC.**
- Mangrove Alliance for Climate (MAC) **includes UAE, Indonesia, India, Sri Lanka, Australia, Japan, and Spain.**
- It seeks to **educate and spread awareness worldwide on the role of mangroves in curbing global warming and its potential as a solution for climate change.**
- However, the **intergovernmental alliance works on a voluntary basis** which means that there are no real checks and balances to hold members accountable.
- Instead, the **parties will decide their own commitments and deadlines** regarding planting and restoring mangroves.
- The **members will also share expertise and support each other in researching, managing and protecting coastal areas.**

Mangroves for the Future (MFF)

- Mangroves for Future are an Indian initiative.
- The full title of the project is "**Mangroves for Future (MFF): a strategy for promoting investment in Coastal Ecosystem Conservation**".
- This project is being coordinated by the **International Union for Conservation of Nature (IUCN)** covering, 11 countries (including India) in South Asia, South East Asia and Western Indian Ocean.
- The member countries are **Bangladesh, Cambodia, India, Indonesia, Maldives, Myanmar, Pakistan, Seychelles, Sri Lanka, Thailand and Vietnam**.
- The project involves collaboration between multiple partners, including government agencies, NGOs, Research Institutes, UN agencies and other multilateral bodies.
- To oversee and guide the entire India country programme under IUCN-MFF (India) Programme as well as review, monitor and evaluate its implementation, a National Coordination.

Mangroves

- Mangroves are defined as **assemblages of salt tolerant trees and shrubs that grow in the intertidal regions of the tropical and subtropical coastlines**.

- They grow luxuriantly in the places where freshwater mixes with seawater and where sediment is composed of accumulated deposits of mud.

Features

- **Saline Environment:** They can survive under extreme hostile environments such as high salt and low oxygen conditions.
- **Low oxygen:** Underground tissue of any plant needs oxygen for respiration. But in a mangrove environment, the requirement of oxygen in soil is limited or nil.
- For the purpose of breathing, they develop special roots called pneumatophores.
- **Survival in Extreme Conditions:** With their roots submerged in water, mangrove trees thrive in hot, muddy, salty conditions that would quickly kill most plants.
- **Viviparous:** Their seeds germinate while still attached to the parent tree. Once germinated, the seedling grows into a propagule.
- A propagule is a vegetative structure that can become detached from a plant and give rise to a new plant. Examples include a bud, sucker, or spore.

Significance

- Mangroves trap and cycle various organic materials, chemical elements, and important nutrients in the coastal ecosystem.
- They provide one of the basic food chain resources for marine organisms.
- They provide physical habitat and nursery grounds for a wide variety of marine organisms, many of which have important recreational or commercial value.
- Mangroves also serve as storm buffers by reducing wind and wave action in shallow shoreline areas.

Area Covered

Global Mangrove Cover

- The total mangrove cover in the world is one 1, 50,000 sq kms.
- Asia has the largest number of mangroves worldwide.
- South Asia comprises 6.8% of the world's mangrove cover.

Indian Mangrove Cover

- India's contribution is 45.8% total mangrove cover in South Asia.
- According to the Indian State Forest Report 2021, Mangrove cover in India is 4992 sq. Km which is 0.15% of the country's total geographical area.

- **Largest Mangrove Forest:** Sundarbans in West Bengal are the largest mangrove forest regions in the world. It is listed as a UNESCO World Heritage Site.
- It is followed by Gujarat and Andaman, and Nicobar Islands.

Challenges with Mangrove Conservation

Commercialisation of Coastal Areas

- Aquaculture, coastal development, rice and palm oil farming and industrial activities are rapidly replacing these salt-tolerant trees and the ecosystems they support.

Shrimp Farms

- The emergence of shrimp farms has caused at least 35% of the overall loss of mangrove forests.
- The rise of shrimp farming is a response to the increasing appetite for shrimp in the United States, Europe, Japan and China in recent decades.

Temperature Related Issues

- A fluctuation of ten degrees in a short period of time is enough stress to damage the plant and freezing temperatures for even a few hours can kill some mangrove species.

Soil Related Issues

- The soil where mangroves are rooted poses a challenge for plants as it is severely lacking in oxygen.

Excessive Human Intervention

- During past changes in sea level, mangroves were able to move further inland, but in many places human development is now a barrier that limits how far a mangrove forest can migrate.
- Mangroves also frequently suffer from oil spills.