The Mangrove Tree

The world's green lung in the face of climate change

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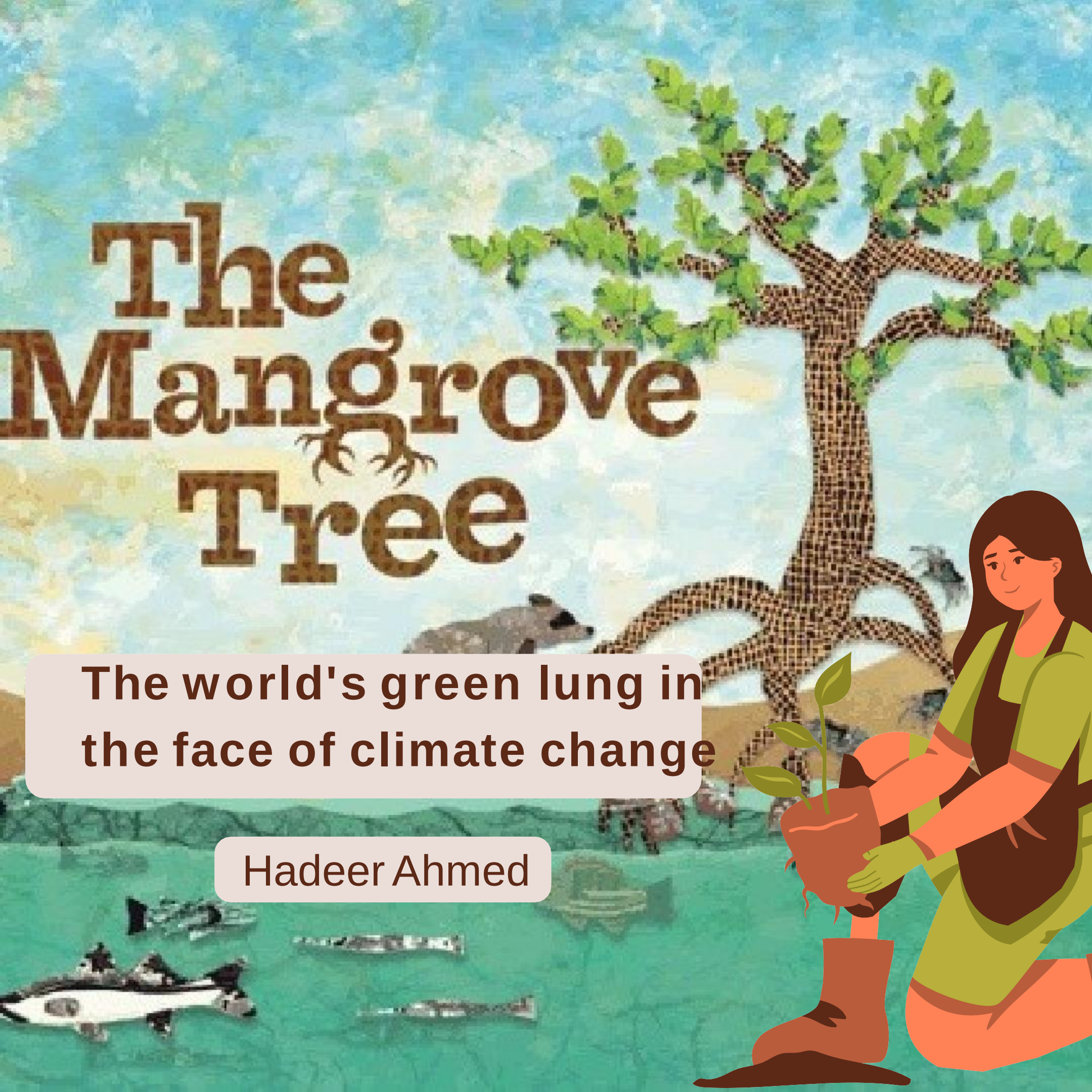


Today we celebrate the International Day for the Preservation of the Ecosystem (Environmental) of Mangrove Forests, whose ecosystems of coastal tree, mangroves contribute to protecting coastlines and mitigating the effects of climate changes and harsh weather phenomena, and are considered rare, rich and amazing, and are found on the borders between land and water.

MANGROVES

Mangroves are higher plants

Grow along shallow water coastal areas

Salt torelance eveloved mean live in sea water

Have seed that Can be dispersed by seawater

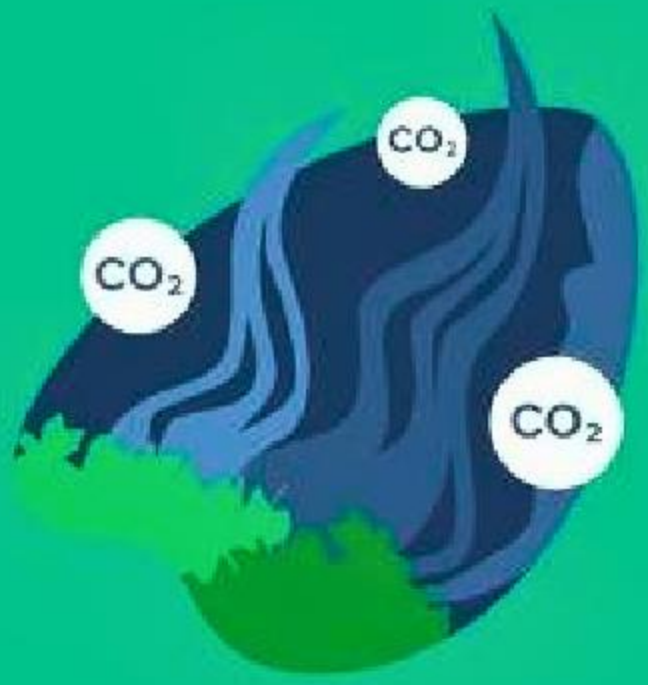
WHY MANGROVE IS MORE THAN JUST A TREE

Home to thousands of species

A wide variety of species live or breed in the mangrove ecosystem, from fish and crabs to birds.

Unfortunately, when mangrove forests are gone, it can disrupt and threaten the survival of many wildlife.

Carbon absorber



Mangrove forests contribute to the fight against global warming by absorbing carbon dioxide from the atmosphere.

Moreover, mangrove forests are one of the top three carbon-capturing ecosystems.

A natural coastal fortress

Mangroves act as a natural fortress against floods and storm surges. The sediments from the land and the river are filtered by the roots of mangroves, eventually protecting the coastline and slowing erosion.

Mangrove Ecosystem Benefits

Water Filteration | 2 to 5 Hectares of Mangroves may treat the effulents of 1 hectare of aquaculture

Fisheries | More than 3000 fish species are found in mangrove ecosystems

Climate Regulation | Carbon stroage potential of mangroves is 3-5X higher than that of tropical upland forest

Livelihoods | 120 million people live near mangroves

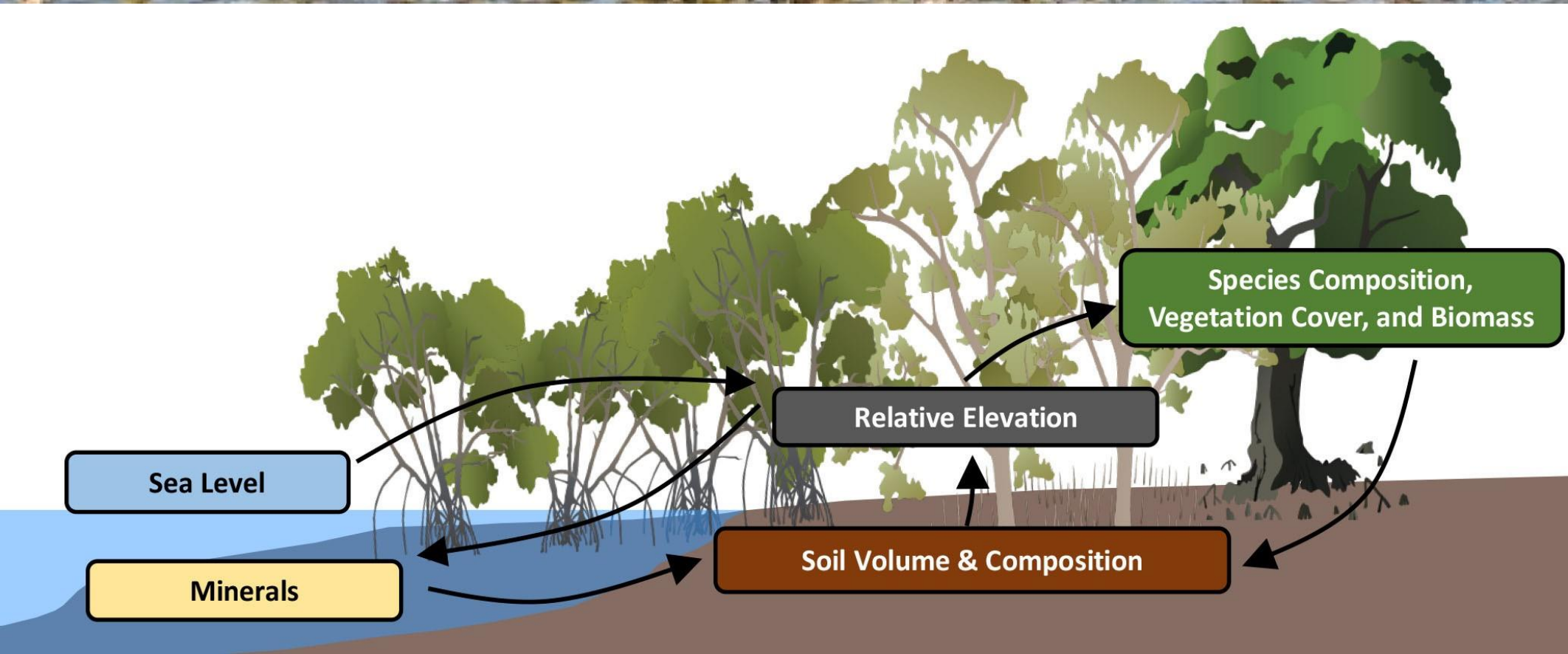
Wood | Its density makes mangrove wood a valued source of timber and fuel

Coastal Protection | Mangroves are 5 times more cost effective than grey infrastructure.

Mangrove Ecosystem Serivces | Worth US$ 33,000 to 57,000 per hectare per year x 14 million hectares i.e. 800$ / year

Tourism | There are over 2000 mangrove related attractions globally, such as boat tours, boardwalks, kayaking & fishing.

Mangrove Forest Processes



Threats to mangroves

Logging

can cause altered species composition, **fragmentation and total clearance** of mangrove forests

Agriculture

Conversion to rice paddies responsible for **88% of**

Mangrove loss

35% between 1980 and 2000[1] - the equivalent of losing almost 150,000 annually[2], and **4 times higher** than overall global forest loss[3]

Climate change

Air temperature and rainfall regimes influence global mangrove distribution[4]; abrupt changes in sea level are a primary cause of **local and regional extinctions**[4-6]

Coastal development

Urbanisation drives mangrove loss and degradation; human population density in coastal regions **3 times higher than global average**[7]

Aquaculture

causes more than **half of mangrove losses globally**, mostly due to shrimp culture[9]

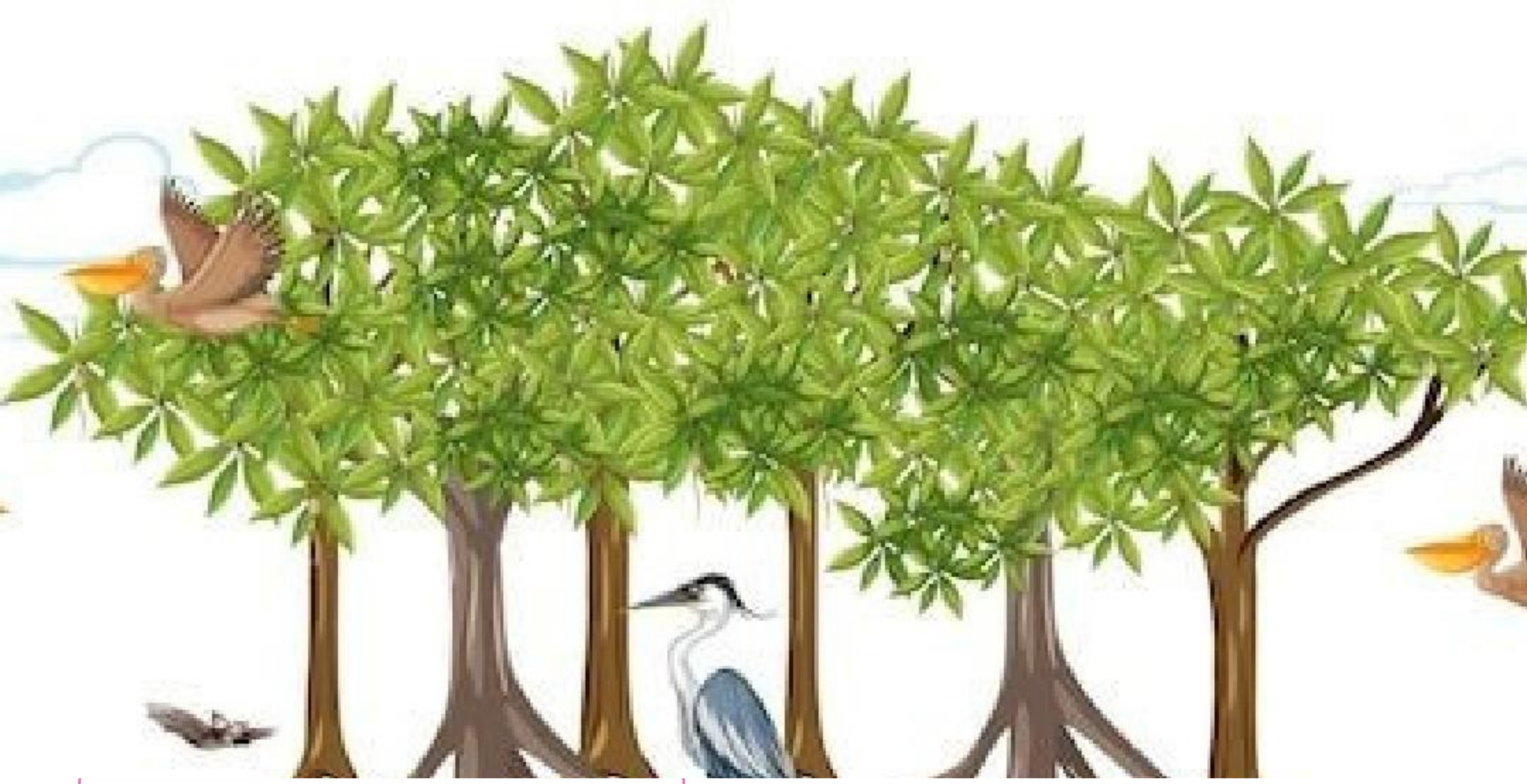
Pollution

Mangrove's aerial roots, through which they obtain oxygen, can easily be smothered and clogged by **sediment, solid waste and oil**[8]

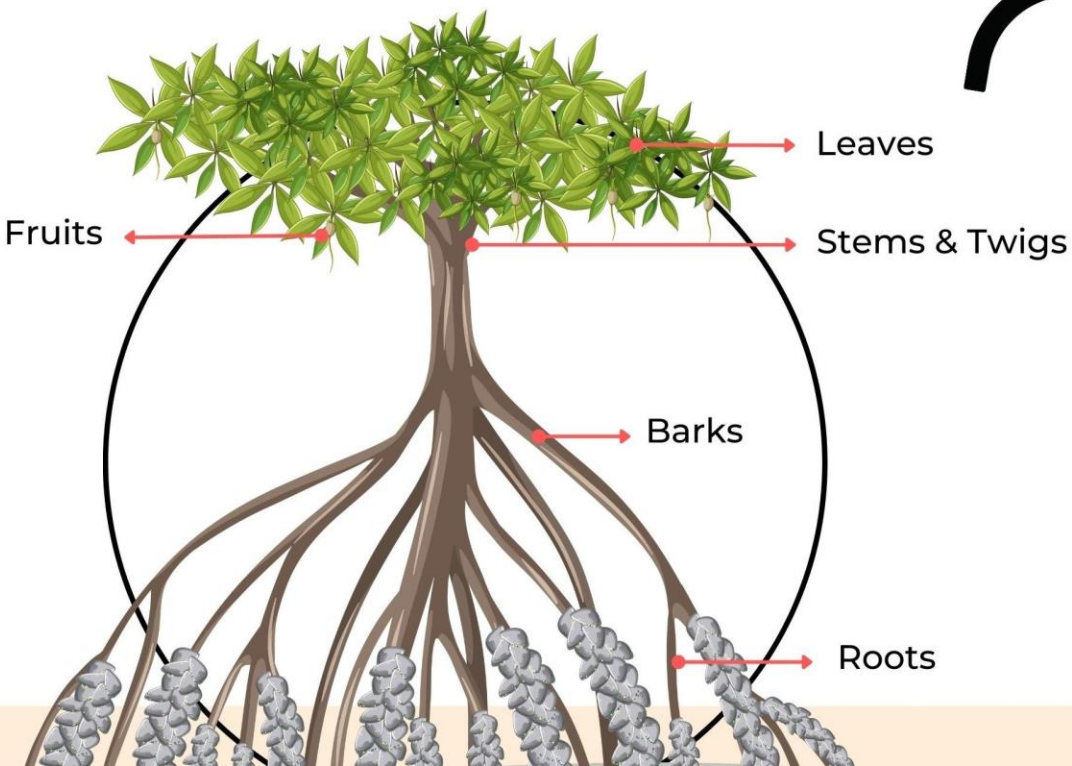
The goods and services that mangrove forests provide to society are widely understood but may be too generally stated to serve as useful guidelines in decision-making. Understanding the differences between fringe, riverine, and basin forests may help to focus these guidelines and to determine the best use of a particular forest. Fringe mangroves are important primarily for shoreline protection. Riverine forests, which are likely to be the most productive of the three types of forests, are particularly important to animal and plant productivity, perhaps because of high nutrient concentrations associated with sediment trapping. Basin forests serve as nutrient sinks for both natural and anthropogenically enhanced ecosystem processes and are often important sources of wood products. Exploitation of a forest for one particular reason may make it incapable of providing other goods and services.

Application of mangroves.

Mangroves are inhabited by an astronomical number of fungal communities which produce a diverse array of extracellular degradative enzymes, namely: amylase, cellulase, xylanase, pectinase, cholesterol oxidase, etc. Such enzymes can be isolated from the mangrove fungi and harnessed for different biotechnological applications, for example, as replacements for chemical catalysts. Mangrove microbes attract considerable attention as they shelter the largest group of marine microorganisms that are resistant to extreme conditions and can produce novel biogenic substances



Rhizophora stylosa Griff. possesses a variety of beneficial pharmacological properties.



Phytochemistry

- Triterpenoid
- Steroid
- Lignan
- Megastigmadien
- Apocarotenoid
- Alanine derivatives
- Monoterpenoid
- Aromatics/Phenolic
- Flavonoid
- Fatty Acid
- Secondary Alcohol

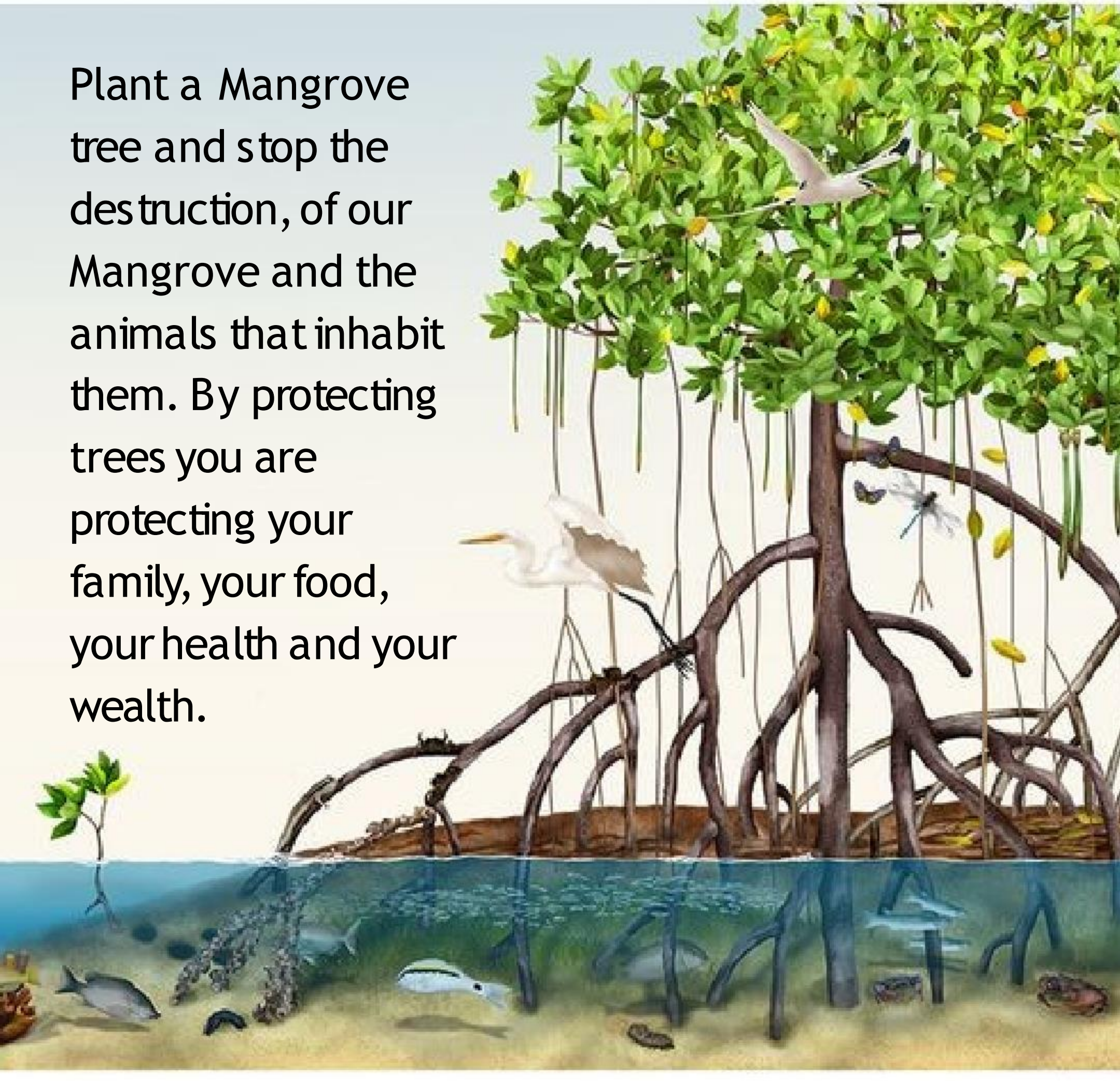
BIOMEDICAL APPLICATIONS

- Antioxidant
- Antibacterial
- Anticancer
- Cytotoxic activity
- Anti-diabetic

We should remember that

Mangroves are key to how we can tackle climate change, help us adapt to its impacts, and absorb carbon from the atmosphere. In fact, taking all of their benefits into account, mangroves do more for us than any other ecosystem on earth. Given their fragility, and how often we overlook them, it's time to start paying respects to mangroves

Plant a Mangrove tree and stop the destruction, of our Mangrove and the animals that inhabit them. By protecting trees you are protecting your family, your food, your health and your wealth.



We must work on harmony between humanity and nature, as the process of preserving ecosystems is a gift of protection for us and our future generations

Thank You