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CONSERVATION OF MANGROVES ACROSS THE GLOBE

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Abstract

Mangrove ecosystems which are composed of mangrove forests are among the most productive and biologically important ecosystems in nature. Half of the global population lives within 100 to 150 km of the coastline. Mangrove systems are productive as well as most threatened, scientific data suggest that in past 40 years the mangroves have been degrading. These ecosystems didn't have enough scientific attention. Large mangrove land areas are observed in countries like Australia, Brazil, Indonesia, Malaysia, Mexico and limited parts of Asia. The mangrove ecosystem stands out as a distinct forest type, as an interface between terrestrial, estuarine and coastal marine ecosystems. Mangrove species are increasingly threatened and experiencing range contraction across the globe that requires urgent conservation action. Public awareness, formulating new policies can assist protecting mangrove ecosystems.

Keywords: *Mangrove ecosystems, interface, marine ecosystem, global population, policies*

INTRODUCTION:

A "mangrove" has been defined as a "tree, shrub, palm or ground fern, generally exceeding more than half a meter in height, and which normally grows above mean sea level in the intertidal zones of marine coastal environments" (Duke 1992). "Mangrove" can refer to either the ecosystem or individual plants. They have been called "mangals" to distinguish from the individual plant species. Mangroves are a taxonomically diverse group of salt-tolerant, mainly arboreal, flowering plants that grow primarily in tropical and subtropical regions (Ellison and Stoddart 1991).

Mangroves provide unique ecological benefits to human society, to coastal as well as the marine systems. Marine species breed, take shelter and even use them as nursing shelters. Coastal communities can extract medicinal substances and fuel from mangrove systems. Organic carbon essential for ocean is released in this ecosystem which is an essential one for

the coastal and marine life. Statistics say that around 60-80% of global fishing is dependent on mangroves.

Between the years 1980 to 2000 the mangrove forests are degrading, (W. O. Beys-da-Silva, 2014) both on inland and coral reefs. If proper measures are not taken for conservation we may lose the entire mangrove ecosystem to extinction. It is inferred that if the degradation continues it would become difficult for the transfer of organic and inorganic materials into the marine systems. Consequently affecting the atmosphere, sea levels leading to unpredictable climate.

BENEFITS OF MANGROVE SYSTEMS:

1. Mangroves have tremendous social and ecological value.
2. The annual economic value of mangroves, estimated by the cost of the products and services they provide, has been estimated to be $200,000 - $900,000 per hectare.
3. The mangrove ecosystem provides income from the collection of the mollusks, crustaceans, and fish that live there.
4. Mangroves are harvested for fuel wood, charcoal, timber, and wood chips. Services include the role of mangroves as nurseries for economically important fisheries, especially for shrimp.
5. Mangroves also provide habitats for a large number of mollusks, crustaceans, birds, insects, monkeys, and reptiles.
6. Other mangrove services include the filtering and trapping of pollutants and the stabilization of coastal land by trapping sediment and protection against storm damage

DEGRADATION OF MANGROVE LANDS BY MAN:

Humans overexploit Mangrove forest resources converting into large scale development such as (Alongi 2002).

1. Agriculture
2. Forestry
3. Salt extraction
4. Urban development and infrastructure
5. Diversion of freshwater for irrigation
6. Establishment of shrimp aquaculture ponds.

EFFECTS OF DEGRADATION OF MANGROVES:

- **TEMPETATURE**

Air and surface water temperatures vary from 27ºC to 38ºC. Surface water temperature is influenced by the intensity of solar radiation, evaporation, freshwater influx and cooling and mix up with ebb and flow from adjoining neritic waters. The water temperature during December is low because of strong land sea breeze and precipitation and the recorded high value during summer could be attributed to high solar radiation.(Field C.D. , 1995)

- **SALINITY**

The salinity acts as a limiting factor in the distribution of living organisms, and its variation caused by dilution and evaporation is most likely to influence the fauna in the intertidal zone. (Hoegh - Guldberg, O, 1999)Changes in the salinity in the brackish water habitats such as estuaries, backwaters and mangrove are due to the influx of freshwater from land run off, caused by monsoon or by tidal variations. Salinity showed a significant positive correlation with temperature. During summer could be attributed to the low amount of rainfall, higher rate of evaporation and also due to neritic water dominance in the study area.

- **SEA LEVELS**

The damage caused by the tragic 2004 Asian tsunami was exacerbated by over clearing of mangroves and other coastal "bioshields", inappropriate coastal development and inadequate information and preparedness. In the last century, eustatic sea level has risen 10-20 cm primarily due to thermal expansion of the oceans and melting of glacial ice caused by global warming Mangroves can adapt to sea-level rise if it occurs slowly enough (Ellison and Stoddart 1991), if adequate expansion space exists, and if other environmental conditions are met.

MONGROVE ECOSYSTEM CONSERVATION METHODS:

1. Identifying and protecting critical areas that are naturally positioned to survive climate change.
2. Manage human stresses on mangroves.
3. Establish greenbelts and buffer zones to allow for mangrove migration in response to sea-level rise, and to reduce impacts from adjacent land-use practices.
4. Restore degraded areas that have demonstrated resistance or resilience to climate change.

5. Understand and preserve connectivity between mangroves and sources of freshwater and sediment, and between mangroves and their associated habitats like coral reefs and sea grasses.
6. Establish baseline data and monitor the response of mangroves to climate change.
7. Implement adaptive strategies to compensate for changes in species ranges and environmental conditions.
8. Develop alternative livelihoods for mangrove dependent communities as a means to reduce mangrove destruction.
9. Build partnerships with a variety of stakeholders to generate the necessary finances and support to respond to the impacts of climate change.

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