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Mangroves In Andaman And Nicobar Islands

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ABSTRACT -

Suspended in a splendid isolation , Andaman and Nicobar islands are the largest archipelago which comprises of more than 572 scattered islands , islets and rocky outcrops . The Andaman Nicobar islands has total 8,249 square km area . The islands are located between 6 degree N to 14 degree N latitude and 92 degree E to 94 degree E longitudes . The islands have a coastline of 1,962 km . The islands are located in the Bay of Bengal and Andaman Sea . The islands are a important union territory of India . The islands are a long and narrow broken chain of islands that extend north – south for more than 700 kms.

These islands are considered to be a veritable repository of rich biodiversity of flora and fauna . The major attractions for the visitors include serene beaches with a vast expense of coral reefs and splendid marine biota , luminous limestones caves , mud volcano that spews mud , lush green mangroves.

KEYWORDS –

Mangrove , Aquaculture and Reforestation

INTRODUCTION-

Mangrove are diverse of woody trees , palms , shrubs , vines and fern that share common ability to live in waterlogged saline soils . The term “Mangrove” is derived from two words **“ mangue ”** Portuguese word which means a mangrove tree and **“ grove ”** English word which means community of tree . Mangroves are salt – tolerant forest ecosystem found in tropical and sub-tropical in water tidal regions of the world . They are trees and shrubs that have the common trait of growing in shallow and muddy salt water or brackish water . Typically they produce tangled masses of arching roots that are exposed during low tides . Mangroves do not appear on sandy beaches and rocky shores . A muddy substratum of varying depth and consistency is necessarily for their growth . The mangroves are bordering of the tropical coast of the tropical coast lines providing habitat for a vibrant mix of species .

Andaman and Nicobar islands , which account for 25% of the country’s coastline are endowed with one fifth of country’s extensive and diverse mangroves . As far as density and growth are concerned , the mangroves of these islands are probably the best in our country .

OBJECTIVE OF THE STUDY –

The study fulfils the following objectives –

1. To know the importance of mangrove in coastal area
2. To analyze the distribution of mangrove in Andaman and Nicobar islands
3. To know the aquatic life of flora and fauna

4. To know the threat of mangroves by naturally or anthropogenic process

METHODOLOGY –

The sole purpose of the study to analysis the importance of mangrove in Andaman and Nicobar islands . The collection of data is secondary data which are collected from the statistical analysis of office . The collected data are processed and analyzed in a proper way . The analyzed information has been represented by using suitable table .

CONDITIONS REQUIRE FOR GROWTH OF MANGROVES -

There are several factors that affects the distribution , abundance and growth rate of mangroves are –

1. Temperature – Among the basic climatic factors , the air temperature of the region may be governed by the geographic distribution of the different species of mangroves . Atmospheric temperature fluctuation ranges between 20

degree to 35 degree Celsius.

2. Rainfall – The rainfall conditions are more decisive for the sequence of mangrove distribution of the different zone in the tidal regions . The Andaman and Nicobar islands experiences very heavy rainfall up to 3200 milimeters during a year .

3. Wind - The wind flow may have the drying power of the and its mechanical effect may cause to the damage to the mangrove plants and its ecosystem .

4. Soil – The soil structure and salinity are the main agents , controlling factor for the distributions of mangrove. The Andaman and Nicobar islands are volcanic in nature and geology is complex . these islands are characterized by the diversity of sedimentary rocks mainly composed of sandstone .

STATUS OF MANGROVES IN ANDAMAN AND NICOBAR ISLANDS -

Total area under mangrove vegetation in India is 4639 sq. km as per the estimate of the Forest Survey in India (2009). Out of this , 615 sq. km area is mangrove vegetation occur in Andaman and Nicobar islands . In Andaman group of islands alone area under mangroves is 612 sq . km , while in Nicobar group of islands occupy only 3 sq. km . The mangrove vegetation of these islands constitutes 7.5 of the land area of 8.6 of total forest area .The total mangrove cover area of Andaman and Nicobar islands is 616 sq. km which is 12.3% of total mangrove cover of India (2021) .

DISTRIBUTION OF MANGROOVE IN ANDAMAN AND NICOBAR ISLANDS –

Serial number	Region	Survey Sites
1.	North Andaman	Austin Strait , Danapur , Dobidera and karmatang in Mayabunder and cad
2.	Middle Andaman	Kadamtala , Sitapur , Uttara , Yerrata , Rnagat Bay and Betapur
3.	South Andaman	Junglighat , Burmahnallah , Chidiyatapu , Sippighat , Dhannikhari , Bambooflat, Havelock , Neil , Baratang
4.	Little Andaman	Butler Bay , Dugong creek , Harminder Bay and Hut Bay
5.	Car Nicobar	Kimiose Bay
6.	Nancowrie	Kamorta , Katchall ,and Teressa
7.	Great Nicobar	Gandhi Nagar ,Dinghi Nallah . Magar Nallah in compbell Bay

IMPORTANT MANGROVE SPECIES OF ANDAMAN AND NICOBAR ISLANDS -

About 60 species of mangroves occur throughout the world. Asia is the richest region of mangroves species diversity with 44 species reported to occur. Important mangrove species found in these islands include -

- Rhizophora Mucronata
- Brugguiera GymnorrhizAa
- Avicennnia Officials
- Ceriops Tagal
- Sonneratia Caseolaris
- Excoecaraia Agallocha
- Aegiceras Comiculatum
- Nypa Fruticans
- Xylocarpus Granatum
- Acanthus Ilicifolius

Mangrove fauna is generally represented by aquatic , semi - aquatic and terrestrial adapted at stress conditions. As many as 8 species of mammals , 53 species of birds , 7 species of repltiles, 3 species of amphibian , 253 species of fish , 13 species of polychaetes, 410 species of arthopods and 53 species of meiofauna are reported from the mangrove of Andaman and Nicobar Islands.

Mangrove Zonation

In general the following three conspicuous zones are identified in mangrove coastal area

1.Proximal Zone

This zone is towards water front, subject to regular tidal effect where intensity of soil accumulation and inundation is a continuous process . The mangrove species in this zone are specially adapted with stilt roots .

Main species with these features are Rhizophora Mucronata. On rocky and reef substata , Avicennnia, Sonneratia are also found.

2. Middle Zone

Above the Rhizophora luxuriant groups of Bruguiera Gymnorrhiza. Ceriops Tagal are occur. Soil formation in the core zone is congenial for mangrove growth where in the trees attain a height of 10-15 meters in compact blocks. Ceriops and Bruguiera develop a strong hold fast in the form of knee roots or bent roots.

3. Distal Zone

Towards Islands areas mangroves like Excoecaraia Agallocha , trees like Heritiera littoralis and Xylocarpus support in association with Phoenix Pudosa , Nypa Fruticans and ferns occur , the latter occurring precariously in thick patches. Generally the salinity is on lower side in this zone occuring towards hill sides where run off of fresh water is for a prolonged periods. The duration of tidal submersion is low in this zone compared to water front mangroves.

SIGNIFICANCE OF MANGROOVE IN ANDAMAN AND NICOBAR ISLANDS

Mangrove are trees and shrubs with characteristically intricate , exposed roots that from a type of tropical forest typically located near bodies of water . More importantly, mangroves host the most diverse , beautiful and resources – abundant ecosystem in the world . There are various importance of mangrove –

1. Act as a carbon sinks –

Due to mangroves roots which anchor the plant into underwater sediments , nutrients and organic material from the tidal waves enriches the soil, giving mangroves ability to store carbon, otherwise known as blue carbon . Mangroves forests are able to store up to four times more carbon than other tropical forests. Cutting down mangroves will only result in a mass release of carbon into the atmosphere .

2. Coastal Protection -

Mangroves protect coastlines from erosion , storm surges and tsunamis . They also slow down water flow which helps to deposit sediments and improve water quality . Mangroves act as natural buffers against rising sea levels . This forests act as a physical barrier between marine and terrestrial communities .

3. Biodiversity Hotspots –

Mangrove ecosystem are home to myriad of species from marine life (fish , crab , shellfish , sea turtle etc.) The habitat serves as a nesting , breeding and nursing ground for the plethora of local wildlife . As more and more mangrove forests are cleared , valuable habitat is lost and species are at risk of extinction.

4.Improve and Maintain local water quality

Mangroves help maintain water quality via nutrient cycling . They also improve water quality by absorbing flood water and slow down the flow of sediment loaded river water. Mangroves network of roots and lush green vegetation filters pollutants and trap sediments.

5. Economic Importance –

Mangroves provide timber , construction firewood , livestock grazing , honey production and medicinal uses. They also supply edible plants to local people . Millions of people rely on the mangroves for food , income , and wellbeing particularly the forest water provide an abundance of fish for local fisherman to sell and maintain financial stability .

THREATS TO MANGROVES –

In the face of progress , mangrove ecosystem face threats . Global warming , unregulated coastal development and deforestation for agriculture cast shadows on these coastal sanctuaries. They are under threat from both natural as well as anthropogenic factors. Most prominent threats they face can be seen as follows :

1. Climate Change –

Increased sea levels , more frequent and intense storms and altered weather patterns pose significant challenges to mangrove ecosystem , impacting their ability to adapt and survive .

2. Pollution –

Untreated sewage and industrial waste water , agriculture runoff containing fertilizers and pesticides and oil spills contaminate mangrove habitats , impacting the health of plants and animals .

3 . Shrimp Farms –

The emergence of shrimp farms have caused at least 35% of the overall loss of mangrove forests . By far the greatest threats to the world's mangrove forests is the rapidly expanding shrimp aquaculture industry . Fisherman use nets that damaged the ocean floor and trap many species besides shrimp , leaving marine habitats damaged .

4. Tourism –

Tourism is a booming industry and an important source of income in many developing nations . Unfortunately , irresponsible tourism can destroy the very resources people are coming to see .

5. Coastal Development –

Developing coastal areas does not only destroy mangroves a and the habitat they create , but it also disturbs the sediments which store large amounts of carbon dioxide .

6 . Natural Disasters –

Tsunamis is a major threat to mangroves . Strong winds and large waves can damage and uproot trees while some storms can wipe out entire forests . This can then lead to changes in hydrology and increase the risk of erosion from storm surge .

CONCLUSION –

The study reveals that mangroves are one of the most vulnerable ecosystems in the world . Mangroves are indispensable ecosystems that provide numerous ecological , economic and social benefits. However they are under significant threat from human activities and climate change . Understanding their importance and implementing effective conservation strategies are crucial for their protection and sustainable use.

SUGGESTIONS -

On the basis of the present study , the following suggestions have been made ;

To know the threat of mangroves by naturally or anthropogenic process

- Discourage the conversion of mangrove forests for shrimp aquaculture
- Reduce plastic pollution and don't throw waste material on sea water
- Avoid construction work near mangrove areas
- mangrove reforestation and restoration projects
- Raise awareness about importance of mangrove among people.

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