**Ecological Character Description of Sundarban:-**

The Sundarbans is the largest single chunk of deltaic mangrove forest on this planet formed at the mouth of the Ganga- Brahmaputra river system, both in India and Bangladesh. This is also the only mangrove tiger-land on the globe, where the world famous ‘Royal Bengal Tiger’ (*Panthera Tigris*) is found.

This sea-land inter - phase ecosystem of Sundarbans comprises of about 55% forest land and 45% water spread area, in the forms of tidal river, creeks, canals and vast estuarine mouths of the river Hugli, Baratala, Saptamukhi, Thakuran, Matla, Goasaba and Harinbhanga (Herobhanga), as encountered from west to east (Naskar & Guha Bakshi, 1987). These rivers along with numerous tidal creeks and canals render this entire ecosystem a criss-cross network like look. All these rivers are connected with the Bay of Bengal in their Southern extremities. The tidal estuarine mouths are sometimes about 6 km broad, which carry the tidal sea - water and flood the mangrove forests at regular intervals. In the extreme west of this mangrove forest, the river Hugli (Ganga) meets the Bay of Bengal, carrying fresh water from upstream. Most of the other estuarine rivers mentioned above have lost their connections with the river Ganga and as such, their tidal water has become more saline.

The Indian Sundarban falls between the latitudes 210 31’ and 220 31’ North and 880 10’ and 890 51’ East longitudes. It is bound on the west by river Muriganga and on the east by rivers Harinbhanga and Raimangal. Other major rivers flowing through this eco-system are Saptamukhi, Thakuran, Matla and Goasaba. River Matla divides Sundarban Reserved Forest into Sundarban Tiger Reserve on the east and and reserved forest of South 24 Parganas Division on the west. The extent of mangrove Reserved Forests in Indian Sundarban is around 4260 sq. Kms. which is divided into two for administrative sake. One is Sundarban Tiger Reserve of area 2600 sq. Kms. and the other is 24 parganas (S) Division of area 1660 sq. kms where both fall under Sundarban Biosphere Reserve of area 9660 sq.kms( R.F area of 4260 sq.kms and another 5400 sq km of non-forest, inhabited region in India). Sundarban Biosphere Reserve, covering the entire Indian Sundarban Region, was constituted as a National Biosphere Reserve under Man and Biosphere (MAB) Programme in 1989 and subsequently, it has been declared as a Global Biosphere Reserve by UNESCO during November 2001.

24 Parganas South Division is situated in 24 Parganas (South) district of West Bengal which is a part of famous “Indian Sundarbans” and covers the south - western portion of gangetic delta bordering the Bay of Bengal. 24 Parganas South Division is located between 22030’45” and 20029’00” north latitude and between 89004’56” and 88003’45” east longitude. A vast track of rich mangrove forests in the south – western part of this division also harbours the famous Royal Bengal Tiger, spotted deer, wild boar, estuarine crocodile, water monitor lizard, king cobra, gangetic dolphin etc. This part was also included in the erstwhile district of 24 parganas and was declared as reserved forests vide gazette notification no. 7737 – For dated 29th May 1943.

Two forest blocks of 24 Parganas South Division on the south, Dulibasani (Part) and Chulkati form the West Sundarban Wildlife Sanctuary of area 556.46 sq. Kms and was declared as West Sundarban Wildlife Sanctuary by considering the adequate ecological, faunal, geomorphological, natural and zoological significance for the purpose protecting, propagating and developing wildlife and its environment vide notification no 1828-For/11M-86/2012(Pt.I) dated Kolkata, the 11th September, 2013. It lies between 21050’45”and 21030’29” north latitude and between 88042’50” and 88029’23” east longitude.

Here it will be worth mentioning that Haliday Island Wildlife Sanctuary bounded by the River Matla of area 5.96 sq. Kms is situated on the eastern part of this sanctuary.

# Boundaries

 North: Ajmalmari River junction with Thakuran River; Suia Gang

 South: Bay of Bengal

 East: River Matla

 West: River Thakuran

The sanctuary comprises of two forest blocks namely Dulibhasani and Chulkati having eight compartments in each block i.e. total sixteen compartments of total area 556.45 sq.kms.

**Out of this total recorded forest area, 55% is under land vegetation cover and rest of the area i.e. 45% is under waterbody / intertidal zone.**

**Statement of Significance:**

 **General Significance:**

Sundarban Mangrove Forests of the Protected Area is having the wide bio-diversities of floral species. It is the only mangrove forest in the world with such biodiversities and also the home of Royal Bengal Tiger. It is the nesting ground for marine turtles like olive ridley, green turtle, etc. Endangered gangetic dolphin lives within the creeks, canals of this mangrove forests.

A good number of Estuarine Crocodile, Water Monitor, Cheetal etc. are also available. The Sanctuary is popular for its scenic beauty such as forest landscape with its riverine eco-system which no one can forget. This Sanctuary is a paradise for birds such as Fulvous breasted Woodpecker, Stripe breasted Woodpecker, Blackrumped Flameback, Blue throated Barbet, Common Kingfisher, Stork billed Kingfisher, White throated Kingfisher, Blackcapped Kingfisher, Collared Kingfisher, Pied Kingfisher, Common Hawkcuckoo, etc.

 **National level Significance:**

The location of the sanctuary is in the mouth of the Bay of Bengal and has a number of animals of schedule - I of the Wildlife Protection Act, 1972 which are as follows:

* The Tiger (Panthera Tigris)
* The Fishing Cat (Felis viverrina)
* The Gangetic Dolphin (Platinista gangetica)
* The Water monitor Lizard (Varanus salvator)
* The Estuarine crocodile (Crocodilus porosus )
* The Olive Ridley Turtle (Lepidochelys olivacea)
* Irradwary Dolphin ( Orcaella brevirostris)

 **Significance at International level:**

World Wildlife Fund (WWF) identified the Indian Sundarban as an ecosystem with global priority for conservation and, therefore, kept it in the list of 200 identified global eco-regions. The area is included in the World Bank list of “Areas of Regional Priority” due to high biological values and diverse environments. Twenty three (23) animal species found here are in the IUCN Red list. As a part of trans-boundary ecosystem, the Sundarban provides significant ecological services worldwide including hydrological regulation, erosion control, nutrient cycling, sediment retention and carbon sink. It has the most viable remaining population of the tigers. Recently Sundarban finds an important place in respect to issues related to global warming and climate change.

 As a part of the Indian Sundarban, the West Sundarban Wildlife Sanctuary has its significance in the International context for providing shelter and protection to various species of wildlife included in the Red Data Book

**Significance at Local Level:**

West Sundarban Wildlife Sanctuary is having a rich and wide biodiversity of floral species. There are 84 mangrove species in the sanctuary. This sanctuary is the home of Royal Bengal Tiger. It is also the home of globally threatened species namely Fishing Cat, Estuarine crocodile etc. A good number of tiger populations are seen in Sundarban in the country. It also forms number of monsoon heronaries and winter swamp home for trans- Himalayan migratory Birds.

Mangrove flora for salinity resistance has many adaptations like extensive lateral root system, presence of pneumetaphores in the roots, thick and waxy leaves and vivipary germination.

 In the sanctuary, sighting of Olive ridley turtle, Gangetic Dolphin, Estuarine Crocodile are very common. The same is true for the ever increasing population of Chital and Wild boar in the area though the chance of tiger sighting is not common. This sanctuary is the rich breeding ground of fishes and fishing is the source of livelihood of many people.

**Scientific Significance:**

As the sanctuary is very rich in flora and fauna there is an ample scope of research on these. It also provides an excellent opportunity for study on most dynamic eco-system with tremendous regenerating, self-sustaining capability. One can also study and research on carbon emission and absorbtion in Sundarban mangrove forest as the forest acts as a very good carbon sink.

The P.A. provides an excellent opportunity for study of the habitat, behaviour, food, estimation of tiger population as there is a good number of tiger in the sanctuary. Study can be done on different herbivores and birds since this PA is very rich with flora and avifauna.

The multitude of water bodies, including rivers channels and creeks that criss-cross the mangrove forests of West Sundarban Sanctuary supports many species of fish. The fallen leaves of mangrove plants enrich the soil-water phase and the environment creats an ideal nursery ground for innumerable species of fish. Ecological studies of fish and their inter action with various floral and faunal elements of the estuarine ecosystem, is a vast field of study and research in this field. Some marine fishes that migrate upriver through the estuaries to breed in fresh water conditions include Hilsa, Pama, Sillaginopsis and Polynemus.

Several species of shark and rays also wander into the estuaries of the sanctuary.

 **Economic Significance:**

 With the development of eco-tourism the local economy will improve. Moreover conservation activities and different developmental works in and around Wildlife Sanctuary will increase employment opportunities of the surrounding villages.

The mangrove biotas of this sanctuary enrich the soil-water phase and the environment creates an ideal nursery ground for innumerable species of fish. So it will be a good source of income for the villagers.

 Mangrove flowers are nectar bearing and produce huge honey. It will also increase employment opportunities.

 **Anthropological and Cultural Significance:**

Human artefacts, including some old and new Stone Age weapons, provide archaeological evidence dating back to 150,000 B.C – 40,000 B.C.found in

Chandraketugarh suggest that there might have been some trade between the Harrapa and Mohenjodaro civilizations with the civilization present in Lower Bengal during this period (Mandal & Ghosh, 1989).

The region fell under the control of the Gupta Dynasty (320 – 540 A.D) and then fell under the control of the Pal (c.760-1142 A.D) and Sen (c.1118- 1199 A.D) dynasties. After wards the Muslims occupied Bengal in the 13th Century and in 1576, following an invasion by Akbar’s forces, Bengal became part of the Mughal Empire. In 1757, Mir Jafar, Nawab of Bengal, gave the 24 Parganas District, including the Sunderbans to the British East India Company.

During 12th to 16th Century, the Bengal basin suffered an easterly tilt due to a neotectonic movement. As a result the river Ganges which used to flow through the present Indian Sunderbans, now courses along the river Padma on the east into the Bangladesh. Due to shortage of sweet water the wild animals like Javan Rhino (Rhinoceros sndicus), Wild Buffaloe, Swamp

 Deer (Cervus Duveceli), Gharial (Gavialis gangeticus), Sweet water turtle (Chitra Chitra) have been extinct within about last Century. Even Barking Deer (Muntiacas muntjack) which was found in Haliday and Lothian in few years back now has become extinct from this region.

Culture:

The principal local folk deities are Dakshin Rai and the forest goddess Bonbibi etc.

 Bonbibi:

The Lady of the Forests – is the presiding female deity of the Sunderbans cultural zone. She is the guardian deity of the forests. Both the Hindu and Muslim communities pay their respects to the deity before venturing into the forest. She is pretty and graceful and protect the people of the Sunderbans. The deity is often dressed like a Muslim woman with plaited hair and wearing a ghagra-choli with a brocade cap on her head. She carries a child in her arms. In some areas, the deity wears a sari.

 Dakshin Rai cult:

Dakshin Rai is the god of tiger. His dress is in yellow robes and armed with sword, gun, bow and arrows, and the other depicting him as a terracotta human head with large eyes, a moustache and leaf-like, conical head-gear. Wood cutters, boatman, honey collectors and other communities worship this god especially on Makar Snakranti day. Dakshin Rai legends sometimes depict him as a warrior seated on a tiger with a bow and arrow in his hands. He is undoubtedly the main folk deity and his worship is an important ritual of the cultural and religious history of the Sunderbans. The villagers around the Wildlife Sanctuary, out of which a substantial population belongs to Schedule cast, are heterogeneous in nature and their cultural diversity is a matter of study.