



Technical report on Hdh.Neykurendhoo Mangrove and Wetland

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Report No:



EPA

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A satellite image of a small, roughly oval-shaped island. The island is surrounded by a shallow, light blue lagoon. On the left side of the island, there is a coastal town with numerous buildings and a few larger structures. The rest of the island is covered in dense, dark green forest. The image is part of a Google Earth interface, with a scale bar at the bottom left showing 0 to 557 meters, and a Google Earth logo at the bottom right. The coordinates at the bottom center are 7°21' 25.17" N, 157°54' 30.54" E. The image date is 8/11/2016. The image is oriented with North at the top.

Mangrove and Wetland Area

The Mangrove and wetlands are mainly on the west side of the island. Total area of the mangrove and wetlands are 28.3 hectares which is 16.7% of the total land area of the island. The two Freshwater mangroves situated here are labeled as “Site A” and “Site B” in the Island map, the mangroves are 0.32 hectares and 0.11 hectares respectively. These two water bodies are formed by detaining rainwater, it was observed by the islanders that during the rainy season, the water bodies are overflowed while the water content in these decreases greatly as the rainy season ends. The water tests done also support this as the salt content of “Site A” was calculated to be 1.14 ppt and “Site B” it was 1.12 ppt. All the plant species found in these areas are mangrove plants and most of the trees in these sites are found to be aged due to their canopy cover and size.



The total dissolved solid (TDS) is measured to be high due to the remains of the fallen tree branches and leaves. The TDS is measured to be 50-100 NTU and total suspended solid (TSS) are measured to be 42-81 mg/L. Water depths of the two wetlands are between 0.3-1.0 meters, the efficiency of the height is varied due to the muddy sand layers at the bottom.

Site	Units	Site	A	B
Temp	°c		28.03	28.4
E. Cond.	mS/cm		2.237	2.194
TDS	g/l		1.454	1.426
Salinity	ppt		1.14	1.12
DO	mg/l		0.61	0.81
pH			8.03	8.01

Table1 : Water quality test results

MANGROVE SPECIES FOUND

From the common mangrove plant species found in Maldives, 6 species were found in the mangrove/wetland area of Neykurendhoo. The species found are *Bruguiera gymnorhiza*, *Excoecaria agallocha*, *Lumnitzera racemosa*, *Xylocarpus moluccensis*, *Bruguiera cylindrical*.

Bruguiera cylindrica is most common in the mangrove/ wetland areas of Neykurendhoo, it was found that there were trees with more than 20 meters in height in that area. The plant survey results showed that in every 900sqm, there were more than 100 trees with height less than 1m and 20 trees with height 2-5m and at least one tree with a height more than 5m.

Bruguiera gymnorhiza and *Excoecaria agallocha* are very rare but *Lumnitzera racemosa* was found to be quite common in "SITE A". The results of the plant survey conducted concluded that HDh.Neykurendhoo has the record amount of *Bruguiera cylindrical* when compared to other islands of Maldives.

Mangrove crabs and seasonal migratory birds were seen in the mangroves/ wetlands of the island.

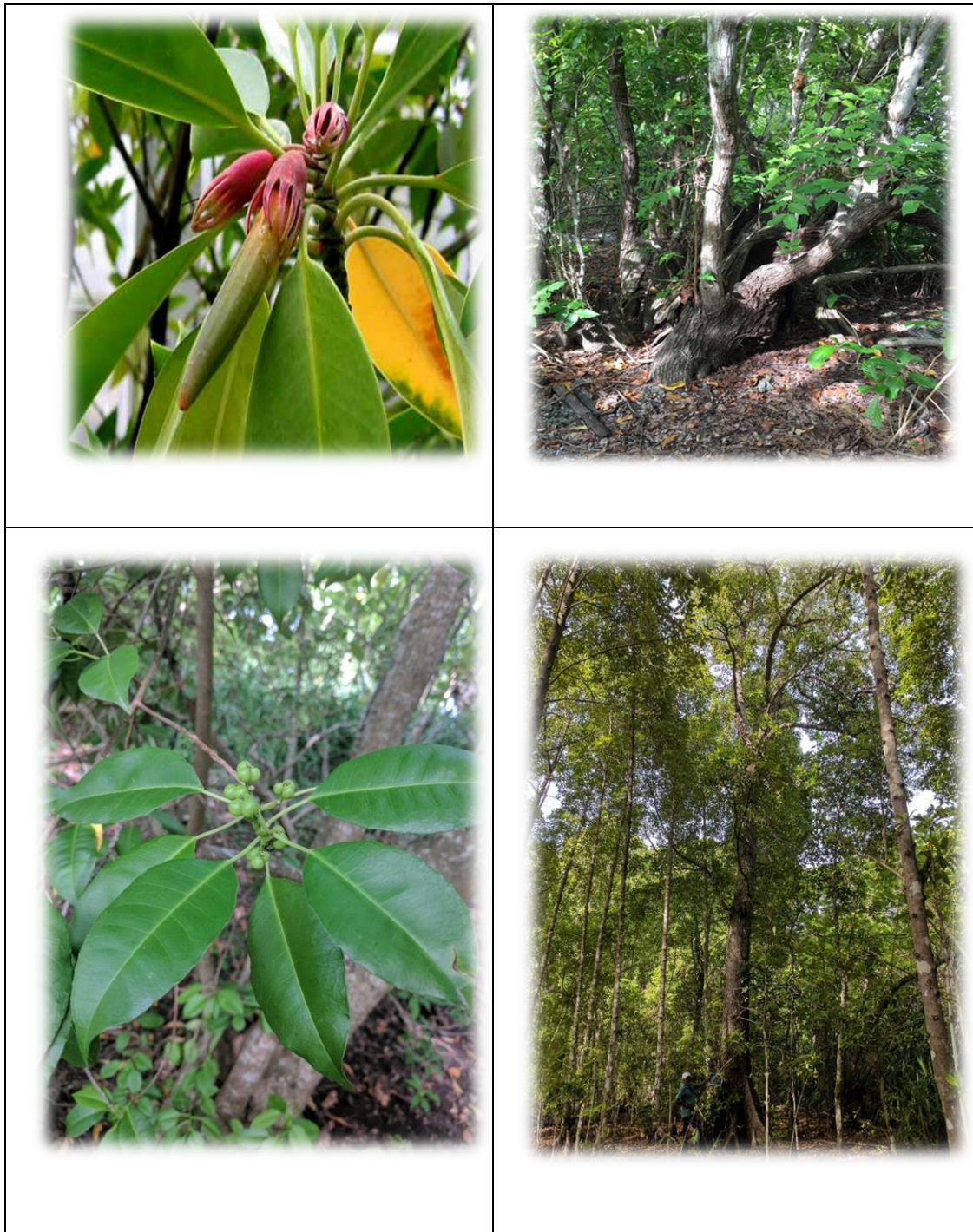


Image 1: Mangrove and wetland species found in Neykurendhoo

Importance of Mangrove/Wetlands

1. Mangrove/Wetlands are known to be diverse areas which are the nursery grounds for many species of fishes and birds. Also these areas are known to be suitable habitats for seasonal migratory birds.
2. Maldives being a low-lying and less land area, it is important to have mangroves/wetlands which increase the nutrient content in the soil and make the soil more fertile for healthy growth of different species of plant.



3. The roots of the mangrove/wetland plants have features which enable them to stable the sediments around them and also they act as water absorbent; during the rainy season the water is absorbed by these roots and transferred to the water lens of the island. Maldivian islands with thin water lens, this natural process of increasing the water lens is a very beneficial.
4. The “true mangrove species” helps to remove the toxic substances in the water bodies, and help to remove contamination of the water lens as well.
5. Mangroves/wetlands help to minimize the effects of extreme monsoonal events such as sea swells and flooding. This helps to protect infrastructure and people.
6. Acts as a carbon dioxide sequestrate. Studies show that mangrove/wetlands clear 25.5 milli tonnes of carbon dioxide each year. Hence mangroves/wetlands are recognized as a natural defense mechanism against the effects of climate change and global warming.

Threats to mangroves and wetlands

Most of the mangrove/wetland area of this island is still in its natural state without much human intervention as the area is very large and accessibility is very limited. However, the large mangrove trees such as *Bruguiera cylindrica* and *Bruguiera gymnorhiza* are cut down for their timber uses, and to transport these timber a path was cleared by removing the vegetation.



Image2 : Huge Mangrove trees cut down for their timber





Image3 : "Kuda fengandu" wetland



Image 4: "Bodu Fengandu" wetland



Image4 : Mangrove crab in Neykurendhoo



Image6: Maru trees in Neykurendhoo



Image5 : Plants infected by disease