

Floating Mangrove Garden

EXPLORING FEASIBILITY OF GROWING MANGROVE ON FLOATING ISLANDS IN THE MALDIVES

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SUMMARY

The Maldives is a small island country located in the Indian Ocean region. Due to global warming the sea level keeps rising. By the year 2100 the sea level will be 2-5 meters higher than in the year 2000. However, the average elevation of the Maldives is only 1.6 meters. In this view, if no measures are taken within a 100 years the archipelago will be submerged by water and disappear from the map.

So the Maldives government does its utmost to save the country. Recently the government has come up with the idea to build floating gardens, to increase the land area of the country. The floating mangrove island is a part of this project. Mangroves are typical, tropical specialized trees growing in saline and brackish water systems, and it has specifically adapted itself with aerial and salt-filtering roots and salt-excreting leaves which enable them to occupy the saline wetlands where other plant life cannot survive.

This report analyzes the feasibility of growing trees on artificial floating islands in the Maldives.

There are 13 mangrove species that grow in the Maldives. To find out the most suitable species, the thesis used a Multi-Criteria Decision Making method. It contains three main parts, which are ecological conditions, practical demands and economic factor. The ecological conditions which include air and water temperature, insolation¹, wind, nature of soil and drainage, soil salinity, groundwater level and freshwater source. The practical demands describe height of the trees and maintenance requirement. The economic factor refers to the price of young trees. These factors are weighted and valued according to their importance.

The two highest value mangrove species come out after summing up all the value together, they are *Avicennia marina* and *Pemphis Acidula*.

The species may be used in the floating mangrove garden, an impression is given of the basic structure of the floating garden, which is expected to be used in the Maldives floating mangrove gardens project

¹ Insolation: Incident Solar Radiation, a measure of solar radiation energy received on a given surface area and recorded during a given time.

