# UNIVERSITI TEKNOLOGI MARA

# MANGROVES REHABILITATION AT PAHANG AND JOHOR

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Thesis submitted in fulfilment
of requirements for the degree of
Bachelor of Surveying Science and Geomatics
(Hons)

**Faculty of Architecture, Planning and Surveying**

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# AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## ABSTRACT

Mangroves forest globally has experienced a massive land use land cover change. Mangrove area was degrading, and the lost was about 35% of the original mangroves area in the year 2000.Due to this, many efforts and initiatives have been implemented to rehabilitee mangrove area at a large scale globally. However, lots of rehabilitation has failed due to mangroves sapling died of suffocating during tide fluctuation. To exacerbate the problem, some of the planting site did not have the record on the hydrodynamic study to identify the inundation period. This study is to identify the status of mangroves rehabilitation site at Kg Sungai Balok, Pahang and Kg Sungai Melayu, Johor by measuring mangrove trees height from ground level to tree top (root to shoot) and also land elevation. The analysis for tidal fluctuation at rehabilitation area was used to determine the mangroves tree inundation period. A detail survey has been carried out at both sites to measure ground level (land elevation) using radiation method. This method has effectively record intended details due to compact research areas and 100% details visibility. Tidal fluctuation was graph using year 2020 tide prediction table. Inundation period were then calculated as a function of tidal water level against mangroves tree height measured from land elevation to tree shoot. At Pahang mangrove rehabilitation site having the lowest water level at -0.13m, at hours 2200 on July 22 2020 and the highest at 2.67m at hours 2300 December 16 2020. As a result, none mangrove trees here are fully inundated (zero hours annual inundation period). However, there are five mangroves tree slightly higher than tidal water level and become partly under water during high tide. For Johor mangroves rehabilitation site, two mangroves trees are fully inundated for more than half a year; PKK35 (58.29%) and PKK40 (58.81%) . There are five trees have zero hours annual inundation period but slightly higher than tidal water level and partly under water during high tide. The rest of the mangroves trees are inundated during the high tide. This area lowest land elevation is -0.21m and the highest is 3.46m. Inundation periods at both sites at Pahang and Johor has demonstrates the significance of land elevation for mangroves rehabilitation site selection. Inundation period as a function of mangroves tree height and tidal fluctuation are important factors for mangroves sapling survival from suffocation at the early stage of mangroves rehabilitation sites.

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