UNIVERSITI TEKNOLOGI MARA

ENHANCING URBAN MANGROVE CORRIDOR THROUGH ECOLOGICAL SPACE RESTORATION

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ABSTRACT

The Sg. Petani River is vital to the local community. The river was an important resource and mode of transportation during the British era. There are numerous rivers in Malaysia, one of which is in the Sungai Petani district, where a Sungai Petani River has been forgotten and marginalized in the town. The area surrounding the river is rapidly growing. The river is no longer valued by the local community and is now used as a landfill. Aside from the long-standing issues, bad odors from the river contribute to a negative perception of the river. As a result of that issue, the riverfront space has become isolated; improvements to connectivity have yet to be made, and people have lost interest in visiting. The mangrove community is the river's most valuable treasure, which has been hampered by water degradation in the site study. Majlis Perbandaran Sungai Petani intends to make the river a main attraction in the area after realizing the river's loss and its benefits to the environment. The riverfront development approach of the Majlis Perbandaran Sungai Petani plan has been chosen as the site study for the Sungai Petani River. The design solution is contained in the master plan, perspective, and other strategies. In short, riverfront development is the most effective way to revitalize the riverfront community.

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INTRODUCTION

1.1 RESEARCH BACKGROUND

Mangrove forests are coastal habitats that support ecologically macroinvertebrates that help the coastal ecosystem function and even influence the pelagic food chain. Only Indonesia has an immense mangrove forest than Malaysia (641,886 acres) (Spalding et al., 2010). Malaysia is part of the Indo-West Pacific (IWP), a biogeographic zone of tropical waters stretching from the Indian Ocean to the Pacific Ocean. The loss and fragmentation of mangrove forests are attributed to urban development. Although mangrove decline is expected to continue in the future, more study has yet to be conducted on the effects of urbanisation on biodiversity within mangrove forests. (Stiepani, 2021)

1.2 THE CHARACTERISTIC AND ROLE OF THE MANGROVES

The topic in this thesis is focusing on the Mangrove Restoration in urban area. The natural mangrove area is facing environmental crisis where development & commercial sector occur near the riverbank areas and has cause some major issue which affected the natural habitat.

Ecological restoration programmes frequently need to be more consistent and predictable, which may limit the overall impact on biodiversity. We discovered that restoration efforts boosted biodiversity by an average of 20% while decreasing biodiversity variability (as evaluated by the coefficient of variation) by an average of 14% compared to unrestored (degraded) sites. As restorations matured, mean biodiversity increased while variability decreased compared to unrestored locations. On the other hand, restoration sites remained 13% less in richness than the reference (target) ecosystems and had higher (20%) variability. The lower mean and higher variability in biodiversity at restored sites remained steady over time, showing that variance sources (e.g., past land use and restoration processes) have a long-term influence on restoration outcomes. Our findings underscore the importance of further research into the causes