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COASTAL GREEN INFRASTRUCTURE: REINFORCEMENT OF COASTAL DEFENCES SYSTEM AS SUSTAINABLE COASTAL PRACTICE AT PANTAI KEMASIK, KEMAMAN, TERENGGANU

This academic project is submitted in partial fulfilment of the requirement for the Bachelor of Landscape Architecture (Hons.)

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In the Name of Allah, the Beneficent, the Merciful

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ABSTRACT

East coast area of Peninsular Malaysia is very famous with the existence of natural coastline that being the main contributor's towards tourism attraction. Tourists and local peoples love to visit coastal area as a recreational hub due to the attractive natural environment that far from city hustles and bustles. As a matter of fact, the coastal area is absolutely essential for various purposes such as for residential, recreational, tourism, marine activities and educational that contributes towards the development of socioeconomic for the local community. However, physical development has risen in these recent years. Coastline may change due to several factors; it can be either caused by natural or human activities. The most influenced factor is the erosion along the coastline. This factor is the main focus of this research paper. Many coastal areas in peninsular Malaysia suffer from erosion. One of the worst affected areas is the Pantai Kemasik, located in the district of Kemaman in east Malaysia. Over the last decades, Pantai Kemasik hit by erosion that cause by many factors and this phenomenon changed the original state of the coastline. In a time when coastal populations are growing and the number of coastal disasters is escalating, communities are beginning to look for a way to improve coastal defence system to create a resilient coastline for community. This study evaluates the potential of Coastal Green Infrastructure (CGI) strategies to protect shorelines from coastal erosion by the implementation of coastal defence system using the natural resources compared to manmade element. This approach normally practices the creation, restoration and emulating natural coastal features that varies in types. They are also beneficial in other aspect such as rebuild the habitat for wildlife upland and inland, improving water quality and also enhance the visual quality of a coastal area that can be a new attraction to the visitors.

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CHAPTER 1: INTRODUCTION TO TOPIC

1.1 INTRODUCTION

The Malaysian coastal zone varies from rocky headlands to the shallow mud flat lined. In the east coast of Peninsular Malaysia, the coastline along sandy bays is hook-shaped that formed from the high sediment yield from harsher wave environment and river discharges. Whilst on the west coast, the coastal forest rich in biodiversity and the setting for the coastline is wide mud shores. These characteristics similar with the beaches of Sarawak and Sabah although certain sandy areas are very flat (Department of Irrigation and Drainage Malaysia, 2015). The coastal zone also plays as an important part of people's life. As a comparison, 10% of the total earth surface represent for coastal zone and inhibited by 50% of the population (Port Klang Integrated Coastal Management Project, 2006).

According to the National Coastal Erosion Study (1986) in Department of Irrigation and Drainage Malaysia, the study result from November 1984 to January 1986 indicated about 29% or 1,380 km from 4,809 km of the country's coastline was facing erosion. The Government has set up the Coastal Engineering Centre in the Department of Irrigation and Drainage (DID) in 1987 to implement coastal erosion control program throughout the country to cope with this problem.

The National Coastal Erosion Study 1986 classified the shoreline in Malaysia into three categories of erosion depending on the threat it caused to the existing shore-based facilities of substantial economic value.

- Category 1: Shorelines currently in a state of erosion and where shore-based facilities or infrastructure are in immediate danger collapse or damage.
- Category 2: Shoreline eroding at a rate whereby public property and agriculture land of value will become threatened within 5 to 10 years unless remedial action is taken;
- Category 3: Undeveloped shoreline experiencing erosion but with no or minor consequent economic loss if left unchecked.