

SESSION KEYNOTE

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Coastal Vulnerability Index based on Sea-Level Rise



AHMAD KHAIRI ABD WAHAB

Center for Coastal and Ocean Engineering
Research Institute for Sustainability Environment
Universiti Teknologi Malaysia
Jalan Sultan Yahya Petra, 54100 Kuala Lumpur
Email: akhairi@utm.my

The IPCC Fifth Assessment Report (AR5) stated that it is very likely that the sea level will rise in more than about 95% of the ocean area and that the global mean sea level rise (SLR) will continue for many centuries beyond 2100. Malaysia has approximately 4,809km length of coastlines in Peninsular Malaysia, Sabah and Sarawak. Apart from the visible threats of coastal erosion, the impending sea level rise presents complex challenges to the coastal zone, where about 70% of the country's population reside. A study in 2010 projected SLR in 2100 to be between 0.25-0.5m in Peninsular Malaysia, 0.69-1.06m in Sabah and 0.43-0.64m in Sarawak. The IPCC AR5 working group further suggested that published global projections may even be exceeded resulting from sustained mass loss by ice sheets. The impact to our coastal zones was assessed through a tool that measures the relative vulnerability along the coast, known as the

Coastal Vulnerability Index (CVI) to sea level rise. A pilot study was conducted using this technique on two diverse coastlines namely Tanjung Piai in Johor and Pantai Chenang in Langkawi, Kedah. Tanjung Piai has a gently sloped muddy foreshore with natural mangrove cover facing the Straits of Melaka. Pantai Chenang on the other hand overlooks beyond the Straits of Melaka towards the Andaman Sea. It has a mild to gently sloped sandy beachfront, is highly populated and frequented and have a mix of flat to hilly nearshore land features. Langkawi International Airport is situated here. The CVI is on a scale of 1 to 5, from the least to highest vulnerability. It is derived from physical, biological and socio-economic parameters unique to defined sectors along the coastline. The CVI value is calculated based on the weightage of each parameters with respect to its sensitivity to sea level rise.