

## **ABSTRACT**

### **Potential Sea Level Rise Causing the Flooding in Coastal Areas; an Analysis Using the Raster Dataset Method in ArcGIS 10.1 Software of Timor-Leste Area**

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Timor-Leste Island located between the Australian Continent and Banda terrain, at the coordinates of 8.8742° S, 125.7275° E. The main objective of this study is using the remote sensing analysis to locate and mapping the potential sea level rise along the coastal areas in Timor-Leste, with a raster elevation dataset method in ArcGIS 10.1 software. Other objectives are to recommend the mitigation and solution on minimizing the coastal flood occurrences in the potential affected areas. The study area only focusing on coastal areas, this includes; Baucau Municipality, Bobonaro Municipality, Covalima Municipality, Dili Municipality, Lautem Municipality, Liquiça Municipality, Manatuto Municipality, Manufahi Municipality, Oecusse Municipality, and Viqueque Municipality. In analysis of the geological condition, the Geological condition such as tectonic activity (earthquake) and sea level rise is used, as well as using the previous regional study on sea level rise using SRTM methods on the study area. In conclusion, due to the previous studies and the result of analysis using the raster dataset method data shows Timor-Leste island is prone to the occurrences of coastal flooding from the analysis of 2.5m sea level rise. The climatic change impact the behavior of sea level rise from the wind as well as tide impact on the lower elevation areas of coastal to get flooded. There are mitigating measures needed in minimizing the potential occurrences of coastal flooding such as; Public Information, Notification and Education, Land use options & Government policy as well as the engineering parameters such as; Structures and barriers, Tide gates with pump stations, Earth berms (and raised roads), Floodwalls & bulkhead, Storm water system upgrades, Retention ponds, Increase drainage system capacity, Rising of structures and roads.

***Keywords: Remote Sensing Analysis, Coastal Flooding, Raster Dataset Method.***