SUMMARY

DANIEL JANUAR PRAKARSA HARANITA SIAHAAN. Mapping of Coastal Vulnerability Caused by Rising Sea Levels in the Coastal Area of Indramayu, West Java. Supervised by JONSON LUMBAN GAOL and RISTI ENDRIANI ARHATIN.

Rising sea levels are on the rise in recent decades due to global warming, such as shown by scanning of multi-temporal satellite TOPEX/Poseidon from 1993 to 2010, about 3.2 mm/year. The impacts of rising sea levels mainly occur in coastal areas that have a low elevation because it can cause the puddle and erosion. Indramayu, in Java’s north coast region, currently experienced high level of abrasion, intrusion, and sedimentation, so that a study on the impact of global climate change on coastal Indramayu needs to be carried out. The purpose of this research is to map the locations in the coastal region of Indramayu that have the risk of vulnerabilities due to the increase of sea levels.

This research was carried out starting from August 2010 to September 2011 in Indramayu, West Java. Geographically, the location of the research was at 107 ° 54' 54,6" - 108 ° 32' 25,1" E and 6 ° 13' 45,64" - 6 ° 31' 5,35" S, with coverage area of 1.6 km from the coastline. Coastal Vulnerability Index used divided the six parameters, namely geomorphology, elevation, change the shoreline, tidal wave, and rate of increase in sea levels.

Based on the class parameter vulnerability of geomorphology, 16,37% of Indramayu coastal was found to be in the category of highly vulnerable, about 83,46% was in the category of vulnerable, and around 0.28% are included in the category of quite vulnerable. Elevation vulnerability classes showed about 68,67% belonged to the class of highly vulnerable, 27,08% belonged to the vulnerable class, and about 4.09% was in the category of quite vulnerable. Less than one percent of Indramayu is included in the categories of not vulnerable and not very vulnerable. Parameter of changes in the shoreline showed that approximately 31,14% of Indramayu’s coastal is in the category of vulnerable while less than 1% belongs to the category are particularly vulnerable. Wave and tidal parameters indicated that coastal of Indramayu is in category of not very vulnerable, while increase in sea levels indicated the Indramayu belonged to the category of highly vulnerable.

The coastal area of Indramayu is very prone to rise in sea levels. The results of this research showed the vast coast of Indramayu area 151,61 km², about 42,37% of the Indramayu was included in the category of highly vulnerable, about 34,87% was included in the category of vulnerable, about 16,38% was included in even category, approximately 7,85% was included in the category of not vulnerable, and about 0.90 % belonged to category of not very vulnerable. The districts with area of highly vulnerable class were Pasekan, Cantigi, and Kandanghaur, while in the highly invulnerable level were Losarang, Krangkeng, Kandanghaur, Balongan, Indramayu and Cantigi.