INTISARI

Fenomena kenaikan muka air laut akibat pemanasan global dan peningkatan abrasi akibat konversi lahan tanaman mangrove menjadi lahan tambak, serta pengaruh topografi wilayah, diperkirakan akan meningkatkan luas genangan banjir pesisir (banjir rob) dan mempengaruhi pemanfaatan kawasan pesisir di Pesisir Kecamatan Brebes, Kabupaten Brebes. Kerentanan bencana memiliki peran penting dalam penilaian risiko bencana. Wilayah dengan tingkat bahaya dan kerentanan tinggi memiliki risiko bencana yang signifikan, sehingga perlu dilakukan upaya penanganan bencana.. Tujuan penelitian ini adalah menyusun peta bahaya banjir rob berdasarkan hasil pemodelan banjir rob, menilai tingkat kerentanan sosial dan ekonomi, dan menentukan startegi pengelolaan pesisir melalui upaya adaptasi dan mitigasi beanjir rob berbasis pemodelan bahaya dan kerentanan di Pesisir Kecamatan Brebes, Kabupaten Brebes.

Pemetaan bahaya banjir rob dikembangkan dengan mengintegrasikan operasi *Geographic Information System* (GIS) dengan *Digital Elevation Model* (DEM) dan tingkat genangan banjir yaitu 10 cm, 50 cm, dan 150 cm, yang bersumber dari ketinggian minimum hasil survey, nilai muka air dibawah surut terendah, dan pasang tertinggi kondisi kondisi purnama di Kecamatan Brebes. Pemodelan banjir rob menggunakan analisis *raster calculator* pada Map Algebra di ArcGIS dan menghasilkan peta bahaya banjir rob. Penentuan indikator kerentanan sosial dan ekonomi menggunakan metode *Analytical Hierarchy Process* (AHP). Parameter penilaian kerentanan sosial meliputi jumlah penduduk, kepadatan penduduk, rasio jenis kelamin, dan rasio kelompok umur. Parameter kerentanan ekonomi meliputi lahan tambak, lahan sawah, jumlah keluarga miskin, penduduk petani, penduduk nelayan, dan jumlah ternak. Pengelolaan pesisir berbasis bencana melalui upaya adaptasi dan mitigasi perlu dilakukan untuk mengurangi dampak kerugian akibat banjir rob. Indikator upaya adaptasi dan mitigasi banjir rob meliputi kejadian bencana, dampak, karakteristik, dan cara adaptasi dan mitigasi.

Hasil pemodelan banjir rob menunujukkan wilayah terdampak meliputi Desa Kaliwlingi, Randusanga Kulon, Randusanga Wetan, Pangejukan, dan Kaligangsa Wetan dengan total luas skenario 10 cm sebesar 24,44 km^2, skenario 50 cm sebesar 26,57 km^2, dan skenario 150 cm sebesar 31,85 km^2. Penggunaan lahan paling terdampak banjir rob adalah tambak. Kerentanan ekonomi menghasilkan desa dengan tingkat kerentanan tinggi meliputi Desa Kaliwlingi dan Desa Pangejukan. Sedangkan kerentanan sosial menghasilkan desa dengan tingkat kerentanan tinggi meliputi Desa Kaliwlingi, Randusanga Kulon, Pangejukan, dan Limbangan Kulon. Sehingga desa perioritas pengurangan risiko bencana meliputi Desa Kaliwlingi dan Pangejukan, dan desa yang juga perlu ditangani meliputi Desa Randusanga Wetan dan Randusanga Kulon. Strategi adaptasi yang dapat dilakukan dengan 3 alternatif meliputi strategi adaptasi protektif, akomodatif, dan mundur. Sedangkan upaya mitigasi dalam rangka pengurangan risiko bencana banjir dilakukan dengan metode struktural dan non struktural.

***Kata Kunci** : banjir rob, kerentanan, adaptasi dan mitigasi, brebes*

ABSTRACT

The phenomenon of sea level rise due to global warming and increased abrasion due to the conversion of mangrove land into ponds, as well as the influence of regional topography, is expected to increase the inundation area of coastal flooding (tidal flooding) and affect the use of coastal areas in the Brebes District, Brebes Regency. Disaster vulnerability has an important role in disaster risk assessment. Areas with high levels of danger and vulnerability have significant disaster risk, so disaster management efforts need to be carried out. The purpose of this study is to compile a rob flood hazard map based on the results of tidal flood modeling, assess the level of social and economic vulnerability, and determine coastal management strategies through efforts robber adaptation and mitigation based on hazard and vulnerability modeling in the Coastal District of Brebes, Brebes Regency.

Tidal flood hazard mapping was developed by integrating the operation of Geographic Information System (GIS) with Digital Elevation Model (DEM) and flood inundation levels, namely 10 cm, 50 cm, and 150 cm, sourced from the minimum height of the survey results, the value of water level below the lowest ebb , and the highest tide of full moon conditions in Brebes District. Rob flood modeling uses a raster calculator analysis on the Algebra Map in ArcGIS and generates a tidal flood hazard map. Determination of indicators of social and economic vulnerability using the Analytical Hierarchy Process (AHP) method. The parameters of social vulnerability assessment include population, population density, sex ratio, and age group ratio. The parameters of economic vulnerability include farmland, paddy fields, the number of poor families, farmer population, fishermen population, and number of livestock. Disaster-based coastal management through adaptation and mitigation efforts needs to be done to reduce the impact of losses due to tidal flooding. Indicators of tidal flood adaptation and mitigation efforts include disaster events, impacts, characteristics, and ways of adaptation and mitigation.

The tidal flood modeling results show the affected areas include Kaliwlingi Village, Randusanga Kulon, Randusanga Wetan, Pangejukan, and Kaligangsa Wetan with a total area of 10 cm scenarios of 24.44 km2, a 50 cm scenario of 26.57 km2, and a scenario of 150 cm of 31, 85 km2. The most affected land use by tidal floods is ponds / ponds. Economic vulnerability produces villages with high levels of vulnerability including Kaliwlingi Village and Pangejukan Village. Whereas social vulnerability produces villages with high levels of vulnerability including Kaliwlingi Village, Randusanga Kulon, Pangejukan, and Limbangan Kulon. So that the village risk reduction priorities include Kaliwlingi and Pangejukan villages, and villages that also need to be addressed include Randusanga Wetan and Randusanga Kulon Villages. Adaptation strategies that can be carried out with 3 alternatives include protective, accommodative, and backward adaptation strategies. While mitigation efforts in the context of flood disaster risk reduction are carried out by structural and non-structural methods.

***Keywords** : tidal flood, vulnerability, adaptation and mitigation, brebes*