

Study on the Threat of Coastal Area Damage in Bancar District, Tuban Regency

Sri Musrifah

Faculty of Social Science and Political Science
Universitas PGRI Ronggolawe
Tuban, Indonesia
riumay99@gmail.com

Miftachul Munir

Fisheries and Marine Faculty
Universitas PGRI Ronggolawe
Tuban, Indonesia

Abstract—Indonesia is a country with a majority of the population living in coastal areas. So that damage that occurs in coastal areas will have an impact on coastal life and the surrounding environment. Aiming to find out the causes of damage to coastal areas in the Bancar sub-district of Tuban and their impact on the coastal ecosystem as a whole, the focus of the research was on five villages: Margosuko, Bancar, Bogorejo, Boncong and Sukolilo villages. Through qualitative methods, in-depth interviews, direct observation and documentation are used in data collection. The research informants were the Bancar sub-district head, the village head of Margosuko, Bancar, Boncong, Bogorejo, Sukolilo, the Head of the Fisheries Department and Capturing the Fisheries and Animal Husbandry Department of Tuban, the environment service secretary, and the Head of Tuban Regency Marine and Fisheries Supervision. The results showed that the cause of damage to coastal areas in Bancar sub-district was the theft of sea sand, the lack of sea wave breakers and the lack of intense reforestation in the coastal areas. While the impact of the damage is disruption of the coastal ecosystem, coastline setbacks, and damage to residential areas and several roads. In general, technological developments and community needs are contributors to environmental damage in coastal areas, which if not addressed immediately will cause inheritance of environmental damage to future humans.

Keywords—community needs; damage to coastal areas; technological developments

I. INTRODUCTION

Coastal marine ecosystems, which include estuaries, sea grass beds, salt marshes, tidal flats, mangroves, coral reefs and shelves, provide various beneficial services such as nutrient cycling, detoxification of pollutants, food production, raw materials and habitats, regulation of storm-induced disturbances, as well as recreational and entertainment activities [1]. About one third of the human populations are living in and around the seashore areas. Due to abundant natural resources, urbanization and population rapidly increase on coastal areas [2]. In Asia, over 70% of human population depends on the coastal resources for food and employment [3].

But global population concentration causes serious damage to the dynamic and fragile coastal-marine ecosystems, often leading to major problems and social conflicts [4].

Indonesia is located in the South-East Asian Coral Triangle region and its coral reefs support the livelihoods of several hundred million people. Globally, this is the area with the highest marine biodiversity and the highest proportion of reefs threatened by anthropogenic impacts [5].

Tuban Regency is one of the coastal cities in the North Coast region (Pantura), of which 25% of its territory is a coastal area. Of the twenty existing sub-districts, there are five regions bordering the Java sea, namely Bancar, Tambakboyo, Jenu, Tuban and Palang sub-districts. The five sub-districts are producers of the fisheries sector, both capture fisheries, aquaculture, and fisheries product processing. In addition, the coastal areas in Bancar, Tambakboyo, Jenu, Tuban and Palang sub-districts have mangrove forests, coral reefs, and seagrasses as potential coastal resources. Although each region has a wide range of different.

The coastal area in the Bancar sub-district of Tuban regency is rich in natural resources which are widely used by people who live there. Aside from being a place to make a living, the community also uses the coast as transportation and port (Bulu-Tuban UPT Port), recreation and tourism (Sowan Beach in Bogorejo village, Bancar District), residential areas and waste disposal sites.

The activities of utilizing coastal areas face various threats, both ecological and social aspects. The impact of activities and utilization that are not environmentally friendly results in a decrease in environmental quality in the form of pollution and damage to ecosystems. Pollution from tourism activities and households also causes damage to the ecosystem directly or indirectly. Whereas from the social aspect in the form of low accessibility and lack of acceptance of local people.

The Coastal areas have become more prone and vulnerable to natural and human made hazards. Human activities related with this negatively impact the shoreline, and coastal erosion can become a serious problem [2]. Another threat is the coastline setback due to sea level rise along the coast of Tuban Regency, which is triggered by climate change.

TABLE I. COASTLINE SETBACKS DUE TO CLIMATE CHANGE PERIOD 1972 2015 ALONG THE COAST OF TUBAN REGENCY [6]

No.	Location	Long Coastline Setbacks
1	Palang District	965,73 m
2	Tuban District	911,28 m
3	Jenu District	946,88 m
4	Tambakboyo District	676,14 m
5	Bancar District	1006,4 m
Average coastline decline		650,11 m

Table 1 above shows that in the period 1972-2015, the coastline in Tuban regency experienced an average decline of around 650.11 m, with the longest setback of 1000.64 meters in the sub-district of Bancar.

As a center of activity and economy, the coastal area of Bancar Tuban sub-district is vulnerable to the threat of continued development. Because most of the coastal communities of Tuban work in sectors that are heavily dependent on the sea, such as fishermen, fishing industry workers, and pond farmers, so that if the threat of damage to the coastal area is not immediately addressed, it will have an impact on the economic life of the community.

Based on the background of the above problems, this research is directed to be able to answer the questions: 1) How is the damage to coastal areas in the Bancar district of Tuban district? 2) What is the cause of damage to coastal areas in Bancar sub-district and its impact on the coastal ecosystem as a whole 3) What is the green political outlook on damage to coastal areas in Bancar district, Tuban district?

Referring to the research problems above, this study specifically aims to: 1) Describe the damage to coastal areas in Bancar district, Tuban regency 2) explain and analyze the

causes of damage to coastal areas in Bancar sub-district, Tuban 3) describe green political views on coastal area damage in Bancar district, Tuban district.

II. METHOD

A. Research Type

This research uses descriptive qualitative approach. Because this study aims to describe, summarize various conditions, various situations or various phenomena of social reality that exist in society become the object of research, and try to attract social reality to the surface as a characteristic, character, character, model, sign, or description of conditions, situations, or certain phenomena [7].

B. Research Subjects

Research informants were selected purposively, including: (a) key informants: sub-district head of Bancar, village chief of Margosuko, Bancar, Bogorejo, Boncong and Sukolilo, (b) main informants: secretary of environment department Tuban regency, Head of Capture Division fisheries and livestock service Tuban regency, and Head of Tuban Regency Marine and Fisheries Resources Supervision, (c) additional informants: BPS.

C. Research Sites

The research location is in Bancar district, Tuban regency, while the focus of the research is the area in Bancar sub-district located in the coastal area, including the villages of Margosuko, Bancar, Bogorejo, Boncong, and Sukolilo.

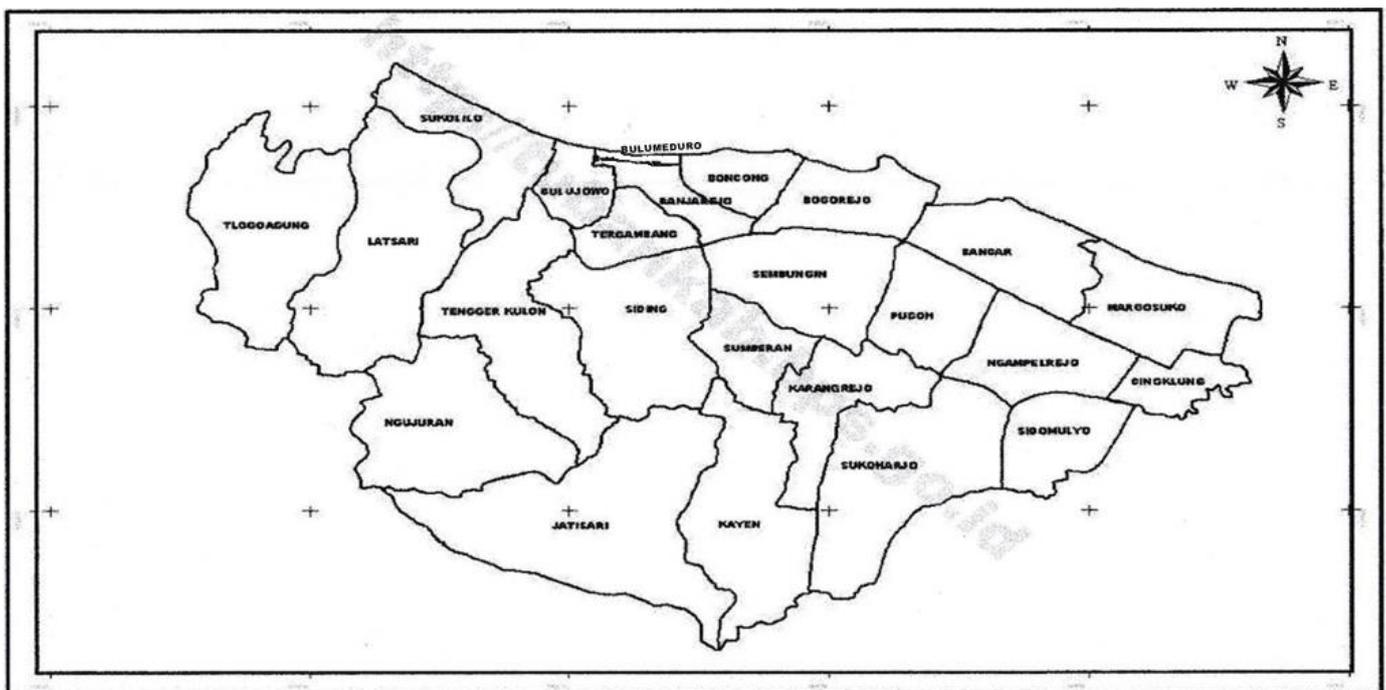


Fig. 1. Map of Bancar District [8].

The choice of a coastal area in Bancar sub-district is based on the consideration that this region suffered the most damage compared to the other four coastal areas in Tuban district (coastal areas in Tuban, Tambakboyo, Jenu, and Palang sub-districts). The indication of damage to coastal areas in Bancar sub-district which is considered here is a change in coastline (decline) due to sea level rise (SLR). This coastline decline reached 1006.4 meters from 1972 to 2015 [6].

D. Data Collection Technique

The process of collecting data in this study uses a cycle made by Creswell [9]. The process and procedure of data collection starts from determining the location and informants, building access to informants and collecting official reports. The implementation of data collection is done by direct observation, in-depth interviews and documentation.

E. Data Processing Phase

Data that has been obtained, then recapitulated. The steps taken include the Data Grouping Stage, Data Verification Phase, Presentation Phase

F. Data Analysis Technique

Data processing and analysis is done qualitatively. Includes three activities that occur simultaneously namely data reduction, data presentation and conclusion [10].

At the stage of processing the collected data is then categorized and qualified based on the formulation of the problem and the purpose of writing, then systematically compiled at the analysis stage, the data that has been categorized and qualified is then analyzed so that a phenomenon has political, academic and scientific value, and then interpreted. data to generate conclusions about the problems raised previously.

III. RESULTS

A. Coastal Area Damage in Bancar District, Tuban Regency

The change in coastline (setback) due to sea level rise (SLR) as a result of climate change has occurred in the coastal area of Bancar Tuban sub-district. This coastline decline reached 1006.4 meters from 1972 to 2015 [6].

Damage to coastal resources due to climate change will worsen if followed by environmental damage, both natural and human intervention. Sea level rise due to climate change is an important problem for coastal areas, because it will have an impact on coastal ecosystems.

The subsequent damage that occurred in the coastal area of Bancar sub-district was related to the physical condition of the environment. The physical problem of the coastal environment in Bancar sub-district is the disruption of the coastal ecosystem, such as the extinction of several species of birds and the destruction of mangrove forests. The destruction of the mangrove forest itself is positively correlated with the extinction of several coastal dwellers and some water birds, such as rice field blekok (*Ardeola speciosa*), coastal tilapia (*Actitis hypoleucos*), river checkakak (*Halcyon chloris*), rice

kareo (*Amourornis phoenicurus*). Because mangrove forests are the habitat of these animals.

The subsequent damage that occurred in the coastal areas of the bancar sub-district was the destruction of residential areas and a number of road sections

the waves are so awesome. The power of the waves reaches the land and damages some infrastructure on the edges of the highway.



Fig. 2. Current beach conditions in (1) Bogorejo village, (2) Boncong village, (3) Sukolilo village, (4) Margosuko village, (5) Bancar village.

B. Causes of Coastal Area Damage in Bancar District and its Impact on Overall Coastal Ecosystems

The causes of damage to coastal areas in Bancar district, Tuban district are: (1) theft of sea sand at night, (2) still lack of sea wave breakers, (3) lack of intense reforestation in coastal areas.

Most coastal communities in Tuban regency have only elementary school education and very limited skills. Most of Tuban's fishermen also still follow the one-day fishing pattern. In addition, Tuban Regency is a region with a large population and low economic capacity. Even Tuban is ranked number five in the poorest area in East Java province. The above conditions are relevant to the rise of sea sand theft activities carried out by residents.

While there is still a lack of deterrent/ breakwater structures and the lack of intense reforestation in the coastal areas, it is closely related to the government. Because both of these things are closely related to government policies requiring no small amount of funds.

IV. DISCUSSION

The core of the causes of environmental damage according to observers of political ecology is the development of

technology and community needs. This argument is in line with the conditions that exist in the coastal region of Bancar. Even a study in China also mentioned that rapid development of marine industries and the coastal economy in China has resulted in the deterioration of coastal ecosystems and the environment [11].

Ilich Beck as an academic ecological theory incorporates concepts and discourses around the risk community (social risk) as a green political perspective including social risk and great technology. Bryan Barry focuses his attention on intergenerational justice by building bridges between green political theory and contemporary political theory that deepens environmental issues [12].

Green politics are studied starting with problems in the distribution of justice, democracy and sustainability development that relate to the environment as a place. Human life, where classical political theory ignores it a lot. Environmental injustice in the form of inheritance of environmental damage to future humans who will surely face environmental problems if not addressed now. So the main focus of green politics in general is the guarantee of environmental sustainability for the next generation, so the main point in the use of the environment is the existence of sustainable development with long-term nature.

If the main focus of green politics in general is the guarantee of environmental sustainability for the next generation, then the main point in the use of the environment is the existence of long-term sustainable development. Green politics's Marxian accusation in ecological economics, the cause of environmental unbalance for humans, is again the power of capital holding capital. Supported by the existence of government policies (state) that further strengthen the position of capital and weaken the position of the people. In other words, it is not possible for the state of the ecology because the state works with corporations as economic actors.

We cannot blame natural factors, in the form of climate change which causes sea level rise which causes a coastline decline. But it is humans who play an important role for the sustainable use of coastal areas. The condition of damage to coastal areas in the Bancar Tuban sub-district is not a result of corporate mistakes but in the habits of people who do not understand how to protect the coast as part of nature to support the future life of the community. The behavior of taking beach sand to obtain economic benefits is an act of destroying nature slowly and its impact is felt by the community during high waves.

V. CONCLUSIONS

Basically the management of coastal areas is taken to fulfill the goal of achieving sustainable development in coastal areas, including coastal cities with all residents and their facilities (infrastructure and facilities) so that the functions of regions and cities as source of nourishment can continue; reducing vulnerability from the coastal region and the inhabitants from the threat of sea level rise, flooding, abrasion and other natural

hazards; and maintain the ongoing essential ecological process as a life support system and biodiversity in coastal areas in order to remain sustainable which is achieved through the integration of natural resource management from upstream to downstream. The omission of the threat of damage to the coastal area will cause threats to the ecosystem there. The most extreme impact is the loss of coastal areas due to eroded wave runoff and various human activities that do not care about environmental sustainability. The government, in this case including as a development agent, should not only act as a decision maker for regional policy, but its role is demanded as a facilitator in spatial planning activities, so that planning can be closer to the community or development actors. To achieve the development of coastal and marine areas optimally and sustainably, it is necessary to have an integrated management of coastal and marine area resources and to provide massive benefits to all stakeholders, especially coastal communities, and have a positive impact and reduce potential conflicts.

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