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THE ROLE OF LAMPUNG MARINE FORCE (LANAL) IN THE MAINTENANCE AND PRESERVATION OF CORAL REEFS

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ABSTRACT

Coral reefs have an essential role in coastal communities' social and economic aspects in the District of Padang Cermin, Lampung, which depends on shallow waters. Increased human activity around the coast impacts coral reef ecosystems, easily fragile by natural and non-natural factors. To prevent damage to coral reefs that impact people's livelihoods, the Lampung Navy Base (LANAL) has carried out conservation efforts by involving coastal communities in Padang Cermin District. This study examines the role of Lanal Lampung in the maintenance and preservation of coral reefs. This study used a qualitative design with a case study approach. Based on the research results, it is known that Lanal Lampung has a role in the preservation and maintenance of the marine environment, especially the coral reef ecosystem, in collaboration with related agencies and CSR and involves the local community directly. Community involvement in maintaining and preserving coral reefs is also intended to increase the welfare of local communities who work as fishermen.

I. INTRODUCTION

Indonesia is an archipelago with ± 17,508 islands with a land area of ± 1.9 million km2 and a recorded water area of ± 3,257,483 km2, and has a coastline of 99,093 km. Indonesia has extraordinary marine natural resources, one of which is the coral reef ecosystem.

Based on satellite imagery researched by LIPI in 2018, the area of coral reefs in Indonesia has reached 2.5 million hectares. Coral reef ecosystems have many functions but are vulnerable to change. Ecologically, coral reefs are a habitat for much marine life, a biodiversity source, and protect the coast from abrasion. Socio-economically, coral reefs are places to find fish for fishers, a place to visit for tourists, and a place where various important compounds are produced for medicinal supplements.

There is wrong knowledge by people who think coral reefs are stones or inanimate objects. The truth is that corals are animals or living things that have stinging cells. The number of corals in Indonesia is 83 genera with a total species of 569, about 76% of the genera and 69% of the world's coral species. Of the total 1067 sites, there were

386 sites (36.18%) in the wrong category, 366 sites (34.3%) in the moderate category, 245 sites (22.96%) in the excellent category, and 70 sites (6.56%) in the outstanding category.

Threats to the coral reef ecosystem come from natural factors and human factors. Threats from natural factors include physical, chemical, and biological factors. It is physically caused by, among others, storms such as typhoons, earthquakes, and El Nino. Chemicals such as pesticides, detergents, fertilizers, oils, and heavy metals. Damage due to biological factors is coral polyp predators such as millipedes and coral reef-eating fish. Human-induced threats are the use of non-environmentally friendly fishing gear such as bombs and cyanide, coal mining, industrial or household waste, or waste and water tourism activities that do not apply ecotourism.

With an area of 3,406 km2, Lampung Selatan Regency has ten sub-districts consisting of 337 villages and five sub-districts. Fifty-three villages which are geographically coastal villages located in 6 sub-districts, one of which is Padang Cermin District as the research location. The majority of people's livelihoods are fishermen. Live coral cover in the waters of Padang Cermin Regency is categorized as moderate, with an average coral cover of 49.87% (Hartoni, 2011).

Damaged coral reefs are arduous to recover to normal, which will cause a decrease in productivity and marine biodiversity. It will impact changes in the social and economic life of coastal communities, mostly fishermen.

In increasing coastal communities' capacity in facing these threats, especially about management strategies that include utilization, maintenance, and development and policies that support the sustainability of coral reef ecosystems sustainably, especially cooperation with various parties. Therefore, this study was conducted to analyze Lanal Lampung's role in maintaining and preserving coral reefs in Padang Cermin District, Lampung Province.

II. LITERATURE REVIEW

1) ROLE

The role is a dynamic aspect of the position of something. According to his position, if a person exercises his rights and obligations, he plays a role (Soeharto, 2002; Soekamto, 1984: 237).

According to Biddle and Thomas (1966), role theory is divided into four groups, namely those concerning: 1. People who take part in social interactions; 2. Behavior that appears in the interaction; 3. Position people in behavior; and 4. The relationship between people and behavior.

The role dimensions are as follows:

1. Role as a policy. Adherents of this understanding argue that role is an appropriate and reasonable policy to carry out;
2. Role as a strategy. Adherents of this understanding argue that role is a strategy to get support from the community (public supports);
3. Role as a communication tool. The role is utilized as an instrument or tool to obtain input in the form of information in the decision making process. This perception is based on the idea that government is designed to serve the community so that the views and preferences of the people are valuable inputs to realize responsive and responsible decisions;
4. The dispute resolution tool's role is used to reduce or reduce conflict through efforts to reach a consensus from existing opinions. The assumption underlying this perception is that exchanging ideas and views can increase understanding and tolerance and reduce feelings of mistrust and confusion;
5. Role as therapy. According to this perception, the role is recognized to socialize psychological problems such as feelings of helplessness, insecurity, and feelings that they are not essential in society (Horoepoetri, Arimbi, and Santosa, 2003).

2) ROLE OF PANGKALAN LAMPUNG SEA FORCE

LANAL has several main tasks, which include:

1. Carry out administrative and logistical support for elements of the

Indonesian Navy (ships, aircraft, and marines),
2. Implement limited marine security patrols,
3. Implementing the empowerment of maritime potential by utilizing the facilities and infrastructure owned by the base itself and the facilities and infrastructure of related agencies.

The existence of LANAL also has a function as a support for the Operations Unit with 5 R facilities, namely Refueling, Replenishment, Repair, Rest and Recreation, which includes support in the form of anchoring facilities, maintenance and repair facilities, supplies, personnel maintenance facilities, and base development facilities.

The LANAL Lampung work program is achieved by coordinating with the National Police, Regional Government, and related agencies such as joint training, SAR, Social Service, integrated security, and joint patrols.

DISPOTMAR (Maritime Potential Service) Lampung Navy Base is part of the Indonesian Navy. Dispotmar was formed to carry out the duties, functions, and implement the duties of the Indonesian Navy in empowering marine potential, carrying out development functions, and implementing maritime national potential development activities which include fostering human resources, natural and artificial resources, as well as national facilities and infrastructure in the maritime sector as well as the dynamics of marine development.

According to Law no. 24 of 2004 concerning TNI in article 7 paragraph 1 and article 9, 1) Article 7 paragraph 1: Upholding the sovereignty of the state, maintaining territorial integrity, and protecting the entire nation and all spilled blood. 2) Article 9 concerning the Indonesian Navy: Carrying out the duties of the Navy in the field of defense, enforcing maritime law and security, carrying out naval diplomacy to support foreign policy, carrying out TNI duties in the development and development of the marine material, and carrying out the empowerment of marine defense areas.

3) MAINTENANCE

Maintenance is a series of activities to maintain facilities and equipment. They are always ready to carry out production efficiently and effectively according to a predetermined plan and based on applicable standards.

The term maintenance comes from the Greek word therein, which means to care for, look after, and care for. Maintenance is a system consisting of several elements in the form of facilities (machine), replacement of components or spare parts (material), maintenance costs (money), planning of maintenance activities (method), and executor of maintenance (man).

Maintenance is a preventive measure that aims to reduce or even avoid equipment damage by ensuring reliability and readiness and minimizing maintenance costs. According to Assauri (2008), the goals of care or maintenance are as follows:

1. Production capability can meet the needs of the production plan.
2. Maintain quality at the right level to meet what the product needs, and production activities are not interrupted.
3. To help reduce excessive usage and deviation and to maintain the capital invested in the company for a specified time by the company's policy regarding the investment.
4. To achieve the lowest possible level of maintenance costs by carrying out maintenance activities effectively and efficiently as a whole.
5. Avoid activities that can endanger the safety of workers.
6. Establish close cooperation with other companies' primary functions to achieve its main objectives, namely the best possible return on investment and low total costs.

4) PRESERVATION

According to the extensive Indonesian dictionary, preservation is a process, way or act of preserving; protection from destruction or damage, preservation, conservation of natural resources; management of natural resources that guarantees their wise use and ensures the sustainability of their supplies while maintaining and enhancing the quality of their value and diversity.

Preservation as an activity or carried out continuously, directed, and integrated to realize specific goals that reflect the existence of something permanent and eternal is dynamic, flexible, and selective (Ranjabar, 2006: 115).

Based on the above definition, it can be concluded that conservation activities as an effort to make something remain unchanging forever are carried out continuously, directed and integrated, in order to realize specific goals in the aspect of stabilization.

5) STATE OF THE ART

Research conducted by Hartoni, Ario Damar, and Yusli Wardiatno (2011) with the title Condition of Coral Reefs in the Waters of Tegal Island and Sidodadi, Padang Cermin District, Pesawaran Regency, Lampung Province. The formulation of the problem in this study is to analyze the current condition of coral reefs, analyze the level of damage, and identify the causes of damage to coral reefs in the waters of the Tegal Sidodadi Islands. They were collecting coral cover data using the line intercept transect (LIT) method. The results showed that the live coral cover at six observation stations ranged from 37.76% - 65.90%. The lowest coral cover was at Station 3, while the highest coverage was at Station 2. The condition of coral reefs in Tegal Island and Sidodadi Island waters was moderate, with an average coral cover of 49.87%. Damage to coral reefs was caused by bombing activities, coral mining for building materials, and souvenirs.

Research conducted by Wilda Yuliani, M. Ali S, and Mimie Saputri (2016) with the title Management of Coral Reef Ecosystems by Communities in the Lhokseudu Area, Leupung District, Aceh Besar District. The formulation in this study is about the management of coral reef ecosystems by the community in the Lhokseudu area, Leupung District, Aceh Besar District, and the comparison of coral condition reefs in 2008 and 2016 in the Lhokseudu area, Leupung District, Aceh Besar District. The research was conducted using observation and interviews. The data were analyzed using the percentage formula and the mortality index formula. The results showed that (1) management of coral reefs towards (a) community support was 100%, (b) knowledge of the community who knew 34.2%, did not know 60.5% and knew but did not understand 5.2%, (c) Potential threats to fishing locations are deep-sea 52.6%, coral reefs 26.3%, coastal areas 21%, not fishing 26.3% while potential threats to the use of fishing gear are fishing rods 23%, spears 2.6%, palong 5.2%, pukat 36%, net 21%, sawok 2.6%, rawe 2%, jalo 2.6%. (2) The coral cover in 2008 was 29.70%, dead coral 9.56%, Algae 6.4%, rubble substrate 33.23%, silt 1.69%, rock 19.43%, mortality index 0 , 59, temperature parameters 28.26 C, brightness 3m, salinity 32ppt, and pH 7.5. Coral cover in 2016 was 20.8%, dead coral 24.4%, algae 11.6%, rubble substrate element 27.5%, rock 27.2%, mortality index 0.73, temperature parameters 29◦C, brightness 2.25m, 33.6ppt salinity, pH 8.

Research by LIPI conducted by Widayatun entitled The Role of Community in Conservation of Coral Reefs and its Impact on Increasing Welfare. The formulation of this study is to discuss the community's role in conserving coral reefs through Core map activities and their impact on welfare. This research was conducted using a combination of quantitative (survey) and qualitative approaches (open interviews and focus group discussions). The study results show that community participation in coral reef conservation is relatively high, and their welfare also shows an increase during that period.

III. RESEARCH METHODS

This research uses a qualitative design, which is used to explore and understand the social and human aspects of an individual or group. This research approach is a case study where a case study explores a system or a particular case from time to time

involving resources rich in related data and information. The case study was chosen because this research only focuses on analyzing Lanal Lampung's role in maintaining and preserving coral reefs in Padang Cermin District, Lampung Province. This research was conducted from February to March 2020. The location of this research is located in Padang Cermin Regency, Lampung Province. This study used the Miles and Huberman model to analyze the data, whose analysis was carried out continuously until the data was saturated. Data collection was carried out using field observations and in-depth interviews as primary data with several informants regarding fish bombs by fishers. While data collected in the form of documents, books, and journals as secondary data.

IV. RESULTS AND DISCUSSION

Lampung Province faces problems in managing coastal and marine resources, including poverty experienced by coastal communities, conflicts in spatial use in coastal and marine areas, decreasing environmental quality due to pollution and human exploitation, and the effects of global climate change.

The coral reef is one of the biodiversity that has decreased in quality. The coral reef is a marine ecosystem consisting of a collection of coral animals in symbiosis with an algal plant type. Coral reefs are a habitat for many marine species; coral reefs are a place for spawning, spawning grounds, a place to raise children, and also a place for feeding other marine species. In addition to being a home for other marine life, coral reefs can also protect coastal ecosystems by breaking wave energy to prevent abrasion. Coral reefs also have the same function as oxygen producers as forests on land.

Realizing the importance of coral reefs for marine ecosystems, the maintenance and preservation of coral reefs is an obligation to protect marine biodiversity. Coral reef ecosystems are sensitive to environmental changes. The pressure experienced by coral reefs will increase with the increase in population and increase coastal communities' activities.

Burke et al. (2002) explained that several factors cause damage coral reefs, namely development in coastal areas, marine pollution, sedimentation, land pollution, over-fishing, fishing with destructive materials and tools (such as explosives. and toxins), coral bleaching due to global warming. Also, Salm and Clark (1989) in Lubis (2009) explained that several things that can cause damage to coral reefs are the construction of tourist facilities, damage by anchors, damage by divers, and damage by small boats, walking on reefs.

This study aims to see Pangkalan Navy (Lanal) Lampung's role in maintaining and preserving coral reefs in the surrounding area. Lanal Lampung is located in Sanggi Village, Padang Cermin District, Pesawaran Regency, Lampung.

The coastal area of Lampung can be divided into four areas, namely West Coast (227 km), East Coast (270 km), Semangka Bay (200 km), and Lampung Bay (160 km) (Taram, 2007). Padang Cermin District is a part of the Lampung Bay area. Catching fish is the primary source of livelihood for most people in the Lampung Bay area; fishery production distributed annually reaches 51,000 tons/year (Taram, 2007). Even so, fisheries management needs to be improved because there are indications that over-fishing activities are taking place based on data from the Fish Landing Center with the decreasing size and volume of fish caught in this area.A survey conducted by CRMP (1998) stated that coral reefs' potential in Lampung Bay was still quite good, with a coverage percentage of more than 50 percent. Coral reefs in the Lampung Bay area generally consist of fringing reefs with a stretch between 20-120 m2 and a depth of 17-20 meters (Taram, 2007).

According to the Lampung Coastal Area Management Strategic Plan (2000), coral reefs' potential as a tourist attraction and fish habitat is still quite enormous, with more than 50% cover in the Lampung Bay area. Fishing in the sea is an important economic activity for the province because of its

contribution to animal protein supply. Marine fishery production landed in Lampung Bay is around 51,000 tons/year, on the East Coast around 43,000 tons/year, and on the West Coast around 10,000 tons/year. This fact proves that Lampung waters are rich with fishery products, and fish is a prominent livelihood source for people in Lampung Province.

Dispotmar Lanal Lampung structurally under Lantamal (Main Base of the Indonesian Navy) III is under the ranks of Fleet I, which is an element of functional implementation in the field of potential maritime fostering has the task of carrying out the development of national potential to become a state defense and security forces in the maritime sector which includes activities of human resources, natural and human-made resources, national facilities and infrastructure in the maritime sector as well as dynamizing marine development in the Lanal Lampung working area. The work program's targets and priorities include the Administration, Human Resources Development, Utilization, Marine Program, and other fields that can support activities and support implementing work programs and budget for Dispotmar Lanal Lampung (Dispotmar, 2017: 1 -2). Lanal Lampung is an institution at the forefront of maintaining the waters' safety in the surrounding area, but water security is incomplete without environmental protection.

The maritime potential development program carried out by Dispotmar Lanal Lampung has various obstacles, including social and environmental issues related to the educational background of coastal communities. On average, coastal communities only graduate from SD and SMP. Only a few have graduated from high school. So, programs and socialization related to fostering maritime potential are carried out sustainably and sustainably so that the community can accept and understand the program to be carried out in everyday life as a change in the right attitude. They were also related to increasing awareness of the importance of preserving the marine environment and sustainability. This is because, in some places, coastal communities still throw garbage into the sea.

Therefore, the role of Lanal Lampung in protecting marine ecosystems by conserving coral reefs is essential. According to interviews with fishermen groups (Mr. Rico, Mr. Dori, Mr. Andi, and Mr. Darwis), Lanal Lampung's efforts to protect and conserve coral reefs in the area include counseling or outreach to fishers about how to protect coral reefs and also by conducting patrols to prevent activities in the sea that could potentially damage coral reefs.One form of activity held by Lanal, according to Mr. Reja as the Head of Sanggi Village, is counseling the community about ways to protect coral reefs from damage. According to an interview with Mr. Mahmud as the Secretary of Sanggi Village, it was easier to understand that counseling given to the community would be easier to understand if it was carried out in demonstrations or hands-on practice compared to delivering material only through oral. In fact, according to interviews with fishermen groups, it was stated that the counseling carried out by Lanal usually went directly to the sea to see the types of damaged coral reefs and carry out recovery activities. Outreach to the community, among others, is about fishing methods and other activities that do not damage coral reefs, for example, by not using explosives or chemicals to catch fish. Another example is by socializing the prohibition of using frog legs for snorkeling activities.

Also, Lanal Lampung undertakes coral reef restoration efforts by holding coral reef planting activities, which are routinely carried out twice a month (transcript of interviews with fishers). This activity is also often held in collaboration with companies that hold Corporate Social Responsibility (CSR). This activity implements one of LANAL's main tasks: the empowerment of maritime potential and protecting and preserving the marine environment.
Coral reef restoration is carried out by transplanting coral seedlings. This is one of the steps to improve coral reefs by grafting live coral to be planted in other areas that have

been damaged or creating new coral reef ecosystems. The steps taken are; where the seedlings are taken in locations around damaged coral reefs by taking seeds of coral reefs that are still good and must not be far from the planting location, the new ecosystem has similar environmental conditions referring to the depth and current conditions, taking seeds is done by cutting coral branches the parent, as well as the distance from the location of the seed collection to the location of the new ecosystem, is not more than one hour.

Figure.1. Transplantation of Coral Reef Seeds

It is hoped that direct community involvement in the maintenance and preservation of coral reef ecosystems will create a sense of love for the environment. It is hoped that the community can maintain, manage, and enjoy the results.

V. CONCLUSION

Based on the discussion of the research results, it can be concluded that LANAL Lampung has played its role as an implementation of one of its main tasks as the empowerment of maritime potential by protecting and preserving the marine environment, namely the coral reef ecosystem, in collaboration with relevant agencies and CSR and involving local communities directly so that it will create a sense of love for the environment, can maintain, manage and enjoy the results.

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