



The Communication Strategy for Coastal Community Awareness by the Indonesian Navy on Coral Reef Sustainability in Kodingareng Lompo Island

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Abstract. The Indonesian Institute of Science (LIPI) in 2018 published data revealing that 10 out of 14 coral reefs in South Sulawesi were in bad condition. In 2020, the Makassar Municipal Agency of Fisheries and Agriculture reported a significant increase in the practice of blast fishing among fishers in Kodingareng Island. More coral reefs will be endangered if this condition persists since its recovery takes time. In this regard, the Department of Maritime Potential of Indonesian Navy VI (Dispotmar Lantamal VI) of Makassar performs a communication strategy to develop public awareness of coral reef preservation in Kodingareng Lompo Island. The present study applied a qualitative approach and Miles and Huberman's qualitative data analysis. The data in this study were collected using observation, interview, and document analysis. Informants in this study were authorized officials pertaining to maritime affairs in the Makassar region, including the Indonesian Navy (TNI AL), Makassar Municipal Agencies of Environment and Fisheries, South Sulawesi Provincial Agency of Marine and Fisheries, and local public figures and fishers in Kodingareng Lompo Island. The finding revealed a significant use of blast fishing among the fishers on the island. As this method poses long-term threats for coral reefs and the local people, Dispotmar Lantamal VI implemented a five-stage communication consisting of (Research, Plan, Execute, Measure/Evaluation, and Report) to improve local people's awareness of fishing methods to preserve the coral reefs in Makassar water.

Keywords: Destructive Fishing · Coral Reefs · Communication Strategy · Indonesian Navy · Kodingareng Lompo Island

1 Introduction

The coral reef is undoubtedly the central ecosystem in tropical waters. It provides temporary and permanent shelters for sea biotas and hosts the global biological, chemical, and physical cycles. According to Sahetapy [1] coral reef plays strategic functions to protect the beach and coastal ecosystem from tidal hazards. It also contains important social, economic, and cultural values considering that one-third of the Indonesian population lives in the coastal area and rely on shallow water fishing, including coral reef fisheries.

Table 1. Coral Reef Condition in South Sulawesi

| Location | Site | Excellent | Good | Fair | Bad |
|---------------|------|-----------|------|------|-----|
| Makassar City | 14 | - | - | 4 | 10 |
| Pangkep | 15 | 1 | 2 | 7 | 5 |
| Selayar | 12 | - | - | 6 | 6 |
| Kapoposang | 13 | - | 6 | 7 | - |
| Taka Bonerate | 12 | - | - | 3 | 9 |
| Total | 66 | 1 | 8 | 27 | 30 |

Source: Indonesian Institute of Sciences, 2018

Local people are known to still use traditional fishing methods in shallow waters, including coral reef fisheries. Unfortunately, destructive fishing practices (i.e., blast fishing, among others) are still found, resulting in human-caused coral reef destruction. Oktarina [2] states that coral reefs continue to decrease significantly in number and quality, which can be accounted for by human activities, both in land, coastal, and marine area. 36% of coral reefs in Indonesia are currently damaged, as reported by the Ministry of Environment and Forestry and the Indonesian Institute of Sciences. In Sulawesi, 60 out of 193 coral reef sites (31%) are in bad condition. Meanwhile, in the Makassar area, 10 of 14 coral reef sites are in bad condition according to Hadi [3].

The Table 1 clearly pictures the damage done by blast fishing practices. Regarding the coral reefs around Kodingareng Lompo island, Asni [4] from Makassar Municipal Agency of Fisheries and Agriculture reports several moderately damaged spots at the south of the island, in addition, 40.63–46.97% coral cover indicating critical conditions.

This coral reef destruction is clearly due to the human practice of destructive fishing. However, this destructive practice is common among fishers in the Spermonde archipelago, especially those in Kodingareng Lompo, Langkai, Lanjukang, Bone Tambu, and Barrang Caddi islands. Makassar Municipal Agency of Fisheries and Agriculture reports a significant increase in blast fishing practice among fishers in Kodingareng Lompo in 2020.

As shown in the Table 2, the catch pattern among fishers in Kodingareng Lompo involves the blast fishing practice throughout the year, resulting in unimaginable coral damage. The bomb does not only kill the fish but also other sea biotas, in addition to damaging the coral reef. Fishers on this island are reported to use tens of bombs every day, while each explosive is known to destroy an approximately 50 m² of coral reef. Considering that the recovery takes time, continuous use of explosives can result in nothing but more coral reef destruction. McClanahan (2002), as cited in Arisandi [5] predicts that the ocean will suffer from ecological imbalance in 2025 due to coral reef destruction if human fails to protect the coral reef ecosystem wisely. Once ecological imbalance occurs, human is in danger.

In this regard, developing local people’s awareness of the adverse impacts of this illegal practice is urgently needed. However, raising their awareness and eventually changing fishers’ behavior in Kodingareng Lompo Island is undoubtedly challenging,

Table 2. Types of Catches and Gear in Kodingareng Lompo

| Catches | Gear | Period |
|---------------|------------------|----------------------------|
| Anchovy | Bagan, Net, Bomb | Jun, Jul, Aug, Nov and Des |
| Flying Fish | Bagan, Net, Bomb | January to December |
| Sibula fish | Bagan, Net, Bomb | January to December |
| Squid | Bagan, Net, Bomb | July and August |
| Mackerel Tuna | Bagan, Net, Bomb | January to December |
| Coral trout | Bagan, Net, Bomb | June, July, August |
| Mackerel | Bagan, Net, Bomb | October to December |
| Selar | Bagan, Net, Bomb | January to December |
| Chub mackerel | Bagan, Net, Bomb | January to December |
| Ponyfishes | Bagan, Net, Bomb | January to December |

Source: Makassar Municipal Agency of Fisheries and Agriculture, 2020

as they have preserved this destructive practice for years. Therefore, a communication strategy can be the key to developing people's awareness. Rogers (1982), as cited in Cangara [6], sees a communication strategy as a design that aims to change individuals' behavior through the transfer of new ideas. It represents the best combination of all communication elements, i.e., the communicator, message, media, effect and the goal.

In the same vein, Suryadi [7] defines it as several strategic steps done to achieve the communication goal effectively. Though it is virtually attached to any communication actors, the communication strategy is originally initiated by leaders of organizations.

Environmental communication strategy should receive bigger portion when it comes to developing fisher community in Kodingareng Lompo Island. Environmental communication should be prioritized because the current blast fishing practices have already heavily damaged the environment, which in turn will jeopardize both marine ecosystem and human. This communication refers to a communication process that supports a policy through a structured, strategic, planned use of media to attract public participation in preserving the nature. Robert Cox [8] in his book *Environmental Communication and the Public Sphere* sees environmental communication as a pragmatic, constitutive media to provide public with understanding of environmental issues, such as environment-human relationship. This communication serves as a symbolic medium to develop public awareness of environmental issues. In practical contexts, environmental communication covers strategies of delivering messages and media to promote public knowledge, awareness, and participation in preserving nature. Regarding this, the government, stakeholders, and NGO focusing on environmental issues may play as the key communicator in designing effective programs and policies in encouraging public participation in preserving the nature.

Flor & Cangara [9] defines the environmental communication refers to the use of communicative approach, principles, strategy, and technique to properly manage and protect the nature. This communication process involves the delivery of messages to

publics regarding environmental conditions, both physically or socially Aulira [10]. In the same vein, Arkansyah [11] defines environmental communication as a pragmatic and constructive media to develop public awareness and participation in preserving nature. In other words, the communication appears to fail achieve its goal without the awareness of the communicators. It is an intentional exchange of information related to environmental issues.

Efforts in raising coastal people's awareness constitute one of the five main duties of the Indonesian Navy, as stipulated by article 9 of Law no. 24 on the Responsibility of the Indonesian Navy. The article states that Indonesian Navy is responsible for empowering sea defense areas through guidance of maritime people and coastal villages. The Indonesian Navy does not only serve as the main component of marine defense but also is responsible for developing the marine area, including coastal and small island areas. These responsibilities belong to the Department of Maritime Potential Guidance (Hereafter, Dispotmar). This department is responsible for preserving maritime potentials and developing human resources, natural and artificial resources, national facilities and infrastructure, maritime science and technology, local wisdom in national maritime, and dynamics in maritime development.

Within Indonesian Naval Base VI (Lantamal VI), Dispotmar is directly commanded by the Lantamal VI Commander. Kodingareng Lompo is located within the Dispotmar's working area. Thus, this department is responsible and authorized to develop the local people's awareness.

This study applied the Convergent Communication Model a convergent process toward information mutually agreed by communicators to achieve mutual understanding. Mukarom [12] argues that the main component of this model involves information, convergence, mutual understanding, agreement, joint action, and network relationship. Applying this model, communication is considered effective when every party involved in the communication achieve mutual understanding. This model uses the term 'communication participants' instead of the terms 'communicators' and 'communicant'. Every individual, including people in Kodingareng Lompo, plays a pivotal role in developing people's awareness of coral reef preservation.

The present study aims to describe the communication strategy applied by Dispotmar Lantamal VI in developing people's awareness of damages done by destructive fishing practices on coral reefs.

2 Research Method

This qualitative descriptive study collected the primary data through observation and interview. The observation done in this study was categorized as Passive Participatory Observation since we did not participate in the activities of people being observed. The undisguised observation was done. A structured interview was also conducted with Some relevant agencies knowing the environmental problems in Kodingareng Lompo island, including fishers in the island. Documents and regulations issued by relevant institutions were also gathered as secondary data to picture the coral reef destruction due to blast fishing practice in Kodingareng Lompo. Informants in this study were the government officials (i.e., officials from Dispotmar Lantamal VI, South Sulawesi Provincial Marine

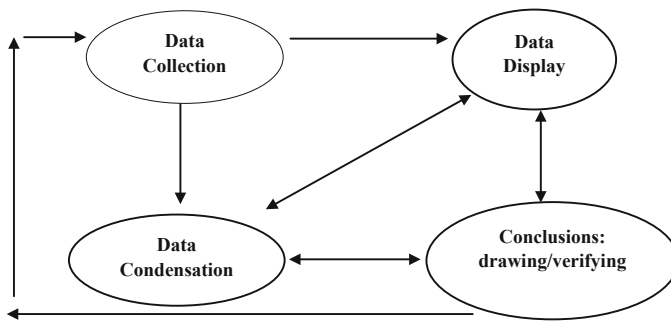


Fig. 1. Components of Miles and Huberman's Data Analysis Model in Sugiyono [13]

and Fisheries Agency, Makassar Municipal Environmental Agency, Makassar Municipal Fisheries and Agricultural Agency, Kodingareng village head, Kodingareng public figures, and fishers in Kodingareng islands which are engaged and not engaged with illegal, destructive fishing activities.

In this study, the data were analyzed using Miles and Huberman's analysis technique, comprising of data collection, data condensation, data display, and drawing of conclusions. The observation, interview, and document analysis results were selected, condensed, and displayed in a brief sentence and charts, among other methods. The last step of the analysis is the drawing of a conclusion. In this stage, a conclusion is considered credible when it has valid and consistent evidence (Fig. 1).

3 Result and Discussion

The environmental communication strategy implemented by Dispotmar Lantamal VI in developing local people's awareness in Kodingareng Lompo consists of five steps, displayed as follows (Fig. 2):

a. **Research.** The first step, i.e., research, is done to find out and understand problems to face in order to mainly minimize the cost, time, energy, and failure. Dispotmar Lantamal VI's research found that the coral reef destruction around Kodingareng Lompo Island was due to:

- 1) Lack of awareness of the importance of environmental sustainability, resulting in a high practice of blast fishing.
- 2) Fishers' focus on the huge number of catches. Fishers from the island are careless with the impact of blast fishing, the most important issue for them is to catch more fishes to provide their families.
- 3) Easy access to obtain the bomb-making materials, leading to the common practice of blast fishing. Asri [14] argues that the availability of fish bomb-making materials appears to account for the fishers' blast fishing.
- 4) The government's poor supervision, communication, and poor legal enforcement for blast fishers. Asri [14] argues that legal process against destructive fishing practices frequently fails. Perpetrators and legal apparatus frequently find ways to solve this

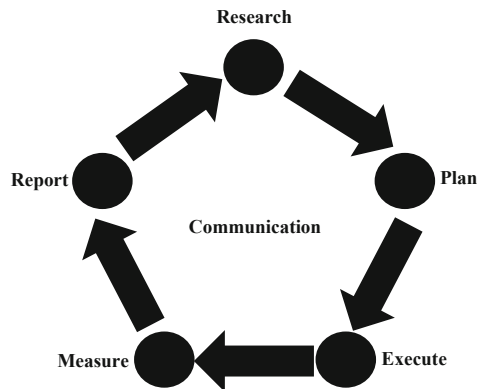


Fig. 2. Five-stage communication in Cangara [6]

issue amicably by negotiating with the apparatus. Consequently, the legal enforcement often fails to create deterrent effect to fishers committing destructive fishing practices, as they can often go unpunished and repeat their destructive fishing practices.

- 5) Short of knowledge of environmental regulations and lack of knowledge of properly managing the environment, and lack of knowledge of coastal policies due to low educational background. This is consistent with Primyastanto, Dewi, and Susilo (2010) as cited in Zulmiro [15], who assert that poor awareness and understanding of coastal policies, low education, character, and needs can possibly account for coastal community's environmentally destructive practice. This condition is common in many coastal areas.
- 6) Local people's dependence on the catch for a living. People's economy in Kodingareng Lompo Island heavily relies on fishers' catches.

b. **Plan.** Once the research result is obtained, the next step is to develop a plan. According to Wheelen and Hunger (2004), as cited by Dewi [16], plan is a process to determine the expected final output. This shows that the organization has formulated the output prior to the program execution. Plan Further, communication plan is a written document regarding what should be done regarding communication in order to attain the determined goal. This shows the importance of communication plan as the initial stage to measure all necessary communication aspect in the designed program. The designed communication plan consists of determining the communicator, message, media, segments, and the expected effect, which are described as follows:

- 1) **Selecting the Communicator.** Dispotmar Lantamal VI has trained some personnel to serve as communicators. The appointed personnel have been equipped with the training and knowledge of social communication. They are commissioned and non-commissioned officers in Dispotmar considered credible and attractive in carrying out the communication with the fisher community in Kodingareng Lompo island. Wahyuddin [17] says that communication strategy should be exercised by

the correct communicator. Failure in selecting communicator properly can potentially result in program failure. Therefore, selecting communicators is the first step in communication plan as its significant effect on the communication process success.

- 2) Determining the Message. In order to develop people's awareness in Kodingareng Lompo, Dispotmar.

Lantamal VI delivers informative, persuasive, and educative messages. The informative messages mean the actual information regarding coral reef damages due to blast fishing practice and its effect on the current and future marine ecosystem. The persuasive messages are delivered to make changes in people's attitudes and behavior regarding coral reef sustainability. Meanwhile, educative messages are delivered to improve the local people's insight regarding coral reef preservation, the danger of blast fishing for both fishers and the environment, environmental regulation, and legal consequences for fishers damaging the environment. The delivered messages asserts the importance of environmental preservation and aims to change the community behavior to value the environment.

- 3) Selecting Media. The media is adjusted to the social economic condition of people in Kodingareng Lompo. It is selected by considering the simplicity, economic, and visibility. As Rogers and Adhikarya (1978) in Suri [18] states that tailored messages are specifically aimed at specific community. For instance, when approaching poor people the messages should be constructed using language styles, and presentation that suits their conditions. The media used by Dispotmar Lantamal VI to develop local people awareness are as follows:

- a) Outdoor media like banners and billboards;
- b) Small media, such as stickers and t-shirts.
- c) Group communication channel, e.g., conducting discussions with the local governments, public and religious figures, youth, and fishers.
- d) Public communication channel, i.e., gathering people and playing video the impact of coral reef destruction on the society and environment.
- e) Interpersonal Communication channels, e.g., direct, face-to-face communication with fishers, neighbors, and families.

- 4) Determining Communication Target. The communication target refers to within the community that significantly affects the communication program done by Dispotmar Lantamal VI, including:

- a) The approving parties, i.e., the Makassar Mayor, Sangkarrang District Head, and Kodingareng sub-district head. This communication was in the form of official letters and visits.
- b) Supporting groups. This group consist of institutions and government agencies holding authority in South Sulawesi and Makassar maritime territorial, such as the South Sulawesi Provincial Agency for Marine and Fisheries, Makassar Municipal Environmental Agency, Makassar Municipal Agency for Fisheries and Agriculture, public and religious figures, teachers, and students at SMA Citra Bangsa joining the Saka Bahari student scout. As Rogers and Adhikarya (1987) in Suri [18] states that inviting agents of changes from the community

itself can improve the involvement. Agents of change are a part of supporting groups, consisting of government institutions and local people in Kodingareng Lompo Island. They are expected to significantly change the people's behavior because the messages are delivered by local people.

- c) Opposite group, consisting of a group of fishers committing destructive fishing and suppliers of bomb-making materials and groups who do not care with the destructive fishing practices. The last groups are those enjoying high profits from blast fishing practice.
 - d) Evaluating group, consisting of groups responsible for monitoring the program, including Dispotmar Lantamal VI, Environmental Agency, Fisheries and Agricultural Agency, Saka Bahari, and a group of people aware of coral reef sustainability.
- 5) Analyzing the Communication Effect. An expected effect is achieved if the change (C) occurs in the receiver is in line with the goal (G) expected by the communicator according to Cangara [6]. Dispotmar Lantamal VI's communication program is expected to improve the local people's awareness. This slow progress is shown by the high number of destructive fishing practices still found on the island.

c. *Execute*. In the execution stage, the designed communication plan is implemented using several methods to ensure that the messages are accepted by the people in Kodingareng Lompo island. These methods include:

- 1) Dissemination. Through dissemination activities using lecturing and group discussion methods, fishers in Kodingareng Lompo island are expected to understand the importance of preserving coral reefs and leaving blast fishing practices. During the dissemination process, video, slides, and boards are used. The dissemination is done with Lantamal IV's regular social and health services.
- 2) Outdoor Media. Outdoor media is one of the advertising media with broad coverage, it is visible to almost all people of any social level. Outdoor media used in this program include banners, billboards, stickers, and T-shirts. These media are mainstream and visible to people in Kodingareng Lompo anytime.
- 3) Interpersonal Communication applied in this program include Face-to-face interactions with local government, local figures, and fishers. Kuen [19] clarifies that interpersonal communication is done in a face-to-face manner, allowing the involving parties to respond verbally or non-verbally, directly or non-directly. This is considered as the most effective communication process to change people's behavior due to its simplicity.
- 4) Persuasive Communication. Persuasive communication has become the main focus of Dispotmar Lantamal VI, considering that the target of this program is fishers who have committed destructive fishing practices for years. Effendy [20] states that there are several persuasive communication techniques that can be used to influence individuals or groups, including association, integration, reward, icing, and red-herring techniques.

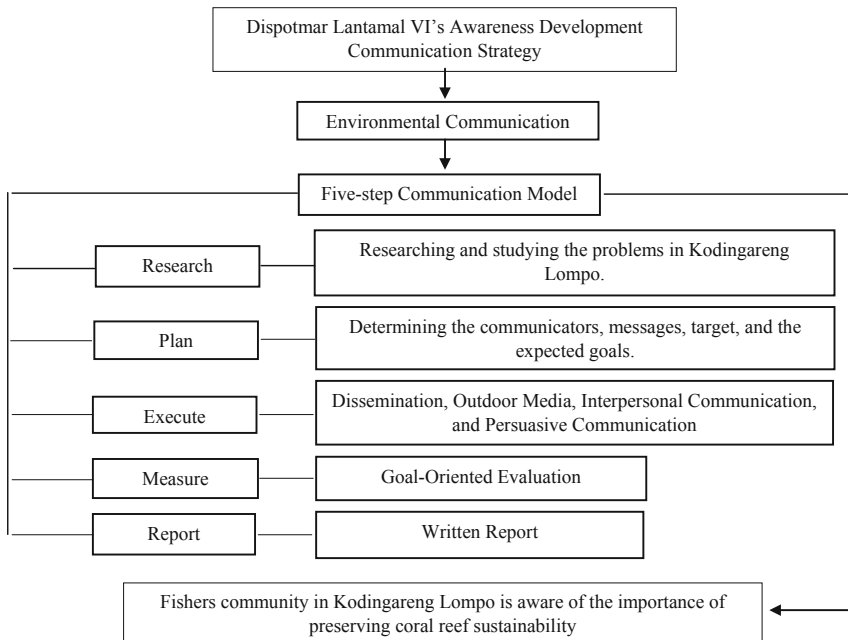


Fig. 3. Overview of Dispotmar Lantamal VI's Communication Strategy

d. **Measure/Evaluation.** Evaluation is done to see the result of the communication program. The evaluation output helps improve the future communication program in Kodingareng Lompo Island. The evaluation process is based mainly on continuous, objective, participatory, comprehensive, practical, accurate, and economic principles. One of the evaluation models is the goal-oriented model, which compares the observation result to the program goal.

e. **Report.** The last stage of the communication program is to make the report. The report is written for leaders to consider and make future policies. The report clearly pictures the executed communication program, including the problems faced by the program, hindrances, supporting factors, budget, and future recommendations (Fig. 3).

4 Conclusion

Effective communication is necessary to change people's attitudes and behaviors. In this regard, effective communication cannot be performed without a plan, given that a plan may significantly contribute to the program's success. Dispotmar Lantamal VI implemented the environmental communication by using a five-step communication model (i.e., research, plan, execute, measure, and report) to develop people's awareness of the importance of preserving coral reefs. Implementing this communication model, Dispotmar Lantamal VI has identified the problems in Kodingareng Lompo prior to designing and exercising the program. The success of this communication program heavily

relies on the communicators' credibility, easy-to-understand messages, and social, economic, and cultural aspects of the local people. This communication program hardly succeeds without support from other parties. In this regard, Dispotmar Lantamal VI builds communication with other related parties to optimize the program output, i.e., developing people's awareness of the harmful impact of destructive fishing practices on the environment and future generations in Kodingareng Lompo island.

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