

Constructing the Meaning of Environmental Communication in Bagan Kuala's Marine Debris Crisis

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Abstract

This study analyzes the construction of meaning in environmental communication within the marine debris crisis in Bagan Kuala Village, Serdang Bedagai Regency. The novelty of this research lies in its emphasis on the role of the family as the primary agent for instilling ecological values, moving beyond the structural approaches that have thus far been dominant. Using a qualitative case study method through participatory observation, in-depth interviews, and documentation, four main findings were identified: public misconceptions that waste in rivers strengthens the soil and that waste in the sea will disappear on its own; environmental communication that is merely ceremonial and unsustainable; differential meanings of waste among social groups; and community behavioral patterns reliant on external initiatives (dependency model). The study concludes that environmental communication strategies need to be directed into participatory and sustainable programs, with the family as the foundation for building independent ecological awareness.

Keywords: *environmental communication, family, marine debris, dependency behavior, ecological awareness.*

INTRODUCTION

The problem of marine debris has become one of the global environmental issues that is increasingly urgent to resolve, especially in coastal areas that are vulnerable to ecosystem degradation. In Bagan Kuala Village, Tanjung Beringin District, Serdang Bedagai Regency, the problem of household waste is still very serious. The absence of waste management facilities, such as final disposal sites or waste banks, causes people to be accustomed to throwing garbage into the sea or ditches with the assumption that water flow will carry the waste.

This habit not only causes air pollution and decreases public health quality, but also damages the marine ecosystem which is the main source of livelihood for residents (Hiwari et al., 2019; Andika et al., 2023). The problem in Bagan Kuala reflects a broader condition along the coast of Serdang Bedagai Regency, with a coastline of 95 km that holds great potential in fisheries, tourism, and research. However, this potential is threatened by increasing marine pollution.

Several studies show that low public awareness is a crucial factor that worsens the problem. Swarnawati et al. (2023) highlight the weakness of communication strategies in environmental campaigns, while Cerya and Evanita (2021) emphasize that behavior change in waste management is more effective through a personal approach. Similar findings are also revealed by Harefa et al. (2022) and Andika et al. (2023), which show that marine pollution is not only caused by technical factors but also social and cultural factors.

Low ecological awareness in society is closely related to misconceptions about marine debris, communication patterns that are ceremonial, and dependence on external interventions. This reinforces that technical approaches alone are not enough to address the marine debris problem. Environmental communication strategies are needed that are able to build collective awareness, internalize sustainability values, and cultivate ecological

responsibility starting from the smallest unit, namely the family (Kadarisman, 2019; Koerner & Fitzpatrick, 2006).

Based on these conditions, this study aims to describe the urgency of environmental communication in addressing marine debris in Bagan Kuala Village and analyze the role of communication in changing the behavior of coastal communities. This study also formulates environmental communication strategies suitable for the local socio-cultural context, so they can provide applicable policy recommendations for village governments and other stakeholders.

The problem-solving plan was carried out through a qualitative approach with a case study method (Nurrisa et al., 2025). Data were obtained through observation, in-depth interviews, and documentation, then analyzed using Miles and Huberman's model to reduce, present, and conclude the data (Latifah & Supena, 2021). With the constructivism paradigm, this study positions social reality as a construction formed through community interaction (Kurnia & Karono, 2021), thus capable of exploring the meaning of environmental communication that lives in residents' daily lives.

Thus, this study not only offers academic contributions in the form of novelty in the field of environmental communication—namely emphasizing the role of the family as the primary agent of ecological awareness—but also provides practical contributions in the preparation of participatory and sustainable communication strategies. The results of the study are expected to become a basis for developing environmental education programs, preparing policy briefs, and publishing scientific articles focusing on collective efforts to achieve more sustainable marine waste management in coastal areas.

METHOD

Approach and Paradigm

This study uses a qualitative approach with a constructivism paradigm. The qualitative approach was chosen because this research focuses on understanding meaning, subjective experience, and social reality formed through community interactions (Creswell & Creswell 2017; Moleong, 2017). The constructivism paradigm views that social reality is not something objective and singular, but the result of collective construction based on interactions, experiences, and knowledge developed in everyday life (Lincoln & Guba, 1985). With this paradigm, the researcher explores how the coastal community of Bagan Kuala constructs the meaning of environmental communication in dealing with the marine debris issue.

Research Design

The research design uses a case study. The case study was chosen because it allows the researcher to understand phenomena in depth within a real context, with clear case boundaries, namely the marine debris crisis in Bagan Kuala Village, Serdang Bedagai Regency. Case studies are relevant to exploring the complexity of environmental issues involving technical, social, cultural, and communication factors (Yin, 2016; Stake, 1995). This research is descriptive-analytic, with the aim of describing the construction of environmental communication meaning and analyzing the role of communication in changing the behavior of coastal communities.

Research Location

The research was conducted in Bagan Kuala Village, Tanjung Beringin District, Serdang Bedagai Regency, North Sumatra. This location was chosen because it is a coastal area with a long coastline and the majority of its residents depend on the sea for livelihood. However, the village faces serious problems related to marine debris due to the absence of waste management facilities. The location selection was done purposively based on research

relevance, namely analyzing the construction of environmental communication meaning in coastal communities vulnerable to ecological crises.

Research Informants

Research informants were determined based on direct involvement in marine debris issues (Patton, 2014). Informant criteria include:

- Coastal communities (fishermen, housewives, educators) who interact directly with the sea.
- Village officials and community leaders with formal or informal authority.
- Environmental activists or volunteers.
- External parties such as academics or NGOs who have carried out environmental programs in the area.

Total informants: 28 people, considering diversity of social groups and information representation.

Data Collection Techniques

Data collected via:

1. Participant Observation

Researchers directly engage in the field to observe community waste management behavior and communication interactions.

2. In-Depth Interviews

Chosen to explore personal experiences, perceptions, values, and meanings related to marine debris (Kvale, 1996; Moleong, 2017).

3. Documentation

Official village documents, regulations, program reports, archives, and secondary literature.

Dokumentasi

Dokumentasi diperoleh dari dokumen resmi desa, peraturan, laporan program lingkungan, arsip kegiatan, serta sumber literatur sekunder seperti jurnal dan artikel terkait. Data dokumentasi berfungsi melengkapi dan memvalidasi hasil observasi serta wawancara.

Data Analysis

Using Miles & Huberman's interactive model:

- Data reduction
- Data display
- Conclusion drawing / verification

Data Validity

Maintained through:

- Source triangulation
- Technique triangulation
- Member check
- Peer debriefing

- Audit trail

RESULTS AND DISCUSSIONS

1. Research Results

1.1 Public Misconceptions About Marine Debris

Data from in-depth interviews and observations show that some members of the community in Bagan Kuala Village have incorrect understandings about marine debris. This research found the existence of fundamental misconceptions in the community related to marine debris. First, some residents believe that throwing garbage into the river or ditch can strengthen the soil so it is not easily eroded. This view makes garbage considered as “soil reinforcement,” even though such practice actually causes blockage of water flow, flooding, and ecosystem damage (Borude & Patil, 2016). As stated by a resident:

“Our people also throw garbage on the riverbank... The soil in the rivers, they say, stays strong.” (Informant 1, Local Community, 54 Years).

Second, there is a belief that garbage thrown into the sea will disappear by itself carried by the current. This reflects the view of the sea as an unlimited space capable of absorbing waste. In fact, research shows that marine debris settles, breaks down into microplastics, and enters the human food chain (Wang et al., 2024). This is reflected in the statement of a local vendor:

“I sweep, throw the garbage straight into the sea. So it drifts away and doesn’t scatter around my environment.” (Informant 2, Small Trader, 50 Years).

In addition, these misconceptions are also passed down across generations. A 6th-grade elementary school student admitted to throwing trash into the water channel because he imitated his parents’ habits:

“I throw garbage into the ditch because I saw my mom and dad doing the same.” (Informant 3, Elementary School Student, 12 Years).

The finding from the elementary student emphasizes the role of the family as the primary socialization agent, where parents’ habits of littering are reproduced by children. This shows that misconceptions about marine debris are passed on across generations.

Thus, the marine debris issue is not only technical, but also related to knowledge and awareness. As long as these misconceptions persist, littering will continue to be seen as normal, even though the impacts are real: flooding, ecosystem damage, and health risks due to microplastics that return into the human food chain.

Therefore, environmental communication becomes crucial to reshape public mindset and build collective awareness in changing behavior. In the end, the results of this research emphasize the need for policy recommendations that place families, schools, and local communities as the main targets of environmental education strategies.

1.2 Ceremonial Patterns of Environmental Communication

The study found that environmental communication carried out by the village government or external parties still predominantly takes a ceremonial form. Information about environmental cleanliness is usually delivered through village meetings, religious activities, or other formal events. However, these activities are not continuous and do not reach the entire community. As a result, environmental messages are not internalized into actual daily behavior.

“...we as the village government always conduct socialization to the community... like during Maulid, Islamiyah events... we say let us take care of the environment...”

(Informant 4, Village Head, 46 Years).

“So far I got information about waste... from village events.”
(Informant 5, Housewife, 41 Years).

“Not all residents attend village activities, from 100% maybe only 25%.”
(Informant 6, Village Official, 45 Years).

This condition shows that the construction of environmental communication is still shallow and administrative, perceived merely as a formal village activity. If environmental communication remains ceremonial, misguided behavior related to marine debris will continue, even potentially strengthen, because there is no consistent learning space. Ecological messages stop at formal events and never become continuous collective awareness.

This finding emphasizes the urgency of effective environmental communication to optimize its role as an instrument of behavior change and formulate policy recommendations that encourage participatory, sustainable, and integrated communication practices at the village level.

1.3 Differences in Meaning Among Social Groups

Analysis results show significant differences in how various social groups understand marine debris:

- Children tend to imitate their parents' behavior, so throwing trash into the sea is considered normal.
- Housewives see the sea as an economic source, but they lack access or facilities for waste management.
- Village officials understand environmental issues more on administrative and regulatory aspects.
- Environmental activists have higher ecological awareness and push for collective behavioral change.

These differences show fragmentation of understanding which hinders the formation of a shared vision in handling marine debris.

1.4 The Role of Family in Building Ecological Awareness

An important finding of this research is the central role of the family as the primary socialization agent. Communication patterns within the family determine how children and other family members understand and respond to waste issues. Thus, the family functions as a strategic microsystem in instilling sustainability values from an early age.

1.5 Dependency Model Behavior in Bagan Kuala Community

The study found a dependency model pattern in the coastal community of Bagan Kuala in responding to marine debris issues. Residents are only active when there is intervention from external parties, such as university students or social groups, who initiate collective clean-up activities. However, after the activity ends, cleanliness efforts stop again. This is shown through the following interview:

“Sometimes many students or young people come. Usually they have routine activities every Friday, there’s always a clean-up. But after that, no more.”
(Informant 8, Elementary School Teacher, 30 Years)

This dependency model shows that ecological awareness is still situational and not born from internal initiative. If this condition continues, the community will remain dependent on

external interventions, causing environmentally friendly behavior to be unsustainable, and the marine debris problem will continue to recur.

2. Discussion

2.1 Misconceptions as Cultural Barriers

Public misconceptions about marine debris show that the issue is not only technical but also cultural. The belief that the sea can “clean itself” is a form of social construction formed through daily interaction practices. This finding aligns with studies by White (1967) and Milton (1996), which show that low ecological awareness is often influenced by local traditions and beliefs.

2.2 Ceremonial Communication vs. Sustainable Communication

Ceremonial environmental communication strategies are proven ineffective in changing behavior. Messages delivered only last briefly and are not followed by participatory follow-up. This supports Swarnawati et al. (2023), who found that environmental campaigns limited to information delivery tend to fail in creating behavioral change. This research adds evidence that participatory and sustainable communication is much more needed in coastal communities.

2.3 Fragmentation of Meaning Among Social Groups

Differences in meaning among social groups show multi-layered understanding of marine debris. Perspectives of children, housewives, village officials, and activists show complex heterogeneity. This aligns with family communication theory (Koerner & Fitzpatrick, 2006), which emphasizes that different communication patterns produce different perceptions of an issue. Therefore, environmental communication strategies must be adjusted to the characteristics of each target group to be more effective.

2.4 Novelty: The Family as an Ecological Agent

The main novelty of this research lies in emphasizing the role of the family as the agent forming ecological awareness. Different from previous research focused on structural policy aspects or infrastructure (Swarnawati et al., 2023), this study shows that the family is the first and primary space where ecological values are built. This is consistent with Ecological Systems Theory (Bronfenbrenner, 1979).

2.5 Theoretical and Practical Implications

Theoretically, this research expands environmental communication studies by adding the family dimension as an analytical unit that has been overlooked. Practically, these findings provide a basis for preparing family-based communication strategies that can be integrated into village or school programs. For example, family-based environmental education programs can become effective solutions for internalizing sustainability values.

3. Synthesis

Overall, the research results emphasize that the marine debris crisis in Bagan Kuala Village is not only caused by weak waste management systems, but also due to misconceptions, ceremonial communication, and differences in meaning among social groups. Emphasizing the family as the main agent of change becomes the novelty contribution of this research. Therefore, environmental communication strategies that are participatory, sustainable, and family-based are key steps toward sustainable marine waste management.

CONCLUSION

Based on the research conducted in Bagan Kuala Village, Serdang Bedagai Regency, it can be concluded that environmental communication plays a crucial role in addressing the marine debris problem. However, current communication strategies remain ceremonial, unsustainable, and have not yet built deep ecological awareness in the community. There are entrenched misconceptions, such as the belief that throwing trash into rivers or seas is beneficial, as well as community dependence on external interventions in waste management. Differences in meaning among social groups also hinder the creation of a collective vision. On the other hand, this research finds that the family is the main agent in instilling ecological values, which becomes the foundation for sustainable behavioral change.

In general, this research shows that efforts to address marine debris require not only technical and structural approaches, but also communication approaches that are participatory, sustainable, and based on family values. These findings answer the research objectives by confirming the urgency of environmental communication, identifying its role in behavioral change, and providing an implementable policy recommendation basis for the government and stakeholders. Thus, effective and contextual environmental communication strategies become the key to realizing sustainable waste management in coastal areas.

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