Collaborative Communication for Abrasion Disaster Mitigation through Tourism Development

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Abstract: This research explains collaborative communication in abrasion disaster mitigation based on tourism development. It uses Communicative Planning Theory (CPT) and case studies research method. The results show that communication about abrasion disasters is carried out by the central government through collaboration across ministries, Peat and Mangrove Restoration Agency (BRGM), provincial governments, regional governments, universities and local communities. The Raja Kecik tourist destination was built as a communication channel for abrasion disaster mitigation. The community-based tourism development is a means of collaborative communication in building awareness and increasing stakeholder participation to mitigate abrasion disasters.

Keywords: abrasion, collaborative communication, disaster mitigation, environmental communication, tourism development

Environmental problems have become a matter of concern, debate and study among the world community (Gislason, Galway, Buse, Parkes, & Rees, 2021, p. 530; Potdar & Unnikrishnan, 2021, p. 2). The issue of environmental damage has also received a lot of attention among the public, government, activists, politicians and companies in Indonesia. In recent years, the impacts of climate change disasters such as forest fires, floods and extreme weather events have become increasingly evident. Therefore, to mitigate climate change, campaigns to change people’s behavior need to start from simple things and be carried out sustainably.

As the largest archipelagic country in the world, Indonesia has thousands of islands. However, several islands are threatened with sinking due to abrasion...
and rising sea levels. Bengkalis Island as a peat island has quite severe vulnerability because the land experiences abrasion reaching three to ten meters each year. This event certainly cannot be separated from environmental problems and global climate change. The causes of climate change include deforestation, industry, logging of mangrove forests, land conversion, and excessive exploitation of natural resources. This climate change brings natural disasters, rising sea levels and high waves that cause abrasion. Related to this environmental problem, the Indonesian government has started to make several policies. However, the practical aspects of its implementation, especially in communicating in handling and mitigating abrasion disasters, have not received much attention from the authorities.

Ecosystems in the marine and coastal environment have provided the community with many livelihoods or benefits, from economic, recreational, and socio-cultural activities. On the one hand, these marine and coastal areas are able to support the local economy and the welfare of coastal communities. But on the other hand, this increase in the marine ecosystem-based economy has a negative impact on the worsening quality of the coastal environment (Eales, Bethel, Fullam, Olmesdahl, Wulandari, & Garside, 2021, p. 2). Several research results show that wetlands are the most productive environment in the world and are very important for human survival. Mangrove ecology functions to protect, maintain and stabilize coastlines from waves, tides and abrasion. This ecosystem also functions as a place for living creatures to survive, reproduce and forage for various types of fish, birds and primates. Apart from that, mangroves also have socio-economic functions, namely as a source of livelihood, source of building materials, natural tourism, fish farming areas and others. Therefore, these wetlands are important for the supply of clean water, food and building materials, biodiversity, carbon storage, flood control, groundwater recharge, and climate change mitigation (Chen & Shih, 2019; Eales et al., 2021; Mutia, Sumarmi, Budijanto, Bachri, Astina, & Aliman, 2019). Previous research has not only proven the value of wetlands for humans but also demonstrated some endangered flora and fauna, such as: reptiles, amphibians, fish, shellfish and crabs.

The main concern of this research is environmental disasters in the form of coastal erosion which is very worrying. Abrasion on Bengkalis Island is mostly caused by climate change, rising sea levels so that waves easily damage peat soil. Apart from that, the cause is the intensive exploitation of mangroves for building materials, charcoal and firewood. Mangrove deforestation occurs due to the conversion of mangrove land for shrimp ponds (Yasir, Nurjanah, & Yohana, 2020, p. 321). The high exploitation of mangrove forests and low law enforcement for forest loggers make the damage to mangrove forests in Bengkalis Regency increasingly widespread (Astuti & Widodo, 2018).
Whereas mangrove forest is one type of wetland ecosystem that is important to be preserved because it provides many benefits to human life and marine ecosystems. Therefore, a combination of individual and collaborative communication processes is important for disaster risk reduction and climate change adaptation through appropriate policies, plans, strategies and programs (Mall, Srivastava, Banerjee, Mishra, Bhatt, & Sonkar, 2019, p. 15).

Bengkalis Island is part of the outermost small island which has a base point of geographical coordinates connecting the archipelagic sea baselines in accordance with international and national law. This outermost island area is a certain national strategic area. This area is part of state sovereignty, environmental control, and/or world heritage sites, the development of which is prioritized for the national interest. Therefore, management of the outer islands requires special attention. As a border area between countries, this island must maintain the preservation of its environment and natural resources so that it can provide benefits for the welfare of the local community. The management of coastal resources and the outermost small islands is carried out involving inter-sector or cross-department. The coastal area management policy has been mandated by law to be implemented in order to improve the welfare of the people in this area (Undang-Undang Republik Indonesia, 2007).

The local government has attempted to conserve mangrove forests by involving the community by making mangroves a tourist attraction. However, most of these programs failed and were not sustainable. Villages that conserve mangrove forests include Sebauk Village, Teluk Pambang, Deluk, Penebal, Mentayan, and others. Sebauk Village, for example, has a Community Care Group for the Environment (Kempas) to develop mangrove ecotourism but it has failed and is not sustainable (Yasir, Nurjanah, & Yohana, 2020, p. 323). However, the existence of this group is not fostered sustainably so that many ecotourism objects and facilities built are neglected. This shows a lack of collaborative planning and unsustainable communication. In fact, national development policies and regional development in the environmental sector require a comprehensive communication plan.

There has not been much research on communicative or collaborative planning that discusses communication in the context of abrasion disaster mitigation. Therefore, this study uses a communicative planning theory approach. Communicative Planning Theory (CPT) is influential in planning thought and practice (Westin, 2022, p. 133). CPT may also refer to other terms such as collaborative planning, collaborative governance, argumentative planning, and deliberative planning. This CPT emphasizes inclusivity, equity, neutralization of power, and dialogue (Calderon & Westin, 2021, p. 14; Westin, 2022, p. 133). The CPT refers to the political theory of deliberative democracy, namely that decisions or policies are obtained through a process of
rational argumentation among citizens as equals. Studies on collaborative planning practices are carried out to overcome fragmentation, conflicts of interest, and complex problems in urban planning, environmental management, regional governance, and others (Lin, 2023, p. 249). The communicative approach on CPT studies emphasizes interaction between various stakeholders (state, corporate, and civil society), and representatives of all relevant interests. Therefore, this approach emphasizes an interactive process, through which various views are debated to seek consensus.

CPT emerged in the late 1980s, and has been one of the most discussed topics in planning theory since then. CPT focuses on areas of planning practice inspired by the philosopher Jürgen Habermas through the Theory of Communicative Action (Mattila, 2020, p. 1). In Habermas’ perspective, communicative rationality is associated with the concept of “communicative action”. This concept refers to forms of collective action that are rationally coordinated through the harmonization of speech and action. One of the most basic criticisms in the application of Habermasian philosophy regarding theoretical planning is that Habermas’s theory is too abstract. The theory is not designed to be applied in a micro-scale context in everyday planning practice, but only in the context of macro-scale reforms, such as institutional structures in society and the drafting of laws. Therefore, communicative planning theorists must be able to practice CPT theory on a local and everyday micro scale as well as in relation to the macro scale in society. In essence, communication must be able to form collaboration in various ways and approaches to change unfair communication patterns to become more equitable (McGreavy et.al., 2022, p. 2).

The widespread use of social media has had an impact on planning and policy-making practices. However, there is still little use of social media to support collaborative planning, particularly in the flow of information from government to citizens. Even though citizen participation can be increased by maximizing the use of social media; and diverse communication (multimodal communication), and interactive (Lin, 2022, p. 2).

Collaborative communication is urgently needed in overcoming environmental damage, especially the abrasion problem in Bengkalis district. Collaborative communication is subject to inevitable dialectical tensions, namely: competing systems of meaning (discourse) formed in and through communication (Rice, 2022, p. 2). Collaborative communication requires identifying and articulating clear roles for all actors in conservation activities. Moreover, changes are created to reconcile interests and reconcile all values of actors, to achieve results that are positive and realistic, not idealistic. This collaborative approach strengthens the ability to pay attention to how social, political, economic, and institutional factors interact with local ecological conditions. This approach encourages a bottom-up and inclusive approach to adapting to climate change and
to consider how dominant understandings of spatial and temporal scales are constructed. The influence of cross-scale interactions and various constructions of problems, space and time strengthens individual needs so that they want to be actively involved in realizing the communication goals (McGreavy et al., 2022, p. 2).

In essence, collaborative communication requires development trust and respect among various actors. Consequently, these liaison actors need basic communicative skills to enable collaborative communication, in particular, skills needed to resolve conflicts (Rice, 2022, p. 3). In addition, this strategic communication can generate knowledge that can be applied collaboratively based on science. The communication strategy adopted by each agency in disaster management will be different from each other. This difference takes into account the view of life and behavior of the community in disaster management. In addition, people also have different beliefs, cultural norms, and other characteristics that make them need to be approached with the right approach (Purworini, Purnamasari, & Hartuti, 2019, p. 44).

Collaborative environmental communication among the government, companies, communities, and other business actors must be pursued to overcome the problem of abrasion on the coast of Bengkalis Island. Abrasion disaster mitigation is an effort to reduce disaster risks caused by coastal abrasion, both through physical development and awareness and capacity building in dealing with disaster threats.

This research also takes the perspective of environmental communication which is not only seen as an instrument to support the implementation of environmental management, but also becomes an integrated part of environmental management itself (Flor & Cangara, 2018, p. 7). Therefore, environmental management without communication will encounter many crucial problems. Communication not only aims to generate community participation but also aims to empower community members to become active actors and disseminators of information. Community participation is absolutely necessary in preventing disasters and minimizing their impact. So the communication management aspect becomes very important in this community-based collaborative communication (Rochim, Bajari, Damayani, & Bakti, 2020). In addition, disaster communications play an important role in providing people with the information they need to respond to their problem. The management of communication that has concern for the community also affects the quality of disaster communication (Paton & Irons, 2016, p. 2).

In this case, integrated tourism, environment and disaster communication between government agencies, companies and local communities is very important for tourism development and
environmental conservation. Community-based ecotourism management can be a strategy to achieve development goals because decision making on resources and the environment rests with organizations within the community (Sumarmi, Arinta, Suprianto, & Aliman, 2021, p. 124). Therefore, researchers are interested in explaining collaborative communication in abrasion disaster mitigation based on tourism development on Bengkalis Island.

**METHOD**

This study used a qualitative research method with a case study approach. Case studies as a qualitative method explore phenomena that are bound by space and time to explain the complexity of the problem being studied. Case studies require the author to act more as the main instrument in the research (Alpi & Evans, 2019, p. 2). Research with case studies leads to exploring complex phenomena to develop theories or evaluate programs (Baxter & Jack, 2015). In this regard, qualitative research methods have several benefits for developing environmental and risk communication projects (DeLorme, Stephens, Hagen, & Bilskie, 2018, p. 2). The emphasis of the case in this study was on collaborative communication based on the development of tourism in abrasion disaster mitigation on the coast of Bengkalis Island in Riau Province of Indonesia. The case of developing Raja Kecik tourism, Muntai Village, Bengkalis District is interesting to study because it can reduce the risk of abrasion and attract people to care about the coastal environment on Bengkalis Island. This island is part of the outermost island and borders other countries that are of concern to the central government to be considered as mandated by the laws of the Republic of Indonesia.

The subjects of this research are the actors of Raja Kecik ecotourism development and the stakeholders involved. The main informants were: 1) Solihin as the initiator, the manager of Raja Kecik tourism as well as the chairman of the Association of Malay Youth Concerned for the Environment (IPMPL), 2) Subari as the Head of Muntai Barat Village, 3) Mr. Syahruddin, secretary of the Regional Development Planning Agency (BAPPEDA), 4) Mr. Alwizar, head of the Tourism Sector, 5) Dimas Asri Agustin, an employee of the Bengkalis Regency Tourism Office, 6) Mr. Agus Susanto, Bengkalis Regency Environmental Service, 7) Irzal Fahrozi, one of the executors of BRGM Environment and Forestry Service of Riau Province, and 8) Sofyan as deputy dhairman of the Regional People’s Representative Council (DPRD) of Bengkalis Regency.

Researchers collected primary data and secondary data. Researchers collected primary data through interviews with several informants, and observe directly the activities of Raja Kecik tourism managers. In addition, researchers collected the secondary data from various documentations, records of communication activities, posting activities on websites, social media, news releases, laws, and
government regulations. Researchers analyzed research data using the Miles and Huberman interactive model (Miles & Huberman, 1994, p. 12). In this case the researcher also used a technique to check the validity of the data, namely by using triangulation through various sources.

**FINDING**

**Communicative Planning of Abrasion Disaster Mitigation on Bengkalis Island**

The abrasion prevention policy on Bengkalis Island is carried out directly by the central government through the Coordinating Ministry for Maritime Affairs and Investment. This Ministry coordinated with other ministries, provincial and district governments, and BRGM to address the abrasion problem on Bengkalis Island. BRGM is a non-structural institution that is under and responsible to the President. BRGM was formed through Presidential Regulation Number 120 of 2020 concerning the Peat and Mangrove Restoration Agency. BRGM is tasked with facilitating the acceleration of the implementation of peat restoration and improving the welfare of the people in the peat restoration area as well as carrying out accelerated mangrove rehabilitation in the targeted provinces. In its field activities, this agency also coordinates and is funded across ministries and various government agencies. The mangrove rehabilitation program for community resilience in the coastal area of Bengkalis Island is also part of a project funded by the World Bank (BPDLH, KLHK, & BRGM, 2022).

Communication planning in the mangrove rehabilitation program was carried out by the government using different communication methods. This diversity was carried out to ensure that communication can be easily accessed, transparent, direct, open, and interactive with all stakeholders, including communities and individuals affected by the project. Several meetings were held separately at various levels at the district, sub-district, and village to accommodate the participation of vulnerable groups. This mangrove conservation and rehabilitation program is carried out through labor-intensive programs and community grants, so that it seems more top down and not from the community. For the general public, project progress reports, including executive summaries, are disclosed to the public and disseminated to relevant stakeholders (e.g. meetings, official correspondence, and websites of government offices in each target city and district).

The implementation of communication programs has not involved citizens as an important component in disaster mitigation communication. The implementation of communication programs has not involved citizens as an important component in disaster mitigation communication. Mangrove rehabilitation project planning and communication strategies were carried out only involving small groups. This involvement is carried out by the central government through the Ministry of Environment and Forestry, BRGM and regional governments. This rehabilitation program and communication are not
carried out on an ongoing basis, only limited to project implementation. This type of communication was carried out through the Feedback and Grievance Redress Mechanism (FGRM) with the aim of ensuring communication can run well. Community involvement in the program was carried out to understand their views, including satisfaction and/or shortcomings with project activities, project benefits, and determine mitigation steps for the risk of abrasion disasters or environmental damage. Community satisfaction surveys were also conducted as part of monitoring and evaluation activities in this project. Community consultations were even held to understand their main problems and tried to overcome them in a consultative and participatory manner.

In this mangrove rehabilitation program, evaluation of communication activities were carried out by conducting a stakeholder satisfaction survey which is included in the project completion survey. This survey and consultation aimed to understand stakeholder perspectives regarding the impacts and benefits of rehabilitation projects, as well as the level of satisfaction of affected communities with their involvement, mitigation measures, and technical support/assistance received. Stakeholder engagement surveys and complaint handling systems, integrated into the project evaluation feedback form. This form of communication program evaluation was carried out in writing and/or in audio-visual form on social media such as posters, graphics and videos through media that can be accessed by the target community and the general public, such as news releases, social media, television and radio.

Project communication in government programs would be effective if it respects cultural norms and practices in society. Therefore, identification and discussion of the cultural characteristics of local communities need to be carried out by implementing agencies and/or project implementers with the aim of finding out the habits, needs and preferences of the community. Alternative methods were explored through village leaders, traditional leaders and religious leaders. However, this evaluation activity was rarely carried out in the field when the rehabilitation program was implemented. It had proven that many rehabilitation programs and communications are not sustainable, so that the mangrove seeds planted are not successful.

At the planning stage, this mangrove rehabilitation communication program has used collaborative communication to open access to interactions (questions, input and complaints) and provide information to various stakeholders (see table 1). The approach depended on the characteristics of the audience, such as interests, habits, needs and context. However, many activities were not carried out and even less transparent in terms of planning, decision-making, funding, and evaluation. Even from a communication perspective, it is not clear who carried out many of the communication programs, what kind of media and messages should be used as taglines as a form of mangrove preservation or rehabilitation campaign to prevent abrasion.
In every breakwater development project activity, rehabilitation programs carried out by the government rely heavily on formal communication meetings. These activities were carried out by holding meetings between ministries and local governments, regional governments and universities. These activities very rarely involve local communities, they tend to only serve as program targets. Most of these activities were spread through postings on the web, social media, and news releases involving journalists from several mass media.

Nevertheless, the government communication has not been widely shared and has not received support from netizens on social media (Facebook, Instagram, Youtube or Tiktok). Based on the data, activity on social media is still lacking, so there has been no response. Documentation and information from projects with stakeholders was published by the Ministry of Environment and Forestry on the website menlhk.go.id; BRGM website https://brgm.go.id/, PPID website https://ppid.brgm.go.id, and Environmental Fund Management Agency (BPDLH) website https://bpdlh.id. The majority of these sites or social media accounts were lacking in attracting a wide audience or still have minimal visits.

Bengkalis Island is a border area between countries that has been badly damaged and continues to erode due to...
abrasion, waves and ocean currents (see Figur 1). If left unchecked, this condition will change the map of the border between Indonesia and Malaysia in the Malacca strait. This problem is of concern to the central government. Thus, the government has carried out planning by carrying out communication, coordination, and cross-ministerial and cross-sectoral meetings. Various meetings were held to deal with the abrasion disaster. However, most of this communication is still ceremonial and development activities are not sustainable.

However, the government’s efforts to mitigate coastal erosion were carried out in three ways. First, the government intensifying the rehabilitation program or planting mangrove seedlings in coastal areas affected by abrasion. However, central government, regional government and community programs also failed due to this wave. The planted mangrove seedlings sank, washed away, and died. Second, the government built wave breakers and builds walls to withstand waves on the shoreline. Unfortunately, the program stopped because it did not last long. Third, the government invited the public to change the behavior of people who live around the coast to actively participate in protecting the coast.

These three methods were closely related. The third method was a very important component, but has not been fostered or empowered to be active and skilled in protecting the coastal environment. Therefore, collaborative communication to campaign intensively must be priority so that all people are aware to be actively involved. In this case, the Indonesian government has actually placed this problem as the main problem that must be resolved (BPDLH, KLHK, & BRGM, 2022). However, this communication program for abrasion disaster mitigation and rehabilitation programs has not been collaborated with other stakeholders more optimally.

The implementation of the mangrove rehabilitation program has not been successful because the seeds that planted are hit by the waves. However, the government have been adding location points for breakwaters located in the north

Figure 1 One of the Beaches Affected by Abrasion in Muntai Barat Village
Source: Muntai (2019)
of Bengkalis Island. Local governments were only building turabs or culverts on certain coastal lands due to the large funds. At the Raja Kecik tourist site, these breakwaters and culverts were expected to withstand the strong currents of the Malacca Strait and protected the mangrove seedlings. The head of Muntai Barat Village explained about the effectiveness of the breakwater stone construction program.

In 2020, the government has begun construction of the breakwater on Raja Kecik Beach. At that time the construction was attended by the governor of Riau Province, and other officials. There is also the deputy regent of Bengkalis. The governor is happy and appreciates what the Association of Malay Youth Concerned for the Environment (IPMPL) has done. This local youth organization has played a role in assisting the government in overcoming abrasion in Bengkalis Regency. Some people have resigned themselves to seeing their gardens exposed to abrasion. Even though the beach has been planted with mangroves, planted mangroves are swept away by the waves. This is because the waves are indeed strong and maybe the planting time is not right when the northern season arrives. (Subari, Head of Muntai Barat Village, interview, April 21, 2023)

The construction of breakwaters and wave barrier wall on Raja Kecik beach also aims for improving the community’s economy. On September 28, 2021, Joko Widodo as the president of Indonesia visited Raja Kecik beach and was directly involved symbolically with the community planting around 20,000 mangrove seedlings. This coastal tourist attraction area is a means to convey messages that get national coverage. The President campaigned on the importance of rehabilitating mangroves and campaigning for concern for this outermost island of Indonesia. Bengkalis Regency is one of the priority locations with the largest area for rehabilitation. This coastal area is included in the 2020-2021 National Economic Recovery Program (PEN) for mangrove recovery in Riau Province with

![Figure 2 President Joko Widodo Conducted a Mangrove Rehabilitation Campaign in Raja Kecik](Source: KLHK (2021))
an area of 1,292 ha. Mangrove rehabilitation carried out by BRGM and the Ministry of Environment and Forestry (KLHK) with the PEN’s approach, not only aims to protect the ecosystem but also provides additional income for the local community.

Figure 2 showed the president given a speech about the importance of rehabilitation to control abrasion in Raja Kecik. The abrasion disaster management policy was expected to be able to support regional ecotourism and the community’s economy. The government through the coordinating Ministries of Maritime Affairs and Investment, the ministries of public works and public housing, the Ministry of KLHK, BRGM, communities, local governments and other stakeholders have a concern in overcoming abrasion. Even though, the funds was limited due to the Covid-19, but the central government continued to make programs to rehabilitate mangroves. The PEN program was expected to be able to improve the community’s economy, while keeping the ecosystem sustainable. Unfortunately, that program had been supervised because this program is central policy.

**Collaborative Communication through Community-Based Tourism Development**

The mainstay of Raja Kecik’s tourist attraction is the Datuk Bandar Jamal Bridge, beach, breakwaters, and various other events (such as fishing competitions, and religion). This beach tourism is the idea of the IPMPL and is managed by this cooperative association. The government is empowering the community to become the main actors in developing coastal ecotourism on Bengkalis Island. This community-based tourism is able to use residents as communicators, channels, media, and at the same time as messages to be disseminated to protect beaches from abrasion (Yasir, Firzal, Sulistiyani & Yesicha, 2021, p. 856).

In terms of dissemination, the message about mangrove rehabilitation has received a lot of attention from the wider community. The development of community-based ecotourism has an important contribution to ecosystem preservation. Therefore, the development of Raja Kecik is sought to prevent and protect the coastal area from abrasion and more severe environmental damage. On the other hand, the existence of ecotourism can increase the income and welfare of the local community. However, the government’s efforts have not changed the environmental conditions in areas affected by abrasion much. The abrasion and mangrove damage can be controlled if there are appropriate strategies such as evaluating mangrove logging activities, implementing mangrove forest conservation policies, and providing mangrove conservation education for sustainable development (Chen & Shih, 2019, p. 6).

Based on figure 3, apart from the beach, the existence of the Datuk Bandar Jamal bridge which leads to the sea for one kilometer is an attraction for the Raja Kecik tourist destination. Datuk Bandar Jamal bridge is interpreted as a symbol of unity and prosperity. Meanwhile the name of Raja Kecik is derived from the name of
the king and founder of the Siak kingdom, namely Sultan Abdul Jalil Rakhmat Syah. Likewise with the choice of the names of buildings and supporting infrastructure in this tourist location, all of which have very meaningful and historical value. The names are taken from Malay customs and figures in the Siak kingdom.

The sustainable development communication through tourism carries an important message to prevent abrasion by conducting rehabilitation. This message was conveyed not only to educate, to care about the environment, but also to teach the history of the past. Marine tourism with the attractions of bridge, beaches and breakwater rocks does not limit people from enjoying Raja Kecik beach. The bridge also has a message that people are more concerned with the environment in which they live. This is also a witness to the amount of abrasion that has reached more than one kilometer of land loss in the villages of Muntai Barat and Bengkalis.

In this case, the group leader who is also a tourism manager explained:

This bridge is an icon of Raja Kecik Beach. We built it solidly above the sea. The bridge we built is one kilometer. The end of the bridge passes through a breakwater stone that has some photo spots there. We develop this tourism jointly between youth and the community. We charge a rate to tourists who enter this attraction. We use the money as development funds and operational funds for the maintenance of the facilities. We still have to ensure the safety of visitors while on the Datuk Bandar Jamal Bridge. Because after all, this bridge ends above sea level. Many visitors descend directly onto the breakwater or descend directly under the sand to take selfies there. So to avoid all forms of possibility that could happen. We assigned several members of security to always be on standby there. (Solihin, Chairman of the IPMP, interview, April 20, 2023)

Community tourism development was carried out in coordination with the government, but lacks guidance. However, several academics and students from
universities through community service programs have helped develop this tourist destination. In this case, the district and village governments are also still not contributing enough to the development of Raja Kecik beach for reasons of limited funds. The local government only provided moral and ceremonial support. Therefore, tourism development was only carried out by the IPMPL community. Dimas Asri Agustin explained:

Tourism managers and local governments have coordinated for the development of Raja Kecik tourism. The local government provides support for every design that will be carried out. The manager did propose the design to the provincial government and was assisted by the local government. The budget of the Bengkalis district government is limited, so it is impossible for us to spend it only on the construction of Raja Kecik Beach. There is quite a lot of tourism in Bengkalis, if the budget is only for the construction of Raja Kecik, tourism in other places will not get any. (Dimas Asri, Agustin, Employee of the Bengkalis Regency Tourism Office, April 18, 2023)

This tourist land belongs to the community, so the management of Raja Kecik tourism is carried out by the local community. Some of these communities donated their land for the development and expansion of this coastal tourism. This community spirit is very good as a capital for sustainable ecotourism development. Communities living on the coast are also willing to plant mangroves to protect their plantations from abrasion. They are involved in building tourism, as food sellers, coast guards, and maintainers of tourist attraction facilities. Until now, the community in tourism management has not had a direct impact in preventing their beaches from abrasion. However, they already know the campaign to preserve the coast from abrasion, but they have not been able to do much. This was also stated by Solihin:

The community is actively involved in the management of Raja Kecik beach tourism. Most of the managers are also indigenous people of Muntai Barat village. The involvement of the community to change their destiny is to give their land for us to use as the sustainability of our development project here. This coastal area is a garden from the surrounding community, we have a cooperation contract with a profit sharing system. Instead of the garden being affected by abrasion, it is better for us to develop it. The people here are sincere and willing to give their land for us to manage together.” (Solihin, Chairman of the IPMP, interview, April 22, 2023)

This community tourism destination developed in collaboration with several stakeholders has many themed community activities such as: education, economics, culture, social to religious rituals carried out at this Raja Kecik tourist location. This activity can be an effective form of communication so that it can attract visitors. IPMPL as the manager collaborated with the local community, regional government, research activities, and university lecturer services, to develop this tourism management. Several mentoring activities, FGD, and training have been obtained by this community group including lecturers and
students, regional government, and other stakeholders. This activity collaborated with government programs to develop tourist destinations as well as campaigning for abrasion disaster mitigation. Mangrove rehabilitation activities through the PEN program were also given to them. This government program was very good, but it did not provide sustainable assistance to the community, both in terms of funding and assistance. In fact, strengthening the capacity of local communities in environmental and tourism management is important to make a successful environmental communication.

**DISCUSSION**

This study reveals that collaborative communication contributes to increasing environmental awareness and stakeholder participation in abrasion disaster mitigation. This is in line with the idea that collaborative communication is a governance activity that involves various stakeholders in solving problems (Lin, 2023, p. 251). The government has involved many stakeholders in planning and finding solutions to abrasion disasters. However, the understanding of values and knowledge about collaboration planning and important resources have not been fully understood. Therefore, actors must have the values, motivation, and knowledge of collaborative planning and problem solving. So that planners can mobilize other actors to operationalize the communication process collaboratively (Calderon & Westin, 2021, p. 14).

The government has carried out various coordination and meetings, but the activities are still ceremonial and have not resolved the problem. On the other side, the communicator who supported the programs did not actively use and used the incorrect the communication channels. For example, communicator used both web and social media, but they accepted minimum respond from its. Whereas, the social media is important thing in planning practices and policy making. In this case, social media collaboration, digitalization, and methods of involving all stakeholders can help support a more inclusive planning process (Lin, 2022, p. 1). Communication actors must receive more support from the public through social media accounts. Apart from that, the selection of audiences, channels used and messages must also prioritize local community values which aim to influence community attitudes towards abrasion disaster mitigation behavior (Degeling & Koolen, 2022; Purworini, Purnamasari, & Hartuti, 2019).

Both government and other stakeholders must be able to unite perceptions and benefit each other without marginalizing other groups. Communication must minimize repressive forces and reduce abuse of power (Westin, 2022). Therefore, communicators must be creative and communicate intensively. Even in the context of using social media, collaboration is important to get more followers and subscriber. The integration of social media, digital tools, and traditional methods of participation can help support
more inclusive collaborative planning processes (Lin, 2022, p. 2). In addition, the use of various communication channels is necessary because village communities have diverse characteristics in selecting sources of disaster information (Purworini, Purnamasari, & Hartuti, p. 45).

In this case, the government’s policy communication program to build breakwaters and rehabilitate beaches is very important in mitigating abrasion. The central government’s policy of saving national borders indirectly helps regional government programs in overcoming the abrasion problem that is eroding the Bengkalis Island area. So this program is not just policy implementation, but also part of communication to mitigate abrasion disasters, because it includes efforts to increase community environmental awareness, develop regional tourism and at the same time improve the community’s economy. This communication collaboration can be seen in the community in developing Raja Kecik tourism which can increase awareness of the environment and improve the community’s economy.

However, this rehabilitation program and its communication are still not sustainable. The government and other stakeholders have not carried out intensive guidance and training to provide expertise to the community in managing ecotourism. Basically, sustainable tourism and environmental development requires communication from various stakeholders, aimed not only at local communities for active participation, but also at visitors, for media coverage and discussions on social media. In this case, communication planning needs to be developed because it is goal-oriented, practice-based, relational, and built collaboratively (McGreavy et al., 2022, p. 2). Collaborative communication is important for increasing tourist destinations and campaigning the awareness to protect the coast of Bengkalis Island. These tourism development activities can be an effective channel of communication and social interaction to provide environmental awareness (Yasir, Nurjanah, & Yohana, 2020, p. 323).

This abrasion disaster mitigation program is actually very important to implement, but does not provide sustainable assistance to the community. Related to this, strengthening the capacity of local communities in environmental management is important as the key to successful environmental communication (Vlibeigi, Sarhangi, & Karevani, 2021, p. 33). On the other hand, maintaining and preserving the environment requires collaboration from various parties and various stakeholders. Therefore, for this abrasion problem, the participation of various stakeholder groups in nature management is the right way to continue and develop (Grodzińska-Jurczak, 2018; Yasir, Firzal, Sulistyani & Yesicha, 2021).

Communication based on tourism development can make tourism managers as communicators, messages, media, channels and communicants at the same time (Yasir, Nurjanah, Yohana, & Samsir, 2021, p. 168). This communication model integrates
all existing communication resources to disseminate messages of environmental awareness or abrasion disaster mitigation. The community-based tourism model is a form of community-managed tourism in which the local community itself has control over involvement in management and development (Sumarmi, Arinta, Suprianto, & Aliman, 2021, p. 124). In this case, the community has an important role and it has been controlling the development and management of Raja Kecik tourism. The community must be provided with more knowledge through training and assistance. The community is also part of the business actor as a driver, and able become the subject of social change related to product development and marketing of local products produced by the local community. Furthermore, tourism has an important contribution to fight inequality and economic inequality especially with its community-based management (Giampiccoli, 2020, p. 2).

Therefore, collaborative communication between local communities and various stakeholders based on tourism development can be practiced more broadly to mitigate abrasion. This community-based abrasion disaster communication is the effective strategy because it can convey messages that are targeted and sustainable.

CONCLUSION

Collaborative communication based on coastal ecotourism development plays an important role in changing people’s views and behavior towards the coastal environment. The government’s policy to build breakwaters by synergizing with the community as tourism managers can be a channel of communication in mitigating abrasion disasters. This beach tourism destination was built as an effective campaign tool in protecting the beach from abrasion and rehabilitating local community-based mangroves. The development of marine tourism in collaboration with the prevention of environmental damage not only contributes to the economy and people’s welfare but also contributes to mitigating abrasion disasters. Collaborative communication have a challenge and an opportunity. This requires greater acknowledgment and aggregation of various stakeholders. Consequently, mitigating abrasion disasters will require communication as a central strategy to increase the collaboration needed among various actors that is more inclusive to achieve the desired social and ecological outcomes.

The mangrove rehabilitation program and the construction of a breakwater on the coast of Bengkalis Island were not carried out sustainably because they did not pay attention to post-planting maintenance so that the planted seeds died. In addition, development communication has not been carried out on an ongoing basis, especially to provide expertise for the community in managing ecotourism. The weakness of collaborative communication based on mangrove ecotourism management lies in the lack of coordination between stakeholders and the absence of sustainable
development communication. Therefore, BRGM, provincial and district governments must involve other stakeholders to play a more active role in mitigating abrasion disasters. Collaboration and integration between stakeholders is an important requirement for improving collaborative communication for tourism development and mitigating abrasion disasters. The further research should be able to evaluate policies and find appropriate solutions for abrasion disaster mitigation programs.

REFERENCES


