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Government Policy Strategies for Coastal Abrasion Management: A Case Study of Meranti Islands Regency, Riau Province

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Abstract: This research aims to find out the government's strategy in overcoming abrasion in the Meranti Islands Regency, Riau Province. Abrasion is a serious problem faced by areas located in coastal areas. the problem of abrasion is a natural process in which the coastline is gradually eroded and eroded by the forces of waves, currents and tides. Other problems are also caused by human activity factors, such as over-exploitation of marine ecosystems that are usually the first line of defense against abrasion. This research uses qualitative methods to understand the various concepts found in the research process in the form of written words and the results of interviews with informants and behavior observed by observation, interviews and documentation of research results. The policy strategy is carried out by setting program objectives in the long term such as maintaining mangrove forests and community empowerment. then maintain the environment by issuing policies. In addition, persuasive strategies are needed in the form of guidance to the community. local governments also become facilitators in disaster management and environmental maintenance by collaborating with all parties.

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INTRODUCTION

This research is about how the government's strategy in overcoming abrasion in the Meranti Islands Regency. Abrasion is a serious problem faced by many countries in the world including Indonesia. Changes in the coastline due to abrasion which have an impact on land loss are a threat to countries with coastal areas. Abrasion is the erosion or reduction of land and beach due to wave activity, currents and tides. In this regard, the compaction of land causes the land surface to fall and be inundated by sea water so that the coastline changes (Nur, 2004).

Indonesia has 99,083 km of coastline and is the second longest in the world after Canada. Factors that cause abrasion can be caused by climate change that results in rising sea levels. Coastal abrasion can also be caused by a natural process in which the shoreline is gradually eroded and eroded by the forces of waves, currents and tides. Other factors are man-made as a result of human activities such as sand mining and unplanned coastal development, and logging that causes the destruction of mangrove forests on the coast. Knowledge of the

causes, risks, impacts, vulnerability of the social environment of abrasion is very important to know as a way to be able to guide policy development (Permatasari, 2021).

Therefore, it is important for the government to emphasize the urgency of policy strategies in overcoming abrasion in coastal areas in various regions in Indonesia. one of the areas affected by abrasion is Riau Province, especially city districts located in coastal areas. The length of the coastline in the coastal areas of Riau Province is estimated to reach 2,713 km. Abrasion has eroded agricultural land and community plantations, even community settlements are threatened. At least three regencies in Riau are currently affected by severe abrasion, namely Meranti Islands, Indragiri Hilir and Bengkalis. Abrasion in coastal areas reaches an average of 15 meters per year, and Meranti Islands Regency is the most affected by abrasion because it is directly adjacent to the Strait of Melaka. This abrasion problem will result in the reduction of the coastline and the land area will also change. So that the problem of abrasion is a serious problem in the Riau coastal area that must be a concern of the government.

Abrasion that occurs in the Meranti Islands is caused by a natural process where high sea waves because it is on the border between the Melaka sea and also because of human activities that utilize mangrove forests as one of the livelihoods so that these activities can damage the coast. The following is presented data on abrasion in the Meranti Islands Regency.

Table 1.2: Recapitulation of Rangsang Island Beach Abrasion in Meranti Islands Regency

No.	Village	Year		
		2019	2020	2021
1. Rangsang District	Tanjung Bakau	8,2 M	8,3 M	8,5 M
	Tanjung Gemuk	8,1 M	8,3 M	8,4 M
	Tanjung Medang	8 M	8,4 M	8,5 M
	Gayung	8,1 M	8,2 M	8,4 M
	Kampung Tengah	8,1 M	8,3 M	8,4 M
2. Rangsang Pesisir District	Tanjung	8,3 M	8,4 M	8,5 M
	Kedabu	8,4 M	8,3 M	8,4 M
	Tanah Merah	8,3 M	8,4 M	8,5 M
	Kedabu Rapat	8,3 M	8,4 M	8,5 M
3. West Rangsang District	Bantar	8 M	8,3 M	8,45M
	Permai			

Source: Meranti Islands Regency Border Management Section, 2023.

Awareness of the responsibility in safeguarding the territory of the State and protecting the community must be realized by the government and understanding of the implementation of duties and functions as governance and protecting the area needs to be improved so that there is no shrinkage of the area due to abrasion in the coastal areas of Riau Province. Coordination between regional apparatus in the Meranti Islands Regency, the Riau Provincial Government and the Government in this case the National Agency for Perbatsan Management (BNPP) needs to be improved in order to get serious attention in order to give birth to strategic policies in overcoming abrasion in the Meranti Islands. Policy is very synonymous with the

application of government duties and functions and must have outputs in order to overcome problems (Wibowo & Idris, 2017).

The program implemented by the Meranti Islands regional government through the Regional Disaster Management Agency is to build abrasion retaining walls and Geobags. However, this has not been able to overcome the problem due to budget constraints and the increasing extent of abrasion and areas affected by abrasion and the length of the coastline. So it needs to be handled by the Provincial Government and BNPP in formulating strategic policies and programs. Government attention is needed to overcome abrasion. The problem of abrasion in the Meranti Islands is caused by two things:

1. Natural factors
   Generally, abrasion due to natural factors is difficult to avoid because it will continue to occur. However, abrasion due to natural factors can be controlled through proper prevention. So that abrasion that occurs can be delayed or prevented.
2. Human factors
   Abrasion can also occur due to human factors that are less careful in protecting the environment around abrasion-prone areas, especially in coastal areas. Coastal abrasion often occurs due to human activities, such as excessive exploitation of marine ecosystems which are usually the first line of defense against abrasion.

From the data and abrasion problems in the Meranti Islands Regency, it shows that this disaster is an annual problem which indicates that there is no sustainable policy strategy carried out by the government and local governments in overcoming abrasion disasters.

a. Concept of Abrasion

The government has actually issued various policies for abrasion prevention, both central and local governments. Policy as a form of government action in overcoming the problem. Abrasion has become a serious environmental problem that continues to threaten many coastal areas in Indonesia. It not only reduces land availability and damages mangrove forests but also endangers fishery resources, destroys critical infrastructure, and in extreme cases leads to the sinking of small islands (Hidayat & Asrida, 2014; Wahyono, 2017). The coastal area used in Indonesia is the meeting area between land and sea, towards land the coastal area includes part of the land both dry and submerged in water which is still influenced by the properties of the sea such as tides, sea breezes and salt water seepage, while towards the sea the coastal area includes part of the sea which is still influenced by natural processes that occur on land such as sedimentation and freshwater flow, as well as those caused by human activities on land such as deforestation and pollution Dahuri in Hermanto & As'ari (2023). According to Hikmat (2001) mangrove forests are forests found along the coast or river estuaries and are influenced by tidal movements of a combination of river water and sea water, which are inundated at high tide and free from inundation at low tide whose communities are salt tolerant. According to Robert J Kodoatie dan Roestam Sjarief in Hidayat & Asrida (2014), the negative impacts caused by abrasion include:

1) Shrinkage of the width of the beach so that the narrowing of the land for people who live on the beach.
2) Damage to mangrove forests along the coast, because the waves driven by strong winds are so large.
3) Loss of fish gathering places in coastal waters due to the erosion of mangrove forests.
4) Over time, if left unchecked, it can damage various infrastructures such as roads, bridges and buildings around the coastline where abrasion occurs. It can even critically sink an island.

b. Strategy and Policy

Strategy is an overall approach relating to the implementation of ideas, planning, and execution of an activity over a period of time. Strategy is also a long-term plan that is prepared to lead to the achievement of certain goals and objectives. The purpose of understanding strategy, namely as a means to prepare for change (Karin et al., 2022). In response to this challenge, the government, both central and local, has designed various strategies and policies. Strategy, broadly understood as a long-term plan to achieve organizational goals, serves as the main reference for governance in preparing for change, coordinating resources, and directing development (Karin et al., 2022;Allison & Kaye, 2005; Sitinjak, 2000). Meanwhile,

policy represents a set of government actions aimed at solving public problems and ensuring that solutions do not create new issues (Selly & Madubun, 2023). A strategy is developed to achieve the direction and goals that have been set. Strategy development includes determining the organization's direction and basic objectives. Policy as a set of actions or activities planned by a person, group, or government in a certain context where there are obstacles or difficulties and opportunities for implementing the policy to achieve certain goals (Selly & Madubun, 2023). Policy is the process of implementing policy decisions made by government agencies in order to fulfill the objectives outlined in the policy decision. Kotler in Azuwandri (2022) states that strategy is a set of ways to achieve goals, and strategy is a logical approach that will determine the direction of an action. Salusu in Sitinjak (2000) states that strategy is the art of using the skills and resources of an organization to achieve its goals through effective relationships with the environment in the most favorable conditions.

Empirical studies show that strategies for handling abrasion vary across regions. In Bengkalis Regency, Riau Province, programs combine mangrove rehabilitation with ecotourism to strengthen community involvement (Hermanto & As'ari, 2023). In Indragiri Hilir, the government relies more heavily on physical infrastructure such as seawalls and breakwaters, but with limited public participation (Hidayat & Asrida, 2014). Meanwhile, in Balikpapan, abrasion management is carried out through a more integrated approach that balances physical development, environmental protection, and coordination between levels of government (Wibowo & Idris, 2017). At the international level, countries such as the Philippines and Bangladesh have developed Integrated Coastal Zone Management (ICZM) approaches that combine engineering interventions with ecosystem-based solutions and emphasize community engagement (UNDRR, 2022).

Strategies are developed and evolve over time to meet changing conditions brought about by the external environment and internal capabilities (Kaplan, 2004). Geoff Mulgan's own strategy talks more about strategies intended for policy-making organizations (governments). Where strategy is useful as a system that can manage existing power and resources through public organizations such as government, aimed at the public interest (Mulgan, 2009). Geoff Mulgan, elaborates government strategy into five (5) indicators, namely: Purposes, Environment, Direction, Action, and Learning.

1. Purposes, the researcher took the theory that to have a goal requires a mission and the ability to carry out and implement the mission.
2. Environtment, researchers take indicators of an environment can be measured from changes in ambient conditions, and innovations made in environmental maintenance.
3. Direction In this section there are four indicators of direction, including coordination, motivation, communication, and command. In directions or directions, we can find out that there are four indicators that can be a reference for a direction.
4. Action, in this section there are three indicators, including: external situation, device, and decission making. These three things are closely related when taking an action.
5. Learning, in this section there are two important indicators, including: comparation method, and identification.

Policy has the aim of solving existing problems completely, not solving problems by creating new problems, but with policies that solve problems, therefore public policy must be a solution and solution to the problems being faced. As for the success of the policy, the stages of public policy according to William Dunn are as follows:

1. Agenda setting. Agenda setting is a very strategic stage and process in the reality of public policy.
2. Policy formulation / formulation.
3. Policy Adoption / Legitimization.
4. Policy Assessment / Evaluation.

In the process of strategy and policy direction, policy analysis is needed. Policy analysis according to Herdiana can be interpreted as a science that uses various forms of judgment in terms of argumentation and political discussion to produce, conduct critical assessments and convey knowledge related to these policies. Asmara argues that policy analysis is an applied science that aims to recommend solutions to public problems to policy makers (Rini, 2016). In policy analysis activities, there is various information related to public policy issues and opinions related to policies that can be used as material in policy making. Policy analysis in a broad sense, according to Retnoningsih and Marom, can be interpreted as a form of applied

research that aims to obtain information about the problems faced in order to find appropriate solutions to problems (Retnoningsih & Marom, 2017). George C. Edwards III in Bahrudin (2022), defines public policy as “a government action in the form of government programs to achieve goals or objectives”. Thomas R. Dye in Karin et al., (2022) states that public policy is “everything that the government does and does not do”. Thus public policy at its core includes goals, values and practices.

These comparative findings reveal that although the natural and human drivers of abrasion are similar, strategies differ according to governance capacity, intergovernmental coordination, and community empowerment. In this regard, the Meranti Islands case offers an important contribution. Unlike previous studies that focus primarily on engineering solutions, this research places governance and policy strategy at the center of analysis. Applying Mulgan’s five indicators provides a sharper lens: while the purpose of protecting coastal areas is formally stated and the environmental context is well-recognized.

RESEARCH METHOD

This research employs a qualitative method to understand the various concepts encountered in the research process in the form of written words, interviews with informants, observed behavior, and documentation. The qualitative approach allows researchers to explore deeper information about the object of study and present more detailed and original data.

Primary data were obtained through interviews, observations, and documentation. The key informants consisted of village government officials, the Meranti Islands Regency government, and the Riau Provincial Environmental Service, selected because of their direct role in local-level coastal management and their formal authority in implementing abrasion prevention programs. Field observations were conducted on several coastal locations near settlements, while documentation was collected from local policies, program reports, and relevant administrative records. Data gathered during the research process were then grouped and analyzed using content analysis techniques.

Secondary data were also used to complement and strengthen the findings, including books, government publications, scientific papers, and journals relevant to abrasion management and environmental governance.

However, this research did not include perspectives from other critical stakeholders such as central government bodies (BNPP, Ministry of Environment and Forestry, Ministry of Maritime Affairs and Fisheries), non-governmental organizations active in coastal conservation, or private sector actors (e.g., shipping companies, port authorities) whose activities directly influence coastal erosion. While this exclusion narrows the scope of the study, it also highlights the focus on local governance dynamics as the primary arena of policy implementation in the Meranti Islands Regency. Future studies are encouraged to involve these broader stakeholders to enrich the analysis and provide a more holistic perspective.

RESULT AND DICUSSION

To analyze this research, the author uses the G. Mulgan approach which describes the government strategy into five (5) indicators, namely: Purposes, Environment, Direction, Action, and Learning.

1. Purposes, researchers take the theory that to have a goal requires a mission and the ability to carry out and implement the mission.

This study adopts the theoretical perspective that achieving a policy goal requires not only a clearly defined mission but also the institutional capacity to implement it effectively. In the context of Meranti Islands Regency, the local government, through the Regional Disaster Management Agency (BPBD) and the Environmental Agency (DLH), has introduced several programs to address coastal abrasion, such as constructing sea walls and distributing mangrove seedlings. While these efforts demonstrate a degree of responsiveness, they remain largely short-term, reactive, and project-based. Long-term objectives, such as sustainable mangrove rehabilitation, livelihood diversification, and systematic community empowerment, have not yet been articulated or institutionalized within a broader strategic mission. Interviews with community leaders confirmed this tendency, revealing that programs are often designed

as immediate responses to visible problems rather than as part of a coherent long-term agenda. This indicates a mismatch between the stated mission of BPBD and the practical orientation of its policies, where the 'Purposes' element of Mulgan's framework remains weakly institutionalized. According to Mulgan, policy purposes should be clear, long-term, and mission-driven; without embedding such strategic purposes, abrasion prevention initiatives in Meranti Islands risk remaining fragmented, unsustainable, and less effective in the long run.

2. Environtment, researchers take indicators from an environment can be measured from changes in ambient conditions (changes that occur in surrounding conditions), and innovations made in environmental maintenance.

Abrasion and environmental degradation in Meranti Islands Regency are mutually reinforcing processes: environmental damage accelerates coastal erosion, while abrasion further reduces land area and ecological resilience. From Mulgan's perspective, the Environment indicator can be assessed through observable changes in surrounding conditions and the extent to which institutions demonstrate innovation in environmental stewardship. In this regard, field observations revealed that mangrove replanting initiatives were sporadic, lacked follow-up monitoring, and in many cases the seedlings died within months. Community respondents further emphasized that coastal erosion has worsened as a result of unregulated logging and sand mining over the years, highlighting the absence of systematic learning from past ecological failures.

Ideally, abrasion prevention policies should integrate ecological approaches that combine rehabilitation, conservation, and innovation rather than relying solely on physical infrastructure. For instance, mangrove forests could be rehabilitated not only as protective barriers against erosion but also developed into educational and research centers, sites of community-based empowerment, and even eco-tourism destinations. Such innovations would demonstrate adaptive capacity and broaden the value of environmental stewardship beyond short-term protection. However, interviews with community leaders revealed that government initiatives remain narrowly focused on constructing physical cliff-retaining walls, projects that are limited by budget constraints, disconnected from long-term environmental planning, and lacking community participation. This mismatch underscores the limited institutionalization of environmental innovation, leaving the Environment dimension of Mulgan's framework weakly addressed in the context of abrasion prevention.

3. Direction In this section there are four indicators of direction, including coordination, motivation, communication, and command.

Mulgan identifies "Direction" as comprising four indicators: coordination, communication, motivation, and command. In the case of Meranti Islands Regency, field findings show that these dimensions are weakly institutionalized. Coordination efforts between district and provincial agencies, as well as with the central government and private sector, remain fragmented. Although limited budgets were cited as a reason for collaboration, interviews revealed overlapping programs, unclear lines of authority, and the absence of sustained follow-up. Community leaders reported instances where both provincial and district agencies initiated similar activities in the same locations, but without effective integration.

Communication was also found to be insufficient. Local officials acknowledged that communities were often uninformed about planned projects, while respondents expressed that they were rarely engaged in discussions regarding program design. This communication gap weakens both stakeholder participation and the alignment of responsibilities among government and private actors. Similarly, motivation initiatives were minimal. Few awareness campaigns or educational activities were conducted, and measures such as environmental signage or consistent supervision to discourage coastal logging were absent. As a result, community members developed only limited awareness of their roles in preventing further abrasion.

Taken together, these findings reveal that the Direction dimension is poorly developed. Coordination is fragmented, communication is weak, motivation is underutilized, and command structures remain unclear. Without strengthening strategic direction across these four indicators, abrasion prevention efforts risk remaining ad hoc, poorly integrated, and unsustainable.

4. Action, in this section there are three indicators, including: external situation, device, and decission making. These three things are closely related when taking an action.

Mulgan conceptualizes “Action” through three interrelated indicators: responsiveness to external situations, the use of appropriate devices or instruments, and the quality of decision-making. In the Meranti Islands Regency, government action against coastal abrasion has focused predominantly on structural interventions, particularly the construction of geobags and cliff-retaining walls. While these devices reflect an attempt to provide immediate protection, field observations revealed significant shortcomings. Several geobag installations were damaged within a year due to poor material quality and the strong force of sea waves, underscoring the inadequacy of technical choices in relation to local environmental conditions.

Decision-making was also found to be reactive and short-term. Interviews with local stakeholders indicated that actions were often taken in response to immediate threats rather than being grounded in systematic planning or informed by scientific studies. The integration of local knowledge, such as community experience in managing mangrove ecosystems, was minimal, further weakening the appropriateness of chosen interventions. This disconnect between decision-making processes and the external situation highlights limited adaptive capacity and a lack of institutional learning.

Overall, the Action dimension in Mulgan’s framework is weakly developed in the case of Meranti Islands Regency. The reliance on physical devices without ensuring durability, the reactive nature of decision-making, and the neglect of local ecological knowledge demonstrate a gap between policy action and the complex realities of coastal abrasion.

5. Learning, in this section there are two important indicators, including: comparation method, and identification.

In Mulgan’s framework, the dimension of “Learning” emphasizes two key indicators: comparison methods and identification. Effective learning requires systematic evaluation of past policies and programs, as well as the ability to identify which interventions succeed and which fail, so that improvements can be made in the future. In the case of the Meranti Islands Regency, however, this dimension emerged as the weakest. Abrasion management and prevention is indeed a serious problem that demands the attention of all parties. Based on the field findings, there is a need for a joint agreement between the government, the community, and the private sector in the form of a binding decision or local regulation that can serve as a guideline for action. Such a regulation would provide a standard of practice for regional apparatus in implementing programs and supervising activities that risk exacerbating abrasion.

However, no structured process of evaluation was found in the region, either through post-program monitoring or comparative assessment with other districts experiencing similar challenges. For instance, mangrove rehabilitation programs were repeatedly implemented, yet no monitoring reports were available to assess survival rates or long-term outcomes. Community respondents confirmed that many seedlings died within a few months, but interventions were continuously repeated without modification. Similarly, structural measures such as geobags and sea walls continued to be applied despite evidence of rapid damage within a year, reflecting a clear gap between experience and policy adjustment.

Officials further admitted that monitoring documents were either incomplete or unavailable, making it difficult to identify effective strategies or to generate lessons from past practices. The absence of such institutional learning mechanisms means that policies often remain reactive and repetitive rather than adaptive and innovative. This demonstrates that the Learning dimension, through both comparison and identification, is poorly developed, significantly weakening the government’s ability to design sustainable and forward-looking abrasion management strategies.

Weak Institutional Learning and the Search for Sustainable Solutions

The study found that government action in abrasion management within the Meranti Islands Regency was primarily structural, relying on geobags and cliff retaining walls. However, observations showed that many structures were damaged within a year due to poor material quality and strong sea waves. Decision-making remained reactive, with limited long-term planning or integration of local knowledge, indicating weaknesses in Mulgan’s Action dimension.

The Learning dimension emerged as the weakest. No systematic evaluation of previous programs was found, and comparative assessment with other regions was absent. For example, mangrove rehabilitation was repeatedly implemented without monitoring reports to evaluate outcomes, resulting in repeated failures such as low seedling survival. Officials admitted monitoring documents were incomplete or unavailable, making it difficult to identify effective strategies. This lack of institutional learning hampers adaptation and innovation in abrasion management.

Beyond Mulgan's framework, the research also identified several strategies that can strengthen abrasion prevention. First, a persuasive strategy is needed, where the government increases community awareness through counseling, socialization, and involvement in mangrove planting. This requires active engagement of the private sector in educating and supporting local communities. Second, a facilitative strategy positions the government as coordinator and provider of resources, such as distributing mangrove seedlings, channeling infrastructure support, and ensuring programs like breakwater construction involve community participation. Third, a collaborative strategy emphasizes that abrasion management cannot be solved by the government or community alone. Involvement of NGOs, private companies, and especially shipping operators using the Strait of Malacca is crucial to address wave-induced erosion and to share responsibilities in coastal protection.

However, these strategies face significant constraints. Public awareness and understanding remain low, as communities continue logging mangroves without replanting and engage in activities that damage the coastal environment. Meanwhile, government supervision has been weak. There are no effective sanctions or monitoring mechanisms, and environmental degradation continues without corrective measures. This demonstrates that while strategies exist on paper, their implementation is undermined by institutional weaknesses in both community engagement and governance oversight.

CONCLUSION

This study highlights that abrasion management in the Meranti Islands Regency has largely been reactive and structurally oriented, with limited integration of local knowledge and weak monitoring systems. Within Mulgan's framework, the Action dimension reveals a disconnect between decision-making and external realities, while the Learning dimension is the least developed due to the absence of systematic evaluation and comparative learning.

Abrasion management in coastal areas must become a serious concern of the government, particularly in regions like the Meranti Islands Regency that are directly affected by recurring abrasion disasters. The efforts undertaken so far have not been maximized, as evidenced by the continuous erosion of cliffs and the reduction of land area from year to year. This situation calls for a more comprehensive and sustainable policy strategy. The local government needs to establish long-term goals that not only respond to immediate damage but also serve as guiding principles for sustainable action, environmental maintenance, and decision-making.

To address these challenges, persuasive strategies are needed to build public awareness and improve understanding of abrasion, facilitative strategies must position the government as a provider of resources and enabler of community initiatives, while collaborative strategies should ensure long-term commitment among all stakeholders, including communities, NGOs, and the private sector. Strengthening institutional learning mechanisms, enforcing effective supervision with clear sanctions, and ensuring cross-sectoral collaboration are therefore critical. Without these improvements, abrasion prevention efforts will remain fragmented and risk repeating past failures. Conversely, with a holistic, participatory, and sustainable policy framework, the Meranti Islands Regency can build greater resilience in protecting its coastal communities and ecosystems.

Based on the findings and discussion, several recommendations can be proposed to strengthen abrasion management in Meranti Islands Regency:

1. Develop Long-Term and Integrated Policies

Formulate a Regional Action Plan on Abrasion Management with clear long-term targets, aligned with coastal zone management and climate adaptation strategies. Ensure

policies integrate local knowledge and community experiences to increase contextual relevance.

2. Strengthen Institutional Learning

Establish a monitoring and evaluation system for every abrasion management program, particularly for mangrove rehabilitation and structural interventions.Conduct comparative assessments with other districts that face similar abrasion problems to learn from best practices.

3. Enhance Community Awareness and Participation

Implement continuous persuasive strategies through education, counseling, and public campaigns about the importance of mangrove protection and sustainable coastal use.Provide incentives for communities that actively participate in mangrove planting and maintenance.

4. Facilitate Multi-Sectoral Support

Actively coordinate with private companies (particularly in shipping and resource-based industries) to contribute resources such as mangrove seedlings, coastal protection facilities, and technical expertise.Create a public–private partnership framework to share responsibilities and costs in abrasion prevention.

5. Promote Collaborative Governance

Establish a Coastal Forum that brings together local government, communities, NGOs, academia, and private sector actors to coordinate programs, share data, and monitor progress.Foster cross-district cooperation for addressing shared challenges in the Strait of Malacca corridor.

Based on the results of qualitative research conducted in the field, this study has several limitations that need to be acknowledged. These limitations can serve as a reference for future researchers to improve the scope and depth of similar studies:

1. Scope of Informants

The research relied primarily on information obtained from the village government, the regional government of Meranti Islands Regency, and the Riau Provincial Environmental Service. Informants from the central government, private sector, and non-governmental organizations were not directly involved. Consequently, the perspectives captured in this study may not fully represent the broader network of actors engaged in abrasion management.

2. Geographical Coverag

The research was limited to observations in selected coastal areas near residential settlements. Due to time and logistical constraints, the researcher was unable to comprehensively cover the entire coastline affected by abrasion. As a result, the findings may not fully capture the diversity of environmental conditions and community responses across all impacted areas.

3. Temporal Limitatio

The study was conducted within a specific period of time, which limited the ability to observe long-term changes in abrasion patterns and the sustainability of mitigation measures implemented by the government and community.

4. Methodological Constraints

As the research relied on qualitative methods, particularly interviews and field observations, the findings are interpretative in nature and may not provide quantitative measurements of environmental degradation. Future studies could benefit from combining qualitative insights with quantitative data such as erosion rates, land loss mapping, or satellite imagery.

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