



Good Environmental Governance in the Protection and Sustainable Management of Peatlands in Bukit Batu District, Bengkalis Regency

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Abstract: This study aims to analyze the implementation of Good Environmental Governance (GEG) in the protection and sustainable management of peatlands in Bukit Batu District, Bengkalis Regency. The vast peatlands in this area face various environmental issues, including recurring forest fires, ecosystem degradation, and the threat of climate change. Using a qualitative and phenomenological approach, this research explores the principles of GEG such as transparency, community participation, accountability, and efficiency in peatland management. The findings indicate that despite various efforts by the local government and community in managing peatlands, the main challenges lie in weak supervision, low environmental awareness, and the suboptimal implementation of policies. Therefore, strengthening institutional capacity and active community participation are key to achieving sustainable peatland management. It is hoped that the results of this study can provide strategic recommendations for more effective and inclusive environmental policy improvements.

Keywords: Good Environmental Governance, peatland protection, sustainable management, community participation, forest fires.

1. INTRODUCTION

Bengkalis Regency has extensive peatlands. The peatland area in Bengkalis Regency is estimated at 800,017.67 hectares (69.68% of the total land area of the regency), which can be classified based on its distribution across sub-districts, such as Bukit Batu, with 120,181.38 hectares, utilized for oil palm and pineapple plantations. The use of peatlands in Bengkalis Regency includes conservation forests, nature reserves, production forests, plantations, and agriculture (Nasrul, 2010).

However, peatland degradation has caused environmental problems, such as forest fires and greenhouse gas emissions. To address these issues, the Bengkalis Regency Government has implemented community-based peatland management programs that involve local communities in peatland restoration and conservation efforts. One such program is the empowerment-based peatland restoration initiative, aimed at engaging communities in peatland restoration efforts (Al Furqon & Harianto, 2022).

Peatland areas in Bengkalis Regency have a high fire hazard level, evidenced by recurring peatland fires during dry seasons. In early 2019, according to the daily report on the emergency response to haze caused by forest and land fires in Riau Province, out of a total of 2,700 hectares of burned land, the majority occurred in Bengkalis Regency, with 1,263.83 hectares affected. Nearly every sub-district in Bengkalis Regency experienced fires during the

early months of 2019, with the most severe cases reported on Rupat Island (Riau Province Regional Disaster Management Agency, 2019).

The vast degraded peatlands and recurring fire issues require serious attention from various stakeholders. A participatory and sustainable peatland management approach, combined with consistent inter-agency coordination, is essential. Therefore, this study focuses on sustainable peatland management policies based on public-private partnerships.

One area in Bengkalis Regency significantly impacted by peatland fires is Bukit Batu Sub-district. Bukit Batu is one of the sub-districts with extensive peatlands, making it highly vulnerable to forest and land fires. A recurring issue in Bukit Batu is that previously burned forests and lands are prone to catching fire again in subsequent years. This situation is alarming, as burned forests and lands should be restored and preserved to prevent future fires.

Good Environmental Governance (GEG) in the protection and management of peatlands in Bukit Batu Sub-district, Bengkalis Regency, is key to maintaining ecosystem balance and improving local community welfare. GEG emphasizes the importance of transparency, participation, and accountability in every decision-making process related to peatlands. Through this approach, the government, community, and other stakeholders can collaborate to prevent peatland ecosystem damage, which plays a crucial role in carbon sequestration and flood prevention.

In Bukit Batu, monitoring of land-clearing activities is often weak, making it difficult to prevent violations such as land burning. This situation is exacerbated by inadequate enforcement of sanctions against violators, creating the impression that peatland exploitation can occur without legal consequences. Limited resources for monitoring the vast peatland areas further complicate the issue.

Beyond legal challenges, education and environmental awareness in Bukit Batu also require improvement. Many residents do not fully understand the importance of preserving peatland ecosystems as life-support systems. Peatlands play a vital role in ecosystem balance, such as storing water during rainy seasons and preventing floods. Comprehensive environmental education could help communities realize that peatland degradation will have long-term adverse impacts on their lives.

Additionally, modern technology can be utilized to support peatland conservation efforts in Bukit Batu. For example, satellite-based monitoring systems can help detect potential land fires more quickly and accurately. This information can then be used to issue early warnings to communities and authorities, preventing fires from spreading. Other technologies,

such as drones, can also be used to monitor illegal activities in peatland areas that are difficult to access directly.

However, the success of these efforts heavily relies on strong policy support from the government. Local authorities must ensure that regulations related to peatland protection are effectively implemented and not merely formal documents. Budget support for conservation programs must also be increased, given the importance of peatland ecosystems for both the environment and the livelihoods of Bukit Batu residents.

Furthermore, the role of indigenous communities in Bukit Batu needs to be strengthened in peatland management. Traditional knowledge and local wisdom passed down through generations can serve as a solid foundation for ecosystem preservation. The government and relevant institutions should recognize and support the role of indigenous communities in managing peatlands, for example, by granting legally protected community-based management rights.

Finally, it is crucial to recognize that peatland conservation in Bukit Batu Sub-district is not just a local responsibility but also part of global efforts to mitigate climate change. Therefore, support from the international community, in the form of funding and technology transfer, is essential. With strong collaboration at various levels, the damage to the peatland ecosystem in Bukit Batu can be halted, ensuring future generations benefit from a sustainable environment.

2. LITERATURE REVIEW

Good Governance

Good Governance is the management of development that is solid and responsible, aligned with democratic principles and efficient markets, preventing misallocation of investment funds and corruption, both politically and administratively, through budget discipline and creating a legal and political framework for business activities. Good governance is fundamentally a concept referring to the process of decision-making and implementation that can be collectively accountable. It is a consensus reached by the government, citizens, and the private sector for the organization of governance in a country.

Principles of Good Governance

The key to understanding good governance lies in understanding the principles within it. Based on these principles, performance indicators of a government can be obtained. The effectiveness of governance can be assessed by how well it aligns with all

the principles of good governance. Recognizing the importance of this issue, the principles of good governance are elaborated as follows:

- **Participation:** All citizens have a voice in decision-making, either directly or through legitimate representative institutions that reflect their interests.
- **Rule of Law:** Public participation in political processes and public policy formulation requires a system and legal rules.
- **Transparency:** Transparency refers to openness in all actions and policies taken by the government.
- **Concern for Stakeholders/Business World:** Institutions and government processes should serve all stakeholders.
- **Consensus Orientation:** Decisions should be made through deliberation and consensus-building.
- **Equity:** Equity means equality in treatment and service. All citizens have the opportunity to improve or maintain their welfare.
- **Effectiveness and Efficiency:** Good and clean governance must also meet the criteria of being effective and efficient, ensuring usefulness and successful outcomes.
- **Accountability:** Accountability refers to the obligation of public officials to be answerable to the people who entrust them with the authority to manage their interests.
- **Strategic Vision:** Strategic vision refers to forward-looking strategic views for addressing future challenges.

Good Environmental Governance

According to the World Bank in Belbase (2010), Good Environmental Governance refers to activities aimed at ensuring the sustainable use of natural resources to preserve environmental quality. It encompasses policies, practices, and actions that support sustainability. Based on this explanation, Good Environmental Governance concerns how environmental aspects are managed in decision-making processes and governmental and corporate practices to achieve sustainable environmental outcomes. Therefore, this study emphasizes Good Environmental Governance.

Protection

Article 1, paragraph 2 of Law No. 32 of 2009 on Environmental Protection and Management (UU PPLH) states that environmental protection and management is a systematic and integrated effort to preserve environmental functions and prevent pollution and/or environmental damage, which includes planning, utilization, control, maintenance, supervision, and law enforcement. Environmental protection and management are carried

out based on the principles of state responsibility, sustainability, harmony and balance, integration, benefit, precaution, justice, eco-regions, biodiversity, polluter pays, participation, local wisdom, good governance, and regional autonomy.

Management

Management is a translation of the word "management", a term that has been widely adopted into the Indonesian language. The term management originates from the word "to manage", which means to organize. Management is carried out through processes and follows a sequence of management functions. Therefore, management is a process to achieve the desired objectives through aspects such as planning, organizing, actuating, and controlling.

The goal of management is to ensure that all resources, such as human resources, equipment, or facilities in an organization, are utilized in such a way that avoids wastage of time, energy, and materials in order to achieve the intended goals. Good management is the foundation for the development of any organization, whether governmental, corporate, trade unions, or others. With good management, the organization fulfills the necessary requirements and has the basic tools to ensure the credibility, integrity, and authority of an institution in establishing rules, making decisions, and developing programs and policies that reflect the views and needs of its members.

Peatlands

Tropical peatlands have highly diverse physical and chemical properties. Their characteristics are strongly determined by factors such as peat thickness, the underlying substrate, mineral soils beneath it, maturity, and the presence or absence of enrichment from surrounding river overflow. Peatland characteristics are often used as a reference for its utilization to achieve high and sustainable productivity. Peatlands are lands that contain organic-rich soil layers of at least 50 cm thick. The organic matter in peatlands is formed from dead plant material, both decayed and undecomposed, due to the waterlogged environmental conditions. Therefore, peatlands are commonly found in floodplain areas, back swamps, shallow lakes, or depressions with poor drainage. The process of peat formation begins with flooding in back swamps, shallow lakes, or depressions, which are gradually colonized by aquatic plants and wetland vegetation (Zamaya, 2023).

Sustainability

The concept of sustainability first emerged at the Stockholm environmental conference, introduced by Meadows in 1972. Debates arose between industrialized countries and developing nations about whether economic development or environmental

protection was more important. These discussions led to the realization that environmental protection and economic development are inextricably linked. Sustainability, or sustainable development, is a concept that aims to provide long-term global life by more wisely using and managing economic and natural resources, while respecting the lives of communities and other living creatures. This concept also explains the capacity of human civilization to make the world suitable for human and all life in environmental, social, and economic terms, capable of meeting the needs of populations without compromising the ability of future generations to meet their needs. This theory explains society's efforts to prioritize social responses to environmental and economic issues (Zamaya, 2023).

3. METHODS

The type of research used by the researcher is qualitative research, with a phenomenological approach that is explanatory in nature, which explains the underlying factors behind the phenomenon and what happens so that the researcher understands the reasons why the phenomenon occurs. The research location is the place where the researcher conducts the study, particularly in capturing the phenomenon or events that actually occur from the object being studied in order to obtain accurate research data. This study is located in Sustainable Peatlands in Bukit Batu District, Bengkalis Regency.

The informants in this study include the Head of Bukit Batu District or district officials, the Environmental and Forestry Agency of Bengkalis Regency, BPBD officers or task forces handling forest and land fires (karhutla), the Head of the Peat and Mangrove Restoration Agency (BRGM), community leaders or local customary leaders, and groups of women or youth involved in environmental conservation.

Primary data refers to data that is collected directly from the source without intermediaries. This source can be an object, site, or person. A social researcher can obtain primary data by conducting in-depth interviews or making direct observations of community activities. Secondary data generally consists of evidence, records, or historical reports that have been compiled in archives (documentary data), both published and unpublished. In this study, secondary data is obtained from the Bukit Batu District Office of Bengkalis Regency. The data collection techniques used are observation, interviews, literature study, and documentation. The data analysis techniques used are data collection, data reduction, data presentation, and drawing conclusions.

4. RESULTS

The findings of this study indicate that the implementation of *Good Environmental Governance* (GEG) in the protection and management of peatlands in Bukit Batu District, Bengkalis Regency, requires significant improvements across various aspects. Principles of GEG, such as transparency, participation, accountability, and sustainability, have been applied but remain suboptimal. Local community involvement has been relatively positive through empowerment-based peatland restoration programs, yet environmental awareness among the community is still low. Monitoring of illegal activities, such as land burning, is weak, compounded by inadequate enforcement of laws. Furthermore, limited human resources and technological capabilities hinder effective monitoring of the extensive peatland areas.

Peatland fires remain a major issue in Bukit Batu District, with significant occurrences during each dry season. The use of technology, such as satellite-based monitoring systems and drones, has not been fully utilized, despite their potential to enhance early fire detection and monitoring of illegal activities. Policy support from local governments has also been insufficient, with inconsistent regulatory implementation and limited budget allocations for peatland conservation.

The key recommendations of this study include enhancing stakeholder coordination, strengthening institutional capacity, utilizing modern technology, and empowering indigenous communities in peatland management. Public-private collaboration and international support are also essential to ensure sustainable peatland management.

5. DISCUSSION

The discussion of this study highlights the importance of implementing *Good Environmental Governance* (GEG) principles in the protection and management of peatlands in Bukit Batu District, Bengkalis Regency. GEG emphasizes the need for transparency, public participation, accountability, and sustainability in decision-making processes. However, in the context of Bukit Batu, the application of these principles faces several challenges.

One major challenge is the weak coordination among government agencies, which hampers the effectiveness of peatland management. Insufficient monitoring of illegal activities such as land burning and unauthorized land clearing remains a recurring issue. While legal sanctions are in place, they often fail to deter offenders effectively.

Moreover, public awareness about the importance of peatland ecosystems as life-support systems needs to be improved. Communities frequently prioritize short-term economic benefits over long-term conservation. Therefore, environmental education programs that actively engage the community are crucial to enhancing awareness.

Modern technologies, such as satellite-based monitoring systems and drones, hold great potential for supporting peatland management but have not been fully utilized. These technologies can facilitate early fire detection and enable the monitoring of activities in remote areas. However, budgetary constraints and limited human resource capacity present significant obstacles to their adoption.

In addition to technological approaches, the role of indigenous communities and their traditional wisdom should be strengthened. Local knowledge can serve as a robust foundation for more sustainable peatland management. In this regard, the government must provide legal recognition and adequate support for indigenous communities to manage peatlands using traditional practices.

By integrating GEG principles, fostering collaboration among stakeholders, and ensuring robust policy support, peatland management in Bukit Batu can become more effective. International support in the form of funding and technology transfer is also a critical factor in ensuring the sustainability of this vital ecosystem.

6. CONCLUSION

This study concludes that the implementation of *Good Environmental Governance* (GEG) in the protection and management of peatlands in Bukit Batu District, Bengkalis Regency, has significant potential to enhance the sustainability of peatland ecosystems. However, the application of GEG principles, including transparency, public participation, accountability, and sustainability, still faces various challenges, such as weak monitoring, low environmental awareness among communities, and limited utilization of modern technologies.

Peatland fires remain a serious threat, requiring more integrated prevention and management strategies. Technology-based approaches, such as the use of satellite-based monitoring systems and drones, can support more effective land management. Additionally, the role of local communities, including indigenous people with their traditional knowledge, is crucial for ensuring sustainable peatland management.

Policy support from the government, stakeholder collaboration, and international assistance in the form of funding and technology transfer are essential factors that need to be strengthened. Through an integrated approach grounded in GEG principles, peatland

management in Bukit Batu District can serve as an effective model for sustainable peatland management at both national and global levels.

LIMITATION

This study has several limitations that should be noted. First, the research focuses solely on the management of peatlands in Bukit Batu District, Bengkalis Regency, meaning that the findings may not be fully generalizable to other regions with different conditions. Second, data collection was limited to interviews with key stakeholders, such as local government, communities, and land managers, which means the perspectives gathered may not represent the entire community or relevant groups. Third, due to time and resource constraints, this study was unable to explore all aspects of the implementation of *Good Environmental Governance* (GEG) in depth, particularly those related to technology-based monitoring and the long-term impacts of the policies in place.

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