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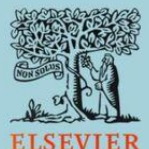


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Peatland Management Policy: How to Build a Good Public-Private Partnership?

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PEATLAND MANAGEMENT POLICY: HOW TO BUILD A GOOD PUBLIC-PRIVATE PARTNERSHIP?

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Abstract

Despite the government of Indonesia's best efforts, several issues have arisen from the lack of policy integration on implementing comprehensive policies for appropriate peatland management. Criticism claims that many current policies put short-term financial gain ahead of long-term sustainability. This study looks at the dynamics resulting from Indonesia's disjointed implementation of the country's peatland policy. This research examines laws and regulations on policy concerns adopted in peatland management through a public policy and legal approach. The study's conclusions highlight the contradictory state of Indonesia's peatland policy, which is marked by shifts that highlight competing values – giving development and sustainability equal weight, for example. During the dry season, smoke, recurrent fires, and associated health issues are inevitable.

Keywords: Management Policies; Peatlands; Policy Dynamics; Utilization.

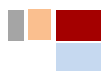


A. Introduction

Policies for protecting and managing peatlands in Indonesia are still frequently implemented in part and accidentally. Policymakers do not appear to understand that peat soils require different management approaches than other soils due to their distinct properties (Kato et al., 2021). In an institution that is coordinated across sectors, good peatland management should pay attention to its unique characteristics in both vertical and horizontal dimensions (Miller et al., 2022). Strict and comprehensive rules, laws, and regulations considering adaptive conservation aspects and commodity selection must also favor this (Febria et al., 2018; Santoso et al., 2022). Using particular methods that can be implemented under peatlands' carrying capacities and making use of local knowledge is equally significant (Safitri, 2020; Freeman et al., 2022).

Humans and the ecosystem will suffer from improperly managing peatlands in several ways. The worst example of a peatland fire-caused calamity is the haze that has persisted since the 1990s. There is no denying that the significant degradation of the peatlands caused this haze crisis. "A change in natural characteristics that causes it to lose its ability to carry out various fundamental functions, such as absorbing and storing water and storing carbon", is the scientific definition of peatland degradation (Bassi et al., 2020). When this capacity is lost, there are fires and droughts during the dry season and flooding or inundation during the rainy season. (Monteverde et al., 2022).

The government has published numerous regulations on the preservation and administration of peatlands. As of right now, there are five regulations at the law level (UU), four government regulations (PP), four presidential instructions (Inpres), one presidential decree (Keppres), and seven ministerial regulations (Permen LHK), according to the data. The Protection and Management of Peat Ecosystems Regulation (PP No. 57 of 2016) is one of these many rules frequently cited while discussing peatland management in the present. The PP is an improvement over PP No. 71 of 2014, deemed inadequate to represent the peatland's conservation component.



To maintain and prevent harm to the function of peat ecosystems, PP No. 57 of 2016's measures to protect and manage peat ecosystems encompass nearly every facet, including planning, exploitation, control, maintenance, supervision, and law enforcement. This PP also calls for restoration efforts or rehabilitation of harmed and deteriorated peat ecosystems.

This regulation shows two distinct roles in the peat ecosystem: protection and cultivation. The Peat Hydrological Unit (KHG) in one region must be set at least 30% as a protection function, especially those encompassing areas in the peat dome and its environs, as this PP highlights, in contrast to the previous rule. In addition, peat that is in protected areas, peat areas thicker than three (3) meters, and peat serving as a habitat for endemic or protected species are also considered to be peat-protected areas. One way to prevent damage to peatlands is through constructing canal blocks or other construction that controls water management on peatlands and maintains the groundwater level more than or equal to 0.4 meters below the peat surface for cultivation purposes. It is another significant regulation included in this one.

PP No. 57 of 2016 as a policy and earlier peatland rules continue to be a topic of discussion for different parties. The primary point of emphasis is that the current policies are primarily sector-specific, limiting their applicability to specific line ministries (Zulkarnaini et al., 2022). Sectoral rules only control fields by sector, which binds the sub-sectors within it. It opposes cross-sectoral regulations which cover and bind all linked sectors. It has not only resulted in a poor implementation but also sparked a lengthy discussion. One of the rules that peatland observers frequently discuss and draw attention to is Presidential Decree No. 32 of 1990, Governing Management of Protected Areas. A fundamental restriction on peat ecosystems is provided by this Presidential Decree, which specifies the depth of peat that must be preserved (Wildayana & Armanto, 2018).

The policies were developed with sustainable peatland management in mind (Zulkarnaini et al., 2023). On the other hand, available information indicates that peatlands continue to sustain damage. According to data, 6.66



million hectares, or 44.6%, of Indonesia's 14.95 million hectares of peatland have been degraded (Widyatmanti et al., 2022). All regions with peatlands are affected by this degradation, notably the province of Riau on the island of Sumatra, which has the most peatland (3.89 million hectares out of 6.49 million hectares total).

The increasing prevalence of degraded peatlands and other problems that arise due to the unwise use and management of peatlands deserve serious attention from various parties (Dadson et al., 2017; Sabir & Nazaruddin, 2021). A comprehensive approach to participatory and sustainable peatland management and the continuity of the coordination process between related institutions must be considered. For this reason, this research focuses on highlighting the dynamics of peatland utilization and management policies (Wiwoho et al., 2023). In contrast to other studies on peatland management, which mainly focus on peatlands in technological, social, and economic aspects, the author emphasizes the importance of policy consistency to preserve peatlands.

In the intricate landscape of peatland management in Indonesia, this paper delves into the complex dynamics stemming from implementing various policies that, unfortunately, lack seamless integration. Despite the earnest endeavors of the government to establish a comprehensive framework for the judicious use and management of peatlands, the existing policies have been criticized, with accusations of prioritizing short-term gains over long-term sustainability. This paper explores the nuanced fluctuations in Indonesia's peatland policies, shedding light on the inherent tensions between divergent values and their tangible impacts, notably exemplified by the recurring fires, haze, and associated health issues during the dry season—an inevitable fallout of policy shortcomings in peatland utilization and management.

B. Method

This study employs a public policy approach grounded in peatland management rules and regulations. Data was gathered by merging field data with legislation and regulations about the policy issues under study.

Data processing is done through library research using a card system, which entails making an inventory of books, journals, statutory rules, and seminar papers to find information relevant to the formulation of the issue under discussion. After that, it is methodically arranged according to the investigated topics and determined helpful for analysis. Confirmation of legislative policies and policy inventories and identifying and categorizing policy issues or possible obstacles to accomplishing national development goals are the first steps in operationalizing this approach. Then, proceed with policy analysis; the next step is to produce recommendations or follow-up plans to solve the problem.

C. Result and Discussion

1. Dynamics Peatland Management Policy

Indonesia, behind the United States, Canada, and Russia, has the fourth-largest peatland in the world. An estimated 20 million hectares are covered by peatlands in Indonesia, 170 million in Canada, 150 million in Russia, and 40 million in the United States. Papua makes up 5.69 million hectares (27%), Kalimantan 6.78 million hectares (31%), and 8.44 million hectares (42%) of Indonesia's 20 million hectares of peatland. Approximately 47% of all tropical peatlands worldwide are found in Indonesia, where tropical peat predominates. This region can store 46 gigatons or 8–14% of the world's carbon in peat.

In Indonesia, peatlands have been used for human purposes since the 1990s. Presidential Decree No. 82/1995 on the One Million Hectare Peatland Development Project (PLG) in Central Kalimantan was issued by President Soeharto on December 26, 1995. However, this tens of billions-dollar endeavor was a total failure. It turned out that the project site's peatlands were unsuitable for growing rice. The devastation of the region's natural resources and other hydrological effects cause losses for the local populace. This endeavor results in the devastation of the peat swamp forest habitat and thousands of kilometers of canals.

Errors in the management of peatlands, particularly those about the strategy for allocating peatlands, are why this catastrophe happened. The



current landscape is altered as peatlands are cleared for plantations and agriculture. An estimated 4-6 million hectares of peatland are available for plantation crop production. These regions are typically found in shallow peat areas, but the reason for this is that the peat's thickness was not taken into consideration when clearing land and building canals. Ecological systems that have been around for thousands of years have altered. During the dry season, organic matter in peatlands becomes dry and combustible.

Some peatlands in Indonesia have long been used for various life activities. Initially, the community used this land for rubber and coconut plantations. In line with the transmigration settlement expansion program in the 1980s, many peatlands were cleared on a large scale for food crop farming (Wildayana & Armanto, 2018; Maulana & Amri, 2021). In addition, peatland clearing is mainly done for oil palm plantations or using Industrial Plantation Forests (HTI). Some of these peatland uses have yielded promising results but have also caused many failures in their management, especially from an environmental perspective.

Peatlands have a vital role in various aspects of life, both from a social, economic, and ecological perspective. Apart from being a global climate controller due to its ability to absorb and store carbon, peatlands also provide forest products in the form of wood and non-timber. Another function of peatlands is as a water storage, water supply, and flood control, as well as a habitat for biodiversity. Many species of flora and fauna can only grow on peatlands, so damage to peatlands will significantly impact the surrounding ecosystem.

Exploitative use causes peatlands to degrade in quantity and quality, reducing their social, ecological, and economic functions (Alam M et al., 2022), especially with the many interests of various parties who take advantage of the resources in it, so that it often causes conflicts and leads to management with narrow considerations. This condition is exacerbated by the low understanding of the characteristics of the peat ecosystem and the lack of stakeholder participation. There is no visible attention and actual activity in peatland management carried out by the community, the private sector, or

the government, which makes its use very dangerous. For example, developing peatlands for agriculture cannot be separated from water management. It must be done carefully, and we must learn from past experiences clearing peatlands, such as the Million Hectare Peatland Clearing Project in Central Kalimantan or the Tidal Rice Project Fields (P4S) in South Sumatra. So far, water management has been carried out with an open drainage system across the peat dome. However, this causes excessive drainage, and peat water comes out of the peat dome so that the peat becomes dry and flammable. It is where the so-called peatlands begin to degrade (Tampubolon, 2020).

Peatland degradation is a change in natural characteristics that results in losing the ability to perform essential functions, such as absorbing and storing water and carbon (Andersen et al., 2017). The first loss of capacity can result in flooding or inundation during the rainy season and, conversely, drought in the dry season (Bonn et al., 2016). It has had a wide range of local and global impacts. However, when peatlands are drained or drained and burned in the context of conversion or conversion of land use into cultivated land, the impact can increase on a regional and even global scale. Smoke or haze can impact local to regional levels, depending on the scale of land burning. Nationally, the area of land and forest burned in Indonesia is dominated by mineral soils (78%), while in peatlands, the incidence is only 22%. In contrast to national events, in some areas with extensive peatlands, forest and land fires are dominated by peatlands (69%) and only 31% on mineral lands.

The haze cases in Indonesia in 2014 and 2015 are examples of the worst disasters triggered by fires and burning peatlands. In the long term, carbon emissions in peatlands are expected to have a significant long-term impact. Carbon emissions will increase on peatlands that are in dry conditions. As is known to the public, carbon in the form of CO₂ is one of the greenhouse gases that can trigger damage to the ozone layer in the outer layer of the earth's atmosphere. The result of this damage is that ultraviolet light cannot be absorbed by sunlight, so it will cause warming of the earth's atmosphere and encourage climate change on a global scale.



Burning activities during land clearing or fires on dry peatlands cause massive peat loss and air pollution. It does not only happen in public lands, plantation areas, HPH areas, plantation forest areas, and even conservation areas. The remaining peat becomes water-repellent or pseudo sand, and the micro and macro biodiversity is low. The same is true for peatlands that are experiencing subsidence. Lands built with mismanagement have become *bongkor* (abandoned, cannot be reused for a long time).

Utilization through cultivation on peatlands has an impact, risks damage, and can potentially cause disaster (Yeny et al., 2022; Arianti et al., 2023). Ecological disasters resulting from inappropriate management and utilization of peatland-based natural resources have caused various losses, both directly and indirectly, which have resulted in economic losses. The smoke from land and forest fires impacts health, transportation, and education and causes economic losses (Cascio, 2018). Until now, peatland ecosystem resources have been widely used for various purposes.

Peatland resource utilization activities are a concern because they are often exploitative and destructive (Minayeva et al., 2017). The activities mainly carried out by the community and companies are land conversion into agricultural, plantation, and forestry land and settlements. The extent of degraded peatlands and other problems that arise from further impacts, such as ongoing fires, deserve serious attention from various parties (Harendra K et al., 2017). A comprehensive approach to participatory and sustainable peatland management and the continuity of the coordination process between related institutions must be considered.

2. How to Build Public Private Partnership in Peatland Management Policy?

Peatlands in Indonesia are still a primary environmental concern on a global scale. It is because there have been several instances of peatland degradation or damage, which have an effect not just locally but also worldwide and over the long and short terms. Because of this, various issues that arise and persist in this region, particularly encroachment and peatland fires, call for coordinated and long-term management approaches.

There are ups and downs to Indonesia's peatland policies and laws. Two variables – one that highlights the importance of development and the other that highlights the significance of sustainability – indicate Indonesia's stance on peat policy. For instance, peat rules were first enacted in 1990 to safeguard the material, and in 1991, the wetland convention was ratified. However, five years later, in 1995, the government released a new program that did away with the first one hundred thousand hectares of peatland. General rules were issued to maintain this approach even after the collapse of the New Order regime.

The uniqueness of this policy is that general guidelines were made long after the land-clearing policy was published. Due to these two policies' exclusive emphasis on the benefits of "development" and disregard for sustainability, Indonesia has reached a low point in the management of peatlands. Nevertheless, the government did not focus on clearing and rehabilitating cleared peat until 2007. This policy was in place until several other measures emphasizing the peat ecosystem's sustainability were introduced. The government started formulating a plan to restore damaged peatlands in 2007. Experts in several studies created development directives that prioritized the vulnerability of peatlands while simultaneously exploring strategies (guidelines) for their continued use. The creation of policies that included instructions for oil palm production on peatlands was subsequently based on this study. Ultimately, the government released a regulation that governs the management and conservation of peatlands in greater detail in 2016. Even though there are some crucial points to remember, this PP represents a significant advancement in Indonesian peatland management. NGOs, professionals, and even business owners are still debating the merits and drawbacks of this government mandate. Therefore, it is appropriate that all parties focus on and enhance this government regulation going forward.

Based on Indonesian policy, peat found in upstream rivers and wetlands with a more than three-meter thickness must be protected. This



component is non-alternative; it is cumulative. It makes applying difficult because these requirements must be satisfied for peatland to be classified as protected. However, PP. 57 of 2016 has currently improved these standards. From 2011 to 2015, the “temporary” complete protection was implemented through the moratorium policy, which is just a policy of postponing new licenses.

This policy no longer distinguishes between peat with a thickness of 3 meters or less than 3 meters, all of which are protected from concession permits issued by the government. However, this moratorium policy still contains significant gaps because it regulates various exceptions that weaken the essence of the original purpose of the moratorium. In the end, Indonesia’s policies, laws, and regulations have never clearly positioned peatlands because they are more often the object of compromised interests. The policy regarding peat thickness (3 meters) is still debated in scientific circles today. This condition must be resolved because it will affect the effectiveness of regulation implementation and peat sustainability.

A significant need is to emphasize the policy options that can be taken to address the complex problems of peatland management in Indonesia. This study underscores that several policies and regulations already provide protection for peatlands in Indonesia, but their implementation has not been maximized due to a sectoral approach. In addition, this study also emphasizes that social considerations are needed in making decisions related to peat. It cannot be released because the community already inhabits many peatlands. In this study, several scenarios can be taken by the Indonesian government in the context of the Protection and Management of peatlands to comply with sustainability principles (Sitorus & Maryam, 2018).

The government has developed a roadmap document for updating laws and regulations to encourage forest and peatland governance improvements within the REDD+ framework. Despite promoting REDD+, the fundamental problems faced in peatland management (from a normative and practical perspective) are comprehensively described in this

document. The sectoral approach to peat management is again a concern in this study, and it is hoped that this can be overcome through the emergence of PP No. 57 of 2016. Although the two study documents are not formal policies, they must be used as the basis for issuing formal policies because both are official studies published by government agencies.

Various parties opposed the issuance of PP No. 57 of 2016. The suspicion arises that this regulation creates legal uncertainty for its managers. This problem is further exacerbated by the overlapping authority between the Ministry of Environment and Forestry (KLHK) and the Peat Restoration Agency (BRG), which causes public confusion (Syaikhu et al., 2021). Moreover, until now, no valid data on peat can be used as a reference for implementing the PP. Meanwhile, technically, there is still debate among peat experts about sustainable peat management. Current peat management policies do not have a solid foundation without valid data and technical weaknesses. This policy directly impacts the field now and in the future (Zulkarnaini et al., 2020).

PP No. 57 of 2016 has three crucial starting points that require consideration. These three points include institutional context, socioeconomic factors, and policy. If these three factors are not considered adequately, they will impact how well peatlands are used and managed. It is feared that the usage and management of peatlands will be restricted and subpar if these three factors are ignored. These are only the beginnings, and more will probably be added later. These three factors are strongly tied to governmental regulations that significantly affect the community's attempts to use and manage peatlands sustainably. The policy paradigm for the sustainable use and management of peatlands is depicted in Figure 1 below.

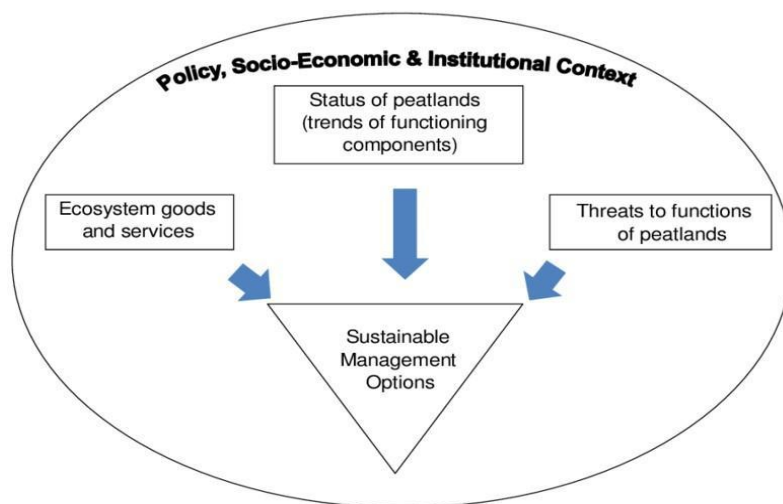


Figure 1. Policy Model for Management of Peatlands Sustainable

Increased conversion and fires on the peatlands result from using ecosystems (Hamzah et al., 2023). Furthermore, these fires and conversions of peatlands have extended into protected and conservation zones. This circumstance will undoubtedly threaten the sustainability and continued existence of the current ecosystem. As illustrated in Figure 1, it is vital to undertake the most significant preventive measures because peatland must be preserved to avoid detrimental influences on the environment and human life. The intention is for peatlands and the ecosystems they support to maintain their ecological roles and to offer long-term socioeconomic advantages.

Indonesia could lose one of its potential natural resource sources if this problem is not soon resolved. This issue can be solved if a government organization is dedicated to carrying out and supervising peatland management. Furthermore, there are communication breakdowns inside governments, particularly in the case of local and federal administrations. These flaws have become a significant danger to the sustainability of peatlands and the preservation of natural resources in several areas of Indonesia.

D. Conclusion

The intricate examination of Indonesia's peatland management policies through a public policy and legal lens has unveiled a paradoxical scenario. Despite the Indonesian government's commendable efforts to establish comprehensive measures, the lack of integration within these policies has given rise to many issues. The criticisms levied against existing policies, which allegedly favor short-term gains at the expense of long-term sustainability, underscore a significant challenge in the nation's approach to peatland management.

This research highlights the dynamic interplay of conflicting values embedded within the fragmented implementation of peatland policies. The juxtaposition of sustainability and development goals creates a complex landscape, leading to fluctuations in policy emphasis. The consequences of this paradox are starkly evident in the recurring incidents of fires, haze, and associated health problems during dry seasons. These challenges underscore the pressing need for a more coherent and integrated approach to peatland policy that balances immediate development goals and the imperative of long-term environmental sustainability.

In essence, the findings from this research emphasize the urgency of addressing the policy gaps and inconsistencies to mitigate the adverse impacts on both the environment and public health. A harmonized and forward-looking peatland policy framework is essential for Indonesia to navigate the delicate balance between economic development and environmental preservation, ensuring a sustainable future for its peatland ecosystems and the well-being of its citizens.

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