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Review

Prospects for Governance and Climate Change Resilience in Peatland Management in Indonesia

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Abstract: Southeast Asia has the most significant tropical peat/peat carbon storage area in the world, with Indonesia being the primary location for much of it. Anthropogenic changes to peatlands have resulted in a threat to these endangered ecosystems; policies that have favored industrial and elite interests above those of local communities have resulted in severe consequences for the environment and public health, not only in Indonesia and its region, but for the world community in terms of contributions to climate change. Decentralization has been seen as a means of sharing authority and accountability with lower government levels and providing additional opportunities for shared governance. Still, there is reason to question the means of these approaches and the results of such efforts. The research question is: What can be learned about the administration's role in leading stakeholder involvement from the case of Indonesian peatland management? The authors utilize outcome additionality as a framework connected to the resilience of peatlands.

Keywords: Indonesia; peatlands; climate change; resilience; governance

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1. Introduction

In tropical areas, peat is mostly found in sub-coastal lowlands experiencing long (nine to ten months of the year) wet seasons, developed from plants and tropical forest trees. Southeast Asia has the world's largest tropical peat/peat carbon storage area at 25 million hectares [1]. Of the nations of Southeast Asia, Indonesia still contains some of the wealthiest areas of peat in the world; at one time, Indonesia had about 50% of all tropical peatland, but this has been drastically reduced by unsustainable land management practices [2]. In Southeast Asia, there is an interest in how peatlands are managed due to shifts toward commercial agriculture. The sustainability of lands in Asia has been compromised by conversion efforts to afford agricultural opportunities and timber extraction [3]. Human practices in the tropics have resulted in the conversion of ecosystems from high- to low-diversity and changes instigated by humans have also changed the physical environment in ways that have had negative consequences [4]. In Indonesia, significant areas of peatland have already been converted, with intentional fires clearing the land; agricultural use of fire has been motivated by cost-savings issues, in that it is quick and low-cost, but also in its effectiveness in fighting weeds and pests [5]. Mechanization and industrial farming practices made possible great economic returns from plantations, but also hastened negative consequences. The combination of land clearing and fire practices has led to the release of greenhouse emissions in a manner notable on a global scale, contributing to climate change [6,7].

Indonesia's interest in peatland for plantations has primarily been to secure better incomes for those with financial means; however, this has marginalized traditional agricultural interests. Beyond agricultural concerns, tropical peat ecosystems are valuable for their bio-resource diversity and wealth. The challenges of peatland management in Indonesia represent an intersection of competing priorities—a need for economic growth, increasing pressures to respond positively to the threat of global climate change, and a failure to respond effectively to stakeholder needs, including those of marginalized indigenous peoples,

who have borne the brunt of poorly constructed, top-down approaches to land use change and management. All levels of government in Indonesia must provide better leadership to improve the chances of climate resilience. As noted by Alibašić, "organizations committed to resilience and sustainability strategic planning protect environmental and social resources by delivering the most efficient services and improving governance" [8] (p. 4).

Further interest in peatland management is observed through the emerging concept of outcome additionality. Additionality in the case of peatland management can be viewed through the lens of producing additional goods and services concerning society's benefits in reducing greenhouse gas emissions. Additionality has been used to analyze the benefits of carbon trading and offset programs [9,10], and has been defined as a "process of determining whether a proposed activity is better than a specified baseline" [11] (p. 3). This review article examines concerns about peatland management in Indonesia from the perspectives of land management and climate change, economic development, and decentralized/shared governance at the village level. Specifically, there is a need to understand the failures, particularly those of an administrative variety, which have led to suboptimal results in restoration programs and efforts to stop further degradation of peatlands. The research question is: What can be learned about the administration's role in leading stakeholder involvement from the case of Indonesian peatland management? While responding to climate change in Indonesian peatland will be difficult, failure to answer the challenge will continue to lead to unacceptable ecological and sustainability consequences for the nation, the region, and the world. This case thus raises fundamental questions of balance between the desire for growth and the capacity of the Earth to afford such returns on a limitless basis into the future.

2. Tropical Peatland Management in Indonesia

While the agricultural use of peatland in Indonesia is nothing new, advances suggest a need for more sustainable use and care of these ecosystems. The sustainability and governance of these ecosystems, previously based on relatively low-impact indigenous farming practices, have been thrown out of balance and alignment due to the influx of large-scale development-style farming and plantation operations. Much knowledge and practice employed for traditional farming have been based on local knowledge and practices passed down for generations. Farming practices for local peoples (like the Dayak in Kalimantan) have been to use shallow peat for farming, notably rice cultivation, on a relatively limited basis with respect to an area [12]. Subsequent systems of farming imposed by government forces since the Dutch in the late 19th century have misunderstood and misinterpreted traditional farming practices, which resulted in less damage to the environment than more modern methods that have sought to change the character of the land to encourage large-scale food production [13]. As the peatlands are relatively more sensitive than other types of agricultural land due to drainage leading to degradation and subsidence [14], approaching them with methods and techniques useful in other contexts is more damaging than otherwise [15].

Dohong, Aziz, and Dargusch found that tropical peat ecosystems in Indonesia have been mismanaged for several decades; they indicated that "activities of logging, conversion to industrial agriculture plantation, drainage, and repeated fires have a major role in the transformation of peat swamp forest in the region into degraded and fragmented landscapes, resulting in peatland ecosystem decline, biodiversity loss and globally significant volumes of carbon emissions" [16] (p. 359).

It has been suggested that regulatory programs be more specific to the problems of protecting peatland; inconsistent or nonexistent enforcement has also been noted [16]. Uda, Schouten, and Hein offered that "peatland policies are often not effective in part due to unclear management authority for all peatlands as well as the lack of law/policy enforcement in the field at the level where many of the land-use decisions are taken" [17] (p. 1). They specifically pointed to "lack of technical knowledge on the different types of zero burning methods, the lack of availability of technology to put out (sometimes massive) peatland

fires, as well as a lack information on the actual (accurate) location of deep peatlands and the groundwater table" [17] (p. 7) as leading causes of poor "fit" and lack of policy effectiveness; further, the government does not readily share information among agencies, land titles are often unclear, and traditional approaches to peatland management are not understood [17].

To make matters worse, peatlands themselves are popularly misunderstood. In neighboring Malaysia, peatlands have been seen primarily for their extractive-economic value, and representations of these ecosystems have been metaphorical, as Earth's "lungs" or else wasteland [18]. This makes market-centered conservation framing of the issue, and counternarratives that challenge unbridled development, ever more critical, given the "potency" of capitalist and profit-seeking narratives [19]. To ensure their long-term benefits, the integrity of forest resources becomes lost amid short-run profit considerations. Cost is another issue. Hansson and Dargusch estimated that it would cost "more than US$4.6 billion to complete the national 2-million-ha restoration initiative, which is substantially more than the funds currently allocated to the challenge across Indonesian and international donor budgets" [20] (p. 1).

Even with protection, tropical peatland ecosystems will most likely not escape damage due to the impacts of global climate change, such as seawater intrusion from sea-level rise [21,22]. This does not obviate the need for the government to respond as effectively as possible in addressing the challenges posed and ameliorating harm to the environment and the public. Measures to further increase the resilience of peatlands will have long-lasting, positive social and economic benefits.

2.1. The Primacy of Economic Development

Cooperation in Southeast Asia hinged historically on the management of threats external to the region, as well as "internal stability and economic development" [23] (p. 7). Through the Association of Southeast Asian Nations (ASEAN), the focus in recent decades has shifted to stability and maintenance, as well as economic development and interests of the region on the world stage [24]. For its part, agreements for the ASEAN Economic Community seek to "increase trade (goods and services) and investment among the Member States; Promote and expand regional production sharing and network; Promote higher level of transparency and predictability" [25], among other goals. It is worth pointing out that ASEAN suggests that it seeks "equitable economic development", but also expanded production and a high level of predictability [25]. Can these goals exist simultaneously at the same level of prioritization? How do climate change and sustainability figure in such plans, if they are included?

Indonesia's development has been based on a model of inexorable economic growth and development; Indonesia's place in ASEAN is as a principal exponent of the development mindset, having achieved great economic returns for decades, even taking into account the problems of the Asian Financial Crisis and subsequent financial crisis of 2007–2008. Industrialization and societal change support economic development and have been the primary means of achieving wealth [26], and the principal model has been implemented in capitalist nations to this point.

Efforts in Indonesia that result in the disruption of peatlands have nevertheless continued, with efforts to support large-scale palm oil and acacia/pulpwood plantations placing economic development over not only traditional practice, but the capacity of the peatlands to support such efforts, leading to a lack of resilience in the particular context and negative repercussions for global sustainability. For example, in terms of rice growing, land that might have supported limited indigenous tidal irrigation growing does not necessarily support large-scale rice paddy production [27]. From a resilience perspective, damaged peatlands are prone to fires, in greater frequency and severity, which in turn causes enhanced environment degradation. Experts have recommended against further development in areas already impacted in negative ways, and for greater interaction between private-sector and government forces with villagers, especially since their livelihoods have

been given less priority than those encouraging development [28]. However, palm oil is a big business. The World Wildlife Fund noted that "Palm oil is in . . . close to 50% of the packaged products we find in supermarkets, everything from pizza, doughnuts, and chocolate, to deodorant, shampoo, toothpaste, and lipstick. It's also used in animal feed and as a biofuel in many parts of the world" [29]. Palm oil has also been noted as "a major driver of deforestation of some of the world's most biodiverse forests, destroying the habitat of already endangered species" [29].

Peatlands have been essential to the expansion of oil palm development in Indonesia, and displacement of villagers has naturally proceeded as part of the quest for further development and financial rewards; there is consensus and awareness of the environmental consequences of continued development in peatlands, but as in the United States [30], efforts to explain away science are undertaken and funded by industry-favoring groups to justify continued growth. Even efforts to compensate for environmental degradation undertaken by industry do not fully resolve the problem of persisting in unsustainable and damaging conduct, particularly given the present dangers of climate change. Flawed methodologies and dodgy papers form a patchwork of research just compelling enough for government authorities to abandon efforts to restore peatlands and correct previous damage [31].

From a narrative perspective, Liu, Ganesan, and Smith [32] offered that narratives in support of palm oil plantations invoke climate change denialism tropes, falsely suggesting that: climate change is not occurring, climate change is not due to oil palm plantations, the negative aspects of climate change have been overstated, or making note of the difficulties associated with addressing climate change. In making the economic case for continued development, scientific research and perspective have been actively undermined, with a false balancing being offered, pitting, for example, poverty reduction against programs responding to climate change. Unfortunately, these denial narratives have received much more (and undue) attention relative to the consensus on the need to protect peatlands [32].

Media framing of the issue of global climate change is potentially a problem. Freeman pointed out a reference in the Jakarta Times to climate change being "God's will" and that human intervention cannot change it while acknowledging that public opinion was needed to force the government to respond to the threat climate change poses [33]. Such dismissive nature of the climate change coverage further reduces potential for government actions.

A substantial proportion of Indonesia's peatland damage has been due to anthropogenic impacts [34]. The reduction of carbon stores due to land clearing extends far beyond initial removal due to the continued breakdown of surface peat [35]; what is occurring is an elevated, accelerated release of carbon. However, mindsets pushing industrialization and limitless economic growth have encountered their largest test in global climate change, where the ability of the Earth to respond to challenges caused by anthropogenic activities may be reaching a breaking point. "Patronage networks, profits, and high market demand for oil palm incentivize the use of fire and will result in continued fires and haze events" [36] (p. 5). Without positive change and reform, the problem will worsen.

2.2. The Mega Rice Project (MRP)

The Mega Rice Project (MRP), a project begun in 1995 under the Suharto government, aimed to "clear approximately one million hectares of peat swamp forest for rice growing" [37] (p. 336). The project is illustrative of misguided large-scale development where peatland is concerned—this project aimed to turn one million ha of the swamp into productive rice paddies. A prodigious boom in rice production was expected, but significant degradation of tropical forest peatland was reaped instead. Suharto saw "the peat swamps of Central Kalimantan as the ideal landscape for a project establishing intensive, Javanese-style wet rice production, which was aimed to bolster Indonesia's fledging food self-sufficiency and feed the country's 200 million people" [27] (p. 2). The project was based in large part on poor advice from self-interested businesspeople, and seemingly bereft of

the inclusion of expert opinion on the part of those familiar with the nation's ecosystems and its particularities [27].

The project ultimately failed because of "knowledge gaps, especially on ecosystem function, peatland hydrology, water management, peat subsidence, impacts of long-term drainage, mechanization problems on peatland and socio-economic consequences" [15] (p. 108). The devastation to the area was tragic—newly "reclaimed" land became prone to fire, with disrupted hydrology, killing or capturing of orangutans, and a near-total alienation of people from their previously productive and sustainable land [15]. The consequences for programs of this ilk—development-minded to a fault and with little regard for consequences to ways of living and long-term sustainability—have global importance far beyond the damage to people on a local level. To add insult to injury, the rice produced by the project was negligible [27].

Since then, various rule-based and procedural changes have occurred to manage the problems exacerbated by the MRP. Wibisana and Setyorini provide an excellent overview of legal development in peatland protection [38], beyond the scope of this paper. As an example, the 2009 Indonesian Law No. 32 allowed the fire to clear lands on a limited and proscribed basis, but a change in 2016 shifted burning to clear peatlands to prescribed burns only [39]. The Indonesian Peatland Restoration Agency was created in 2016 to oversee program efforts, focusing on the rewetting of peatland, revegetation, fire reduction, and revitalization; however, these initiatives have not stopped fires. Harrison and colleagues [40] identified 59 specific challenges that undermine peatland restoration efforts. Notably, these include a lack of clarity in government policies, prioritization of market-based, neoliberal development approaches over those that help to achieve sustainability goals, ineffective enforcement of laws, mainly burn laws, continued disagreement on land tenure rights, a lack of equity in benefits realized for various groups involved, a lack in various capacities among indigenous groups, and unclear goals for and achievement of revitalization initiatives [40]. Even though some have seen the restoration program partly successful, mostly through efforts in areas directly controlled by the government, failure to implement it in privately controlled areas undermines the program [41].

Constraints and imposition of enforcement are less necessary when engaging with local farmers who have achieved success, which would result in greater benefits. As an example, Tata mentioned, "Some farmers are aware of the importance of maintaining a high water table for fire prevention, and during the dry season they place planks across the outlets of ditches to reduce drainage of peat-water into the river and thus retain moisture in the peatland. This effort effectively minimizes the fire incidents in the Bram Itam forest reserve area" [39] (p. 6). When farmers engage in practices that depart from traditional approaches, they may follow the lead of large palm oil plantations [39], which do not pay adequate attention to sustainability issues.

Farmers are constrained in their livelihood choices in Indonesia, where peatlands are concerned: suitability for agriculture has been characterized as only marginal, without further enhancement, while forestry has been seen as highly suitable to the land. Because farmers face severe constraints, not only from a technical perspective, but also from a socio-economic standpoint, there is an opportunity for positive intervention from the government [42]. While there is consensus that there can be a positive role for government to play in resolving constraints and protecting the environment, it is less clear from the literature how government should most effectually intervene and how it might move beyond its limitations in regulation, implementation, and enforcement.

A principal concern with the challenges identified by Harrison and colleagues [40] is that the central government should take the lead in resolving them. That the problems are known and relatively straightforward is encouraging, but Indonesia is not new to these problems. Efforts to resolve them are lacking. The damage continues, and indigenous groups are significantly underserved by current approaches.

The result has been a valuable ecosystem in decline due to mismanagement, with attendant detrimental impacts on affected local communities and global climate change. Efforts to make changes are noted, but they have not proven sufficient.

3. The Problem of Local Governance in Indonesia

The problems of governance have always been unique and particularly, if not peculiarly, complex in the case of Indonesia, back to the time of the Dutch. Diverse societies remained "emphatically" themselves, stratified, or elite and more apt to engage in evolution. Various models of education, including a Dutch model under its "Ethical Policy" and an essential Islamic model for an increasingly dominant Muslim population, informed not only spiritual but legal aspects of society; there was push and pull between religious and secular approaches to education and ultimately expectations on the ordering of society. Education tended to reinforce a divide between those with and without schooling; there were also increasing divisions in society based on rural and urban differences. When democracy in Indonesia first occurred, with the rise of a unique Indonesian nationalism, it occurred within a narrow group of educated elites [43].

Japanese occupation continued administrative structures for a time, but this ended and left a power vacuum at the end of World War II. As far as the republic was concerned, the Netherlands handled challenges in the region poorly, unable to deal with rising nationalism and fanaticism. The result was a newly independent republic. As the first Indonesian President, Sukarno had sought an approach to consensus-building that relied on regional autonomy rather than Western-style approaches to democracy, but abolished it when it proved unstable [44]. Sukarno instituted what was termed "Guided Democracy" (Demokrasi Terpimpin), an ironic name for an essentially authoritarian approach. Against a backdrop of "tempestuous...political and military factionalism, religious and regional dissension and economic decline", Guided Democracy may have been a homegrown alternative to outside political approaches; still, it covered bitter societal divisions between military and communist forces, for example, and ultimately sowed the end of Sukarno's rule [45] (p. 171). Sukarno resisted the number of parties and desired "leadership" to simplify matters. Some parties endorsed the conception to remain a part of the discourse. During this time, though, it became clear to the regions that efforts to provide for Indonesia as a nation, from the perspective of the government, were more likely efforts to provide for Java, and little attention was being paid to the needs and prospects of other areas. The resentment in the regions led to disillusion and the brink of dissolution [46].

The Indonesian national government has made efforts to improve decentralization, allowing for more interaction and involvement with decisions affecting local governance and policymaking. Such laws have included Law No. 22/1999 and Law No. 6/2014. The thinking is that involving more actors from the public will result in improved outcomes and more effective policy. Some have suggested the approach is positive, with an "Orientation to solve various problems that occur in the community environment, meaning a consensus deliberation based on a family spirit" [47] (p. 134).

Most of the literature, though, does not agree that the approach has resulted in positive outcomes. The authority for decision-making at the village level is not always apparent, and unfortunately, the quality of the resultant policy is not necessarily clear either. The principle of musyawarah presupposes a forum for decision-making, but stresses harmony, which might prevent voices that are disharmonious but nevertheless need to upset, for example, unfair processes and disrupt potential outcomes that disadvantage certain groups over others. At various times, musyawarah might be easily abandoned if elite groups discern something outside what constitutes the "public interest"—with the definition of that term being, one might suggest, subject to some debate or a matter of perspective. Even with improvements, village autonomy is still problematic because of issues with authority over budget, authoritarian-style village leadership (making deliberative involvement more a formality), and corruption [48]. Previous class hierarchies, for example, continue to limit the discussion and participation of whole communities. While some improvements

allow for general involvement in discussion about village problems, a level playing field of information is a key; convergence of interests and time for involvement are not always present, limiting the potential for authentic discourse [48].

Deliberative democratic approaches in Indonesia, specifically in rural areas, have been limited and exclusionary in many cases. Katiman suggested that "Authentic deliberation requires participant selection to be inclusive, participants' views and interests to be convergent and deliberators to be held accountable by communities" [48] (p. iv). However, it was found in the Indonesian case that participation was ritualistic, done to meet a regulatory obligation, and potentially dominated "by participants who appear well-informed and capable of producing convincing arguments", even if those arguments do not protect those who are disadvantaged or unable to defend themselves against powerful forces [48] (p. 189). Groups are not addressed evenly in such proceedings, and women's participation is often constrained [49].

Bringing discipline through regulation to a contested landscape like peatland utilization is especially complex from a governance perspective. Government interests reflect a compelling need to restore and protect threatened ecosystems, but well-entrenched interests resist and avoid using various means and networks to subvert government efforts. Astuti found that old approaches like bribing officials and issuing biased data and interpretations are part of these efforts. It is essential to remember that the history of deforestation and timber concessionary is characterized by crony capitalism and attention to industrial sectors of greatest economic success at the time (such as plywood, pulp, and oil palm) [50]. These activities were immensely rewarding to those engaging in unstainable activities, and there is reason to believe that they would rather persist in present behaviors than change, even with recent developments like jurisdictional approaches [51]. Recent evidence, such as the passage of the Omnibus Law on Job Creation (2020), or the expiration of the moratorium for palm oil plantation permits, is indicative of an aim to create a business-friendly context by undermining environmental laws under the cover of COVID-19-related relaxation of standards [52,53].

These are complex and intractable problems because the national government has set forth an approach that demands local governments become responsible for accountability in a complex system. The implementation of the system made little, if any, effort of note to provide for improvements in governance to allow for the expected accountability. The system, described by Kurniasih and Setyoko as paternalistic [54], has not allowed a legitimate opportunity for involvement. Nurlinah et al. found that "institutional relations in village governance, the way social organizations work in local communities, and cultures" (p. 339) impacted the level of governance that could be expected in a village and that village governments tended to obedience to superior levels of government, rather than embracing autonomy or calls for accountability [55].

Understanding the Need for Stakeholder Involvement in Indonesian Peatland Management

Public administration literature suggests the value of engagement with stakeholders in ways that create public value, incorporate a broad array of viewpoints, and lead to outcomes that are supported and maintained in service of a greater sense of the public good. Puspitaloka, Kim, Purnomo, and Fule observed that "For Indonesia's ambitious [peatland restoration] plan to succeed, it is essential to create an internally consistent shared vision for peatland restoration among populations with diverse values" [56], but this is more difficult when diverse groups cannot agree on the meaning of "restoration", let alone what interventions are needed and acceptable. Even official definitions of what constitutes tropical peatland, which might ignore or unduly simplify expertise and sound science, can lead to policies and programs that miss their mark—underestimating problem areas, and preventing adequate, coordinated management of these ecosystems from a policy perspective [57]. With all the official emphasis on peatland restoration, there remains a steady drumbeat of the need to feed a growing population while expanding agricultural operations, increasing exports, and ensuring economic growth [58,59]. One might reason-

ably question the priority given to peatland restoration over more core government targets, such as economic stability and expansion, when "food estate" plans sound suspiciously like a new MRP.

It is fairly typical that indigenous groups negotiate in good faith with governments and businesses. Still, the resulting agreements may not serve the interests of such groups, leaving groups even more marginalized [60]. Promised benefits may be left unrealized in tentative arrangements. As land becomes scarce, with areas like Kalimantan crowded with local farmers, corporate business interests, and international groups seeking to implement large REDD+ projects, previously marginalized groups stand further disadvantaged. Sanders et al. suggest that villagers have little option but to accept the arrangements as offered, taking whatever payment is given when large projects go forward. They observed "gaming between actors to achieve their desired outcomes that were reactive and opportunistic . . . [with] no orderly contractual negotiation between the parties . . . much noncompliance goes unnoticed at the district level, while the central government does not monitor performance" [61] (p. 206). Further, disorderly and unruly engagements with villagers sometimes turned violent [61].

Government efforts to rein in fires in peatland from smallholders ignore myriad factors influencing the decision to utilize burning as a technique, so enforcement and prevention techniques do not work. Context matters, and attention to indigenous practice and culture is essential, despite a tendency toward top-down governance. Traditional practices, weather conditions, and land practices drive decisions on how to clear land, leading to choices that produce suboptimal outcomes; as Medrilzam et al. also suggested, "peatland degradation principally arises from the desire of local communities to become food self-sufficient and increase their Income . . . using fire is part of their culture, known as Manusul in their local Dayak language. The communities consider fire the most efficient method to clear land for rubber, rice cultivation . . . and fishing" [37] (p. 342). Traditional use of fire in agriculture has been key for land clearing and pest and weed management. Carmenta and colleagues noted the importance of finding common ground among stakeholders and avoiding oversimplifying portrayals of factors involved in policy discussions [5]. It can be quite difficult for traditional cultures to identify other means of self-support; Waluyo and colleagues found that fishing, edible birds nest making, and crafting may be options in no-burn scenarios [62].

Though there have been some gains in relationship building in certain instances, it is increasingly evident that stakeholder management in the case of the peatlands has been insufficient and unproductive overall. This is not entirely unexpected, as stakeholder management is not well understood, often avoided, and when undertaken in earnest, it can be arduous. It is complicated by the unusual nature of village governance in Indonesia, which does not allow for a one-size-fits-all approach, given the diversity present in the nation and the richness of approaches in various communities. Beyond this, as indicated above, there are tendencies that may limit the potential for broader involvement in governance outside usual elites and village chiefs.

The Project Management Book of Knowledge (2013) defines stakeholder management as a "Specific Knowledge Area", with stakeholders defined as "persons or organizations . . . who are actively involved in the project or whose interest may be positively or negatively affected by the performance or the completion [or outcomes] of the project" (Project Management Institute, 2013). Stakeholder management is especially relevant to peatland utilization and restoration because, thus far, there has been a lack of both projects and need and a lack of shared commitment to short- and long-term goals [63]. Failures with large projects tend to involve "a failure to address [stakeholder management] issues during development, or later on during operations" [63] (p. 9); failure to engage and communicate with stakeholders yields entropy and project collapse. Because the peatland management issue is incredibly complex, more rather than less stakeholder management efforts are necessary. These are not one-off interactions, but long-term discussions throughout the development of project ideas, implementation, and life of the project. As it is, integration is lacking

between stakeholders and sectors, with regular policy inconsistencies; there is a need for new tools, including interactive and holistic approaches [13].

Particularly when there are competing goals in the Indonesian case—from development interests to climate change and sustainability considerations, and others in between—valuing and prioritization is not a simple matter. Attention to triple- or quadruple-bottom lines [64] means that value extends to other aspects of the discussion, or else good governance and favorable project outcomes are less possible. Otherwise, choices and decisions are predictable [63]—in this case, favoring industry and elite interests and disenfranchising those with fewer means. In stakeholder analysis, local interests may be "low power" but involve "high interest." They may not be at the level of "players" [63] (p. 42), but ignoring them may serve to disrupt and cause failure in any path forward. With engagement, those that could oppose or even block project initiatives can be turned into champions or at least supporters [63]. Stakeholder engagement also entails that when information and advice are offered, it is not summarily ignored in favor of some predetermined outcome.

To this point, because stakeholders still need to be adequately included, conflict resolution would need to regain engagement and provide a firm foundation for moving forward [63]. The occurrence of protests and violence in the past over land use and palm oil production since the 1980s [65] indicates that such resolution efforts are needed; citizens are aware when they have offered input and been subsequently ignored, and it cannot be easy to regain trust in such scenarios. With Indonesia, though, moving away from the expected paradigm to engage stakeholder interests may need to be more attractive from both economic and political standpoints.

As mentioned earlier, Indonesia has been focused on economic development for decades. With political stability being important, challenging the interests of well-connected elites regarding local citizens may not be possible. In that instance, it would be more appropriate for the government to be honest with the public and forego protestations of sustainable, green initiatives. That would be a dim prospect for Indonesia, the ASEAN region, and humankind. In considering how efforts are progressing in managing peatlands, culturally responsive evaluation, which "recognizes that demographic, sociopolitical, and contextual dimensions, locations, perspectives, and characteristics of culture matter fundamentally in evaluation" [66] (p. 431), should be employed, as groups involved have been marginalized previously. Including previously ignored or underutilized perspectives improve the potential for evaluation validity in that other forms of valuing are neither ignored nor crowded out [67].

While considerable efforts have been made to reduce greenhouse gas emissions, focusing on land-use rights, these efforts are primarily top-down. They need to include local community participation in planning adequately. Where efforts to intervene to stem climate change have occurred, the efforts have disproportionately impacted and constrained local interests, and promised benefits have failed to materialize from the local perspective [68]. Differences between stakeholder perspectives are marked. Phelps and colleagues, for example, found that stakeholders in their survey tended to observe two different perspectives: "Experts tend to prefer solutions that are centralized and largely transformative, whereas resource users favor more localised measures that are more compatible with business-as-usual" [69] (p. 1). In the Indonesian case, the government has a responsibility to encourage understanding of challenges and proposed solutions across a whole range of stakeholders, not just industrial interests, and to encourage interests to "lend support" by reducing uncertainty in conceptual areas that are contested by Suchman [70] (p. 587). At least part of the problem, in this case, is that to achieve a measure of legitimacy, policy and program efforts have hinged on conforming "to the dictates of preexisting audiences within the organization's current environment" rather than speaking to new audiences and legitimizing in a way that is consistent with changed and changing circumstances [70] (p. 587). Because conformity with elite expectations has been a prioritized goal, needed change has been reduced to an appearance or veneer [71].

4. Discussion

It is important not to underestimate the nature of the change facing Indonesia in responding to the complexities of peatland management. The suggestion of wholesale change oversimplifies the problem, creating unreasonable expectations and possibly, or limiting the range of incremental positive changes that could be made to at least begin to respond to the challenges faced. Given the experience, there is the potential for problematic environmental situations to grow beyond humankind's control because there is little sense of urgency, despite worsening conditions, and clear, even understood, needs to respond [72].

Peatland utilization is more a national question than it is local; due to the cursory involvement of local interests in planning for such development, the issues surrounding the use of these lands are regional and global. What happens in Indonesia matters well beyond its borders due to land-use practices, burning, and haze impacting other nations in Southeast Asia (Singapore, for instance, which has evidenced impacts of transboundary pollution) and the more significant global climate [73]. The neoliberal risk management approach avoids discussion of vulnerability [74]; this leads not to strength, but fundamental societal weakness. When an event or hazard occurs under these conditions, the government may not be able to respond fully or effectively, putting the whole public at risk as problems spiral out of control [74].

These issues must be considered from the perspectives of good governance and outcome additionality. When evaluating outcome additionality, decision-makers must consider the overall benefits to society from effectively governing peatlands. Programs implemented by the Peatland Restoration Agency do not provide much improvement over the baseline, with respect to additionality, because the attention for the 3R concept (rewetting, revegetation, and revitalization) is to "cultivated land and protected forest areas controlled by the state" rather than to "degraded peatlands in the concession areas of industrial forestry companies or plantations", where the attention is on "not burning" company areas [41]. The limitation is important, and may significantly limit the benefit seen by the intervention. The government can take credit for a program that is not entirely effective, because there is value in the announcement of a policy, but because policies and laws may be limited in terms of enforcement, the impact on actual behavior may be less than expected. Any claim to additionality is likely overstated because the claimed benefits are not being fully achieved. In considering the actual benefit of a restoration program, Kiely and colleagues suggested that restoration is a cost-effective governmental response for fire reduction, finding "US$93.9 billion in economic losses from the six largest fire events", but if "2.49 million hectares of degraded peatland had been restored" there would potentially be "a reduction in economic losses of US$8.4 billion" [1] (p. 2). The activity of peatland restoration clearly leads to better outcomes than the baseline.

The above noted, Indonesia has not been fully responsive to the problems posed by peatland development and utilization; as a result, its government remains on a path that is unresponsive to the long-term needs of its citizens—in local smallholding and more generally, to the world community, which sees negative impacts of its inability to create, implement, and enforce rules and regulations on land use [75]. It has been suggested that palm oil would not be the most valuable crop if externalities were considered in the benefit–cost analysis [76]; that noted, it is not unusual for industrial concerns to avoid paying the socially responsible cost of production [77], and instead pass those costs associated with externalities along to the government and public. The costs associated with externalities due to peatland fires and haze are extensive. Uda, Hein, and Atmoko offered that "long-term exposure of PM2.5 from recurrent peat fires and smoke events causes 648 premature mortality cases per year, which includes 55 mortality cases due to chronic respiratory diseases, 266 mortality cases due to cardiovascular diseases, and 95 mortality cases due to lung cancer. This equates to 26 premature mortality cases per 100,000 people" [78] (p. 31322). Clearly, additionality benefits become more relevant as health and other risks are taken into consideration.

While sustainability and climate resilience may be difficult to support at an operational level in the face of development needs and corporate/government desires for growth, failing to address long-term issues associated with the use of environmental resources can lead to a diminished capacity and eventual failure of the system to support further development. The additional layer of global climate change creates a more complex challenge. Whether supported by business and government interests or not, local desires for development and growth may be subverted by adverse climate change impacts. Degraded peatland can be restored to some extent, but these efforts are most fully supported when socio-economic needs and interests are considered as priorities along with sustainable development interests [79]. Damage to the livelihoods of traditional farmers and indigenous peoples has been extensive, with fewer people relying on farming due to development decisions, lower land productivity, and prioritization of palm oil and timber interests for large-scale development [80]. There have been some efforts to provide for alternative livelihoods, and attention to this aids in diversification while improving ecosystem potential [81,82]. Alternative livelihoods might include sustainable levels of fishing, paludiculture, livestock, or honeybee development, among other options [83,84].

5. Conclusions and Recommendations for Future Research

Efforts to address challenges in managing Indonesian peatlands have failed to fully and appropriately address degradation and restoration from both the political and administrative perspectives. From the political perspective, the poor decisions of the past, like the enactment of the MRP program, have led to a dire situation. Approaches taken to address concerns have served as greenwashing, leading the public, and perhaps more importantly, the international community, to believe that the situation is under control and improving when it is not. From the administrative perspective, efforts to implement broad mandates fail because of limited involvement of stakeholder groups, yielding programs that do not evidence understanding of the situation's complexities and thus lead to poor results.

From the sustainability and resilience perspective, local governance is not as automatic as one might imagine. It is not necessarily obvious that everyone will agree with a viewpoint on globalized visions of sustainability. As Nas et al. illustrated in writing about handling thieves in villages according to a law, village viewpoints are well-entrenched and not simply a matter of "culture" [85] (p. 103). In that respect, the national government has arguably abandoned responsibility both beyond its borders and within since it has not addressed internal governance in a way that is actionable and meaningful, nor has it done so in a manner that will contribute positively to addressing global climate change. There are primary concerns with Indonesia's commitment to sustainability and addressing its contribution to global climate change; these concerns are not new, but in the present context of climate change, they are ever more pressing. While Indonesia has positioned itself as a primary democracy in East Asia and general bridge-builder, it has had internal issues that have kept it from meeting its visions for itself, internally and externally—some of this may be due to role conflict [86]. In this paper, we argue that village governance is an example of form over substance. Under Joko Widodo's administration, the feel-good mantra of village governance has resulted more in the transmission of authoritarian tendencies from national to local levels, with a resultant threat to democratic stability [87]. Poor village governance has immediate consequences in corruption and fraud [88].

The problems of village governance are not simple—they are far-reaching, as much depends on the proper functioning of such a system. As a simplistic answer, decentralization perhaps sounded appealing because of the far-flung nature of the Indonesian nation, but from the perspective of dealing with incredibly complex public policy issues of national and global consequence, forcing down responsibility to the lowest level is not good enough.

Focusing on the administrative failure present in this situation, it is the domain of administration to implement policies—to thoroughly and efficiently carry out policies [89], but perhaps more urgently, to bring considerable expertise and scientific understanding to bear on a problem with global implications. Competent government can only occur

with administrative capacity [90]. However, the situation is not as simple as "a need for competence" would indicate. Inherent faults in public administration, as a general matter, may result in untenable situations: "Government . . . has a messy problem: multiple constituencies and conflicting goals . . . The government is forced to muddle through with compromises and trade-offs that often leave few satisfied and many bewildered. Worse, sometimes government is called upon to limit the excesses or oversights of capitalism through regulation or incentives." Still, it has difficulty doing this with complex processes, unclear goals, and unfair comparisons to private enterprises, which exist, or should exist, for wholly different purposes from the government [91]. There is frequently a lack of clarity in the problem stream—what sorts of issues are perceived as problems requiring government intervention [92]—and the responses and proposed solutions are not always rational. Even competent administrators cannot be successful without support from the political sphere; without support, administrators may be working at cross-purposes with real priorities among elected and appointed officials, and their efforts are doomed to failure.

While political forces are to blame for enacting policies prioritizing economic development over all else, the administration is also to blame for policies and programs operating under mistaken assumptions or leaving out critical stakeholders. The administration has increasingly been called on to serve with due attention to equity and representativeness beyond responsiveness to political forces [93]. Even considering administrators' technical and subject-matter expertise, our understanding of peatland ecosystems continues to advance, along with competing for economic and political interests. Assumptions that may have been defensible twenty years ago are less so now, with the advance of global climate change and the increasing disadvantage of certain already-marginalized groups, increasing the gap between the desires of elites and the needs of less-favored socio-economic groups. The result is a situation that is unsustainable in a variety of essential respects—not just in the environment but from economic, political, and societal perspectives as well.

First, additional research in this area and with this case is needed to further probe the concepts of outcome additionality. Second, identifying the obstacles to stakeholder involvement and how to overcome too much attention to elite and industry interests to achieve balance between all for the stakeholder groups involved in a process, so that voices are not only heard but acted upon, is necessary. Unfortunately, local problems have become national problems, and these problems pose serious dilemmas for the region and global environmental quality. Additional research into the MRP and its place as an antecedent of further policy interventions is needed. Finally, attention to ASEAN's involvement and ability or lack thereof to intervene and encourage attention to this issue is also warranted.

Public administration has obligations to serve the public interest. "Public servants must attend to law, community values, political norms, professional standards, and citizen interests" [94] (p. 554). Public administrators are citizens themselves, employed to understand the complexities of government and make the machinery of government work for the larger good [95]. Perhaps the best way for a competent, skilled, and expert public administration to show its value to the population is, and perhaps has always been, for the administration to be open and responsive: about knowledge, processes, and benefit to the cause of a just civilization. The careful planning of government machinery between lawfulness and due attention to appropriateness and reasonableness can help assure legitimacy for the public sector across its diverse pursuits. Values matter and economic development is valuable, but facts also matter, and pursuits that prioritize short-run economic gains are not now nor were ever sustainable.

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