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Governing the ungovernable: The politics of disciplining pulpwood and palm oil plantations in Indonesia's tropical peatland

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ABSTRACT

This paper examines new governmental technologies that are emerging in Indonesia to address socio-ecological crises resulting from the conversion of peat forest landscapes to large-scale agricultural plantations. The early implications of Indonesia's 'peatland-fire-free' policy interventions for palm oil and pulpwood industries, including private sector resistance and contestation to this policy, are investigated. Drawing on the Foucauldian concept of disciplinary governmentality, this article analyses the Government of Indonesia's (GoI) failed attempts to render large-scale peatland users governable. The GoI introduced two peatland disciplinary strategies: a spatial and hydro-governance approach to governing palm oil and pulpwood plantations in peatland landscapes. However, significant contestation and opposition arise from these policies as the state attempts to apply disciplinary logics upon powerful and prickly actors. In this context, contestation reflects the complexities of the existing political economy of peatland exploitation in Indonesia, which is decisively shaped through structural and environmental violence. The paper outlines the elements that limit the prospects for fully-fledged disciplinary governmentality over peatland areas and highlights the messy, insecure and unfinished nature of environmental governance.

1. Introduction

Indonesia's forest and peatland fires and its subsequent implications for transboundary haze events are the consequences of neoliberal forest governance (Miller et al., 2020). Drawing on market rationalities such as profit maximisation, Indonesia's neoliberal policies have opened the path for the issuance of forest concessions to private companies, often at the expense of local and indigenous communities (Gellert, 2005). Indonesia's tropical peatland comprises layers of decayed organic materials and is distributed over 24 million hectares (Mha) of land (MOEF, 2017a). Since 1970s, almost 5 Mha of peatlands have been allocated to concessionaires, including for logging, palm oil, and pulpwood sectors (MOEF, 2018). In Kalimantan and Sumatra's low-lying forests, extensive networks of canals have been constructed to drain peatlands to make the land suitable for large-scale industrial plantations (Dohong et al., 2017). The Ministry of Environment and Forestry of Indonesia (MOEF) argues that the leading cause of the interminable fires and atmospheric crisis in 2015 was the conversion of millions of hectares of peat-domes¹ on the islands of Sumatra and Kalimantan into agricultural landscapes that has

taken place in the last four decades (MOEF, 2017b).

Anthropogenically induced and exacerbated by climatic causes (Thierry and Werf, 2017), the disturbed peat terrain will oxidise faster (Hirano et al., 2014), become more flammable (Putra and Hiroshi, 2011), and can easily become engulf by ground fires (Page and Hooijer, 2016). While impacts are not consistent across concerted areas and vary according to user and use, researchers argue that anthropogenic disturbance has transformed the stability of peat's chemical and biophysical properties (Hapsari et al., 2018). Scientists have documented the repercussions of peat oxidation and excessive draining as the underlying cause of land subsidence (Evans et al., 2019; Sumarga et al., 2016). Researchers have also estimated that subsidence of every centimeter of one hectare of tropical peatland results in the annual emission of 13 ton of CO² equivalent (Wösten et al., 1997). Moreover, Indonesia's forest fires in 2015 produced 15.95 million tons of CO² emissions per day, which exceeded the daily emissions of the entire US economy (World Bank, 2016). This positions peatland degradation as one of the major contributors to global greenhouse gas emissions from land use change and forestry sector (Murdiyarsa et al., 2010; Page and Hooijer,

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¹ Peat-dome is the peat surface that has the thickest layers of decomposed biomaterial. It serves as the centre of peat hydrological functions, including as a water reservoir.

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2016).

Due to its highly damaging toll upon the natural and social environment, anthropogenic peatland degradation can be understood as a form of environmental violence (Nixon, 2011). This violence gradually renders the land nearly uninhabitable, devoid of biodiversity, with the potential of spatially displacing the people who draw their livelihoods from peat ecosystems. Such processes can be classified as ‘slow violence’, i.e., “a violence of delayed destruction that is dispersed across time and space” (Nixon, 2011, p. 2). However, the fires and transboundary haze with its tremendous externalities produce the other face of environmental violence, the fast violence, i.e., an “event or action that is immediate in time, explosive and spectacular in spaces, and as erupting into instant sensational visibility” (Nixon, 2011, p. 2). Such environmental violence, combining both the fast and slow form, is entangled with rent-seeking activities across scale, reproducing discursive and structural violence with powerful ramifications (Blake and Barney, 2018; Li, 2018).

In the aftermath of the 2015 forest fires, new peatland governmental apparatuses were created and enforced in the hope of engendering new conduct in peatland governance. The Minister of Indonesia’s Ministry of Environment and Forestry, Siti Nurbaya, referred to this as a “corrective era” (Shahab, 2018). Central in this new era were the GoI’s attempts to establish more powerful legal-disciplinary, surveillance and enforcement mechanisms to shift forestry and agricultural industries’ conduct towards a more peatland-friendly approach. MOEF published a map that delineated the locations of key peatland zones and imposed a new set of regulations concerning what activities were permitted in those areas, as well as the concessionaires’ new legal liabilities (MOEF, 2017b, 2017c). Surveillance technologies were introduced to compel concessionaires into maintaining peat moisture to prevent fire (Hadi, 2019). It is widely anticipated that the “corrective era” will provide ways of preventing peatland degradation and atmospheric crises by fostering more compliant – green-oriented - large-scale peatland users. The way these governmental tactics are being designed privileges technological fixes over long term strategies of changing peatland users’ behaviour and has opened opportunities for contestation and resistance.

How peatland fires and transboundary haze are situated in the context of Indonesia’s socio-political and economic transition informs prescriptions of how atmospheric crisis and its consequences should be governed (Goldstein et al., 2020). This paper critically examines how “peatland-fires-free” governmental technologies are being designed, implemented, and contested in Indonesia. This paper focuses on the plantation industries’ responses to two critical elements of the peatland disciplinary technologies. These are a) peatland spatial governance in the form of restrictions of agricultural activities on peatland protection areas, and b) peatland hydrogovernance through industries’ obligations to maintain a 0.4-meter peatland groundwater table. Drawing on the concept of disciplinary governmentality (Dean, 2009; Foucault, 2012) and practice of politics (Li, 2007a, 2019), I examine how emerging peatland governmental policies encounter critics and resistance leading to a failure in rendering large-scale peatland users governable. I refer to Li’s definition of practice of politics as “the ever-present possibility that a governmental intervention will be challenged by critics rejecting its diagnoses and prescriptions” (Li, 2007a, p. 17).

This research focuses on disciplinary governmentality to capture the increase in the GoI’s attempts to discipline agribusiness corporations in the aftermath of the 2015 forest fires (Hadi, 2018).² Research findings reveal that the two key calculated Indonesia’s peatland disciplinary

strategies were designed with the illusion of the government’s capacity to implement surveillance and punitive disciplinary mechanisms. This illusion has led to a failure in disciplining large-scale plantation industries. Plantations institute their own forms of governmentality to contest peatland policies. Corporations use discourses of job security to steer their worker unions’ responses to peatland policies. This suggests that peatland large-scale users are “prickly subjects”, thus creating a gap between what is intended by the policymakers and what is accomplished (Li, 2007a, p. 17). Resistance to peatland protection policies also came from within the state itself, with different sectoral ministries and local governments actively resisting peatland closure for agroforest industries. This shows the messy actualities of peatland disciplinary governmentality, as Foucauldian interlocutors cautioned that governmental practice is an ever-present project fraught with perpetual opposition and contestation (Dean, 2009; Li, 2019, 2007a).

This research draws from fieldwork in Riau and West Kalimantan provinces, Indonesia, conducted in 2018 and 2019 and remote interviews in 2020. Both provinces in Indonesia are host to the “pulp, palm, and peat” triad (Thorburn and Kull, 2015). I draw on interviews with peatland stakeholders, including plantation companies’ representatives, environmental and civil society activists, government officials, university researchers, and community members. While accessing corporate information is often challenging (Rosemary, 2018; Smith, 2012), I secured interviews with corporate actors and supplemented this data with a content analysis of publicly available company reports. I also collected secondary materials, including advocacy and government legal documents. Interviewees are anonymized to protect their identities.

The remainder of the paper is divided into four sections. A brief conceptual framework underpinning the paper’s analysis is discussed in the next section, followed by an overview of the political and economic background of peatland governance and exploitation in Indonesia. The findings are discussed in a core section detailing the governmental strategies designed to discipline large-scale forest industries followed by an analysis of the practice of politics from affected industries, local governments, and sectoral ministries. The last part of the paper outlines elements limiting the implementation of peatland disciplinary power and draws conclusions.

2. Resisting disciplinary governmentality

The analysis proposed here is based on theoretical and methodological considerations taken from poststructuralist perspectives on power, particularly the concept of disciplinary governmentality (Foucault, 2012). Michel Foucault’s notion of power helps focus attention on different rationalities in multi-layered and polycentric networks that characterise environmental commons’ governance (Bulkeley et al., 2005; Miller et al., 2019). Governmentality refers to diverse tactics and mechanisms that “constitute, define, organize, and instrumentalize the strategies that individuals in their freedom can use in dealing with each other” (Foucault, 1997, p. 300). Governmentality can also be seen as ways in which the government cultivates the right sort of conduct – aligning incentives and subjectivities so people willingly do as they ought (Dean, 2009; Fletcher, 2010).

In his analysis of disciplinary power, Foucault (1991) argued that it co-exists other expressions of power within governance; these are sovereign and biopower. These three types of power form “the art of government” or governmentality (Foucault, 1991). By analysing the work of institutions, such as the military, the school, and the clinic, Foucault (1979) argued that disciplinary power operates through the internalization of particular norms and values. Foucault also discussed disciplinary governmentality by elaborating on the surveillance tactics in the prison system employed to supervise, control and encourage inmates to obey defined rules, or what Bentham defines as the “apparent omnipresence of the inspector” (Galič et al., 2017, p. 18). In prison, surveillance is employed to discipline inmates through constant supervision

² In the aftermath of 2015 forest fires, the MOEF brought 17 plantations into court for allegedly using fires for land clearing purpose. This was the highest number of agribusiness companies that have ever been brought to court by the GoI for forest and peatland fires. Through arduous and lengthy legal battles, MOEF has won nine cases and expected to receive more than three trillion rupiahs of financial penalties from the indicted plantation companies.

(Foucault, 2012). The state often subjects particular populations to surveillance because they are categorised either as high risk or incompetent of governing themselves (Dean, 2009). Surveillance is an effective disciplining tactic because it encourages populations to regulate their conduct as if constantly watched (Brivot and Gendron, 2011).

Disciplinary governmentality is a useful conceptual framework in analysing the intersection between the governance of large scale peatland users and the prevention of transboundary haze in peninsular Southeast Asia. Peatland governance functions through market-based mechanisms and disciplinary tactics expressed through the sovereign power of the state's governmental apparatuses. In the context of peatland governance, an attempt to govern means that the government is trying to get peatland users to obey policies and standards in keeping peatland inflammable. Thus, it is argued that in an ideal governmental practice, subjects are encouraged to self-govern themselves according to common societal norms (Dean, 2009). In Indonesia, peatland disciplinary power is pursued through policies and regulations that, on paper, will be effective in obliging large scale peatland users to behave accordingly. However, research findings show this is not the case in Indonesia's peatland disciplinary power as concessionaires are unwilling to govern themselves according to set standards. As Garland (2016) has cautioned, governmental technologies are only ever partially realized. Instead, in studying governmental practices, one needs to examine how technologies of power interact with the material aspects of the subjects on which they operate (Baumann, 2017; Garland, 2016). Taking Garland's caution into account, this research focuses on the messy realities when large-scale concessionaires resisted disciplinary power being implemented upon them.

Foucault (1991) observed that, in governmental practices, the governed subjects still have agency. Foucault (2009) discussed this agency as counter conduct, that is, refusal to participate in attempts to create obedience or self-govern subjects. Foucault advised that resistance is part of power's component and that it sometimes compels power to be conducted differently. Foucauldian interlocutors have cautioned that instead of simply assuming that governmentality is a straightforward process, one needs to conduct an ethnographic exploration of subject-making and ways of governing that draws on Foucault's insights and methods, including practices of resistance and contestation (Li, 2007a; Nepomuceno et al., 2019). This ethnography of government will also examine how governmental technologies are compromised to accommodate contestation. As Li (2007a, p. 17) succinctly states, "to govern means to act on the actions of subjects who retain the capacity to act otherwise". The contestation can take the forms of everyday resistance, including sarcasm, passivity or avoidance (Scott, 2008), outright refusal, and other ways of being outside of the established norms being normalized by powerful interests (Nepomuceno et al., 2019; Raycraft, 2020). Li (2007a) defines these oppositional tactics as "practice of politics".

In her examination of the practice of politics, Li (2007a) identifies three elements that limit and challenge the implementation of governmental practices—politics, population, and knowledge. According to Li, politics refers to "the ever-present possibility that a governmental intervention will be challenged by critics rejecting its diagnoses and prescriptions" (Li, 2007a, p. 17). These critics may result in a compromise between the governor and the governed, whereby new diagnoses and prescriptions are being negotiated and agreed upon. Meanwhile, populations "are not passive objects ... they are ... actants, dynamic forces that constantly surprise those who would harness and control them ... [thus] men, in their relations with things, cannot be reconfigured according to plans" (Li, 2007a, p. 17). In this research, populations refer to the industries in their relations with peatland. Agribusiness companies are powerful actors with abundant resources and network (including state agencies and local governments) that present intrinsic limit to how far they can be disciplined (Obidzinski and Dermawan, 2012; Prabowo et al., 2017). The last key factor is the limitation posed by the availability of knowledge from which calculated strategies of

governance are designed. As Li (2007a) reminds us, failings in rendering intelligible society's complex social and political realities place a further limit on governmental strategies (Li, 2007a).

Drawing on the above theoretical notions on resisting disciplinary governmentality, this paper examines the emergence of new but fragmented calculated strategies to govern peatland and peatland users in Indonesia. I analyse how the Government of Indonesia produces and applies peatland disciplinary technologies and the responses and strategies of large-scale peatland users in engaging with and contesting them. The governing of agriculture industries through surveillance and auditing technologies within a governmental system—that arguably still operates through structural violence—aims to remake concessionaires into obedience subjects and responsabilised business entities. However, research findings indicate there were no obedience and self-govern subjects, instead, diverse strategies of resisting and contesting have been adopted by companies and their networks.

3. Context: structural and environmental violence in Indonesia's peatland

This section provides contextual information of peatland governance and exploitation in Indonesia and draws attention to peat-related forms of slow and fast environmental violence. Violence in this understanding consists of the environmentally embedded violence and structural violence (committed by the state in collusion with large-scale industries) that is often difficult to oppose (Blake and Barney, 2018; Büscher and Fletcher, 2017; Li, 2018). I follow Farmer's definition of structural violence as "the ways in which epic poverty and inequality, with their deep histories, become embodied and experienced as violence" (Farmer, 2010, p. 293).

In his research on fossil fuel industries and climate change, Bonds (2016) points out the potential structural violence that the industries committed. Bonds argues that fossil fuel industries continue to benefit tremendously from environmentally degrading activities that emit million tonnes of carbon emissions. The industries activities are often seen as part of the normal operation of economic development; thus, the climate change violence they committed went unnoticed. To Soron (2007), the apparent irresponsibility committed by big extractive industries is facilitated by the global economic capitalism system, in which profit accumulation for a few private sectors has been prioritized over socio-environmental justice for all (Bonds, 2016; Klein, 2014). As this research discusses in the section below, similar to fossil fuel industries, powerful actors such as large peatland concessionaires had also disproportionately profited from agribusinesses operation that will potentially harm peatlands and risking the lives of other less powerful peatland users.

Tropical peatlands store more than 20% of the global peatland carbon stock, of which more than 76% is situated in Southeast Asia (Page et al., 2011). Despite their critical ecosystem functions as a water reservoir and carbon sink (Page et al., 2011; Page and Hooijer, 2016), Southeast Asia's tropical peatlands, especially those located in Indonesia and Malaysia, are subject to rapid conversion to agricultural and settlements areas (Miettinen et al., 2013; Miettinen and Liew, 2010; Sanders et al., 2019). Peatland conversion to palm oil and timber pulp plantations is one of the primary drivers of the peat swamp forest cover loss (Dohong et al., 2017). In this sense, peatland conversion operates as the biggest environmental threat, leading to slow environmental violence that exponentially degrades peatland's capacity to sustain life. Following Nixon's notion of slow violence, one can argue that peatland slow violence is produced by "the gap between destructive policies or practices and their deferred, invisible consequences" (Nixon, 2011, p. 40). Residents of peninsular Southeast Asian countries, especially those living in Indonesia, Malaysia, and Singapore, have suffered from annual haze events. Thick toxic haze from peat fires is a major health hazard. Researchers have linked haze to premature mortalities among 100,300 children in the region (Crippa et al., 2016; Koplitz et al., 2016). Another

research connects haze exposure during the prenatal period with decreased in adult height attainment (Tan-Soo and Pattanayak, 2019). These people are the victims of environmental violence rooted in the exploitation of the peat ecosystem.

Indonesia's peatlands situate mostly on low altitude coastal and sub-coastal areas in East Sumatra, Kalimantan, and West Papua. Peatland is a layer of decomposed plant material with acidic and low-nutrient characteristics that remains waterlogged in its natural state (Page et al., 2009). Local communities depend on peatland for water supply, timber and non-timber resources such as fish and sago (Chokkalingam et al., 2005; Thornton et al., 2020; Uda et al., 2020). Communities construct narrow canals for agricultural drainage and access to transport (Jae-nicke et al., 2010; Ward et al., 2020). The use of fire in small scale non-intensive agricultural practices is common among indigenous communities (Paino, 2018). This local practice is protected in the Forestry Law (No.41/1999). However, it doesn't stop local and indigenous farmers from being subjected to criminalisation and disciplinary punishment concerning traditional fire use (Baharamin, 2019).

Due to their waterlogged and infertile condition, Indonesia's peatlands used to be categorised as unproductive (Evers et al., 2017). The productivity discourse, where land is valued based on its usefulness for economic activities, has alienated peatland and positioned it as an experimental laboratory where it has been subjected to various development schemes to increase its economic values. Lucrative concessions were issued, and transmigration settlements have been developed on peat swamp forests since the early 1960s (Notohadiprawiro, 1997). More than 1.7 Mha of peatland in Indonesia have been converted to large-scale oil palm plantation, with more than 2.45 Mha being transformed into industrial timber pulp concessions (BRG, 2019). To facilitate the development of agricultural plantations, networks of canals or ditches are constructed to drain peatlands' groundwater table. These drainage canal networks are very dense and extensive, such that a digitisation of aerial maps of peatlands in seven provinces in Indonesia (Riau, South Sumatra, Jambi, South Kalimantan, Central Kalimantan, West Kalimantan, and Papua) has found more than 239,000 km of artificial canals that have been constructed in association with agricultural development (Tim digitasi analisis kanal gambut UGM, 2017). While local and indigenous communities constructed a minority of these canals for transportation and small scale agriculture (Ward et al., 2020), most canals were developed by large scale concessionaires. In view of Bonds' (2016) and Soron's (2007) arguments, these later canals are the manifestation of structural violence, as they have degraded peatland landscapes under the disguise of economic development. This has created cataclysmic forms of environmental degradation, with socio-ecological consequences lasting for generations, creating disposable lands, i.e., lands that can no longer sustain life and be sustainable (Li, 2018).

Peatland governance intertwines with how forest and land use in Indonesia are being regulated. Indonesia's land is divided into (70%) state forest land and (30%) non-forest lands (Peluso and Vandergeest, 2001). This simplified categorisation of land dates back to the colonial regime. The GoI formalized it through Government Regulation (GR) No. 33/1970 that was passed with minimum public consultation and at the expense of Indigenous communities' rights (Astuti and McGregor, 2017). State forest falls into the MOEF's jurisdiction while non-forest land is under the National Land Agency's (NLA) authority. In Indonesia, oil palm is classified as a non-forestry crop; thus, it can only be planted in non-forest lands or in converted state forest (only Conversion Production Forest is eligible for conversion to non-forest area). The authority in issuing palm oil concession is, therefore, the NLA's task. Meanwhile, pulpwood is defined in Indonesia as a forestry crop and can be developed inside state forest (in the forest with production function). MOEF is the government institution responsible for overseeing forest governance, including the issuance of pulpwood permits. This binary in forest land use governance has created added complexity on peatland governance, as peatland can be situated either in state forest or in non-forest land.

Peat governance is currently framed by GR No 71/2016 (which then being revised into GR No 57/2016) on the Protection and Management of the Peatland Ecosystem. Before the government regulation issuance, peatland use was regulated under related sectoral ministries (Ministry of Agriculture (MOA) and MOEF) and was based on peat depth. MOA regulates the use of peatland for oil palm cultivation (through Minister Decree No 14/2009) by banning the development of plantation on peat with more than 3 m depth. MOEF was responsible for implementing GR No. 4/2001, which bans everybody from setting forest and land fires to control environmental damage and atmospheric pollution (Uda et al., 2018). As part of the cooperation between the GoI and the Government of Norway on the Reducing Emissions from Deforestation and Forest Degradation readiness programme, the GoI issued a moratorium policy in 2011 that stops the issuance of new concessions on peatland and primary forest. The moratorium was extended every 2 years in 2013, 2015, 2017 and becoming a permanent policy in 2019.

The GoI has been attempting to address forest fires and haze for almost two decades with arguably minimal progress. However, the 2015 forest and peatland fires have provided strong political momentum. Domestic and international communities are applying mounting pressure on the Indonesian government to take pro-active measures to prevent recurrent fires and annual transboundary haze (Setkab, 2016). A new assemblage of peatland protection policies and institutions emerged in what Minister Siti Nurbaya termed a "corrective era" (Shahab, 2018). The term implies a temporal phase whereby the government aims to fix past mistakes and create a stronger peatland governance system, including attempts to foster greater responsibility among the concessionaires to protect peatland and prevent fires. The following discussion identifies two key disciplinary technologies adopted by the MOEF and the Peatland Restoration Agency (PRA) to reshape peatland governance in Indonesia. Each attempt was to make the management of peatland fires possible and discipline large concessionaires specifically. The peatland governmental technologies have been identified through qualitative research methodologies and involve peatland spatial and hydrogovernance. In each case, the focus is on how the government attempted to render large-scale peatland users governable according to set standards and how the industries and their networks have resisted.

4. Attempting peatland disciplinary technologies

With peatland becoming the centre of the government's attention, in December 2015, President Joko Widodo established a new ad-hoc government body, *Badan Restorasi Gambut* (the Peatland Restoration Agency, PRA), to focus solely on the restoration of burnt and degraded peatland (Setkab, 2016). Hopes were high that by restoring and protecting peatland, recurrent episodes of fast environmental violence in the form of fires and transboundary haze could be mitigated. PRA was enshrined with a mandate to coordinate the restoration of a minimum 2 Mha of peatlands within a period of five years. In December 2020, President Joko Widodo extended PRA's work for another four years and expanded its coverage to include mangrove restoration³. Efforts were undertaken in more than 400 Peatland Hydrological Units⁴ in seven provinces (Riau, South Sumatra, Jambi, South Kalimantan, West Kalimantan, Central Kalimantan and Papua) that had populations that consequently became subjected to peatland governmental tactics (BRG, 2019). Tasked with an unsurmountable mandate and a limited authority and timeframe, the PRA published its first disciplinary tool, a circular letter, addressed to concession holders to order them to implement

³ With the addition of mangrove into PRA's work in December 2020, the agency is called *Badan Restorasi Gambut dan Mangrove* (Peatland and Mangrove Restoration Agency, PMRA). For consistency, this paper uses PRA to refer both to PRA and PMRA.

⁴ The MOEF defines Peatland Hydrological Unit as a unit of peatland ecosystem landscape situated between two water bodies.

peatland restoration. A spatial analysis undertaken by the PRA showed that out of 2.6 Mha of their immediate restoration target, a large proportion of 1.6 Mha was located within pulpwood and palm oil concessions (BRG, 2019).

The PRA was led by the former Conservation Director of Indonesia's World Wide Fund for Nature. Three out of four of the Agency's deputies had either a civil society or an academic background. A new type of political and environmental subjectivity can be seen in these appointments. The move of these persons into positions of power and influence has ignited hope in civil society movements that the PRA could be transformed into a more efficient and effective institution (Interview 1,2,3), with the ability to fix or at least meaningfully intervene in the messiness of Indonesia's peatland governance problem. However, previous experience with ad hoc bodies, created to address bureaucratic hurdles and accelerate the government's goals, had seen rivalries and awkward tensions between the existing and the newly established institutions (see, for example, Luttrell et al. 2012 and Astuti and McGregor, 2015). In fact, this is what has also transpired in the case of the PRA's interactions with MOEF, with the latter's high-ranking officers displaying a reluctance to fully collaborate with the new agency and, instead, undermining the former's authority in governing peatland. For example, this became apparent when MOEF circulated a letter to revoke the PRA's circular letter, which had initially been distributed to the forest plantation industries to request their participation in the peatland restoration program (Interview 4). A PRA senior official also acknowledged that MOEF's senior officials were hesitant in sharing access and information on the progress of peatland restoration monitoring inside forest industries concessions (Interview 5).

The PRA's legal position as an ad-hoc government body, which was established based on a Presidential Decree, is considered lower, hierarchically speaking, than the MOEF, which was established based on the Basic Forestry Law (Pramesti, 2020). The PRA does not hold the legal authority to issue or revoke forest concessions, the critical tool in disciplining forest industries' conduct. Many activists are concerned about the strained relations between the two government bodies as this could slow down the peatland restoration progress and governance reform (Interview 1,2,3). Indeed, this turf war between government institutions reflects bureaucratic violence emerging in the environmental governance system whereby technical policies and hierarchical bureaucracy are used to hide sectoral contestation (Milne and Mahanty, 2019). The MOEF officials' reluctant approach to PRA reveals the practice of politics that a state agency is conducting in opposing the other agency's authority in disciplining plantation companies. During the discussion on PRA's extension, an interview reveals a proposition from the MOEF to reduce PRA's scope of work and power (Interview 6). In the end, MOEF's practice of politics has shaped Indonesia's peatland governance with the abolition of PRA's role in overseeing peatland restoration in the concession areas as stated in the new Presidential Decree (No 120/2020).

Peatland governmental policies are designed and implemented in the context of these complexities of government bureaucracy and associated violent frictions. As such, I detail below two policy areas and the monitoring tactics that the MOEF has developed and applied in a fragmented manner (with a minimum participation of the PRA) to discipline large-scale peatland users and how the industry actors have responded and contested the policies.

4.1. Implementing peatland spatial governance

Indonesia's peatland governance is regulated through a Government Regulation⁵ (GR) on Peat Protection and Management No. 71 that was

⁵ In Indonesia's legal system, a Government Regulation is hierarchically positioned under a Law. The highest legislation is the 1945 Constitution followed in the second place by Laws.

passed as a regulation in 2014. The regulation enforcement was weak and sporadic, with various sectoral policies contradicting the regulation (Astuti, 2020; Uda et al., 2018). After the 2015 forest fires and transboundary haze, the government passed the revised version of the regulation to strengthen the MOEF's authority in imposing greater sanctions against peatland violators. The revised version of the GR on Peat No. 57/2016 was followed shortly thereafter by five MOEF's Ministerial Regulations detailing technical implementation and two Ministerial Decrees on peatland maps (MOEF, 2017b). The first map—the Peat Hydrological Unit Map—outlines the location of the total 24 Mha of Indonesia's peatlands (MOEF, 2017a) (Fig. 1). The second map—the Peat Ecosystem Function Map—divides Indonesia's peatlands into 12 Mha of those with a cultivation function and the remaining 12 Mha as conservation areas (MOEF, 2017c).

The re-ordering of peatland into two ecosystem functions has changed the initially contested definition of peatlands and where they are located in Indonesia. Predating the issuance of the two maps above, the Ministry of Agriculture (MOA) is the responsible government agency to publish peatland map in Indonesia. However, the main rationality of the establishment of MOA's peat map is to show the potential contribution of peatland to ensure sufficient supplies of land for agricultural use due to limited mineral land availability (Interview 7). From a governmentality perspective, the MOEF's Hydrological Unit and Peat Ecosystem Function maps provide new ways of seeing and valuing peatland, that considers deep peatland susceptibility to fire and peat's hydro characteristics (Astuti, 2020). Classification of peatland and the production of maps became the MOEF's main tools for attempting to govern the plantation industries' relationship with peatland.

The issuance of the Peat Ecosystem Function Map provided the MOEF with legitimacy to assert spatial ordering, whereby in 2017, the government imposed a moratorium on the issuance of new plantation permits in the peatlands with a conservation function (MOEF, 2017d). The government also required the existing concessionaires whose production areas overlap with peatland with a conservation function to submit a plan detailing their strategy to vacate the area and restore the peatland to its former condition (MOEF, 2017d). The Ministerial Regulation on the Development of Forest Industries No. 17/2017 detailed the timber pulp company's obligation to protect peatland within its concessions. About 1 Mha of large-scale pulpwood plantations and 1 Mha of palm oil plantations were affected by the new peatland disciplinary tactics (BRG, 2019). Large-scale timber pulp growers were allowed to harvest their crops but forbidden to replant on the conservation area. Meanwhile, palm oil concessions were allowed to continue production until their permits expire. However, unopened peat areas within the concession, regardless of depth, had to be kept intact. The regulation also prohibited the construction of new drainage canals on peatland areas to prevent further environmental degradation.

In the Foucauldian sense, the Peatland Ecosystem Function Map has been employed by the MOEF to simplify the complexity of peatland ecological systems into binary functions of production and conservation, and thereby renders it governable (Dean, 2009). The map is also used to legitimize the implementation of disciplinary measures in attempting to govern large plantations. The map informs concessionaires where and what types of activities are allowed and disallowed. The map functions as an important visualization technology to steer peatland policy development and decision making to prevent environmental and structural violence. From a governmentality perspective, the map seeks to establish a series of "truth" claims about where the peatland is and which peatland areas can be used for agricultural purposes. The map renders peatland visible to stakeholders, requiring them to consider it in their land-use decisions. As a consequence, the map is a key component in disciplining concessionaire - peatland interactions. This particular governmental tactic of peatland disciplinary has created tension between the MOEF and large scale concessionaires.

The industries resisted this because many of their production areas overlap with peatland, which has a conservation function. A pulpwood

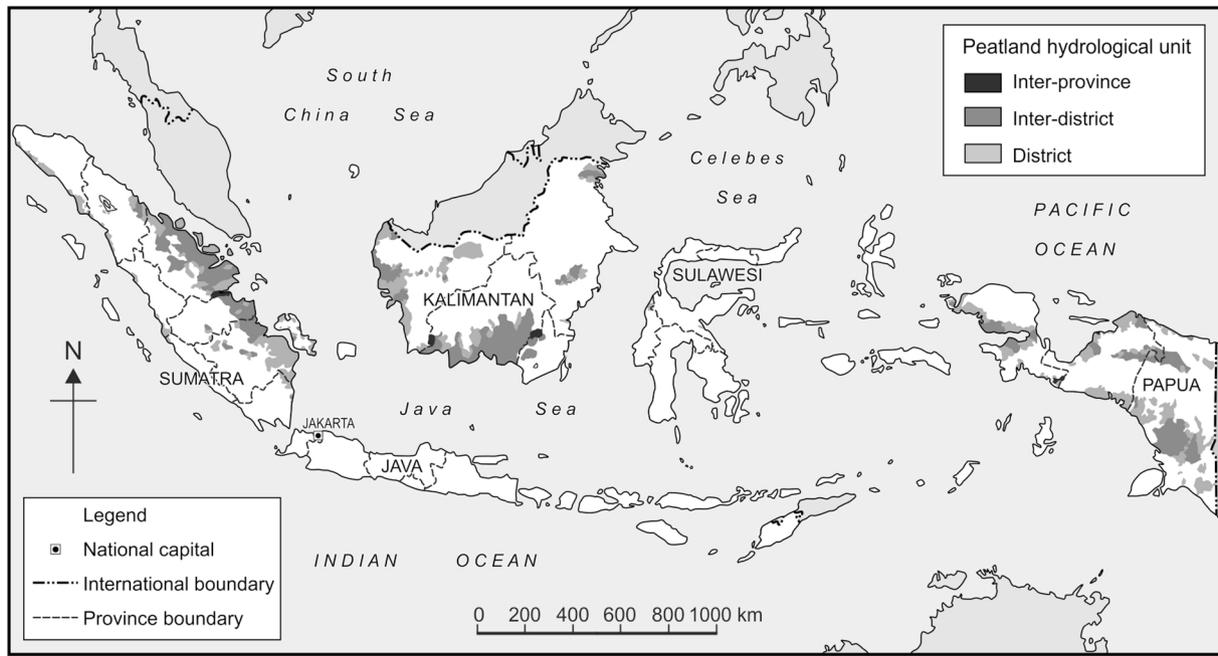


Fig. 1. Peatland Hydrological Unit Map (from Astuti, 2020).

company manager, in an interview, outlined the effect of peatland policies on not only the business owners but also thousands of companies' workers:

More than 30% of our production areas have to be closed due to the new peatland policies. This is an example of how volatile doing business in Indonesia is. We have invested so much in financial and infrastructure investments, and now we are afraid that our wood supply will be affected. This situation, I am afraid, will lead to livelihood disruptions for thousands of our plantation and manufacturing workers (Interview 8).

Another representative from an oil palm company expressed his frustration in the interview:

The government's peatland policies are so convoluted. New policy and initiative implemented every month that they say will prevent fires and haze, and protect biodiversity. What the government has to do is actually simple; if they want to develop palm oil as Indonesia's national pride, other things become second priority. They have given us the permit to open the plantation, and now they want to revoke it. This is absolutely a terrible way of nurturing business investment in Indonesia (Interview 9)

These responses were common among large-scale concessionaires in Indonesia whose production is threatened by the new peatland policies. Companies often employ nationalist economic development discourse and highlight their financial contributions while hiding impacts associated with structural and environmental violence emerging from industry's exploitative operations (Bonds, 2016; Soron, 2007). This shows that peatland governmentality is a fraught political process as attempts to govern large plantations have always been met with contestation and resistance. In time, concessionaires have also engaged, resisted, and pursued strategies to defend their economic and political interests. I will further elaborate on the industries' diverse strategies and responses concerning peatland spatial governance below.

4.2. Resisting peatland spatial governance

In 2017, two Senior MOEF officials removed acacia trees planted on peatland that was burnt in 2015 in the concession area owned by a subsidiary of the biggest pulp and paper company in Indonesia (Nurbaya, 2017). This material act of force was performed as part of

disciplinary tactics that the MOEF applied upon industries (Interview, 10). Another acacia removal was carried out by MOEF officials in Riau Province, in a concession run by the second biggest pulp and paper company in Indonesia. The act was followed by concessionaires' practice of politics in the forms of calculated strategies opposing the disciplinary tactics that the MOEF was trying to impose. The plantation industries allied with local provincial governments and the Ministry of Industry to lobby and pressure the national government for the changes in peatland protection policies. This section discusses how large-scale concessionaires engage in practice of politics by negotiating causes that reflect their own political and economic interests.

After just a week of the acacia removals, the Riau branch office of the Indonesian Association for Forest Concession Holders (Asosiasi Pengusaha Hutan Indonesia, APHI) sent a letter of objection to President Joko Widodo, while copying the letter to the Governor of Riau, Economic Coordinating Minister, MOEF and the Vice President (Interview 11, 12). The Head of APHI stated that peatland policies' implementation had disturbed the business investment (Interview 13). Minister of Industry lobbied for the corporation to be allowed to continue their operation in the peatland with conservation function, with a stipulation that the companies will apply water management requirements to avoid fires (Interview 14, 15, 16). Fierce opposition also came from local governments, such as from West Kalimantan province, acknowledging the local government's opposition to and reluctance regarding the peatland policies (Interview 17). The case highlighted above reveals the complexity of peatland governance in Indonesia characterized by diverse interests and actors and the limit on peatland disciplinary governmentality. The large-scale peatland users are the dynamic subject that Li (2007a) explains as having the political capacity and knowledge to counter the governmental tactics subjected to them by engaging in the practice of politics.

Direct opposition to the peatland protection policies sheds light on the industries' reluctance to transform their practices and place them under further disciplinary scrutiny. Thus, instead of directly lodging their appeal with the Supreme Court, the industries exploit their worker unions to lead the judicial review request to challenge peatland spatial governance (Interview 18). In 2017, the Supreme Court accepted the Confederation of Worker Union's request in Riau to cancel Ministerial Regulation No. 17/2017 on Peatland and Forest Plantation Industries

(Sani, 2017). The regulation governed the compulsory closing of plantation areas that are located on peat-domes. The worker union highlighted the potential ramifications of implementing the regulation by stating that approximately 250,000 workers would potentially lose their jobs if peat-domes had to be conserved (Sani, 2017). The policy review problematizes the Peatland Ecosystem Function, as the new classification is deemed to have no legal reference in the Basic Forestry Law No. 41/1999. Consequently, the Ministerial Regulation and the Peatland Ecosystem Function Map are seen as illegal. The worker union oppositions to peatland disciplinary policies reflect that of the subject's agency in challenging and critiquing peatland governmental intervention and engaging in the practice of politics (Nepomuceno et al., 2019).

The worker union further argues that the peatland spatial governance will reduce plantation areas, disturbing the timber supply for forest industries and increasing the potential to lose foreign income from downstream industry (Interview 19). The new policy would affect the investment in pulp and paper and potentially lead to workers being laid off. This subtle and more "empathetic" political strategy, using the worker union as an organizational vessel instead of plantation owners, has succeeded in convincing the Supreme Court to order the abolition of the Ministerial Regulation No 17/2017 on Peatland and Forest Plantation Industries. The strategies above underline the current politics governing natural resources in Indonesia. Development issues and "neutral" economic rationalities can be exploited to prevent disciplinary apparatuses from closely scrutinizing and disciplining peatland concessionaires. Companies' strategy in using the worker union shows that disciplinary governmentality works at multiple scales. Using neutral econometrics of job stability and economic growth, companies govern and discipline workers to serve their agenda. Thus, I argue that instead of being disciplined by the Indonesian state, corporations actively influence peatland policies and seek to render environmental degradation issues manageable.

Another strategy of the practice of politics, and the most common approach that the business entities take, is to defer or stall compliance with obligations to restore peatland while hoping that the 2019 general election will bring a new policy landscape that favours the forest and plantation industries (Interview 20). In an interview with a director of a forest and plantation holding company, he asserted his views on the current policy:

These new regulations have positioned us in a challenging situation. We will submit every document or revision of a document that the Minister (of MOEF) has ordered us to. Meanwhile, before we have to really change anything on the ground, we hope the political landscape will change. None of us is happy with this situation, and we will do everything not to let this continue in a way that harms us. The government supposedly think of a win-win solution, not just suddenly coming with radical policies that none of us could implement (Interview 21).

This strategy of deferring from being obedient subject shows how mono-agricultural companies are unruly entities actively trying to resist governmental diagnosis and prescriptions applied upon them (Li, 2007a).

Critical scholars have cautioned on the politicians' typical stance toward environmental issues, whereby they tend to have a weaker position when its time for them to accumulate industries' support to get resources that will benefit them in the political election (Morse, 2019; Resosudarmo, 2005). Thus, electoral season might also mean swift changes in government policies, including on peatland protection and management. This rings true in Indonesia, as a new peatland regulation was issued in April 2019, just days before the presidential election (Astuti, 2020). The MOEF's Ministerial Regulation No. 10/2019 allows concessionaires to continue their production despite being situated in peatland with conservation function until the permit expires. The only requirement is for concessionaires to protect peat dome-peak, a small area situated at the highest point of the peat-dome. This requirement has

significantly reduced areas of peatland with conservation function that can potentially be protected (Hamzah et al., 2019). Interviews with environmental activists show that they believe the new regulation was issued as part of a political deal between the government and the business sector (Interview 22, 23). This indicates the fragmented implementation of peatland disciplinary governmentality. Despite a strong momentum for governance reform post-2015 forest fires, attempts to discipline large plantations are easily captured by practice of politics.

4.3. Enacting Peatland hydrogovernance

This section discusses the second peatland disciplinary technology - the peat hydrogovernance - that the MOEF implements in the attempt to govern large plantations' relationship with peatland. Around 500 companies are affected by the peatland regulations and are required to submit revisions of business plans (PPKL, 2020). The plan is expected to outline the companies' proposal regarding restoring the production area to its former condition. Permit holders are obliged to block drainage canals to raise the groundwater table and to revegetate peatland with endemic species. One of the most contested articles in GR No. 57/2016 is the requirement for concessionaires to maintain the groundwater table at 0.4 m below the surface in the production area: something the MOEF calls peatland hydrogovernance (Interview 24). Peatland hydrogovernance is performed by measuring the peatland water table at specified compliance points (MOEF, 2017b). The points' locations have to represent a minimum of 15% of the concessionaires' production areas (MOEF, 2017d). According to MOEF's database, as of December 2019, 280 plantation companies had agreed on a total of 10,690 water compliance points (PPKL, 2020). MOEF states that the stipulation regarding the compliance points' location will fall under the authority of the MOEF. Civil society has raised concerns over the possibility of corrupt forestry officials taking advantage of this opportunity by negotiating compliance points that are more convenient for the companies (Interview 25, 26). Thus, concerns have been raised on the potential agreements behind closed doors that suggest a potential for corruption and rent-seeking activities.

The government adopted scientists' proposal to use 0.4 m water table as a critical threshold that indicates peat inflammability (Interview 27). Several studies were cited by the MOEF and PRA officials, including those published by Putra and Hiroshi (2011) and Wosten et al., (2008). Both papers were based on case studies situated in the ex Mega Rice Project (MRP) area in Central Kalimantan, an ambitious project during the New Order era that aimed to open 1 Mha of peatland forests for rice cultivation. The articles trace the relation between fire occurrences, ground water level change and precipitation variability. The papers found that the peak of the fire season coincided with a low groundwater level of less than 40 cm. Thus, the writers suggest using 0.4 m as one of the indicators for the likelihood of fire occurrences. An adviser of a pulpwood company acknowledged the research in an interview. However, he further criticised the government for developing a major policy based on studies specifically conducted in the ex MRP area. He stated in his argumentation:

I don't think these studies can provide enough scientific evidence to the government's peatland policy. Most of these studies were conducted in the ex MRP sites, where most peatlands are too degraded. Ex MRP are usually peatland located within the Sebangau National Park but are actually open area with no one managing and overseeing peatland utility. This area cannot be employed to provide generalisation over other areas in Indonesia (Interview 28)

As the quote indicates above, forest industries are active players in producing narratives that benefit their interest while simultaneously stalling efforts to halt the long term impacts of peat degradation. Concessionaires' strategies in negotiating peatland policies have contributed to the "manufacturing and sustaining of a culture of doubt around the

science of environmental violence” on peatland and potentially defer critical and progressive peatland protection policies and programme (Nixon, 2011, p. 39). Goldstein (2016) calls the networks behind the production of this alternate peat science as divergent expertise that is aimed at supporting continues peat exploitation.

The peatland hydrogovernance further obliged forest industries to submit both hard and soft copies of reports on water table level measurements every three months (MOEF, 2017d). Permit holders have two options when conducting measurements: either by an automatic mechanism (data loggers) or by a manual method (pipes lowered into the peatland). Environmental activists and scientists have highlighted the manual measurement method’s ineffectiveness as it is vulnerable to data manipulation (Interview 29, 30). Hydro-governance as a technology encourages *responsibilisation* – in the Foucauldian sense - because it expects the concessionaires to be capable of managing peatland according to the standards aimed to prevent fire and transboundary haze. However, research findings reveal that there was no self-governance as concessionaires resist being disciplined.

With millions of hectares of plantations and forest industries to be governed, the problem of effective law enforcement arises. Technical artefacts—referring to digital data, satellite-based sensor technologies and monitoring software—have emerged as solutions to enable disciplinary governance from afar (Gale et al., 2017). The MOEF and PRA are advocating for the adoption of these technical artefacts to facilitate remote governance and observe corporate compliance. Peatland hydrological conditions are being monitored using water logger machines supported by satellite or mobile communication technology to relay real-time data. The idea is that aggregated metrics of peatland water tables are monitored and analysed in a “situation room” whereby government officials conduct panoptic surveillance and control (Galić et al., 2017). The MOEF requires the water loggers’ uses either with a telemetric or manual system as part of a reporting tool for the concessionaires. As of December 2019, the MOEF claimed that 792 water loggers had been installed in 280 pulpwood and palm oil companies (PPKL, 2020). However, as I discuss in the next section, these surveillance technologies are easily resisted and manipulated by peatland concessionaires.

According to Li (2007b), governmentality research involves an analysis of what happens when attempts to achieve the “right disposition of things” encounter –and produce- a “witches brew” of processes and practices that exceed their scope (p. 279). In the context of peatland hydrogovernance, the requirement for industries to maintain groundwater level has produced unintended consequences and effects. Companies use diverse drainage technologies to block canals and control water flow in and out of plantations to keep the required water table. A research found that due to companies’ proximity to surrounding villages, their attempts at keeping 0.4 m water table level through canal blocking has caused water shortages in the neighbouring villages during the dry season and flood during the rainy season (Astuti, 2020). This situation has displaced fire risk from plantation to nearby villages and is consequently intensifying the community’s vulnerabilities to volatile peatland landscape. This potentially creates “displacement without moving” - as one of the impacts of environmental violence and peatland technological fixes - that is a displacement without moving people out from their places of belonging but instead robbed them of the resources that made their places habitable (Nixon, 2011, p. 19).

4.4. Contesting peatland hydrogovernance

The specific stipulation to maintain 0.4 m peatland water table has stirred resistance from concessionaires. Plantation owners accuse MOEF of implementing a policy that will potentially kill their crops and eventually destroy the industries (Interview 31). Responding to the peatland hydrogovernance, one of the plantation managers commented on the specific number that the regulation stipulates:

It will be challenging to conform to that particular water table level, even in the peatland inside the protected national park. I can guarantee during the peak of the dry season, water table will be lower than 0.4 m, let alone in the production area. All of our acacia trees will die. The roots cannot stand being submerged in the peatland’s acidic water. I think the government just want to kill our business (Interview 32)

The early contestations toward peatland hydro-governance have caused MOEF to lighten its implementation with a promise reassuring the industries that they will measure the annual average of peatland water table instead of finding points where companies unable to maintain a 0.4 m water table (Interview 33, 34). This shows the fragmented nature of the peatland disciplinary prescription and highlights how industries employed their peatland knowledge and its epistemic network to resist the government’s peatland diagnosis (Li, 2007a).

Concessionaires grew unhappy with the MOEF’s disciplinary approach. However, overt and open opposition resisting peatland hydrogovernance are rare, instead practice of politics take the form of subtle subversions aimed at reducing the financial cost that the plantations have to disburse. In an interview with one of the biggest palm oil plantations’ manager in Indonesia, he acknowledged that as long as government officials could be bribed, most plantation owners will opt to do so instead of voluntarily installing expensive automatic water monitoring technologies (Interview 35). In another interview, a pulpwood plantation manager shared a relatively easy way of manipulating peatland hydrogovernance by installing a pipe with its bottom sealed and filled with water, lowered into the peatland to achieve the precise 0.4 m of water table requirement (Interview 36). Whether this calculative way of resisting peatland hydrogovernance has been realised or not will be difficult to prove, however it shows that large plantations are prickly and powerful subjects that constantly surprise those who would govern them. Successful implementation of peatland environmental governmentality requires the formation of obedient subjects or the adoption of self-governance oriented toward peat-friendly behaviour. However, differently positioned actors such as large forestry plantations, with interest in maximizing economic profit over peatland protection, have refused to be governed despite the disciplinary technologies applied.

5. Discussion and conclusion

The Indonesian government’s ambition is a big one: to protect 24 Mha of peatland, and restore a minimum of 2 Mha that are degraded back to their initial condition. The government intends to fix legacy issues stemming from the messiness of peatland governance in Indonesia. Policing peatland use in Indonesia is highly political and contested; more than 500 companies and 2900 villages are situated on peatland. In this paper, the author has used a Foucauldian approach to interpret peatland policies as a form of disciplinary technology that has been used to attempt to reform the conduct of peatland permit holders. This paper has argued that the government drew on surveillance technologies and the legal system to engage large-scale peatland users in two policy areas: peatland spatial and hydrogovernance. Through these approaches, the government expects to engender a new type of subjectivity: a more green-oriented large-scale peatland user. Actors seek to resist and contest the policies and do this by working with diverse networks and political interventions. Job security for plantation workers has become an essential element of governmentality that the companies have employed upon their worker unions to construct a more “empathetic” opposition to the government and discipline peatland environmental issues. Large plantations were still employing old strategies of subtle subversions, such as data manipulation and bribery, to resist peatland spatial and hydrogovernance requirement. Thus, the author hopes that this research provides a useful reflection on the practice of politics between policy makers and large agribusinesses in the context of peatland governance.

The companies' contestation and resistance illustrate the limit to peatland disciplinary governmentality in Indonesia. This understanding of contestation and resistance has shown that governmentality is an unfinished project and is perpetually being subjected to practice of politics by its targeted populations. Li (2005) succinctly reminds us that "resistance involves not simply rejection but the creation of something new, as people articulate their critiques, find allies, and reposition themselves in relation to the various powers they must confront" (p. 391). In the context of peatland disciplinary governmentality, the contestation has given a path to a political compromised in the form of weakened peatland protection policies. The compromise of peatland policies has political and material implications. Peatland exploitation has resulted in environmental violence, both in the form of fast and slow violence. This violence has catapulted hundreds of communities to live in perpetual environmental and atmospheric crises, in which sustaining life becomes increasingly difficult over time.

If we accept that large scale peatland exploitation in Indonesia is one of the biggest environmental problems in Southeast Asia, this would mean taking more seriously the structural violence that peatland burning brings to people and forests, one that cannot be solved by technological fixes, such as, installing water loggers and issuing peatland maps. And it would mean that in contrast to lobbying for a softer peatland regulation, we would have to push for a tighter regulation, particularly in light of global warming. While the use of technical artefacts, such as water loggers, can facilitate efficient state monitoring and surveillance technology, the need emerges to empower alternate and competing "truths" aimed at democratising peatland governance. The governance of 24 Mha Indonesia's peatland is a complex mechanism. It involves actors in multilevel governance with diverse interests. Ensuring civil society's access to and participation in the monitoring platform will raise the accountability of Indonesia's peatland governance. For activists and scholars campaigning to prevent environmental and industries' structural violences, this means also addressing questions about the current environmental governance order in Indonesia.

New rules, roles, and responsibilities are emerging in the aftermath of the 2015 fires, including PRA's establishment—a bold step taken by the President to address peatland transboundary haze. However, the bureaucratic friction between the PRA and the MOEF has slowed down peatland protection and restoration progress. A key challenge will be to ensure genuine collaboration between the two government institutions, more importantly, because PRA's work has been extended until 2024. There is growing attention being paid to the role of peatland governance in transboundary haze prevention. ASEAN, a regional organization, has issued peatland management guidance for its member states. This increasing attention has also triggered the multiple knowledge production schemes that have played a significant role in centering peatland within the debate of the regional environmental governance, such as the establishment of an International Tropical Peatland Centre in Indonesia. In September 2018, the members of RSPO unanimously voted to ban palm oil planted on peatland, regardless of depth, to secure sustainable certification. Most large scale peatland users in Indonesia are transnational and transregional actors, with their commodities and financial resources constantly moving across state borders. Thus, rather than to depend solely on domestic governmental technologies to secure their obedience, the Indonesian government can ensure industries' active involvement in protecting and restoring peatland by proactively encouraging the private sector to adopt, not only national, but also international sustainability standards.

Credit authorship contribution statement

Rini Astuti: Conceptualization, data curation, analysis, and writing.

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