

# Barriers to preventing deforestation and degradation of Indonesia's tropical rainforests and peatlands

Amanda Lenhardt  
Independent Researcher  
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## Question

*What does evidence tell us about the continuing barriers (political, social, and economic) to preventing deforestation and degradation of Indonesia's tropical rainforests and peatlands? Based on the available literature, how does the country's political decentralization impact the prevention, or acceleration, of its forest loss?*

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# 1. Summary

Indonesia has undertaken a range of measures to address the country's high rates of deforestation and land degradation, but significant barriers remain to meeting the targets set out by these measures and by international agreements. Recent progress in reducing deforestation rates after a period of significant increase indicates that some of these measures have been effective in curbing deforestation and land degradation. However, a number of governance challenges and persistent economic and social drivers of deforestation remain unaddressed in the current legal and policy framework.

This report summarises available evidence on the continuing barriers to effective implementation of laws and policies to address deforestation and degradation of Indonesia's tropical rainforests and peatlands. Given the significance of Indonesia's forests and peatlands in global efforts to combat tropical deforestation and to reduce carbon emissions, a significant number of academic studies and policy reports have explored these barriers in detail. This rapid literature review presents a brief summary of this evidence and of the guidance that has been produced to inform improved forest and peatland management in Indonesia.

Following a brief background to deforestation and land degradation in Indonesia, the remaining sections of the report are structured around four categories of barriers that are prominent in the academic and policy literature:

- Governance barriers resulting from Indonesia's decentralised governance system and from corruption
- Economic barriers driven by the demand for agricultural and forest-related products and by livelihoods demands
- Barriers resulting from land rights and land reform challenges
- Barriers to effective participation in policies and programmes to address deforestation and land degradation

There is broad agreement in the literature that these longstanding, interrelated factors will persist for some time, therefore focus should be placed on mitigation in the short term with a view to gradual elimination of these barriers in the longer term. Blanket restrictive measures have been found to be ineffective or to bring about negative secondary effects (see for example: Cadman et al., 2019; Toumbouru, 2017). Many observers also cite a lack of coordination and incomplete implementation of existing measures as a major driving factor for their ineffectiveness. Some authors therefore recommend improved coordination and more comprehensive interventions that address the interrelationship of these barriers (see for example: Ekawati et al., 2019; Resosudarmo et al., 2019).

An overarching issue that cuts across each of these barriers is the complex network of stakeholders involved in forest and peatland management in Indonesia. From international donors and regulators, to a myriad of national-level actors including the president, the People's Consultative Assembly (Indonesia's legislative branch) and multiple government ministries, provincial and district-level governing actors, multinational companies, large and small domestic enterprises, international consumers, and perhaps most critically, local residents and those reliant on forests and peatlands for their livelihoods. Any measure to address deforestation and land degradation must be aware of the often conflicting incentives and ambitions of this diverse group of stakeholders. Some studies have explicitly studied this network of stakeholders and the

relationships among them (see for example Enrici & Hubacek, 2019; Gallemore et al, 2015; Mulyani & Jepson, 2013). These studies may be a useful entry point when formulating measures to address deforestation and land degradation. It may also be helpful to monitor these relationships during the implementation of policy and legal instruments as the motivations and ambitions of different stakeholders are dynamic. Shifts in motivation and ambition could bring about new barriers or introduce new opportunities to address deforestation and land degradation in Indonesia.

## 2. Background

**Indonesia has the third largest extent of primary tropical forest in the world and the country's peatlands are the largest source of forest-based emissions globally** (Cadman et al., 2019). Indonesia is also considered the second largest emitter of greenhouse gases from forests, though this figure is contested by the Indonesian government (Tacconi & Muttaqin, 2019). Deforestation and the degradation of Indonesia's tropical rainforests and peatland is therefore not only a significant policy focus of the Government of Indonesia (GoI) but also of the international community. Actions that are taken at different levels of government within Indonesia are highly influenced by international actors and wider global climate change mitigation processes.

**"Compared to other tropical countries, Indonesia has made strong progress in reducing deforestation in recent years"** (Wijaya et al., 2019). According to GoI deforestation estimates, deforestation declined by 40,000 hectares between 2017 and 2018 (Wijaya et al., 2019). Global Forest Watch estimates a 40% decrease in deforestation in 2018 compared to the 2002-2016 average annual rate of loss (Wijaya et al., 2019). This, however, follows a long period of increasing rates of deforestation and land degradation. Estimates vary on Indonesia's deforestation rate, but conservative estimates indicate more than one million hectares of rainforest are lost each year, approximately 70% occurring in forests and 30% in peatland forests (Gunawan, 2004).

**Deforestation and land degradation vary significantly by region and many barriers to prevention are driven by contextual factors.** Despite Indonesia's overall decrease in deforestation in 2018, rates in East Kalimantan, Maluku and West Papua increased by more than 35% compared to 2017 (Wijaya, 2019). Figure 1 shows total primary forest loss and deforestation increases in 2018 for the seven provinces with the highest deforestation rates in Indonesia.

**The People's Consultative Assembly and the President of Indonesia have passed an increasing amount of forest-related policy over the last 20 years** (Erbaugh & Nurrochmat, 2019). A landmark shift in ambition came about in 2009 when then-President Susilo Bambang Yudhoyono announced an ambitious voluntary pledge to cut emissions by between 26% and 41% by 2030. Many of Indonesia's deforestation and land degradation ambitions fall within this wider, high profile initiative. The announcement also attracted significant finance and technical support from multilateral agencies and donors, many of which feed into forest management policies and programmes (Boer, 2020, p.787).

**Indonesia is a priority country for the Reducing Emissions from Deforestation and Degradation (REDD+) initiative, bringing significant international finance and technical support into the country.** REDD+ was initiated at COP-13 in Bali with the aim of providing economic incentives to low- and middle-income countries to reduce carbon emissions through

deforestation and forest degradation. REDD+ is a mechanism which provides an economic incentive to encourage developing countries to reduce carbon emissions through deforestation and forest degradation and to enhance forest carbon stocks through investment in low-carbon development, conservation and sustainable forest management (UN REDD, 2019). The GoI has been working on plans to implement REDD+ since 2007 but the process has been slow and has largely failed to meet expectations (Ekiwati et al., 2019). A significant amount of the literature exploring barriers to deforestation and land degradation in Indonesia is centred around analysis of the REDD+ process and challenges to its implementation.

See: Figure 1: Primary forest loss in Indonesia (2018), Wijaya, 2019; adapted from Global Forest Watch, <https://www.wri.org/blog/2019/07/indonesia-reducing-deforestation-problem-areas-remain>

### 3. Governance barriers

**Indonesia's decentralised system means that the majority of policies to address deforestation and land degradation are initiated and developed at the national level, but implemented at provincial, district and village-levels.** Areas classified as state forest are controlled and administered by the Ministry of Environment and Forestry, while areas classified as non-forest are controlled and administered by governors or districts heads. District governments have the authority to issue land use permits – such as for plantation and mining use, and village governments are responsible for negotiating with companies or investments in their villages (Irwan et al. 2019, p.4). Forest management units (FMUs) are an additional form of forest administration where the central government sets the conditions, while management is operated by a local statutory body (Boer, 2020). This extensive decentralisation of authority over forest and land use has led to an increase in the number of jurisdiction and district splits, further compounding administrative responsibility structures (Alesina et al., 2018).

**A lack of coordination across ministries at the national-level is widely cited as a significant barrier to effective legal and policy implementation** (Boer, 2020; Cadman, 2019; Ekawati et al., 2019, Gallemore et al., 2015). National-level agencies responsible for forest and peatland oversight include: the Ministry of Environment and Forestry (MoEF), the Ministry of Public Works (MoPW), the Ministry of Energy and Mineral Resources (MoEMR), the National Land Agency (NLA) and the Ministry of Agriculture (MoA). Furthermore, the division of responsibilities between these ministries changes frequently. Erbaugh & Nurrochmat (2019) note that the structure of government organisations managing and regulating forests in Indonesia changed more between 1999-2016 than in the 30 years prior. They go on to observe that the “overlapping land use claims and layered authority of different ministries and sub-national jurisdiction challenge the enforcement of national policy and promote local forms of tenure and planning” (p. 143). Misalignment and coordination issues have also been found to contribute to higher transaction costs in building relationships around forest and land governance as well as to ineffective information sharing at all levels (Gallemore et al., 2015)

**A key coordination issue at the national-level has been the regulation of the palm oil industry, one of the leading sectors contributing to deforestation and land degradation in Indonesia** (see section 3 for further details on the impacts of palm oil on deforestation and land degradation). The regulation of palm oil falls within the remit of the MoA rather than the MoEF, with companies monitored by the MoEF required to plan in ten year cycles, while the MoA does not require this planning horizon (Cadman, 2019, p.6). Inconsistencies and a lack of coordination

in land allocations for different uses has also been noted, such as the allocation of old growth forests to be cleared for palm oil plantations and degraded land allocated to conservation (Toumbourou, 2017, p.5).

**Institutions and policies to address deforestation and land degradation developed at the national level often failed to be implemented at the sub-national level** (Ekawati et al., 2019) For example, under REDD+, each province is expected to adopt provincial- or district-level action plans. To date, local action plans for greenhouse gas emissions reductions have been overseen by the National Development Planning Agency and Implemented by Regional Development Planning Agencies while only a small number of pilot regions have developed a REDD+ plan (Ekawati et al., 2019).

**The GoI is seeking to transfer further authority to the village level by expanding the area of social forestry schemes where local communities have some level of influence over decisions related to forest management** (Muttaqin et al., 2019). Village administrations are the closest level of government to communities and are therefore well placed to incentivise positive natural resource management (Watts et al., 2019). The Village Law 6/2014 enhanced the authority of villages over land and natural resource management and has introduced a number of fiscal transfers to villages accompanied by highly decentralised budget decision-making powers (Watts et al., 2019). Section 6 explores some of the barriers to increased participation in these and other measures.

**Corruption in the forestry, plantation and mining sectors is widely cited as a barrier to effective legal and policy implementation** (Alesina, 2018; Boer, 2020; Mulyani & Jepson, 2013; Toumbourou, 2017). Higher rates of corruption have been shown to have a direct causal link with deforestation (Toumbourou, 2017). For example, the Indonesia Reforestation Fund, formed in 1989 and financed by a levy paid by timber concessionaires, is reported to have lost 89% of its value in 1997 through mismanagement and fraud (Mulyani & Jepson, 2013). The Indonesian Corruption Eradication Commission (KPK) and the Financial Intelligence Unit (PPTAK) have prosecuted a number of forest-related cases along the timber value chain through measures such as the issuing of concessions and monitoring market sales (Boer, 2020, p.789). In one example, “the KPK [Corruption Eradication Commission] succeeded in a high-profile case involving a *Bupati* [elected district head] in Riau Province, who was imprisoned for 11 years for contravening regulations and accepting bribes in the granting of palm oil concessions” (Boer, 2020, p.789).

**Strengthening law enforcement to prevent forest and peatland fires and land clearing has been found to be one of the more efficient measures to address deforestation and land degradation** (Wijaya, 2019). Laws relating to forest and land use have historically been ambiguous and enforcement has been under-resourced (Boer, 2020). Initiatives such as REDD+ have targeted further resources and capacity building in the implementation of existing laws to prevent deforestation and land degradation.

## 4. Economic barriers

**The clearing of land for agriculture, timber products and mining activities is a leading cause of deforestation in Indonesia.** Between 1986-2012, 5.8 million hectares of forest were converted to non-forest areas, 99% of which were for plantations (Ekawati et al., 2019). Palm oil production for the food industry and biofuel is of particularly high demand, and given that palm oil

can be grown in 'shorter rotations', "there [is] direct competition between forest and palm oil plantations for revenue generation... [with] palm oil declared a priority industry by government" (Cadman, 2019, p.6). The GoI recently announced that it plans to increase palm oil export levies which have been used to subsidise the expansion of palm biofuel production across the country (Reuters, 2020).

**Demand for agriculture is consistently associated with more deforestation, while timber is not** (Busch & Ferretti-Gallon, 2017). Higher agricultural commodity prices and greater potential agricultural revenue in Indonesia, particularly from exports, has been associated with higher deforestation (Gaveau et al. 2009; Wheeler et al. 2013). Timber prices and timber activity have been found to be less consistently associated with higher deforestation, though satellite detection of large-scale deforestation may not fully detect fine-scale degradation caused by logging (Busch & Ferretti-Gallon, 2017, p.9). One reason given for the pulp and paper industry's lower rates of deforestation is that the sector is highly concentrated, thus making it easier to control operations and through the supply chain (Pirard et al., 2015, p.2). Timber production is also overseen by the MoEF which employ forestry laws more favourable to conservation while palm oil is regulated by the MoA (Pirard et al., 2015, p.2).

**Government fiscal measures such as charges, subsidies in the palm oil sector and for fertiliser, licence and permit fees, and taxes, may further contribute to deforestation and land degradation** according to a survey of stakeholders in the sector (Cadman et al., 2019). For example, fees charged in the forestry sector as a fiscal transfer from the central government to provincial and district government are based on the amount timber extracted and not on by good forest management and have therefore ended up rewarding districts with higher rates of deforestation as they (Cadman et al., 2019).

**The fragmented nature of the palm oil industry has been identified as a key barrier to implementing laws and policies to address deforestation and land degradation** (Pirard et al., 2015) It is more difficult to trace production, and by extension to monitor adherence to conservation laws, among a large number of smallholder producers and an extended network of intermediaries (Pirard et al., 2015, p.4). 'Zero-deforestation' pledges have been made by some large palm oil companies operating in Indonesia with the stated goal of eliminating deforestation and land rights abuses from the palm oil supply chain (Pirard et al., 2015, p. 1). These pledges are indicative of a shift in market incentives in the palm oil industry, in part influenced by pressure from global consumers and civil society organisations around the ethics of palm oil production, though these initiatives risk marginalising already vulnerable smallholders (Pirard et al., 2015). Pirard et al. (2015) suggest that "farmer groups must also be strengthened to improve flows of information and knowledge sharing vertically along the supply chain and horizontally across the supply base. It is also necessary to invest in training, incentives, and monitoring and traceability systems that are adapted to local conditions, to ensure that smallholders, especially independent ones, comply with sustainability requirements". (p.5)

**Poverty is an important driver of deforestation and land degradation and must also be considered as a possible negative secondary effect of ongoing policy and legal measures.** Nearly 10% of the population live below the US\$1.90/day poverty line and 20.6% of the population are estimated to be at risk of falling into poverty due to maintaining incomes only slightly above the poverty line (World Bank, 2020). Blanket measures to limit deforestation, such as moratoriums prohibiting land clearing, will need to account for the secondary impacts these might have on local communities dependent on forest resources for their livelihoods (Busch &

Ferretti-Gallon, 2017). Poverty reduction and deforestation programmes may also be complimentary, with some evidence suggesting that cash transfer programmes have had a positive indirect impact on deforestation reduction (Ferraro & Simorangkir, 2020).

## 5. Land rights and land reform barriers

**Insecure land tenure is a widely cited barrier to addressing deforestation and land degradation** (Astuti & McGregor, 2017; Cadman et al., 2019; Kubitza et al, 2017; Mulyani & Jepson, 2013; Toumbouru, 2017). Disputes over land rights and the slow recognition of community land are a long-standing problem in Indonesia with significant impacts on the sustainable management of forest resources (Pirard et al., 2015, p.4). Much of the land used for agriculture is not formally titled, and while private titles can be purchased, this costs are typically prohibitive for lower income farmers (Kubitza et al, 2017).

**A number of studies examining the association between secure forest tenure and forest conditions have found positive correlations between both outcomes** (see Toumbouru, 2017 for further description of these studies). A survey of experts in forest and land governance found 'unclear land tenure and land classification' to be the most widely cited factor contributing to deforestation in Indonesia (Toumbouru, 2017, p.3). "Unclear [land] tenure laws and rights results in a lack of regulation or effective management that may expose forests and land to predatory or unsustainable use, such as licenses for land-based industries associated with forest conversion (such as oil palm and pulp and paper plantations and mining concessions) being issued for areas of the forest zone" (Toumbouru, 2017, p.4). Pirard et al. (2015) observe that "'third party' actors keep moving into concessions to clear land for their own livelihoods, with little public action to stop the phenomenon, even when it takes place on areas set aside for the purpose of conservation" (p.4).

**Challenges over land rights are partly rooted in struggles around identity that arose following the fall of the Suharto regime** (Astuti & McGregor, 2017; Resosudarmo et al., 2019). Previously under Suharto, control over the majority of the country's land was held under the authority of the MoEF and NLA in what were termed forest estates (*kawasan hutan*) (Astuti & McGregor, 2017). Newly classified areas restricted access by displacing indigenous and forest-dependent peoples (Watts et al., 2019, p.3). Since the fall of the regime, "farmers and Indigenous communities intensified efforts to reclaim and reoccupy lands taken over by the state and private companies associated with the New Order regime" (Astuti & Mcgrwgor, 2017, p. 451).

## 6. Barriers to participation

**A lack of engagement with local communities has been cited by many as a key barrier to the implementation deforestation and land degradation management measures** (Ekawati et al., 2019; Muttaqin et al, 2019; Resosudarmo et al., 2019) It has been observed that there has been limited community involvement in the management of state forests to date (Muttaqin et al., 2019). "State forest management in Indonesia has historically been dominated by large-scale entities through logging and plantation forest concession licenses..., community-based forest management (CBFM) accounted for only about 1% of the total area of production and protection forests". (Muttaqin et al., 2019, p.2) Furthermore, Pirard et al (2015) argue that "a number of forest conservation and indigenous rights groups object to the premise that recent zero deforestation commitments may absolve or excuse past destructive practices, particularly

because past behaviours have enabled corporate groups to gain control of vast areas of land” (p.4).

**Misalignment of national and district-level objectives with village level objectives inhibits engagement with legal and policy measures at the local level** (Watts et al., 2019). A survey of village heads involved in village-level intergovernmental fiscal transfers by Watts et al. (2019) found that while these funds provided environmental and livelihoods benefits, the funds did not align with the goals of the village. “The reasons ranged from the uneven distribution of benefits as only limited numbers of farmers were selected to participate in tree planting projects, the lack of alignment with village planning and lack of substantive participation” (p.5). Recent findings from a review of REDD+ stakeholders has found some improvements in participation through further emphasis on community consultations, though interrelated issues such as land rights claims and the appropriate disbursement of funding remain significant factors for meaningful community participation (Agung et al., 2014; Mulyani & Jepson, 2013).

**District-level ethnic diversity has been found to lead to increased competition for resources, leading to higher deforestation and land degradation** (Alesina et al., 2018). Indonesia is highly diverse with more than 500 ethnic groups and 742 languages and dialects (Alesina et al., 2018, p.33). Coupled with high population density and historic exploitation of ethnic divisions by the Dutch during the colonial period, community relations around land use have been historically strained. Relations have continued to be strained since democratisation with a rise in identity politics and separatist movements (Alesina et al., 2018 p. 34). A study by Alesina et al. (2019) using the timing of the splitting of jurisdictions in Indonesia to examine the causal relationship between ethnic fractionalisation and deforestation found that more ethnically fractionalised areas had higher rates of deforestation. They concluded that there is “a trade-off between reduced ethnic heterogeneity and increased competition in the natural resource market when deciding the optimal level of decentralisation of natural resource management” (p.56). Astuti & McGregor (2017) also found that indigenous communities “favoured by the new political conjuncture and empowered by indigenous network may attempt to claim land from neighbouring communities that fit less comfortably within idealised visions of green integrity” (p.448).

**Not all communities prioritise deforestation and land degradation or have the necessary information to value conservation and reforestation** (Watts et al. 2019). Based on a survey of village heads in 42 sites in Southeast Sulawesi, Watts et al. (2019) found that “communities were most likely to engage in activities that provide direct economic benefits to individual household, such as agroforestry or planting timber trees” (p.9). The authors therefore suggest improved communication and information sharing on the benefits to local communities as the allocation of specific funds for conservation and reforestation at the village-level in addition to, rather than in place of, the general village funds already being disbursed through fiscal transfer schemes.

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