

# Driving Factors of Deforestation In Indonesia: A Case Of Central Kalimantan

JURNAL  
STUDI PEMERINTAHAN

511

Ely Susanto, Nanik Lestari, Maharani Hapsari, and  
Krisdyatmiko

Received :October 1, 2018  
Revised: October 13, 2018  
Accepted:November 11,2018

Universitas Gadjah Mada, Yogyakarta

Email: [elysusanto@ugm.ac.id](mailto:elysusanto@ugm.ac.id)

How to cite this article is :

Susanto, E., Lestari, N.,  
Hapsari, M., &  
Krisdyatmiko.  
(2018).Driving Factors of  
Deforestation in  
Indonesia: A Case of  
Central Kalimantan.  
*Jurnal Studi  
Pemerintahan*, 9(4), 511-  
533.

## ABSTRACT

As one of countries which has the large tropical forests in the world and the largest in ASEAN, Indonesia has been facing serious deforestation problems. Eventhough some scholars have found causes of the deforestation and have tried to give solutions, however, identifications of deforestation causes are still worth studying as the deforestation still becomes an important issue in Indonesia. This study tries to extend and explore the causes of deforestation in Central Kalimantan, one of Provinces in Indonesia which has been facing the deforestation problem caused by many factors. This study applied a qualitative approach. Data were collected by using interview and focus group discussions which involved about 27 informants representing 14 organizations leaders such as WALHI, AMAN, Save Our Borneo, Yayasan Bentang Borneo, Ampuh, TUK Jakarta, Greenpeace, SIEJ, SPKS, Sawit Watch, Forest Watch Indonesia, Mongabay, Institute Dayakologi, LINK-AR Borneo, WWF and Academia as informants. The study found several factors that drive deforestation which are asymmetric deforestation concept, governance issues and commodity-based development politics.

Keywords: Deforestation, Deforestation Policy, Central Kalimantan, Indonesia

512

### **ABSTRAK**

Sebagai salah satu negara yang memiliki hutan tropis di dunia dan terbesar di ASEAN, Indonesia menghadapi masalah deforestasi yang serius. Meskipun beberapa ahli telah menemukan penyebab deforestasi dan mencoba memberikan solusi, namun identifikasi penyebab deforestasi menarik untuk dipelajari karena deforestasi masih menjadi isu penting di Indonesia. Studi ini mencoba memperluas kajian sebelumnya dengan cara mengeksplorasi penyebab deforestasi di Kalimantan Tengah, salah satu Provinsi di Indonesia yang menghadapi masalah deforestasi.

Penelitian ini menerapkan pendekatan kualitatif. Data dikumpulkan dengan menggunakan wawancara dan *Forum Group Discussion*.

Penelitian ini melibatkan sekitar 27 informan yang mewakili 14 organisasi seperti WALHI, AMAN, Save Our Borneo, Yayasan Bentang Borneo, Ampuh, TUK Jakarta, Greenpeace, SIEJ, SPKS, Sawit Watch, Forest Watch Indonesia, Mongabay, Institut Dayakologi, LINK-AR Borneo, WWF dan Academisi sebagai informan. Studi ini menemukan beberapa faktor yang mendorong deforestasi yaitu: konsep deforestasi yang beragam di antara pemangku kepentingan, isu tentang tata kelola yang belum baik dan politik pembangunan yang berbasis komoditas.

Kata kunci: Kebijakan deforestasi, deforestasi, Kalimantan Tengah, Indonesia

## INTRODUCTION

Deforestation emerges as a critical issue for countries around the world as it has produced serious impacts on global environment (Geist and Lambin, 2002; Salahodjaev, 2016; Casse, et.al, 2004; Culas, 2014). The importance of deforestation as public issue is associated with of environmental damages such as flooding, soil erosion, biodiversity loss (Fearnside, 2005; Kanninen et al., 2007; Salahodjaev, 2016) and greenhouse gases emission (Tsurumi and Managi, 2014). What makes Indonesia so important in the global politics of deforestation is its position as a country which has the large tropical forests in the world (FAO, 2010) and the largest in ASEAN (Koh, 2009; Suwarno et al., 2015; Arnold, 2008; Margono, et al., 2014; Hansen et al., 2008, 2009). Scholars also linked this phenomenon to social problem in society such as “forced migration” (Black, 1994) and human diseases (Yasuoka and Levins, 2007).

As one of countries which has the large tropical forests in the world (FAO, 2010) and the largest in ASEAN (Koh, et al., 2013; Suwarno, et al., 2015), Indonesia has been facing serious deforestation problems (Brun, et al., 2015). Based on FAO (2001, 2006), Hansen et al.,(2008, 2009) and Margono et al., (2014) stated that “Indonesia is experiencing the world’s second highest rates of deforestation, due to pressure associated with socio-economic and political changes” (p.77). Other scholars also stated the same thing which is Indonesia experiences tremendous deforestation (Arnold, 2008; Margono, et al., 2014). Therefore, it is importance to investigate the causes of deforestation in Indonesia in order to find core problems as basis for formulating solutions.

Some scholars has investigated the causes of deforestation in Indonesia. Burges et al., (2011) conducted a study in Indonesia and found that deforestation in Indonesia was closely linked to the behaviors of local bureaucrats and politicians.

This study found that “increases in the numbers of political jurisdictions are associated with increased deforestation. Illegal logging increases dramatically in the years leading up to local elections” (p.29).

[Koch \(2009\)](#) conducted a study in Central Sulawesi, Indonesia. [Koch \(2009\)](#) found that “the high prices for the cash crop cacao as well as relative land abundance at Central Sulawesi’s rainforest margin can be regarded as ultimate driving forces of deforestation” (p. 20). Eventhough some scholars have found causes of the deforestation and have tried to give solutions, however, identifications of deforestation causes are still worth studying as the deforestation still becomes an important issues in Indonesia. This study tries to explore the causes of deforestation in Central Kalimantan Indonesia.

[Suwarna et al. \(2015\)](#) state that Central Kalimantan is one of Provinces in Indonesia which is facing the highest deforestation problem caused by many factors such as “economic, institutional, social, ecological and infrastructural factors” (p.78). The study however, only focuses on decentralization policy and forest governance so that it still provides large rooms to explore the causes of deforestation in this province.

## **LITERATURE REVIEW DEFORESTATION**

There are various definition about deforestation. Deforestation is defined as “the loss of trees involving a vegetational succession from forest cover to some other kind of landscape” ([Rollet, 2009: 221](#)). [Koyuncu and Yilmaz \(2009\)](#) define it “a permanent conversion of the land area covered by forests to other land uses such as wasteland, cropland and pasture” (p.213). From those definitions, we can say that deforestation involves change in forest uses to other purposes through activities that destroy forests so that forests are permanently lost vegetation.

Many scholars have investigated the cause of deforestation. [Ehrhardt-Martinez \(1998\)](#) for example developed and tested a model to explain the causes of deforestation. One of their finding is the rate of deforestation occurs in line with the population and economic growth.

Geist and Lambin (2002) conducted a study of tropical deforestation by analyzing 152 local case studies. The study found that there is no a universal formula to solve the problems of deforestation. Instead, identifying the causes of the proximate causes and underlying driving forces of deforestation and interactions both causes are important to be done and then using such knowledge to formulate approaches or policies to solve it. This is supported by a study conducted by Tegegne, Lindner, Fobisse, and Kanninen et al (2007) in Cameroon and the Republic of Congo.

Different from previous studies, Koyuncu and Yilmaz (2009) studied about the impact of corruption on deforestation. The data collected from various corruption indices supported the impact of corruption on deforestation. The study also found that the impact of corruption was higher than population growth. Salahodjaev (2016) investigated the impact of intelligence on deforestation. In this study, intelligence was measured by using the level of IQ. Based on data from 186 nations, the study found that intelligence had a negative and significant relationship with deforestation. It means that the high intelligence of human resources of a country can therefore help the country reduce deforestation. it is than suggested for a country to invest more on human capital when they want to maintain their forest from degradation. Instead of corruption and intelligence, property right (Liscow, 2013) and international trade (Von Maltitz and Setzkorn, 2012) also have an impact on deforestation .

On the other hand, as one of regions that has the largest tropical forest in the world, the Southeast Asia region face deforestation problem (Barbier, 1993). Barbier (1993) further explained that the destruction of forests in Southeast Asia worried because it was larger than in Amazonia and Central Africa because of opening up the forest for economic activities such as agriculture and timber production.

But more interesting to look more closely is that the owner of a largest tropical forests exist in the region is Indonesia (FAO, 2010). In detail, FAO(2010) explained that

*Seven countries have more than 100 million hectares of forest each, and the ten most forest-rich countries (the Russian Federation, Brazil, Canada, United States of America, China, Democratic Republic of the Congo, Australia, Indonesia, Sudan and India) account for 67 percent of total forest area (p.12).*

Therefore, it is not a surprised phenomenon if Indonesia becomes one of largest contributors of greenhouse gases in the world (Burgess, et al., 2011). Based on those facts, further Burges et al. (2011) conducted a study in Indonesia and found that deforestation in Indonesia was closely linked to the behaviors of local bureaucrats and politicians.

## **DECENTRALIZATION AND GOVERNANCE IN FORESTRY SECTOR**

Conceptually, decentralization refers to the “the assignment of fiscal, political, and administrative responsibilities to lower levels of government” (Livack, Ahmad and Bird, 1998, p.4). The basic rationale of decentralization is that the implementation of the policy brings closer the conduct of government to the general public who are the beneficiaries of services delivered, which enhances accountability and efficiency. In light of that, many governments in the World have adopted decentralization policy, including the Indonesian government.

Decentralization in Indonesia got underway in 1999, signalled by the implementation of Law No.22/1999 on local governments and Law No.25/1999 on balancing finances between the central government and local governments. Law No.22/1999 were later amended to become Law No.32 / 2004 that was later subsequently revised to become Law no. 23/2014. Article 1 section 8 defines decentralization as the transfer of government functions by the central government to local governments based on the principle of autonomy.

Meanwhile, article 31 section 2, Law No.23 /2014 delves into goals of decentralization policy with respect to local government restructuring. Some of the above goals include enhance effectiveness, quality of public service delivery, the quality of local government governance, local competitiveness and preserve local traditions, customs and culture. Those goals are very much in line with World Bank (2001)'s idea concerning the rationale of decentralization, which lies in its contribution to enhanced quality of efficiency, accountability, and public service delivery.

Technically, decentralization policy involves the devolution of government functions by the central government to local governments, including forestry. The laws on local government and finances mentioned above provide the legal framework for the distribution and transfer of the various government functions. According to [Suwarna et al \(2015\)](#), Law No. 25 / 1999 is the basic legal framework that entrusts the local government, in this case, the city/district government head (mayor/Bupati) with the authority to utilize the forestry sector as a source of local government income. [Suwarna et al \(2015\)](#) further explain that the Ministry of forestry has issued several ministerial decrees No. 05.01/ Kpts-II / 2000 and No. 21 / Kpts-II / 2001 to confers "Bupati and Walikota the authority to issue small-scale timber concession licences to co-operatives, individuals, or corporations owned by Indonesian citizens for areas of up to 100 hectares within conversion forests and production forests slated for reclassification to other uses" (p.79).

Law No.23 / 2014 tries to lay the legal foundation for better forestry governance through the publication of a matrix that depicts the distribution of forestry functions between the central government, provincial governments, and city/district governments. Another policy that relates to forestry is Law No. 6 / 2014 on village administration. The law confers on village administrations the authority to manage village forests (article 76). A research by [Suwarno et al. \(2015\)](#) analyzes the relationship between, decentralization policy, governance and deforestation in Central Kalimantan province.

The findings of the research underscores the reality that "decentralisation of Indonesian forest policies has, in the case of Central Kalimantan, led to a decrease in local governance quality and an increase in deforestation, over the period 2000-2010"(p. 94). In other words, decentralization policy in part impacts on governance, which in turn adversely affects the rate of deforestation. Prior to the research by [Suwarna et al. \(2015\)](#), [Burgess et al. \(2011\)](#) has conducted a research in Indonesia and found that in the lead up to local government elections, the behaviour of politicians and bureaucracy tends to change in ways that contribute to the deforestation.

## RESEARCH METHOD

This study focuses on exploring the driving factors which cause deforestation in Central Kalimantan. To achieve the objective of study, we applied a qualitative research. Data were collected by In-depth interview and focus group discussions. The methods involved informants, who represented 14 organizations in Jakarta, Bogor (West Java), Pontianak (West Kalimantan) and Palangka Raya (Central Kalimantan) to explain causes deforestation in Indonesia, especially Central Kalimantan. The detail is listed on Table 1. Among the key informants referred here were several environmental activists, non-governmental organization leaders and beneficiaries, as well as officials as a regional institution in ASEAN and the Government of Indonesia.



**Table 1 List of Informants (NGO's)**

No.	Organization	Scope of issues
1	Wahana Lingkungan Hidup (WALHI) Kalimantan Tengah	Conservation
2	Aliansi Masyarakat Adat Nusantara (AMAN) Kalimantan Tengah	Indigenous resource management
3	Save Our Borneo (SOB)	Conservation
4	Yayasan Bentang Borneo (YBB)	Livelihood
5	Aliansi Masyarakat Peduli Hukum (AMPUH) Kalimantan Tengah	Equity and law
6	Transformasi untuk Keadilan (TuK)	Conservation Media
7	Greenpeace	livelihood
8	The Society of Environmental Journalists (SIEJ)	Livelihood
9	Serikat Petani Kelapa Sawit (SPKS)	Conservation
10	Sawit Watch	Media and conservation
11	Forest Watch Indonesia (FWI) Mongabay	Indigenous resource management
12	Institute of Dayakologi LINK-AR Borneo Academia	Indigenous resource management
13		Knowledge mobilization

We also used secondary data based on reports published by governments and non government which portray the nature of deforestation problem.

## **RESULTS AND DISCUSSIONS**

### **ASYMMETRIC DEFORESTATION CONCEPT**

Asymmetric deforestation is built upon contesting conceptualization devised by various stakeholders. The concept of deforestation is rife with the debate between the government and non-governmental environmental organizations, which has perpetuated its conflicting concepts. According to the forest in Law No. 5 /1967 on Forestry Basic Law and Law No. 41/ 1999 on Forestry, the Indonesian government defines deforestation as forest destruction, whereas, non-governmental organizations (NGO) define deforestation as a reduction or decrease in areas under forest vegetation. This is evident in the Save our Borneo's definition of deforestation as:

*“areas which the government designates as forest vegetation may be limited to swathes of forest undergrowth (ilalang) vegetation. Deforestation is the decrease in all areas that are covered by forest vegetation. If natural forests are converted into pine forests, according to government sources, such a practice does not amount to deforestation because areas under forest vegetation remain unchanged. On contrary, for us (SOB), such a practice constitutes deforestation as the area under natural forest vegetation is reduced (SOB, 2016)”.*

Differences in the definition of deforestation among actors have led to differences in action and movement. With the basic concept of deforestation still debatable, there has been a gap between policy formulation and implementation on the ground. The government defined forest in accordance with Law No.41/1999 on Forestry, which has implications for the concept of deforestation. Consequently, the moratorium which the government imposed on cutting forests to reduce the pace of deforestation is only applicable to areas not forest vegetation. Yet according to non-governmental organization sources, tackling deforestation means protecting all areas covered by forest vegetation. TuK Jakarta (NGO) also corroborates the argument that

*“The government through its moratorium on deforestation is based on calculation of change in areas under primary forests, while the reality is that deforestation occurs when members of community, production equipment, gradually open up areas under forest vegetation. Ideally, the definition of deforestation also includes the process of degradation, which must be averted as well. The degradation process is a major factor behind deforestation. In otherwords, deforestation is not just a matter of cutting trees, but also involves the process of converting land, conversion of peatforests forces people or farmers to encroach on forests (TuK, 2016).*

The term deforestation as a basic concept, which has strong bearing on policy is still rife with debate among actors. TuK (NGO) explained that definition deforestation must be built upon clear consensus between policy makers and actors on the ground. There is thus need for synergy in the definition of forest areas right from the time the government designates an areas a forest area. Mongabay (NGO) proposes an important thing which the government should do that is putting in place one map policy. A representative from Mongabay said:

521

*This is necessary because to this day, there are various maps that are used, which often leads to disharmony. For example, the map used by members of the community is based on that in the hands of NGPS, while the map the government uses is also different. To that implementing a one map policy is an important issue the government must considered seriously if such a problem is to be averted in future.*

Such statements from AMAN, WALHI, Mongabay, SOB and TuK (NGO's) confirm that the issue of deforestation demands halting destruction and degradation. Degradation in the view of non-governmental environmental activists does not involve only reducing forest land, but stopping the destructive process that leads to the land conversion of forested areas. Furthermore, this includes activities beyond cutting trees, such as making efforts to prevent land users from changing the composition of the vegetation.

**Table 2 Actor and Definitions**

522

Position	Definition	Actor
Government	Forest is an area defined by the government as a forest. Forests cover production forests, where their management alters the original vegetation structure. The term deforestation is not described in the rules. The government only mentions forest destruction.	Government defines forests in accordance with Law No 5/1967 and No.41/1999 on forests. Forest areas include conservation forests, protected forests, and production forests.
Companies	Use the government definition as reference. Companies draw benefits from the role they play in the production forest category.	Palm oil plantations (Wilmar, Sinar Mas, Unilever)
NGO	<ul style="list-style-type: none"> <li>- Deforestation is defined as a decrease or reduction in the area covered by forest vegetation.</li> <li>- The growth of forest areas in their natural vegetation is lush, and can be calculated, height and types of plants that grow in accordance with the environment and locality (Sampurna, 2016)</li> <li>- Deforestation occurs when natural forests change to become production forests, industrial production forests, and afterwards mining areas. It all starts with production forests, then becomes industrial production forests, then plantations, and culminates into mining areas (Walhi, 2016)</li> <li>- Deforestation occurs when production equipment and farmers exert pressure and open forests for cultivation (Mansion, 2016)</li> </ul>	<ul style="list-style-type: none"> <li>- WALHI Central Kalimantan,</li> <li>- Save Our Borneo (SOB) Central Kalimantan,</li> <li>- Yayasan Bentang Borneo (YBB),</li> <li>- AMAN Central Kalimantan,</li> <li>- AMPUH Central Kalimantan</li> <li>- Institut Dayakologi</li> <li>- AMAN West Kalimantan</li> <li>- WWF</li> <li>- TUK Jakarta</li> <li>- WALHI Jakarta</li> <li>- Greenpeace</li> <li>- SIEJ Jakarta</li> <li>- Sawit Watch Bogor</li> <li>- FWI</li> <li>- Mongabay</li> </ul>

Source: compiled by Authors

**GOVERNANCE ISSUES**

Forestry sector governance is an area in which contesting definition on deforestation seeks its ground for further policy debate, which perpetuates problems at various locals.

This is evident in the overlapping regulations and policy inconsistencies. Some NGOs such WALHI, SOB, AMAN, TuK, FWI and Mongabay explained that deforestation occurs due to the policy of each regime changing due to politicization of the land use permits form various extractive activities. They further explain that since 1997-1998 forests started to lose their capacity to sustain ecosystems that rely on them, which was compounded by el Nino event that caused forest fires. In the wake of that, mining activities begun to enter into protected forest areas, because of the decision of the government to give permits to mining companies. The damage to forests from mining and forest fires has continued since then.

Moreover, Mongabay (NGO) describes that the deforestation rate increased in the aftermath of President Suharto's administration granting forest economic rights (HPH) to society. Since then forest utilization has been driven and based on market / industry needs. The destruction of forests begins with logging and timber harvesting: both legal and illegal. After the wood is harvested, land clearing follows. Mongabay further explains that after the forest resources are logged, land clearing and planting with industrial plants (HTI) such as acacia, pine, and other commodities follows. Another NGO, SBO, continues to explain that the diversion of forests functions extends into oil palm plantations until the mine. This pattern is also presented by WALHI and SOB as follows:

*“Deforestation during Soeharto’s era begun with the conversion of virgin forests into production forests, while during post Suharto era, deforestation, has largely been associated with palm oil and plantations (converting forests to become industrial forest estates), and subsequently mining. There is a change in the speed and pattern of deforestation and degradation over the last 30 years since 1980 to the present day. During 1980-1990: deforestation was as a result of HPH, which involved harvesting timber, meanwhile deforestation since 2000- to the present day: land clearing occurs after which acasia, oil palm are planted, and eventually land is converted into mining areas (WALHI, 2016).”*

*“during 1970s, HPH was the main source, while industrial forest estates (HTI) despite being natural forests were designated as planted forests, in 1990s until post reformation, has been characterized by illegal logging, the land after that was converted to oil palm plantations. With forest fires during 1990s, forests having been decimated, land was converted again into plantation agriculture. HTI continues to change, HPH continued with selective cutting of large forest trees, coupled with frequent forest fires, resulted into large chunks of land being converted into oil palm and mining areas (SOB, 2016)”.*

The pattern of forest destruction in every regime is characterized by lack of integrated forest management. WALHI, LINK-AR Borneo, AMAN Central Kalimantan explained that the existence of many regulations has in fact exacerbated forest degradation. The damage to forests is attributable to policy mistakes/failures. As to why deforestation continues to this day, answering that question leads one to reach the conclusion that there needs for reorganization in the government. Overlapping regulations as reflected in the Laws on forestry, mining, and estates, agriculture, oil and gas, as well as Maritime law that are out not synchronous. Investors exploit the loophole, while forests that customary /indigenous communities have protected for hundreds of years are suddenly taken away from them. They said that:

*“A different president means a different minister, which in turn means different policy regime (AMAN, 2016)”.*

Improvement in governance should lead to improvement in the pattern of exploitation of forests, and not exacerbate it as has occurred. The reason for that relates to the reality that bureaucracy will continue to use the pattern that has been in place even if there is change in leadership. Evidence of the low quality of governance in forest management in Central Kalimantan is also attested by the large number of forest clearing permits that have been issued in the lead-up to and after local government elections. YBB (NGO), shows examples of the following cases of forest conversion expenditures:

*“Based on our observation, permits are issued prior to, and after local elections. Specifically, for incumbents, permits are issued prior to the conduct of local elections, while for newly elected local; government heads, permits are issued after local elections. That has been the pattern since 2003 (YBB, 2016)”.*

Dayakology institute (NGO) also stresses the point that permits for plantations in Kalimantan is as often smaller than the actual area covered by the document.

*“At the national level, I do think that the political process in 2009 had influence on number of permits that were issued, and by extension deforestation of 14.7 million. Permits for industrial production plants and productin forests are issued before and during the presidential elections. Permits for production forests in 2009 were twice as high as the number of applications. That was an accumulation of permits during 2007-2009 period. The pattern seems similar in other sectors as well. Permits for industrial production plants, mining, and, oil palm plantations issued in 2009, showed an increase of 50%, 100% even 200%. The same seems to be evident in other provinces during the period, which is an indication that local elections have influence on issuing of permits (Dayakologi Institute, 2016).*

Deforestation can be avoided with improving the governance. Improvements include integrate forest policies and other regulations that related, reaffirm and review the roadmap for sustainable environmental development, and minimization of permits. Bad forest management has aggravated disparity in the local society’s access to forest resources. One manifestation of that is the existence of overlapping policies that have had implications for spatial planning and development. In their agendas, civil society elemens working proposed a number of initiatives that reflect their very diverse policy advocacy orientation.

## COMMODITY-BASED DEVELOPMENT POLITICS

National and transnational investment in palm oil industry has emerged as the development alternative to forestry in Central Kalimantan. This indicates the sustenance commodity-based development politics that marks Indonesian politics since the era of independence. The rise of palm oil as lucrative market commodity has been contested in many grounds, mainly due to heavy international expose on the issues of land injustices and environmental degradation in emerging national markets.

Economic development that emphasizes palm oil as the dominant source of economic activities does not augur well for societal development at large as it is considered narrowing the livelihoods option of the local community. WALHI, SOB, Dayakologi Institute, AMAN, LINK\_AR Borneo, Mongabay, Greenpeace and Forest Watch Indonesia (FWI) revealed that the process of transferring forested areas to HTI and palm oil plantations is one of the main causes of deforestation. The condition of forest destruction is getting worse with the large number of people who are beginning to switch to planting palm. Mongabay states that:

*"Now there is a trend, when large investments people feel less prosperous by using the plasma mechanism, finally people open their own oil palm plantation, ie self-help oil garden. This will aggravate the already severe situation. Actually they have rubber, but the market considerations are not profitable, they tebang rubber then they planted palm (Mongabay, 2016) "*

Palm oil commodity has spread far and wide in Kalimantan, a process that has led to the collapse and abandoning of other commodities that are more friendly to the environment such as rubber and Rotan. The huge market for palm oil, has induced a change in market system. According to Dayakology institute, in the year 2001 members of the organization provided guidance to 210 villages in Ketapang district, and in 2010 there were only 10 villages remaining. Institute Dayakologi said that



*“Out of those villages, in 2001, 210 villages were not growing oil palm, which also meant that their forests were in good condition. Today, out of 10 villages there is no longer any virgin forests left. In the past, during the 1980s and early 2000s, the strategy was to pay abide by what the head of the community said, which helped to strengthen the head of the community, Today, individualism is more prominent, which has led to weakening of the community. This is compounded by the fall in prices of rubber, coupled with other economic problems that have exacerbated the situation. That is why we are so powerless today (Institute Dayakologi, 2016)”.*

Some NGOs such as LINK-AR Borneo, Mongabay, AMAN and SOB also emphasize the injustice in palm oil plantation management systems. In terms of ownership, AMAN and SOB mention injustice in the mechanism of obtaining permits for the use of land used as plantations. Save Our Borneo noted that the problem of palm oil lies in the ownership, which perpetuates income inequality. One person can have control over 126 000 hectares in central Kalimantan province. The company obtains land from the outsourcing of forests and the removal of community land is not clear, so the community tends to be non-construction workers. It also delivered Mongabay and LINK-AR borneo as follows:

*"When people want to open oil palm plantations they will prefer areas that are released from forestry, because there is still wood, and the wood can be sold to the factory and they have taken advantage of it. It should be when we cut down the wood, we have to re-planting, but it happens not like that (Mongabay, 2016). "*

*"The issue of transparency is in the spotlight. Speaking of investment-related palm oil assets, the RSPO itself closes information regarding land ownership status, even government data. We never compare between the data from the government, data from the RSPO, and our survey in the field, it's nothing synchronic. the community has never been shown Amdal (Environmental Impact Analysis), and the adverse impacts of their activities (oil palm). (LINK-AR Borneo, 2016). "*

The meaning of societal development is aimed at changing the social order of society for the better. Deforestation can only be reduced if development is driven by considerations of sustainability and human resource development. The role that society plays in managing and preserving forests is irreplaceable and inseparable. Development, therefore, shall put human resource development as integral to achieving sustainable forest management through broadening access to livelihoods beyond monetary benefits. To that end, the best way to reduce deforestation is to orientate development toward human resource development which can play an important role in ensuring sustainable management in the forestry sector. Forest Watch Indonesia (FWI) and Yayasan Bentang Borneo (YBB) stated that in the lead up to and after the election, the forestry sector is used as a licensing commodity ranging from HPH, HTI, plantations to mines. This shows that deforestation occurs because economic development emphasizes the exploration of commodities in the forestry sector. Therefore, forestry sector development should be directed to the carrying capacity of the environment and sustainability.

## **DISCUSSION**

Deforestation causes environmental degradation, climate change, and endangers people's health, social problems. To that end, it is important to find long term solutions to the deforestation problem, there is a need to identify its root causes. In general, this research defines deforestation as the loss of forest cover reflected in the change in the original vegetation, attributable to entrance and penetration of production equipment.

The definition, complements the definition that was **PEMERINTAHAN** propounded by [Rollet \(2009\)](#), and [Konyucu and Yilmaz \(2009\)](#) that consider deforestation as change or conversion of forests into other uses.

This research sees the contestation over definition of deforestation in Indonesia as fundamentally political. The asymmetric deforestation concept among stakeholders are often neglected in policy formulation, even though the existing differences determines stakeholders' actions in accordance with their specific political capacity to address the issues. Lack of consensus in understanding the meaning of deforestation, by creating ambiguity, has led to rampant degradation. Forest governance reflects in the overlapping regulations and policies working with the political interests of the local elites who seek the economic benefits from exercising political authority during strategic momentums, mainly political election. This appears in rampant issuance of forest operational licenses. In that respect, this research finding corroborate [Burgess \(2010\)](#) findings to that showed a relationship between an increase in deforestation and the issuing of forest operational licenses by local bureaucracy and politicians in the lead up to and after local government elections. With regards to the pattern of forest degradation that is attributable to other forest uses, research findings are in line explanation of previous research conducted by [Konyucu and Yilmaz \(2009\)](#); [Geist and Lambin \(2002\)](#); [Barbier \(1992\)](#), that associate deforestation in Indonesia with conversion of land use toward infrastructure, , economic activities, agriculture, and other factors. In the same vein, the research findings also confirm previous research by [Faria and Almeida \(2015\)](#) that identified trade as an important factor that is responsible for deforestation.

The third finding of this research is that commodity-based development of the forestry sector. The finding almost bears semblance to the case in Sulawesi in [Koch's \(2009\)](#) research. The only difference is that the context is in Central Kalimantan, where oil palm is the main commodity that has led to forest land use conversion.

Meanwhile, in Koch (2009)'s study, rising cocoa prices is the major factor that has been responsible for increasing forest land use conversion in Sulawesi. To that end, reducing deforestation can be achieved, if and when the major causes of the problem are resolved.

## CONCLUSIONS

530

This study has investigated the driving factor causes of deforestation in Central Kalimantan, Indonesia. This study found several important findings. First is asymmetric deforestation concepts. The term deforestation is still subject to debate as state definition of deforestation is continuously being challenged by the definition developed by civil society members. Second, deforestation, in many of its aspects, is also associated with governance problems, and the third deforestation caused by complex political economic settings that shape its emergence. To solve the deforestation problem in Indonesia, there is a need to open the definition of deforestation through a more inclusive process that shape government policy. This will also require transforming the politics around which forest governance has evolved at various locals. Finally, the Government of Indonesia should strengthen the commitment to implement policies that may transform commodity-based politics into more sustainable trajectory of resource use.

## ACKNOWLEDGMENTS

This paper was supported by Faculty of Social and Political Sciences grant "Hibah Hilirasi-Jurnal Internasional bereputasi dan berfaktor dampak number 1787/J01.SP/UP-26/III/2018, Universitas Gadjah Mada. The authors also thanks to Dr. Ian Wilson for helpful comments on earlier version of the article. This article is written based on the research report produced in 2016 titled Against Deforestation: The Formation of Environmental Movements in ASEAN.

## REFERENCES

- Arnold, L. L. (2008). Deforestation in decentralised Indonesia: What's law got to do with it? *Environmental Law and Development Journal*, 4, 75–100.
- Barbier Jr, J., & Duprez, D. (1992). Hydrogen formation in propane oxidation on Pt-Rh/CeO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> catalysts. *Applied Catalysis A: General*, 85(1), 89-100.

- Black, R.(1994). Forced Migration and Environmental Change : the Impact of Refugees on Host Environments, [Journal of Environmental Management](#), 42, 261-277.
- Burgess, R., Hansen, M., Olken, B. A., Potapov, P., and Sieber, S. (2012). The political economy of deforestation in the tropics. [Quarterly Journal of Economics](#), 127(4), 1707–1754.
- Casse, T., Milhø, J A., Ranaivoson, S. and Randriamanarivo, J.R. (2004). Causes of deforestation in southwestern Madagascar: what do we know?. [Forest Policy and Economics](#), 6, 33–48.
- Culas, R. J. (2014). Determinants of land use in wheat production: The Australian wheat-sheep zone, [Presentation At The 58th AARES Annual Conference](#).
- Ehrhardt-Martinez, K. (1998). Social determinants of deforestation in developing countries: a cross-national study. [Social Forces](#), 77(2), 567-586.
- Food and Agricultural Organization (FAO). (2010). *Global Forest Resources Assessment 2010: Terms and Definitions*. Rome: [United Nation Food and Agricultural Organization \(UNFAO\)](#).
- Fearnside, P. M. (2005). Deforestation in Brazilian Amazonia: History, rates, and consequences. [Conservation Biology](#). <https://doi.org/10.1111/j.1523-1739.2005.00697.x>
- Geist, H. J. & Lambin E. F. (2002) . Proximate Causes and Underlying Driving Forces of Tropical Deforestation. [BioScience](#), 52(2), 143-150.
- Hansen, C.M., Stehman, S.V., Potapov, P.V., Loveland, T.R., et al. (2008). Humid tropical forest clearing from 2000 to 2005 quantified by using multitemporal and multiresolution remotely sensed data, [Proc. Natl Acad. Sci](#), 107 (27) 9439–44.
- Hansen, M. C., Stehman, S. V., Potapov, P. V., Pittman, K. W., Margono, A. B., and Stolle, F. (2009). Quantifying changes in the rates of forest clearing in Indonesia from 1990 to 2005 using remotely sensed data sets, [Environmental Research Letter](#), 4(3), 1-12.

- Kanninen, M. et al. (2007). *Do trees grow on money? The implications of deforestation research for policies to promote REDD*. Bogor: [CIFOR](#).
- Koch, S. (2009). Driving Forces of Tropical Deforestation at the Forest Frontiers of Central Sulawesi: An Institutional and Demographic Perspective, [Pacific New NR](#). 32, Juli-August.
- Koyuncu, C. and Yilmaz, R. (2009). The Impact of Corruption on Deforestation: A Cross-Country Evidence, [The Journal of Developing Areas](#), 42(2), 213-222.
- Liscow, Z. D. (2013). Do property rights promote investment but cause deforestation? Quasi-experimental evidence from Nicaragua. [Journal of Environmental Economics and Management](#), 65(2), 241–261. [Advance Online Publication](#)  
<https://doi.org/10.1016/j.jeem.2012.07.001>
- Margono, B. A., Potapov, P. V., Turubanova, S., Stolle, F., & Hansen, M. C. (2014). Primary forest cover loss in indonesia over 2000-2012. [Nature Climate Change](#). Advance online publication  
<https://doi.org/10.1038/nclimate2277>
- Rolett B. V. (2009). *Deforestation*. Berkeley: [University of California Press](#).
- Salahodjaev, R. (2016). Intelligence and deforestation: International data. [Forest Policy and Economics](#), 63, 20–27. [Advance Online Publication](#). <https://doi.org/10.1016/j.forpol.2015.12.003>
- Suwarno, A., Hein, L., & Sumarga, E. (2015). Governance, decentralisation and deforestation: The case of central Kalimantan Province, Indonesia. [Quarterly Journal of International Agriculture](#), 54(1), 77–100.
- Tsurumi, T., and Managi, S. (2014). The effect of trade openness on deforestation: empirical analysis for 142 countries. [Environmental Economics and Policy Studies](#), 16(4), 305–324.  
<https://doi.org/10.1007/s10018-012-0051-5>
- Von Maltitz, G. and Setzkorn, K. (2012). Potential Impact of Biofuels on Deforestation in Southern Africa. [Journal of Sustainable Forestry](#), 31(1-2).
- Yasuoka, J., & Levins, R. (2007). Impact of deforestation and agricultural development on anopheline ecology and malaria epidemiology. [American Journal of Tropical Medicine and Hygiene](#), 76(3), 450–460