Illegal land clearing and green economy campaign in Indonesia

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Abstract. Indonesia's total area of forest and waters is around 130.68 million hectares, but it consistently decreases yearly. The illegal land clearing for agricultural activity is considered as the main cause of the forest reduction, as around 5.6 million hectares of land burned between 2015 and 201 and it costs of hundreds of trillions to the country. In order to lessen the negative impacts of land clearing, Indonesian government indeed has started to promote a green economy campaign, known as sustainable development with an environmental perspective. This study aims to examine the relationship between illegal land clearing and its effect on the Indonesian economy and its relationship with the green economy campaign initiated by the Indonesian government. We use the data from the Indonesian Ministry of Environment and Forestry, Central Bureau of Statistics, Greenpeace Indonesia, and World Bank to analyze this issue. We find that the governments' poor regulation and monitoring have caused forest and land fires almost every year and it has huge economic and environmental costs that should be paid by the government. Therefore, a strong law enforcement is needed so that the green economy campaign in Indonesia can be executed properly.

1. Introduction

Illegal land clearing is a familiar issue in Indonesia. Despite giving more than normal damage, the story of land clearing using fires in Indonesia significantly increases the economic value to certain groups of 'actors'. Fires are used in the process of large-scale conversion of a country's forest assets, especially peatlands, into agricultural land for private interest. Growth in the prevalence of fires correlates with the expansion of profitable agricultural commodities such as oil from palm oil and wood fiber from acacia [1].

Land clearing, urged by the planting oil palm trees which target forests or open land, resulting in the reduction of forest area in Indonesia. The cultivation of oil palm trees is also considered one of the key environmental and social problems in the twenty-first century [2]. Oil palm was chosen as an agricultural commodity because the benefit received is better than other commodities, combined with a fast harvest frequency of every two weeks [3].

Based on the development of forest area gazettement from 2011 until December 2018, Indonesia's forest area has decreased by 4.76 million hectares [4]. Or we can say that the forest area is reduced by approximately 0.68 million hectares every year. Actually, Indonesia has various instruments to respond with a series of commitments for its forests such as, the regulatory framework which has a significant focus on land use planning (where forests are allocated for conservation functions, protecting water

sources, timber production, and for various other uses), law enforcement, timber legality verification (involving Voluntary Partnership Agreements with European Union), certification of sustainable timber, and a moratorium on new logging licenses [5,6]. However, the government fails to enforce the law as thousand-hundred hectares of forest and peat burned inside oil palm and pulp concessions. Some of the world's largest plantation companies were responsible for the worst burned areas, but surprisingly they could avoid the punishment and freely operate. Similar to Greenpeace analysis, from 2015 to 2019, 4.4 million hectares of land burned in Indonesia, which is larger than the area of Netherlands [7].

With the growing of the green economy campaign, the Indonesian government has begun to reduce environmental risks and ecological scarcities as the green economy implementation. For example, they arranged sustainable land restoration, resulting in an area of 122,833 hectares of peatland restored and an increase in land coverage of 206,000 in 2019 [8]. However, in the same year, it was found that ten palm oil companies had the largest area of land burned in the 2015-2018 forest fires.

In line with this, the statistics show that the companies had not received serious sanctions and the Indonesian government was said to have not revoked any of the land concession permits. General Director of Law Enforcement of the Ministry of Environment and Forestry stated that the government had imposed sanctions on 64 companies related to forest and land fires, either by a compulsion to order repairs, suspension, or revocation of permits [9]. Yet, forest land in Indonesia is still decreasing every year and illegal land clearing practices by burning are still happening today.

Our study tries to analyze the effects of illegal land clearing on the economy in Indonesia, which is intensively implementing a green economy campaign. We focused on the development of forest and land area in Indonesia over several periods because, in this case, the forest is a very valuable Indonesian commodity. We also discuss the economic aspects of land clearing and the implementation of regulations regarding land clearing in Indonesia by several companies doing business in Indonesia.

2. Methodology

We use secondary data over several time periods obtained from various sources. We use data obtained from the Ministry of Environment and Forestry of Republic Indonesia and periodic data obtained from the Central Statistics Agency (*Badan Pusat Statistik*) for forest areas. For the reduction of land due to land clearing, we use data from Greenpeace Indonesia. The World Bank database is also used to analyze the economic sector. In a nutshell, this is descriptive research by comparing those datasets during a specific period of time and then we try to build the nexus between land clearing and the green economy campaign in Indonesia.

3. Results and discussion

Our analysis shows that illegal land clearing in Indonesia is not only carried out by local companies but also by foreign companies. With diminishing available land, plantation companies increase rapidly as they are easy to raise their business commodities especially palm oil. Moreover, clearing land for production is really a big investment driven by expectations about future prices and current demand conditions [10]. The lesser area of land, both forest and peat in Indonesia, indicates the weaker law enforcement in Indonesia regarding land clearing. Further, Green economics Indonesia reveals that 1.2 million hectares of state forest area – 18 times the size of Jakarta – has been cleared to make way for oil palm tree planting in the provinces of Papua and West Papua over the last 20 years (2000-2019) [11].

The increasing forest loss refers to conversion from industry and small plantations (such as palm oil, acacia, coffee, rubber, cocoa, nutmeg), other types of agriculture (such as rice fields), urban expansion (including transmigration areas), roads, and mining activities (such as extracting gold, or mining tailings). This also includes forest clearing caused by natural wood extraction, forest burning, and other short-lived processes (such as water movement over the surface) [12]. As explained before, Indonesia does have regulations in land clearing, especially on the sustainability of forests. Yet, it is ignored by stakeholders and companies in Indonesia.

Based on the development of area gazettement up to April 2011 shown in Table 1, the total area of forest and waters throughout Indonesia is 130.68 million hectares. According to its function, the area

consists of Conservation Forest (*Hutan Konservasi*) covering an area of 26.82 million hectares, Protected Forest (*Hutan Lindung*) covering an area of 28.86 million hectares, Limited Production Forest (*Hutan Produksi Terbatas*) covering an area of 24.46 million hectares, Permanent Production Forest (*Hutan Produksi Tetap*) covering an area of 32.60 million hectares, and Convertible Production Forest (*Hutan yang Dapat Dikonversi*) covering 17.94 million hectares. In the period 2011 to 2018 based on the development of forest area gazettement until December 2018, the forest area has decreased by 4.76 million hectares or the average land area that is reduced annually is 0.68 million hectares.

Table 1. Forest Area in 2011 and 2018

Type of Forest	2011	2018	Changes (ha)
Conservation Forest (mill. ha)	26.82	27.43	0.61
Protected Forest (mill. ha)	28.86	29.66	0.80
Limited Production Forest (mill. ha)	24.46	26.79	2.33
Permanent Production Forest (mill. ha)	32.60	29.22	-3.38
Convertible Production Forest (mill. ha)	17.94	12.82	-5.12
Total	130.68	125.92	-4.76

One of the biggest ecological disasters of the 21st century occurred in Indonesia where 2.6 million hectares of land burned in 2015. Intentional fire to clear land was identified as one of the possible contributing factors. In response to this large-scale damage, the Indonesian government pledged to remedy the situation by saying that it had learned from its mistakes and would focus its efforts on prevention and law enforcement. However, despite the government's promises to punish companies, palm oil and pulp companies continue to operate with few, or none, serious sanctions. Thus, this poor regulation leads to another huge forest fire [7].

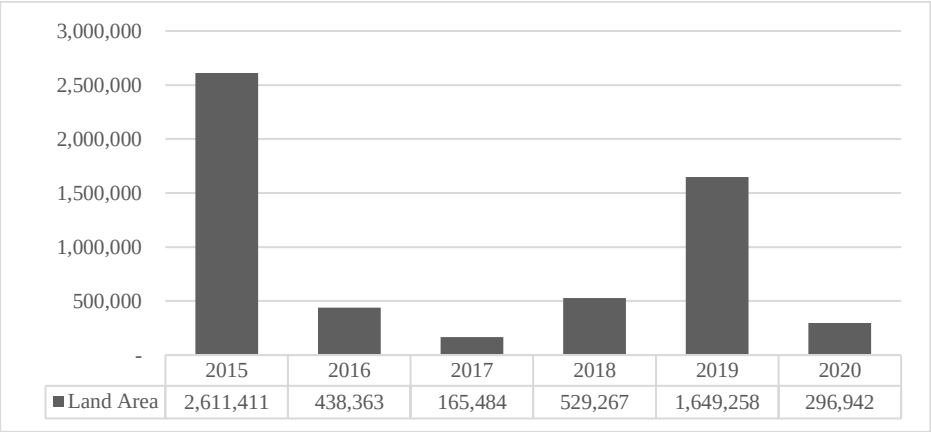

Figure 1. The comparison of the land burned in Indonesia 2015-2020 (Ha).
Source: Ministry of Environment and Forestry.

Based on the data on burnt land shown in Figure 1, in total there is 5,690,725 hectares of land were burned between 2015 and 2020 in Indonesia. The World Bank estimates that in 2015, these forest fires cost Indonesia approximately 16 billion US dollars (or about 221 trillion rupiahs) in forestry, agriculture, tourism, and other industries. Moreover, the haze causes respiratory disease and other ailments to hundred-thousand people across the region. According to one study, it is also likely to cause 100,000 premature deaths [13].

Forest fires are mostly used to prepare agricultural land and to gain access to land at low or substandard prices. Without adequate fire control or law enforcement, the fires may spread out of control. This can be even worse in a dry season and the effects of El Niño. This widespread economic and environmental crisis recurs year after year, with several hundred businesses and several thousand farmers benefiting from the speculative practices of land and plantations. Meanwhile, tens of millions

of people suffer from health costs and economic disruption. The biggest loss experienced by Indonesia occurred in 2015 where the recorded loss has not been added to the loss regionally and globally which means that the actual number is much higher.

A green economy campaign is an investment especially in the economic sector to strengthen the natural resources or contribute in reducing the ecological and environmental threats. The concept of a green economy refers to the transformation of the economy to improve welfare and social justice, at the same time will greatly reduce threats to the environment and reduce ecology [14]. Further, the Indonesian government said that they were continuing to increase their commitment to reduce climate change and fix their sustainable development program.

One of the efforts to overcome climate change and fix sustainable development is the first green National Medium-Term Development Plan (RPJMN 2020-2024) in 2020. In this plan, Low Carbon Development and Climate Resilience are one of the national priorities in line with the Sustainable Development Goals [15]. However, the reality shows that companies disregarded environmental sustainability and took advantage of maximizing their profits. The statistics show that 83.22% of the state forest area has been cleared over the last 20 years to expand oil palm tree plantations in Papua and West Papua, which occurred during the administration of President Susilo Bambang Yudhoyono. In contrast, only 14.32% of the forest area allocated for oil palm tree plantations happened in the era of President Jokowi's reign. The remaining 2.46%, or approximately 30,000 hectares, less than half the size of Jakarta, was handed over by 2020 [11].

Table 2. GDP in forestry sub-sector and national level. Data source: Central Bureau of Statistics.

Year	GDP (Forestry) *in billion Rp*	GDP (National) *in billion Rp*	% Forestry/National
2011	58,731	7,287,635	0.81
2012	58,872	7,727,083	0.76
2013	59,229	8,156,498	0.73
2014	59,574	8,564,867	0.70
2015	60,624	8,982,517	0.67
2016	60,002	9,434,613	0.64
2017	61,280	9,912,928	0.62
2018	62,982	10,425,852	0.60
2019	63,218	10,949,038	0.58
2020	63,196	10,722,443	0.59

The contribution of the forestry sub-sector in national development is indicated by the development of the value of the Forestry GDP and its contribution to the National GDP (total GDP) where in the statistical classification of the economy, the forestry sub-sector is included in the agricultural sector. As shown in Table 2, in 2011–2018, the GDP of the forestry sub-sector scaled on constant prices in 2010 increased from around Rp 58 trillion in 2011 and reached more than Rp 62.9 trillion in 2018. Overall, the contribution of the GDP of the forestry sub-sector to the national GDP have consistently decreased, from 0.81% in 2011 to 0.59% in 2018.

However, although there are decreasing contribution, the loss from the land fire disasters in Indonesia is still considerably high as depicted in Table 3. In the last three years (2018-2020), there was a total area of 2,475,466.64 hectares of forest and land burned with a total loss approximately Rp 9.03 trillion. Further, the highest loss was in 2018. This loss mostly came from companies that commit violations, but in practice, they still have not paid the penalty or penalty for the violations they have done. This case of forest and land fires has dragged many companies and even most of the companies are quite large (well-known) companies. In addition, during 2015-2017, the total court decisions that have been declared *inkracht* for compensation and (civil) recovery reached Rp. 17.82 trillion. Meanwhile, the value

of compensation for environmental losses outside the court (PNBP) is Rp. 36.59 billion. This figure is the largest in the history of environmental law enforcement in Indonesia [16].

Table 3. Forest or land fire disasters in Indonesia.

Year	Forest area (ha)	Losses (Rp)
2018	529,266.64	5,407,462,599,497
2019	1,649,258.00	214,489,961,613
2020	296.942.00	3,413,029,107,944
Total	2,475,466.64	9,034,981,669,054

Since then, it can be seen that every year forest fires strike in Indonesia. By looking at comparisons and available data, forests in Indonesia are experiencing land reduction due to illegal land clearing by burning. In the middle of 2021, there are already 52,481 hectares of burned land. The record for the highest land fire area was still held in the 2015 period, where the fire scorched an area of 2,611,411 hectares of forest and peatland and the companies behind the fires have also received sanctions from the government.

However, despite the sanctions, land fires for land clearing still occur. The second fire area record was held in 2019 with an area of 1,649,258 hectares of burned land, while the largest record loss was obtained in 2018. Therefore, we can conclude that forest fires are caused by natural factors such as a long dry season, and Illegal land clearing occurs every year. As one of the preventive and repressive measures, the government has started to promote a green economy campaign to be able to overcome and avoid the choice of business actors and companies to take actions to destroy the environment, one of which is land clearing by burning it. However, the implementation of the green economy campaign promoted by the government is not effective enough to reduce the number of forest and land fires and the losses that accompany these events.

4. Conclusion

This paper investigates the correlation among government policies, the implementation of these policies by plantation and agriculture companies, and the effects of illegal actions. We focus on finding out the facts of the decreasing area of land and forests in Indonesia over the years by providing data on how much forest is 'lost' and its impact on the Indonesian economy. More importantly, its relation to the Green Economy Campaign, which is currently promoted.

Using data from institutions such as the Ministry of Environment and Forestry, Greenpeace Indonesia, the Central Bureau of Statistics, and the World Bank, we found that the area of land and forests in Indonesia is decreasing every year. Further, we identified that the background of companies carrying out illegal actions such as burning to clear land is because it is easier and affordable for the costs incurred to clear the land. Given the fact that the characteristics of wood and peat are flammable, and fires spread quickly, companies are not paying attention to the environmental impact they have done if these actions are taken. This phenomenon is exacerbated by poor regulations and law enforcement in Indonesia, as evidenced by the number of companies that violate the regulations but are still allowed to continue producing. Even worse, some of them have not paid compensation or penalties for the violations they have committed.

With this analysis call the Indonesian government to be more assertive in giving sanctions to companies that violate the policy regarding land clearing. In addition, we also hope that the implementation of the green economy campaign can be more massively implemented so that not only the Indonesian economy will experience an increase, but also Indonesia's natural resources can be maintained.

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