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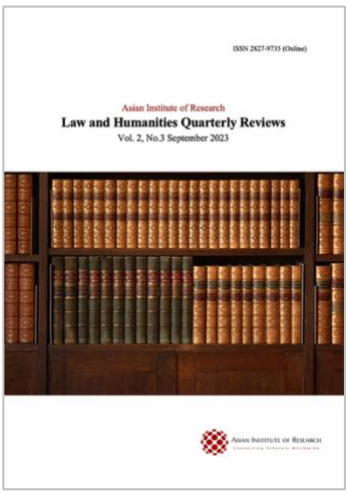

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Indonesian Palm Oil Industry: Environment Risk, Indigenous Peoples, and National Interest

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Abstract
This article examines two main issues in Indonesia's palm oil industry. Firstly, the Indonesian palm oil industry and energy security. Secondly, there are significant problems in the production of environmental aspects, the protection of indigenous peoples, and Indonesia's national interests in the energy sector. Indonesia's decision to reduce GHG emissions by 2030 using palm oil as a renewable energy source simultaneously faces environmental degradation and low levels of protection for indigenous communities over their forests and land. In another part, Indonesia's policies have become more aggressive in producing more palm oil as the demand for palm oil and its derivatives has increased as part of a strategy to safeguard national interests in the energy sector. In this context, it is almost certain that energy policy issues originating from the palm oil industry will still be debated at the local, national, and international levels, especially trade and environmental protection issues on the other hand.

Keywords: Indonesia Palm Oil, Energy, Environment, National Interest

1. Introduction

Indonesia is nominated as the fourth-largest crowded country globally by having more than a hundred and thirty-three million vehicles (Agency, 2021), and daily national fuel consumption may reach 1.5 million barrels per day (CEIC, 2023; Maria, 2023). Not only vehicles on the traverse, but also rapid population growth with more than two hundred and seventy million (Agency, 2023) and technological developments make Indonesia need adequate energy sources and fuel. Indonesian fossil fuel has repeatedly been changing for over a hundred years and was also the primary state income at that time (IESR, 2023; Haykal et al., 2022). Nevertheless, as time went by, to fulfil the domestic oil needs, the Indonesian government still relied on oil from other producing countries (Johnson, 2012).

Relying on imported oil from another country is one of the reasons why Indonesia is now developing renewable energies, producing more energy to supply its domestic needs (IESR, 2023). Several renewable energy sources are available in Indonesia, including solar, wind, hydroelectric, geothermal, biomass, and biofuels (Nugroho et al.,

2021). Even though this reason may seem weak, Indonesia has been using palm oil to replace the availability of hydrocarbons to develop biofuels, even though this seems to be a weak argument because it has become a more reasonable option to meet international market demands. Regarding Indonesia's energy capacity, the Indonesian palm oil industry plays a significant role in this country. Indonesia produced 46.9 million CPOs in 2021, which is currently the largest in the world, with an area of 16.8 million hectares (BPDPKS, 2022).

Land tenure-based oil palm plantations have contributed to deforestation rates, conflict and increasing environmental degradation (Muhdar & S, 2019; Muhdar et al., 2023). The practice of using land for plantation activities raises two problems, namely the practice of land grabbing and the practice of land banking (Muhdar et al., 2019). Recently, large forest areas in Sumatra and Kalimantan Island in Indonesia have been converted into commercial plantations, particularly palm oil plantations, which increase temperatures in the region and cause forest fires to occur often (Greenpeace, 2021c). Deforestation is carried out through the mechanism of releasing forest areas for oil palm plantations, not including the 3.12 million hectares of oil palm planted in forest areas or around 19% of the total area of oil palm plantations in Indonesia (Greenpeace, 2021b). Land clearing without explicit permission is also standard. The deforestation for opening the palm oil plantations has resulted in flooding in several areas, and every year, smoke from forest burning also covers the surrounding areas, including big cities in Riau province, in Sumatra Island of Indonesia (Marito et al., 2023; Watch, 2021; Aiken, 2004).

Besides having environmental impacts due to biodiesel development, social and economic issues may arise. Many indigenous people have lost their natural resources to fulfil their needs: forests, home to thousands of animal species and plants, used to live in juxtaposition with indigenous people (Runtuboi et al., 2021). In most cases, many of the local society living around the forest have not received any negotiation and compensation from the government or company regarding the deforestation, changing their environment and taking their opportunity to live (Suryadi et al., 2021; Appiah & Gbeddy, 2018). However, many now work under the Indonesian palm oil plantations with a meagre income (Zubir, 2017). In 2017, there were more than six hundred and fifty disputes regarding the land influencing more than six hundred thousand households in several areas in Indonesia (Human Rights Watch, 2019).

Indonesia's economic capacity through palm oil exports to European countries and fulfilling the country's domestic oil needs could be a way to grow the country's economy. However, Indonesian palm oil still damages the environment and the lives of the indigenous people, especially those who live on both Kalimantan Island and Sumatra Island (Bogheiry et al., 2023).

This paper discusses the implication of the Indonesian palm oil industry on the environment, human rights, and national interest. A description of the Indonesian palm oil industry and energy security will be given in the first chapter. In the second, there will be some explanations of the central issues dealt with by the Indonesian palm oil industry. The last section presents some critical remarks, including the environmental aspects, indigenous peoples, and the national interest in energy security.

2. Method

This study uses a descriptive research method, which is when a study aims to describe what is happening due to particular circumstances or phenomena. In order to deal with the problem under study, a juridical-empirical approach has been used, namely, to attempt to deal with issues of an actual legal nature or those that reflect the realities of life in society in the study. Data collected to conduct this research is mainly compiled from literature studies in the form of several pieces of information or facts collected after reading books, articles, reports, laws, regulations, and so on related to the subject matter of the study.

3. Indonesian palm oil industry on energy security perspective

Several plants can produce vegetable oil, such as rapeseed, sunflower seeds, peanuts, soybeans, coconuts, cotton, and palm oil (Demirbas et al., 2016). Due to Indonesian palm oil's high productivity level among other sources,

biodiesel made from palm oil produced by Indonesia has finally met standardisation from the US and the European Union (Khatiwada et al., 2018). It is also proven that in 2006, exports to Europe were started and expanded to the United States in March (ESDM, 2021; Kinseng et al., 2023).

Indonesian biodiesel has developed since the 1990s until today, and it has been a long journey for Indonesia to develop its energy independently in terms of quality, volume, and mixers (Wirawan et al., 2024). Indonesian palm oil-producing Crude Palm Oil (CPO) has been used domestically and exported internationally to Europe as one of those countries (ESDM, 2021; Squintani et al., 2014). Besides that, several companies have joined in this production since 2006, and it is projected to reduce Greenhouse Gases (GHGs) in the energy sector by 2030 (D. et al., 2009). The mandatory use of biofuels by The Ministry of Energy and Mineral Resources of the Republic of Indonesia (MEMR) has set a policy direction in the energy sector that prioritises the development and utilisation of renewable energy biofuels (MEMR, 2018). The implementation of the mandatory policies succeeded in creating a biofuel market on a national scale, which grew significantly from 2009 to 2014 (Ebadian et al., 2020).

The government succeeded in saving foreign exchange of twenty-three billion USD in 2017 by increasing the use of biodiesel for domestic needs, which has increased from the use of biodiesel in 2012 (Gapki, 2018). This reduces Indonesia's dependence on fossil energy and provides added value to the economy, reduces GHGs, and reduces the increasing import of fossil fuels. So far, from one oil palm tree, 90% of it becomes biomass waste, and only about ten per cent is utilised in the form of oil or its derivative products (BRIN, 2020). Oil palm biomass can also be converted into bio-pellet or bio-coal instead of conventional coal (Shuit et al., 2009). This shows that oil palm plantations are helpful in Indonesia's economic growth and energy supply.

Fossil energy emissions are the most significant contributors to GHG emissions globally and in Indonesia in particular. Sixty-one per cent of Indonesia's electricity production contribution comes from coal-fired power plants (Annur, 2023). Therefore, this palm oil biomass can be a promising renewable alternative energy to support environmentally friendly electricity production. Since Indonesia is still relying on imported oil from other countries, Indonesian President Joko Widodo believed that once Indonesia could make it to Biodiesel 100% (B100), Indonesia would no longer be importing oil from other countries (Asmara, 2019).

At the moment, Indonesia is still heavily reliant on fossil fuels as a source of energy. According to the data obtained from the Indonesian MEMR, it is expected that crude oil supplies will be available in Indonesia only for 9.5 years starting from 2020, as long as there is no new discovery and the current production level is seven hundred barrels of Oil Per Day (BOPD) (MEMR, 2021). In order to reduce dependence on petroleum and meet global environmental requirements, the only way to reduce the need for petroleum is to develop renewable energy sources (Sharma & Shrestha, 2023).

Indonesia has the potential for large quantities of renewable energy sources. Some of these can be immediately implemented in Indonesia, such as bioethanol as a substitute for gasoline, biodiesel as a substitute for diesel fuel, geothermal power, micro-hydro, solar power, wind power, and even garbage or waste can be used to generate electricity (Hulukati et al., 2023). Biodiesel derived from plant oils such as palm, jatropha, and coconut can be easily obtained across Indonesia; palm oil, as one of the primary sources of biodiesel raw materials as an energy fuel, can also be used as a substitute for fossil fuels (Putrasari et al., 2016).

Indonesia has a tremendous opportunity to develop biodiesel because Indonesia is the largest palm oil-producing country globally, with around forty-nine million tons per year in 2021, and this number continues to increase every year, while domestic consumption is only seven million tons per year (Kementerian Pertanian, 2021). This makes Indonesia the largest palm oil-producing country globally compared to Malaysia, which can only produce around 18 million tons in 2021. Moreover, Indonesia has switched to developing biodiesel; this may reduce the budget and dependence on fossil fuels (Basiron, 2022).

In 2018, the Indonesian government required blending twenty per cent of biodiesel with eighty per cent of diesel fuel biodiesel 20% (B20) before it finally reached the new regulation in 2019 that mixing thirty per cent of biodiesel (B30) has been mandatory. Indonesia has implemented biodiesel 30% (B30) as a mix of thirty per cent

biodiesel from palm oil known as Fatty Acid Methyl Ester (FAME) and seventy per cent diesel fuel (Energia, 2018). This policy has succeeded because, until today, there have been no complaints about the use of thirty per cent biodiesel (Jong, 2023).

It is believed that biodiesel produced from vegetable oil will eventually become one of the most important renewable energy sources for transportation and household uses. Implementing the B30 program may reduce the GHGs up to 27,80-million-ton Co2 equivalent (EBTKE, 2023). In Indonesia, advancing biofuel technologies is the only immediate solution to support Europe's reduction of GHG emissions by 2030 (Panoutsou et al., 2021).

3. Major Issues in the Production of Biofuel

3.1. Environmental Issues

Indonesia is the world's largest producer of palm oil, supplying approximately half of the world's supply, and is driving increased palm oil consumption through domestic biofuel policy (Sahara et al., 2022). Although oil palm is a highly efficient crop, its rapid expansion has severe environmental and social consequences (Murphy et al., 2021). As a result of making more palm oil, many forests are being cut down. On the other hand, Indonesia has a tropical rainforest that contributes oxygen to the atmosphere (McFarland, 2018). The country has ten per cent of the world's tropical forests and sixty per cent of Asia's tropical forests, while numerous animals and plants live in these forests and people in the forest's vicinity (Agusti et al., 2020).

Over the last two decades, deforestation in Indonesia has primarily been caused by land clearing for oil palm plantations (Putri, 2021). According to a new report, Indonesia's biodiesel program will exacerbate deforestation due to palm oil demand (Papilo et al., 2022). Furthermore, experts argue that biodiesel should only be used as a transitional measure toward more sustainable renewable energy sources rather than a long-term solution (Jong, 2021a). Deforestation led by oil palm plantations was the primary cause of deforestation from 2001 to 2016, accounting for twenty-three per cent of total deforestation nationwide (Austin et al., 2019).

In a recent report, the Carbon Disclosure Project (CDP), a London-based non-profit that provides information about environmental risks, claims that biofuel regulations in Indonesia are controversial and lack transparency (Jong, 2023). Companies with a permit to use timber forest products in industrial forest plantations must cease clearing forest land for palm oil plantations following a circular issued by the Indonesian Ministry of Environment and Forestry (CDP, 2021). Currently, Indonesia's biofuel regulations may increase pressure on the country's forests. Indonesia's primary forest loss rate decreased for the fifth consecutive year in 2020 but peaked in 2016 (G. F. Watch, 2023). The deforestation of more than a million hectares, or twenty per cent of the national forests, between 2011 and 2016 was attributed to the palm oil industry (Austin et al., 2019).

In light of this analysis, Greenpeace and TheTreeMap report that as of the end of 2019, 3,118,804 ha of oil palm had been planted in Indonesian forests (Greenpeace, 2021a), violating national forestry laws. It is estimated that over six hundred companies plant more than 10 hectares each in forest areas, of which over half (1,552,617 ha) are oil palm plantations (Jong, 2021b). Moreover, as a conservative estimate, Greenpeace estimates that oil palm conversion in Indonesia's forests caused a hundred and four million metric tons of carbon dioxide to be released between 2001 and 2019 (Greenpeace, 2021c). These factual conditions indicate that apart from having economic benefits from the palm oil business, they contribute to global aspects related to climate change.

There is limited land available for agriculture, so the growing demand for palm oil leads to expanding this industry onto other cropland, secondary forests already being logged for timber, and native tropical forests. As is typical with oil palm expansion, it destroys biodiversity, destroys old-growth forests, and contributes to air pollution by replacing tropical forests with monoculture crops. Additionally, most of Indonesia's rainforest comprises peatlands, whose destruction adversely affects biodiversity and climate (Petrenko et al., 2016).

As a result of land conversions such as these, Indonesia is Indonesia's largest source of GHG emissions. However, even under the business-as-usual scenario, it might be challenging to achieve a twenty-nine per cent reduction in GHG emissions by 2030 if weaknesses in law enforcement persist.

3.2. Indigenous Peoples issues

Indonesian oil palm plantations have caused environmental and indigenous rights—issues in various parts of Indonesia. The expansion of the palm oil industry to indigenous peoples land and forests has been a challenge to the government's efforts to realise social equity (Schlosberg, 2007). In order to comply with the company's purchase of the land, indigenous people, previously living in remote areas with limited facilities, must now give up their land. Despite this, many of them have still not been compensated for land acquisition by palm oil companies in Indonesia (Suryadi et al., 2021; Appiah & Gbeddy, 2018). Rural landscapes and livelihoods have been transformed owing to the broader form of industrial resource extraction encompassing commercial logging, plantations, and mining (Toumbourou et al., 2022). Moreover, long and complicated procedures are involved in recognising and protecting customary law communities, and the legal framework has been poorly implemented (Simarmata, 2019). In addition to this, land is deeply rooted in their culture and history (OECD, 2017; Nations, 2007).

Indigenous people have received legal recognition of their customary forests long before the oil palm plantation industry (Herningtyas, 2021). However, now they are very vulnerable to problems because of the oil palm plantation industry, even though they have proven to be effective natural resource managers. As a result, Indonesia's forests are at risk of being converted into plantations, threatening the climate, biodiversity heritage and the indigenous people that depend on them (Rangga et al., 2020).

In the Indonesian legal system, it is well known that the term customary law still exists in several regions, especially in remote areas—the definition of indigenous rights. According to the regulation of the Minister of Agrarian Affairs of Indonesia No. 5 of 1999, Article 1 point 1 states that indigenous rights are the authority which, according to customary law, belongs to specific customary law communities over certain areas, which are the environmental areas of their citizens to take advantage of natural resources, including land within that area, for the survival of the community. Life and life arise from outward and inward relations that are hereditary and unbroken between the customary law community and the territory concerned. Under the Indonesian Basic Agrarian Law, 1960, the guarantee of ownership for forest residents and other customary groups relying on communal and traditional practices is uncertain since customary land rights cannot be registered, which is one of the reasons for the frequent land confiscation of indigenous people (Shivakumar & Bell, 2015).

More than 70 million indigenous peoples live throughout Indonesia's archipelago, representing twenty per cent of the total population. More than most of them live in forests and are dependent on those resources (Rangga et al., 2020). Human rights violations and violations of indigenous rights continue to occur systematically and chronically, especially since the Constitutional Court Decision No. 35/PUU-X/2012 (Khalisotussurur, 2015).

A significant decision was the separation of customary forests from state forests and their classification as "private forests" (Salamat, 2015). The decision of the Constitutional Court Number 35/PUU-X/2012, which was issued on May 16, 2013, stated: "Customary forests are those located within the territory of communities subject to customary law." Oil palm plantations should be aware of the rights of indigenous peoples as customary forests exist in the area.

Deforestation is also a vital component of the problems in Jambi Province due to the conversion of its forests to oil palm plantations, as evidenced by illegal logging events and extensive forest fires at the end of 2015 (Endriani et al., 2018). In consequence, Jambi experienced severe drought during the dry season. Additionally, the river, which is still the mainstay of the people of Penyabungan Village, is currently polluted by five palm oil mills, as evidenced by the number of dead fish and the cloudy appearance of the river (Azzahra & Dharmawan, 2017). Similar events occurred in Lamin Telihan Village, Lamin Pulut Village, and Teluk Bingkai Village of Kutai Kertanegara Regency (Muhdar et al., 2019).

As a result of oil palm plantations in Indonesia, indigenous people have lost their homes and places of residence and their sources of livelihood and natural resources to meet their basic needs in Papua (Runtuboi et al., 2021). Many indigenous people have not yet been compensated despite receiving land for oil palm plantations. Although palm oil companies had recruited indigenous workers to work with them, they were suddenly laid off after several years. Following their dismissal without receiving their wages, they protested to the company, asserting their rights to immediate payment. The company instead assigned police officers brought in to secure the protest (Mifee, 2015). Moreover, Article 18B (2) of the second amendment to the 1945 Constitution of the Republic of Indonesia recognises the existence of indigenous people's indigenous rights. This principle legal instrument has long recognised and protected the rights of indigenous people in Indonesia. Consequently, the state recognises them and the traditional customary law regarding natural resources by indigenous people.

The violation of indigenous rights has become a subject rarely discussed in mainstream media. Today, people living near oil palm plantations face environmental challenges that differ from what they encountered in the past. It is difficult for people to obtain clean water daily because oil palm plantations pollute rivers and other water sources (Kamyab et al., 2018). The lack of dense forests has resulted in them being unable to find the animals and plants they used to consume and live alongside indigenous people.

As a method of ensuring sustainable economic recovery, low-carbon energy development can be utilised to ensure that governments can meet climate targets through a fairer and equitable energy policy (Heffron, 2021). Indonesia is still plagued with many problems due to industrial oil palm plantations to date. Government policies do not seem to be right on target due to the many overlapping interests. The increasing use and utilisation of palm oil for biodiesel production require large tracts of land to be cleared, posing several environmental concerns. The more land must be cleared, the greater the threat to indigenous rights.

3.3. Indonesian National Interest

Since 2006, the EU has been Indonesia's largest foreign investor and one of its largest markets (ESDM, 2021; Kinseng et al., 2023). The EU is also among the regions that consume the most palm oil worldwide, both for food and non-food purposes, and palm oil has the potential to reduce the EU's reliance on fossil fuels (Union, 2019). Moreover, the EU uses CPO as a primary raw material in the transportation sector to produce renewable energy that Europe pursues to address environmental issues (EEA, 2023). Since Indonesia and the EU have an excellent bilateral relationship, it is more convenient for Indonesia to export CPO to the EU.

In 2013, Indonesia's crude palm oil exports to the EU declined (Tandra et al., 2021; Investments, 2013). This decline can partly be explained by the EU's rejection of the Indonesian CPO, which asserted that CPO was unsustainable, causing forest fires, floods, and deaths in Indonesia. On April 4, 2017, the EU Parliament unanimously adopted a resolution on palm oil and the destruction of rainforests that shocked the Indonesian palm oil industry (European Parliament, 2018). Particularly for palm oil products destined for the European market, the distribution of this resolution will pose a challenge.

The EU Parliament banned CPO and its derivative products for five reasons: deforestation, degradation of animal habitats, corruption, and human rights violations (Sulistyarini et al., 2022), and the Indonesian palm oil industry is one of the triggers. According to the European Parliament, the reason has been approved by six hundred and forty members, while eighteen others have refused, and 28 others have abstained (Sidik, 2018).

Following the renewable energy directive (RED II), the EU has published a derivative regulation through its European Commission. As a result of revising and refining the previous Renewable Energy Directive, the Renewable Energy Directive II is the EU's renewable energy directive. It should be noted that palm oil is not included in the RED II policy, which contains significant initiatives the EU took to promote the increased use of renewable energy (Kinseng et al., 2023). RED II classifies palm oil as high-risk, whereas other vegetable oils are low-risk (Mayr et al., 2021).

According to the EU's revised RED II, the sustainability requirements from the first generation of biofuels were amended in 2018, resulting in a more comprehensive ban on palm oil imports from Indonesia due to allegations that palm plantations cause widespread deforestation (Umarach, 2021). According to the EU's RED II policy, palm oil exports should be reduced gradually since the palm oil industry is accused of contributing to deforestation and other harmful social, environmental, and human rights issues (Sutrisno, 2019; Akbar Ramadhan et al., 2021). Despite the European Union's ban on palm oil, deforestation rates in Indonesia remain high (Hugh Speechly, 2019). While the EU ban has a limited impact on deforestation, it is far from an adequate measure for slowing down the deforestation caused by palm oil.

The European Union is urged to play a direct role in reducing deforestation through direct roles such as carbon financing (Comission, 2008). The RED II program resulted in a decrease of hundreds of millions of dollars in palm oil exports from Indonesia to the EU because Indonesia lost its share of the market for palm oil exports, making the Indonesian government file a complaint against the EU at the World Trade Organization (WTO) (Parmar, 2020). The EU Delegated Regulation and the RED II policy have been sued for decriminalising Indonesian palm oil products.

G2G diplomacy continues to be used by the Indonesian government for negotiations with the EU, and the Indonesian government has expanded its export market to other countries, such as China and India, in anticipation of the decline in the palm oil market in the EU (Hasna et al., 2021). Indonesia is also making internal efforts to deal with the RED II regulation and diplomacy.

4. Conclusions

Due to its destructive nature and environmental impact, palm oil is not considered a renewable energy source, even though it would be contrary to national interests in the energy sector. Deforestation led by oil palm plantations was the primary cause of deforestation, accounting for twenty-three per cent of total deforestation nationwide. Since Indonesia faces deforestation issues, it is difficult for indigenous people to obtain their environmental rights, including land and forest. The orientation of national income through the export of palm oil products presents an inconsistency in international responsibility relations when looking at the urgency of Indonesia's strategic products. However, European countries oppose this practice because they have indicated that they are attempting to protect the rights of their sunflower farmers by addressing issues of environment and human rights. From a legal and policy perspective, the answer to this problem is not yet clear regarding the most credible scheme that can be employed to bridge various global interests on the one hand and Indonesian national interests on the other.

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