Journal of Economics and Business (JECOMBI)
Volume 4 , Number 03, 2024, DOI 10.54209/ jecombi.v4i03
ESSN 2746-8887 (Online)
https://jecombi.seaninstitute.or.id/index.php/JECOMBI

Environmental Impact Analysis for Communities in Oil Palm Plantations

Willya Achmad
Department of Social Welfare, Faculty of Social Science and Political Science, Universitas Pasundan, Bandung, Indonesia

Article Info
Keywords:
Health,
Environment,
Labor,
Industry,
Plantation,
Oil Palm

ABSTRACT
The existence of the industrial sector and oil palm plantations can be a driving force for the local community's economy, but the existence of the industrial sector and oil palm plantations does not always have a positive impact, but has a negative impact on the surrounding community, especially the workers who work on the plantation. This study aims to determine the environmental impact for workers working in oil palm industry and plantations. This study uses a qualitative approach with a descriptive method. The results show that the history of the opening of oil palm plantations is in order to create jobs, improve the living standards of the surrounding community and of course improve the country's economy through foreign exchange earnings. However, the existence of oil palm industry and plantations does not always have a positive impact but also has a negative impact, especially environmental health for the community and workers where there is a decrease in the quality and quantity of clean water, pesticide poisoning, the emergence of diseases caused by the industry and oil palm plantations.

Corresponding Author:
Willya Achmad
Department of Social Welfare, Faculty of Social Science and Political Science, Universitas Pasundan, Bandung, Indonesia
willyaachmad@unpas.ac.id

INTRODUCTION

Development in the agricultural sector rests on the basis of comparative advantage in producing various raw materials, one of which is from plantation commodities, which can create considerable opportunities for agribusiness development (Helviani et al, 2021). Opportunities for agribusiness development are marked by the establishment of companies engaged in the plantation sector (Apriyanti, 2020). The establishment of a plantation company will certainly have an impact on economic, social and environmental conditions around the plantation (Rusmawardi, 2007). Impacts that occur as a result or influence caused by the development of plantations, will lead to public perceptions of their survival. Whether it leads to public unrest or complaints or towards improving the existence of their living environment (Purba et al, 2020).

The palm oil industry is a strategic industry that is engaged in the agricultural sector (agro-based industry), which is widely developed in tropical countries such as Indonesia, Malaysia, and Thailand. These countries include Thailand, Malaysia, and Indonesia (Nuryanti, 2008). The food, health, cosmetics, and soap industries are just a few of the

Journal of Economics and Business (JECOMBI)
Volume 4 , Number 03, 2024, DOI 10.54209/ jecombi.v4i03
ESSN 2746-8887 (Online)
https://jecombi.seaninstitute.or.id/index.php/JECOMBI

many that rely on palm oil for their essential components. Palm oil's many benefits include these basic ingredients. lubricating oil for engines and the industry that produces biofuel (biodiesel) (Arjuna, 2020). The waste can be converted into organic fertilizer, which will not only help the environment but will also bring in revenue. As a result of an increase in the quantity of palm oil production that is proportional to the growing requirements of the community, the prospects for the development of the palm oil industry are currently very promising and are expected to advance at a very rapid rate. More than 4.5 million people, including farmers and workers, are employed by the oil palm plantation and industry, which also contributes approximately 4.5 percent of the total national export value (Ewaldo, 2015). As a result, Indonesia has become the nation with the highest volume of crude palm oil (CPO) exports in the world.

According to information from the Directorate General of Plantations (2014), the extraction of oil palm plantations in Indonesia is split into three categories: large private plantations (PBS), people's plantations (PR), and large state plantations (PBN), with the former accounting for 51.86%, the latter for 41.42%, and the latter for 6.72%. Over the course of the past decade, the amount of land devoted to oil palm plantations in Indonesia has generally expanded, going from 6.59 million ha in 2006 to 11.44 million ha in 2015. (PASPI 2016).

The CPO industry is impacted in multiple ways, including economically, environmentally, and in terms of development, by the expansion of oil palm plantations. According to Susila (2004), the contribution of the palm oil-based industry plays an important role in the improvement of income distribution, as well as the growth and alleviation of poverty in the economy. The development of oil palm plantations has a beneficial effect on the expansion of the economy, as shown by increases in investment, output, and foreign exchange. The industry that is based on palm oil also has a significant contribution to the general welfare of households, which originates from the palm oil business (Utami, 2017).

The expansion of oil palm plantations may bring about environmental issues, despite the fact that it yields financial benefits (Nugraha, 2020). The environment can be thrown off-kilter if oil palm plantations are allowed to expand, leading to things like deforestation, higher carbon emissions, and climate change (Pacheco 2012). Deforestation is expected to occur as a result of the province of Central Kalimantan's plan to increase its oil palm plantation area from 1 million ha to 3.5 million ha (Boer et al., 2012). Land swaps, in which forest land is exchanged for non-forest land, and increased oil palm productivity by self-sufficient smallholders are two strategies proposed by Boer et al. (2012) to slow deforestation.

Dufrene et al. (1993), who conducted a study in the Ivory Coast, South Africa, found that an individual oil palm tree needs 1.25 to 2.31 mm of water per day and can absorb water to a depth of 5.2 m, raising concerns about environmental disruptions caused by oil palm expansion. According to another study by Kallarakal et al. (2004), oil palm plantations can affect non-oil palm plantation plant life by depleting groundwater resources. According to the research conducted in India by Kallarackal, an individual oil palm tree needs between 2.0 and 5.5 mm/day, or 140 to 385 l/ha/day, for a total of 143 trees/ha. According to Taufiq

Journal of Economics and Business (JECOMBI)
Volume 4 , Number 03, 2024, DOI 10.54209/ jecombi.v4i03
ESSN 2746-8887 (Online)
https://jecombi.seaninstitute.or.id/index.php/JECOMBI

et al. (2013), oil palm plantations account for more than 30 percent of land use in the Landak sub-watershed, which has a significant effect on the water balance due to the high water demand of oil palm. It is well-documented that oil palm plantations have a 30-40% impact on water discharge reduction. The presence of oil palm plantations makes it difficult for locals to get enough to drink.

With the existence of the Palm Oil Industry, the situation should support the quality of life of the community, but the environmental conditions have become very alarming. Waste Is Dirt Or Waste Which Is A Component That Causes Pollution Consists Of Substances Or Materials That Have No Use For The Community. Industrial Waste Mostly Produces Waste That Is Liquid Or Solid Which Is Still Rich With Organic Substances That Are Easily Degradable. Most Existing Industries Dispose of Their Waste Into Open Waters, So In A Relatively Short Time There Will Be A Bad Smell As A Result Of Waste Fermentation.

METHOD

The descriptive qualitative method was used in this study. Creswell (1998) defines qualitative research methods as an approach or search to investigate and comprehend a central phenomenon. To gain a better understanding of the central phenomenon, the researcher conducted interviews with research participants or participants, asking general and rather broad questions. The information is then compiled into words or text. The information gathered is then analyzed. The researchers then describe the findings of the analysis in relation to previous studies conducted by other scientists. The findings of qualitative research are documented in a written report.

According to Sugiyono (2011), qualitative research methods are research methods based on the philosophy of postpositivism that are used to examine the condition of natural objects (as opposed to experiments) where the researcher is the key instrument, data sources are sampled purposefully and snowball, technique collection is by triangulation (combined), data analysis is inductive or qualitative, and qualitative research results emphasize meaning rather than generalizability. This method was chosen because it addresses a current issue in our society. It is about Environmental Health Analysis for Workers in Oil Palm Plantations in this case.

RESULT AND DISCUSSION

History of the Development of Oil Palm Plantations in Indonesia

The Dutch colonial government introduced oil palm to Indonesia in 1848. Four oil palm seedlings had been brought from Mauritius and Amsterdam to be planted in the Bogor Botanical Gardens at the time. Furthermore, the seedlings' results were transferred to Deli, North Sumatra. For several decades, the oil palms that have been breeding in this location have only served as ornamental plants along the roads in Deli, obscuring their true potential. Oil palm plantations were first cultivated and commercialized in 1911. Adrian Haller, a Belgian national who learned a lot about oil palm in Africa, is the pioneer of oil palm plantations in Indonesia. Oil palm plantations in Indonesia follow his cultivation. Oil palm plantations in Indonesia have since begun to grow. The first oil palm plantations were

Journal of Economics and Business (JECOMBI)
Volume 4 , Number 03, 2024, DOI 10.54209/ jecombi.v4i03
ESSN 2746-8887 (Online)
https://jecombi.seaninstitute.or.id/index.php/JECOMBI

established on Sumatra's east coast (Deki) and in Aceh. At the time, the plantation covered 5,123 ha. In 1919, Indonesia exported 576 tons of palm oil to European countries, and in 1923, it exported 850 tons of palm kernel oil. Oil palm plantations grew rapidly during the Dutch occupation. At the time, Indonesia shifted the dominance of African exports. However, Indonesia's rapid progress was not accompanied by an increase in the national economy. The benefits of obtaining palm oil exports only benefit powerful foreign countries in Indonesia, such as the Netherlands (Ngadi & Noveria, 2018).

When the Japanese occupied the area, progress in oil palm development stalled. In 1948-1949, Indonesia produced only 56,000 tons of palm oil due to the decline of oil palm plantations and the subsequent loss of arable land. In contrast, Indonesia shipped out 250,000 metric tons of palm oil back in 1940. For political and security reasons, the Indonesian government took control of the plantations after the Dutch and Japanese evacuated the country in 1957. The government places military officers at every level of plantation management with the aim of securing the course of production. The government also established BUMIL (military workers) which is a forum for cooperation between plantation workers and the military. Changes in management in plantations and socio-political conditions as well as domestic security are not conducive, causing palm oil production to decline. In that period, Indonesia's position as a supplier of world palm oil began to be shifted by Malaysia (Syamriati, 2021).

Entering the new order government, plantation development was directed at creating jobs, improving people's welfare, and as a sector that generates state foreign exchange. The government continues to encourage the opening of new land for plantations. Until 1980, the land area reached 294,560 ha with CPO production of 721,172 tons. Since then, Indonesia's oil palm plantations have grown rapidly, especially smallholder plantations. This is supported by government policies that implement the plantation people's nucleus plantation program (PIR-BUN). In its implementation, large plantations are the core of fostering and accommodating the results of people's plantations in the vicinity which become plasma. The development of oil palm plantations has accelerated again after the government developed a follow-up program, namely PIR-Transmigration since 1986. The program succeeded in increasing the area of land and production of oil palm. In the 1990s, the area of oil palm plantations reached more than 1.6 million ha spread across various production centers, such as Sumatra and Kalimantan.

At this time, Indonesia is the world's leading producer of palm oil. Growing from 10.8 million tons in 2004 to 13.6 million tons in 2005, Indonesia's CPO production capacity increased by a significant margin. In 2010, Indonesian palm oil production is anticipated to exceed 20 million tons.

The oil palm tree is a multipurpose resource, with almost every part having a viable commercial application (see diagram on the following page). The primary oil palm tree will produce oil palm fruit. The oil in oil palm fruit is used as a standard ingredient in both the food and non-food industries. Coir for the pulp industry (pulp), particle board, and energy to power machines in the palm oil processing plant are all made from oil palm fruit. When palm oil is extracted, the leftover sludge or processing residue can be used as either an animal feed or a fertilizer. Palm oil is the primary component in biodiesel, a botanical fuel

Journal of Economics and Business (JECOMBI)
Volume 4 , Number 03, 2024, DOI 10.54209/ jecombi.v4i03
ESSN 2746-8887 (Online)
https://jecombi.seaninstitute.or.id/index.php/JECOMBI

that can be used as a direct replacement for diesel fuel. Oil palm plantations are expected to take over vast swaths of land in the coming years as a direct result of projected high demand. It would take 720,000 kilo liters of biodiesel to meet the United States' 2% national diesel requirement. In order to accomplish this, we will need plantation land covering a total of 200 thousand acres (Ernah et al, 2021).

Environmental Impacts for Palm Oil Plantation Workers

Destroying the environment is defined as causing changes to the physical and/or biological properties of the environment in a way that makes the environment unable to serve as a foundation for sustainable development, per Law 32 of 2009 on the protection and management of the environment. Despite the importance of conserving and protecting natural resources, sectoral development to date has only served to increase their exploitation. This leads to a steady increase in pollution and environmental degradation.

When an activity's sustainability causes a change in the condition or function of a component of the environment, this is called an environmental impact. Impacts that result in substantial shifts require special consideration. Land acquisition and clearing, the placement and size of extensive monoculture oil palm plantations, and the establishment and maintenance of oil palm fruit processing plants are all aspects of oil palm plantation development that can have a significant effect on the scope and character of impacts. Meanwhile, the state of the ecosystem, hydrology, landscapes, and the mindset of the locals in the area around the plantation are all affected environmental baselines.

In general, the impacts that are caused by the cultivation of plantation crops are soil erosion, changes in the availability and quantity of water as a result of land clearing activities, the distribution of pests, diseases, and weeds during plantation operations, and changes in soil fertility as a result of the use of pesticides. In addition, the cultivation of plantation crops can cause changes in the biodiversity of the area as a result of the use of herbicides. In addition to this, there is frequently the possibility of social conflict as well as the emergence and subsequent spread of endemic plant diseases. It is necessary to determine, as early on as possible, how an activity will affect the environment. When deciding whether or not to carry out a certain activity, one must take into account the myriad of environmental impacts that could result from doing so. If the potential adverse impact is considered to be too great and to outweigh the potential advantageous impact, then the activity in question should not be carried out. The UKL-UPL document needs to contain every environmental impact that could possibly occur as a result of the activities that are planned to be carried out at the oil palm plantation. This information needs to be specific, comprehensive, and understandable. At the very least, questions regarding the "what," "how," "why," "when," and "where" should be able to be answered.

People who are unwilling to give up their land and inappropriate selling prices are two of the obstacles that can be encountered during the process of acquiring land. These challenges have the potential to reduce the degree to which the community will support the plan to develop oil palm plantations. The topic of land acquisition frequently serves as a source of contention between locals. People who are adamant about not selling their land will find themselves in conflict with those who are interested in doing so. This, of course, has the potential to disrupt the equilibrium of the population. There is a possibility that

Journal of Economics and Business (JECOMBI)
Volume 4 , Number 03, 2024, DOI 10.54209/ jecombi.v4i03
ESSN 2746-8887 (Online)
https://jecombi.seaninstitute.or.id/index.php/JECOMBI

residents will argue with one another due to the unclear ownership status of the land. Multiple parties acknowledge ownership of the same piece of land. Transactions involving the purchase and sale of land will have an impact on the income level of the community. As a direct result of this, the community will no longer have any rights to the land and will no longer own it. In the event that the land in question is part of agricultural land, land used by indigenous people, or land used for plantations, the activities that take place on the land may have a direct impact on the previous patterns of subsistence that were followed by those groups.

CONCLUSION

The existence of oil palm industry and plantations can increase farmers' income, but based on research, expansion of oil palm plantations can result in negative impacts on the environment in the form of reduced quantity of ground water, water pollution, and reduced animal populations compared to conditions before the expansion of oil palm plantations. The government needs to strengthen regulations and laws regarding the management of the negative impacts of oil palm plantations in order to provide comfort and reduce the impact felt by the community around the plantation. The community needs to work together with the company to pay attention to environmental quality so as to reduce environmental damage that causes environmental quality to decline. Companies must pay more attention to the environment around the company's area and the surrounding community so that company activities do not interfere with the comfort of the community, such as improving public facilities and infrastructure, providing clean water and improving environmental quality.

REFERENCES

1. Apriyanti, I. (2020). Dampak Berdirinya Perusahaan Kelapa Sawit Terhadap Kondisi Sosial Ekonomi Masyarakat Sekitar. *Agriprimatech*, *3*(2), 84-89.
2. Arjuna, J. (2010). Kelapa Sawit, Manfaat Dan Permasalahannya Dengan Lingkungan Hidup Di Sumatera.
3. Boer, R., Nurrochmat, D. R., Ardiansyah, M., Hariyadi, P. H., & Ginting, G. (2012). Reducing Agricultural Expansion Iinto Forests in Central Kalimatan Indonesia. *Project Report.[Internet.*
4. Creswell, J. W. (1998). *Penelitian Metode Kualitatif.* Yogyakarta: Kencana Predana Media Group.
5. Dufrêne, E., Dubos, B., Rey, H., Quencez, P., & Saugier, B. (1992). Changes in evapotranspiration from an oil palm stand (Elaeis guineensis Jacq.) exposed to seasonal soil water deficits. *Oleagineux (France)*.
6. Ernah, E., Wulandari, E., & Sudarjat, S. (2021). Pengenalan Standar Perkebunan Kelapa Sawit Berkelanjutan. *Jurnal Abdidas*, *2*(1), 92-97.
7. Ewaldo, E. (2015). Analisis ekspor minyak kelapa sawit di Indonesia. *e-Journal Perdagangan Industri dan Moneter*, *3*(1), 10-15.
8. Helviani, H., Kasmin, M. O., Juliatmaja, A. W., Nursalam, N., & Syahrir, H. (2021). Persepsi Masyarakat terhadap Dampak Perkebunan Kelapa Sawit PT. Damai Jaya

Lestari di Kecamatan Tanggetada Kabupaten Kolaka, Sulawesi Tenggara, Indonesia. *Agro Bali: Agricultural Journal*, *4*(3), 467-479.

9. Kallarackal, J., Jeyakumar, P., & George, S. J. (2004). Water use of irrigated oil palm at three different arid locations in Peninsular India. *Journal of Oil Palm Research*, *16*, 45-53.
10. Ngadi, N., & Noveria, M. (2018). Keberlanjutan Perkebunan Kelapa Sawit Di Indonesia Dan Prospek Pengembangan Di Kawasan Perbatasan. *Masyarakat Indonesia*, *43*(1).
11. Nugraha, A. A. (2020). *Strategi Pengembangan Minyak Sawit Dan Turunannya Di Sumatera Utara Tahun 2013-2018* (Doctoral dissertation, Universitas Islam Negeri Sumatera Utara).
12. Nuryanti, S. (2008). *Nilai strategis industri sawit*. Jakarta: Kementerian Pertanian.
13. Pacheco, P. (2012). Oil Palm in Indonesia linked to trade and investment: Impications for forests. Bogor (ID): Center for International Forestry Research (CIFOR).
14. PASPI. (2016). Mitos dan Fakta Industri Minyak Sawit Indonesia dalam Isu Sosial, Ekonomi, dan Lingkungan Global. Bogor (ID).
15. Purba, B., Marzuki, I., Simarmata, H. M. P., Aznur, T. Z., Kristiandi, K., Anita, A., ... & Surjaningsih, D. R. (2020). *Dasar-Dasar Agribisnis*. Yayasan Kita Menulis.
16. Purba, J. H. V., & Sipayung, T. (2018). Perkebunan kelapa sawit indonesia dalam perspektif pembangunan berkelanjutan. *Masyarakat Indonesia*, *43*(1).
17. Rusmawardi, R. (2007). *Dampak Berdirinya Perkebunan Kelapa Sawit (Elaeis guineensis jack) Terhadap Kondisi Sosial Ekonomi Masyarakat (Studi Kasus Pada Desa Kabuau, Kecamatan Parenggean, Kabupaten Kotawaringin Timur, Propinsi Kalimantan Tengah)* (Doctoral dissertation, University of Muhammadiyah Malang).
18. Sugiyono, P. (2011). *Metodologi Penelitian Kuantitatif Kualitatif Dan R&D*. Bandung: Alpabeta.
19. Susila, W. R. (2004). Contribution of oil palm industry to economic growth and poverty alleviation in Indonesia. *Jurnal Litbang Pertanian*, *23*(3), 107-114.
20. Syamriati. (2021). Kajian Dampak Limbah Kelapa Sawit Terhadap Kualitas Perairan Sungai Budong-Budong Sulawesi Barat A. *Jurnal Ecosolum, 10*(1), 1–25.
21. Taufiq, M., Siswoyo, H., & Anggara, W. W. S. (2013). Pengaruh tanaman kelapa sawit terhadap keseimbangan air hutan (studi kasus Sub das landak, das kapuas). *Jurnal Teknik Pengairan: Journal of Water Resources Engineering*, *4*(1), 47-52.
22. Undang-undang Nomor 32 Tahun 2009 tentang perlindungan dan pengelolaan lingkungan hidup.
23. Utami, R., Putri, E. I. K., & Ekayani, M. (2017). Dampak Ekonomi dan Lingkungan Ekspansi Perkebunan Kelapa Sawit (Studi Kasus: Desa Penyabungan, Kecamatan Merlung, Kabupaten Tanjung Jabung Barat, Jambi). *Jurnal Ilmu Pertanian Indonesia*, *22*(2), 115-126.