Marind Indigenous Ecological Justice: Laudato Si' And Ecological Resilience Facing Industrial Expansion In Merauke, South Papua

Rikardus Kristian Sarang[1], Donatus Wea[2], Erly Lumban Gaol[3], Emiliana Sri Pudjiarti[4]
[1,2]Sekolah Tinggi Katolik Santo Yakobus, Merauke, Indonesia
[3]Sekolah Tinggi Santo Yakobus Merauke, Merauke, Indonesia
[4]University 17 August 1945 Semarang, Indonesia
Email: rikardkristians@stkyakobus.ac.id

Abstract

This research analyzes the values of natural harmony in the cosmology of the Marind people of South Papua. The research object was carried out on LMA Marind and priests in the Merauke Archdiocese using a qualitative approach. The findings explain that deforestation due to the conversion of natural forests into large plantations in Merauke, South Papua has threatened the socio-cultural survival of the Marind tribe. The loss of forests as a basis for their ecological and spiritual adaptation is contrary to the principles of ecological justice and environmental sustainability in Laudato Si. Pope Francis emphasized that the earth is the common home of humanity which must be protected for the benefit of all generations. Inclusive development policy reform is needed in Merauke by meeting the needs of indigenous communities and restoring natural habitats as the main orientation, not just the interests of investors. Also, political empowerment of local communities to have control over their customary lands. Harmonization of nature conservation, the human rights of indigenous peoples, and the sustainability of cultural heritage are key amidst investment expansion. Full involvement of the indigenous Marind tribe with high understanding and responsibility is a requirement for ecological-socio-cultural sustainability in Merauke. Marind traditional ecological findings, 1) connectedness with the universe, 2) ecology is part of ancestral traditions and wisdom, 3) ecology is the balance of the ecosystem, 4) ecology is dependence on rivers and seas, 5) ecology is a connection with the supernatural.

Keywords: *Merauke Deforestation, Marind Customs, Ecological Justice, Laudato Si', Inclusive Development Policy.*

– – – – – – – – – – ◆ – – – – – – – – – –

A. INTRODUCTION

Merauke Regency is a government area located in the southernmost part of the easternmost South Papua Province of the Unitary State of the Republic of Indonesia (NKRI). The original inhabitants of Merauke district are the Marind people, who are a large tribe who own customary land rights which is the government area of Merauke district, South Papua, which stretches from the mouth of the Digoel River to Kondo, the easternmost area directly bordering the country of Papua New Guinea (Hasan, 2020).

The Marind indigenous people live in harmony with the forest as their main source of livelihood (Kirksey & Roemajauw, 2022). Unfortunately, rampant deforestation for government programs such as MIFEE and the expansion of oil palm plantations is destroying Marind's forests and natural resources (Mahmud et al.,

2021). This has an impact on the loss of livelihoods and the uprooting of the Marind people and their cultural roots. Even though the law has given legitimacy to the Marind Indigenous Community Institution (LMA) to protect their traditional rights (Siahaya et al., 2022), the LMA authority is considered powerless to face corporate pressure and government policies that tend not to favor the community (Ishikawa & Soda, 2017).

In the view of the Papuan People, the indigenous Papuan Community, all land in the Papua region is land or customary land, except for that which has been transferred through the customary release process, with the issuance of a letter of customary land release by the LMA (Purnama, et al. 2021). In the Regional Regulations of Merauke Regency, LMA is an organization or forum that has been formed from generation to generation and developed in history or law. Indigenous communities in customary law areas have the right and authority to regulate, manage, and resolve various life problems related to local customs and laws (Merauke Regency Regional Regulation No. 4 of 2013).

Mirsella's research explains that traditionally, the Marind people's relationship with the forest is interdependent where the forest is seen as a mother/ancestor who provides and protects life. However, due to forest loss, this harmonious relationship is now threatened (Pukal & Mayer-Gampe, 2024; Van Hansbergen, 2022). According to (Kirksey, 2012), the impact of deforestation is not only ecological but also psychological and spiritual. For the Marind people, a felled forest means their ancestors were massacred. According to Ishikawa and Soda (2017), the weak authority of traditional institutions such as LMA Marind occurs because, in the modern bureaucratic system, traditional institutions are often seen as irrational, unscientific, and backward. As a result, the LMA's voice is not heard in the policy-making process that impacts forests and indigenous communities. States and corporations tend to impose development programs without LMA approval.

This principle of harmony between humans and nature is in line with the teachings of Laudato Si' initiated by Pope Francis (2015). In Laudato Si, Pope Francis emphasized that the earth is our common home and that all living things are interconnected. He criticizes the capitalistic development paradigm which considers nature to be just a commodity to be exploited for purely material gain. Laudato Si calls for reforming human relations with nature so that there is ecological balance and sustainability (Fransiskus, 2015). Therefore, Laudato Si' can be the basis of a moral and theological argument to strengthen the LMA Marind's struggle to defend their customary forests from the threat of deforestation for the sake of ecological and cultural sustainability.

The phenomenon of deforestation and the weakening of the customary rights of the Marind indigenous community in Merauke is a form of disharmony in the relationship between humans and nature. According to Laudato Si', this results in an ecological crisis as well as a socio-cultural crisis for indigenous communities (Fransiskus, 2015). Therefore, Pope Francis called for reforming human relations with nature to achieve ecological sustainability and protect indigenous peoples.

Researchers want to analyze whether the value of natural harmony in Marind people's cosmology is still strong or has been eroded by materialism due to the intervention of the money economy, as theorized by Wallace (1956). Apart from that, researchers want to identify the political roots of deforestation in Merauke, whether it is dominated by economic-corporatist elites so that policies do not side with indigenous communities. The aim is to formulate comprehensive policy recommendations to reform human-nature relations in line with the principles of Laudato Si', including a model for empowering indigenous communities that is right on target.

B. METHOD

The research method used is an ethnographic approach through observation and in-depth interviews. Researchers live with the Marind community to understand in depth the worldview (cosmology), cultural values, and socio-political dynamics of this indigenous community in facing investment pressure and deforestation on their customary land. Researchers chose several villages/hamlets of the Marind community as case studies to look in more detail and specifically at the impact of deforestation on cosmology, ecological adaptation, and socio-political dynamics at the local level.

Focus Group Discussions (FGD) were also conducted with strategic groups such as traditional elders, religious leaders, women, and youth to map various perspectives on the issue of deforestation and challenges of the Marind community by involving residents to map traditional territories, culturally important sites, animal migration routes, etc., which are threatened due to deforestation and forest conversion on Marind land. Also, a policy analysis to examine criticism of various policies related to investment and forest management in Merauke to see to what extent the interests and rights of indigenous peoples have been considered. By combining these various qualitative methods, a comprehensive and accurate understanding of the roots of the problem of deforestation and the Marind indigenous people and the solutions needed is obtained.

Participants and resource persons in this research are the indigenous Marind tribe who live around the forest area of Merauke Regency. They consist of 30 people, namely: 1). Marind traditional elders (5 people) as sources for understanding the cosmology, rituals, and traditional ecological wisdom of the Marind tribe, as well as the history of agrarian conflicts on this tribe's play land. 2). Religious/belief figures (3 people) as informants of the spiritual practices and beliefs of the Marind community related to forests. 3). Marind women (10 people) because Marind women are very dependent on forests to meet the daily needs of their families (Maharani et al., 2022). They can provide in-depth data regarding the impact of forest loss on social reproduction in Marind. 4). Local farmers (5 people) who depend on farming in the forest to understand farming techniques and sustainable forest management in the Marind style. 5). Marind young people (7 people) to explore data on shifts in orientation and behavior of the Marind millennial generation due to modernization.

The data collection methods used were in-depth interviews, FGD, and participatory observation. The sampling technique is purposive, that is, it is selected with certain considerations and criteria according to the data required. The data analysis method uses a thematic approach, namely coding data into certain patterns and themes and then interpreting and abstracting the meaning (Roberts et al., 2019).

Transcription of data from interviews, FGDs, and observations was coded based on important themes that emerged. These codes relate, among other things, to Marind cosmology, traditional rituals, gender roles, traditional agricultural practices, views on forests, the history of traditional land conflicts, and others. The categorization of codes created is then categorized into larger and abstract groups based on similar meanings. The meaning of the data for each category is then interpreted by referring to relevant theories and concepts, such as cultural ecology and agrarian authoritarianism. Interpretation is also carried out by considering the social, economic, and political context at local and national levels. Synthesis of research findings in the form of relationships between categories, generalization of patterns, dynamics of change, and causal factors, are synthesized into a complete understanding of the deforestation problem faced by the Marind community.

C. RESULTS AND DICUSSION

Merauke Regency has an area of 46,791.63 km2 or 4,679,163 hectares. Most of the area is covered with tropical rainforests which are rich in biodiversity. However, in recent years, natural forests in Merauke have experienced quite high rates of deforestation due to the expansion of oil palm plantations and other agricultural commodities.

Based on data from Auriga Nusantara (2022), at least 157,248 hectares of natural forest in Merauke were lost due to land conversion for oil palm plantations from 2001 to 2022. This figure is equivalent to 38% of the total area of deforestation due to oil palm plantations in all of Papua which reached 339,247 hectares. From the data, it can be seen that Merauke is the district with the highest level of deforestation due to palm oil plantations in Papua and South Papua Provinces.

Apart from that, several non-forestry agricultural cultivation areas such as sago and coconut plantations also contribute to deforestation in Merauke. The conversion of natural forest areas to develop plantations has the potential to damage the local ecosystem and threaten the sustainability of biodiversity in this area. The Merauke Regency Government needs to immediately control the rate of deforestation due to plantation and agricultural expansion. Efforts to conserve the remaining primary forests in Merauke also need to be a priority for environmental management in this region.

As a result of interviews with 20 Marind people in 6 villages affected by oil palm plantations, most informants stated that the values of harmony with nature are still closely embedded in their culture. This is reflected in traditional rituals such as the Gosoma and Angganeo dance ceremonies which are still preserved. However, in 3 villages the LMA found an erosion of traditional values due to individualism and

materialism caused by oil palm plantations. Many young people choose to work in companies.

Based on interviews and FGDs with 30 participants and key informants from the Marind indigenous community in Merauke Regency, their views were found which also became research findings on deforestation:

Deforestation due to the conversion of forests to large-scale plantations has disturbed the cosmos and eliminated the basis of livelihood for the Marind people. Many sacred sites where traditional rites and sources of drinking water for residents in forest areas have now been completely cleared.

Marind women feel the most direct impact from the loss of forests where they meet their needs for food and weaving raw materials. They have to walk farther and longer to look for vegetables, mushrooms, and rattan in the remaining forests.

Local farmers are no longer able to shift farming in the forest because the land for farming and hunting is increasingly narrowing. They now have to compete with corporate plantations for fertile land.

Most of Marind's youth are no longer interested in studying traditional rituals and local knowledge about the forest because they are lulled into a consumerist lifestyle and believe that this does not guarantee a future. They prefer to work in oil palm plantations.

There are horizontal tensions and conflicts between the Marind clans regarding the distribution of compensation and access to remaining forest areas for economic use after most of their forests were converted into plantations.

However, communal values are still quite strong among Marind women who are members of the taboos group. They still routinely carry out traditional ceremonies together even though there has been a shift in mindset among the millennial generation and in the 5 LMA villages regarding the socio-cultural impacts of oil palm plantations, from positive responses to sharp criticism.

As representatives of the Catholic Church, we, the priests of the Archdiocese of Merauke, are concerned about the condition of our brothers and sisters from the Marind tribe who are suffering from deforestation and confiscation of their customary land for corporate interests. This is contrary to the values of justice and ecological sustainability echoed by Pope Francis in Laudato Si.

This exploitation of nature and marginalization of the Marind indigenous people shows a wrong development paradigm in Merauke. Development should aim to improve the welfare of all citizens, not just the interests of a few big investors and local political oligarchs.

Therefore, we urge local governments and related companies to stop the practice of grabbing customary land for the sake of environmental justice and respect for the human rights of the Marind tribe. We are ready to partner to build an inclusive and sustainable alternative development pattern by Laudato Si's guidelines.

Deforestation has hurt the Marind and LMA indigenous communities; First, ecologically, the loss of natural forests due to the expansion of oil palm plantations and mining on Marind land has destroyed habitat for flora and fauna. Many water

sources, ritual places, and ancestral burial sites of the Marind tribe which were located in forest areas no longer exist due to illegal logging. The traditional elders feel very lost because they can no longer teach traditional and cultural values to the younger generation in a sacred place.

Second, socially and psychologically, the massive investment in Marind traditional land also has an impact on uprooting the millennial generation from their cultural roots. Many young people now prefer to work as plantation laborers instead of learning traditional rituals from their tribal elders. Marind parents and traditional elders also feel they have lost control over their children's education. The fading of this ancestral heritage makes the elders feel isolated and depressed.

Third, economically and politically, the presence of large companies on Marind land often triggers horizontal conflicts among residents. Often the process of compensation and profit sharing for natural resources does not run fairly and equally for all clans. This unequal distribution of compensation has given rise to social jealousy, political contestation between traditional elites, and the weakening of social cohesion in the Marind community.

Based on field research at the Merauke Regency Traditional Community Institute (2024), it was found that the local political map in Merauke is currently dominated by political forces and state civil servants with an economic-corporatist bent. The position of traditional institutions of Marind and other indigenous tribes is increasingly marginalized and marginalized in making important decisions regarding development projects in their traditional territories.

For example, the Merauke Branch of the Papuan Traditional Council (DAP), which was supposed to be the mouthpiece for the political aspirations of indigenous communities did not have any power when the Merauke Regional Development Planning Agency (Bappeda) made policies that were detrimental to indigenous communities. For example, regarding land acquisition for oil palm plantations which is still far from standard FPIC (Free, Prior, and Informed Consent) procedures. In other cases, the voices of traditional elders are always defeated by the voices of bureaucrats when discussing the Regional Zoning Plan (RZWP-3-K) which has a corporatist orientation.

According to the Pusaka Foundation's observations, there are at least 22 public officials from Merauke, both in the Merauke Regional Government and DPRD, who are involved in palm oil plantation concessions with various companies. These politicians and state officials use their public authority to secure land for their personal or crony business interests. It is not uncommon for them to pressure and intimidate residents and traditional leaders who reject plantation plans in traditional areas.

Thus, it can be concluded that traditional institutions and traditional rights of the indigenous Papuan people in Merauke are increasingly marginalized due to the oligarchic dominance of local bureaucrats and politicians who side with big investors. More massive advocacy and organizing from civil society groups is needed to restore political balance so that justice for indigenous minorities can be realized amidst the onslaught of investment in Merauke.

Deforestation and Threats to the Marind Indigenous Cosmos

Based on research findings on the Marind indigenous community, it can be categorized into various codes as follows: 1) the ecological impact of deforestation resulting in loss of flora and fauna habitat and the extinction of water sources and agricultural land, 2) threats to Marind cosmology and rituals resulting in the destruction of sacred sites and places sacred and disrupting the regeneration of traditional knowledge, 3) economic and livelihood impacts resulting in a reduction in forest resources that can be used sustainably and a shift in livelihoods to the plantation sector, 4) political and social conflicts resulting in unequal distribution of benefits from oil palm plantations between clans and weakening internal cohesion culture.

This classification refers to the concepts of cultural ecology and agrarian authoritarianism. Ecological deforestation threatens the adaptation base of forest-dependent Marind communities. Meanwhile, politically and culturally, top-down policies for the development of extractive commodities give rise to agrarian contestation and conflict, as well as the erosion of the communal cosmology of indigenous communities (Landin & Cozart, 2024; Etterson, 2022).

Based on these findings, it can be concluded that forest loss due to large-scale plantation expansion is driving changes in the livelihoods and cosmology of the Marind community. Many Marind youth have lost interest in local traditions and switched professions to become plantation workers. Meanwhile, intercommunal conflicts between clans often arise in the struggle for access to compensation and benefits from oil palm plantations built on their customary land. The social cohesion of indigenous communities is weakening, as the traditional cosmos is fading due to damage to sacred sites and forest resources on which life depends.

Forest loss and land conversion in Merauke Regency have had a significant impact on the social, cultural, and political life of the Marind Indigenous People. An ethnographic study by Kirksey (2012) found that the forest for the Marind tribe is not just an economic resource, but a living entity that has a spirit and plays a vital role in their cosmology. It is believed that cutting down trees that are home to ancestral spirits can cause disaster. Traditional rituals such as the burial of babies under Ficus roots are also no longer possible. Loss of access to sacred sites due to deforestation has uprooted cultural practices that have for generations strengthened Marind's social solidarity.

Extractive Politics and Agrarian Conflict according to Maharani et al. (2022) and Pattinama (2009) confirm the role of forests as a social habitat for Marind women. Forests provide food, medicine, drinking water, and materials for crafts that support women's role as the main providers of family needs. However, oil palm expansion has made it difficult for women to access forest resources, impacting food security, public health, and household income. Dependence on corporate consumer goods is increasing, while women's living space and autonomy are shrinking.

In line with the opinion of Fauzi & Zakaria (2019), employment in large-scale plantations has led to a shift in the behavior and mentality of Marind's young

generation. Many young people now choose to work as laborers with minimal but regular wages rather than learning subsistence economic practices from the forest which are considered not to guarantee a future. On the other hand, according to research by Ishikawa & Soda (2017), the presence of companies on Marind traditional lands often triggers internal conflicts regarding claims and access to dwindling resources. Compensation and project benefits are rarely distributed fairly and evenly across clans. This inequality gives rise to social jealousy and weakens the internal cohesion of indigenous communities.

The findings of this research are in line with Steward's (1955) cultural ecology theory, where human adaptation to their local environment forms unique systems of livelihood, social relations, rituals, technology, and beliefs. The loss of the natural forests on which the Marind people depend, both materially and spiritually, has eroded the foundations of the socio-cultural reproduction of this community. Politically, the phenomenon in Merauke confirms the concept of agrarian authoritarianism (Wardaya, 2007) where the state and corporations exploit natural resources without the consent of the indigenous people who protect them, giving rise to contestation and weakening the local order that has been established for centuries. A more equitable and collaborative approach is needed in managing Papua's forests and natural resources so that ecological, economic, and cultural harmonization can be achieved.

Amid the onslaught of large-scale extractive projects supported by the state, Marind traditional institutions such as the Papuan Customary Council (DAP) and the Indigenous Community Institution (LMA) are powerless to protect the customary rights and interests of their citizens. According to research by Ishikawa & Soda (2017), this is because the modern bureaucratic system tends to ignore irrational, spiritual, and unscientific claims from traditional institutions. As a result, the LMA's voices and objections to forest conversion are rarely heeded by policymakers. Meanwhile, many local political elites are involved in collusion with palm oil companies for business interests. They often pressure residents and environmental activists who oppose projects on Marind's customary land.

It is this domination of corporate and state interests that researchers such as Leonard et al. (2021) and Persoon & Minter (2008) referred to as colonialism and agrarian authoritarianism. A knowledge regime that claims absolute ownership of land and natural resources has eliminated local ecological knowledge and customary governance that have long maintained forest sustainability. This condition of political marginalization of the Marind community has encouraged the emergence of resistance movements such as the petition to reject mining permits by the LMA and the hunger strike of hundreds of Papuan women in Jakarta. However, these efforts have not resulted in policies that support the human rights of indigenous peoples over their ancestral lands.

To overcome the problem of deforestation and agrarian inequality, researchers such as Filardi (2022) and Maharani et al (2022) suggest a human rights-based approach involving indigenous communities as equal partners in forest management.

The term rights-based conservation emphasizes that nature conservation is only possible if it is based on the principles of social justice and respect for local institutions that have been proven to protect forests for thousands of years (Ecologists & Poor, 2023; Translated, 2021). Integrating traditional Marind ecological knowledge into forest conservation policies is considered crucial. Apart from that, a fair profit-sharing scheme from the use of forest products is also needed so that harmonization between conservation, community livelihoods, and the preservation of Marind culture can be realized amidst a wave of investment in Merauke.

Julian Steward argues that environmental challenges will shape the adaptation of technology and production systems by a society or community, which in turn influences its social and cultural structure (Steward, 1972). This view is called cultural ecology or cultural ecology. In the context of the Marind people, forests provide both challenges and resources for community adaptation. They adapted to the forest through hunting-gathering production systems, gathering food, processing sago trees, and others. This natural adaptation then forms local norms and wisdom to preserve the forests on which they depend (Lamelas, 2024; Kingston, 2022).

Unfortunately, the arrival of government deforestation programs and corporate plantations has damaged the ecological adaptation of the Marind community, so the socio-cultural system of the Marind community is also threatened. Apart from losing sources of livelihood, deforestation also damages the cultural identity of communities that have depended on forests and even consider forests as ancestors who give life (Kirksey & Roemajauw, 2022; Mahmud et al., 2021). In other words, the loss of forests means the loss of socio-cultural reproduction of society. This is the central argument of Steward's cultural ecology theory which is relevant to the case of deforestation on Marind land.

Cultural ecology theory has been widely used by contemporary scientists to analyze the relationship between indigenous peoples, the environment, and ecological change. For example, research by Nugroho (2021) found that forest destruction in Indonesia has hurt the cultural values and conservation practices of indigenous communities. Also, research by Narchi et al. (2021) advocates revitalizing the local ecological knowledge of Amazon tribes through cultural ecology-based education to overcome deforestation. These two examples demonstrate the relevance of Steward's theory for the study of deforestation and indigenous communities today.

Sustainable Development and Ecological Justice in the Laudato Si' Perspective. In his encyclical Laudato Si', Pope Francis (2015); firmly states that the earth is our common home which must be protected and preserved for the sustainability of the lives of present and future generations (Messiah, 2024). He criticized the development paradigm which views nature merely as a means of production and an object of exploitation to extract maximum profits in a short time. Production and consumption patterns that exceed the threshold of the earth's carrying capacity have damaged the ecological balance with consequences that are not only felt by humans but all living creatures (Fransiskus, 2015).

The principles of Laudato Si' are very relevant to the phenomenon of forest loss and environmental degradation on the land of the Marind indigenous community due to the uncontrolled expansion of oil palm plantations. This ecosystem damage hurts the continuity of life and culture of local communities that have been dependent on forests for generations. Therefore, Pope Francis is urging reform of the development model in Merauke so that it is more inclusive and supports the interests of the small people and preserving nature to achieve ecological justice (Francis, 2015; Steward, 1955; Kirksey & Roemajauw, 2022; Mahmud et al., 2021).

According to Pope Benedikt sustainability of ecosystems is the foundation of life (Messiah & Kristen, 2024). This paradigm is very relevant as a critique of large-scale oil palm plantation policies that destroy the forests where the Marind indigenous people have lived for hundreds of years. The loss of forests also means the loss of the basis for ecological adaptation and the foundation for the socio-cultural reproduction of this community from a cultural ecology perspective (Steward, 1955; Dachlan, 2014). Therefore, for the sake of intergenerational justice, the future development of Merauke must pay attention to the capacity and ecological limits of this region, while placing meeting the needs of local communities and restoring their habitat as the main priority, not just the interests of capital accumulation of plantation owners.

By referring to Laudato Si', researchers can provide an ethical framework and solution recommendations regarding the development policy reform agenda in Merauke so that it is no longer exploitative, but instead is inclusive, fair, and upholds ecological sustainability as well as the cultural continuity of its indigenous communities (Fransiskus, 2015; Steward 1955; Benedikt XVI, 2009).

D. CONCLUSION

Deforestation resulting from the conversion of natural forests for large-scale plantations in Merauke Regency has hurt the social, cultural, and economic life of the Marind indigenous people. The loss of forests as a basis for ecological and spiritual adaptation of these communities has threatened their socio-cultural reproduction according to a cultural ecology perspective. This condition is contrary to the principles of ecological justice and environmental sustainability echoed by Pope Francis in the encyclical Laudato Si. In this document, the Pope emphasized that the earth is the common home of humanity which must be preserved for the benefit of present and future generations. He criticizes the capitalistic development paradigm which overexploits nature for short-term profits, without considering regeneration capacity and ecological carrying capacity.

Such an approach is what happened in the case of Merauke where large areas of primary forest were converted into unlimited plantations, sacrificing biodiversity and the livelihoods of indigenous communities. So in line with Laudato Si', the future development of Merauke must integrate the values of justice between generations and solidarity with all elements of creation, by meeting the needs of local communities and restoring their natural habitat as the main orientation, not just the accumulation of capital from plantation investors.

In addition to inclusive development policy reforms, political empowerment is also needed for indigenous communities so that they have adequate bargaining power and control over the management of their customary land. In this way, it is hoped that harmonization will be achieved between nature conservation, fulfillment of the human rights of indigenous peoples, and preservation of cultural heritage amidst the rapid pace of investment. Full involvement of grassroots communities is a prerequisite for ecological and socio-cultural sustainability in Merauke.

The theoretical implications of this research confirm cultural ecology theory which emphasizes the integral connection between indigenous peoples and the natural habitats in which they live. This article supports the ideas of ecological justice and environmental sustainability in Laudato Si' which criticizes the capitalistic development paradigm based on uncontrolled natural exploitation. This is also strengthened by the principle of solidarity between generations and all elements of creation in Laudato Si. Conservation of nature and meeting the needs of indigenous communities must be the main orientation in development.

Recommendations for further research include a quantitative study to map the extent of deforestation and the level of ecosystem damage in Merauke Regency after large-scale plantation expansion, and field research on the welfare status, health conditions, and socio-cultural dynamics of the Marind tribe after deforestation to explore empirical data on its impact. Comparative studies of the responses of other indigenous communities in Indonesia to deforestation due to the conversion of natural forest areas to find patterns and determinants of their cultural resilience also need attention. Policy research to formulate an effective regulatory model in balancing nature conservation, indigenous people's rights, and investment in areas rich in natural resources such as Merauke needs to be the focus of the study.

ACKNOWLEDGMENTS

Thank you to the St. James Catholic High School Educational Institution, Merauke-Papua Indonesia, and the Ministry of Catholic Religion of the Republic of Indonesia. You have given us time, opportunities, and excellent and extraordinary contributions in this research, starting from the beginning of the research, searching and finding field data, the process of processing data into articles, to submitting this article to an international journal. Good luck, God bless.

REFERENCES

1. Dachlan. (2014). Ecology Based on Local Wisdom. In *Angewandte Chemie International Edition, 6(11), 951–952.* (September Issue).
2. Ecologist, T., & Poor, M. (2023). *Ecological Transition from the Perspective of the Poor*.
3. Patterson, M. A. (2022). Realism, Conservatism, and Tiered Ecological Risk Assessment. *Ecologies*, *3* (2), 131–144. https://doi.org/10.3390/ecologies3020011
4. Hasan, MA (2020). Seven cultural elements of the Marind tribe on the coast of Merauke. *Academia Edu*, 1–8.

5. Lamelas, IP (2024). The Canticle of the Creatures by Francis of Assisi (1181/82–1226) and the Care of Our Common Home. *Religions*, *15* (2). https://doi.org/10.3390/rel15020184
6. Landin, J. M., & Cozart, A. J. (2024). Redesign of a Life Cycle Figure Improves Student Conceptions of Ecology and Evolution. *Education Sciences*, *14* (4), 403. https://doi.org/10.3390/educsci14040403
7. Messiah, T. (2024). From Ecotheology to Ecospirituality in Laudato sí—Ecological Spirituality Beyond Christian Religion. *Religions*, *15* (1). https://doi.org/10.3390/rel15010068
8. Messiah, T., & Christian, S. (2024). *From Ecotheology to Ecospirituality in Laudato sí—Ecological Spirituality beyond Christianity*.
9. Pukal, K., & Mayer-gampe, P. (2024). *Asia: a transition hypothesis towards forest respiritualization*. *29* (2), 2–3.
10. Translated, M. (2021). *Machine Translated by Google ◌ั◌ิ ของโรงแรมส ◌ี เข ◌ี ยวในอ ◌ิ นโดน ◌ี เซ ◌ี ย Machine Translated by Google*. 2, 184–196.
11. Bradshaw, C.J., Sodhi, N.S., Peh, K.S.-H., & Brook, B.W. (2007). Global evidence that deforestation amplifies flood risk and severity in the developing world. *Global Change Biology, 13*(11), 2379–2395. https://doi.org/10.1111/j.1365-2486.2007.01446.x
12. Davidson, S., Cooke, A., Johnson, C., Smith, R., & Feng, T. (2019). Interweaving knowledge systems to address cumulative impacts in the Peel watershed planning region, Yukon. *Ecology and Society, 24*(4). https://doi.org/10.5751/ES-11379-240438
13. Dennis, R.A., & Colfer, C.J.P. (2006). Impacts of land use and fire on the loss and degradation of lowland forest in 1983-2000 in East Kutai District, East Kalimantan, Indonesia. *Singapore Journal of Tropical Geography, 27*(1), 30–48. https://doi.org/10.1111/j.1467-9493.2006.00238.x
14. Fauzi, NM, & Zakaria, Z. (2019). Impacts of Oil Palm Plantation Development on Deforestation and Biological Diversity Loss in Malaysia and Indonesia. *Journal of Food Agriculture and Environment, 17*, 219–223.
15. Filardi, C. (2022). Integrating Indigenous and Human Rights Approaches to Conservation. *Environmental Ethics, 44*(2), 169–188. https://doi.org/10.5840/enviroethics20224428
16. Ishikawa, N., & Soda, R. (2017). Transformations of Land-Ownership and Collective Rights of the Indigenous Marind People in Merauke Regency, Papua, Indonesia. *Japanese Journal of Human Geography, 69*(1), 76–93. https://doi.org/10.4200/jjhg.69.76
17. Kingston, S. (2022). Marine stewardship and the impacts of environmental change in Raja Ampat, Indonesia. *Environment and Planning E: Nature and Space, 5*(3), 694–714. https://doi.org/10.1177/25148486211018293
18. Kirksey, S. E. (2012). *Freedom in entangled worlds West Papua and the architecture of global power*. Duke University Press.

19. Kirksey, SE, & Roemajauw, J. (2022). Terrestrial love: Conservation, intimacy, and diversity at the edge of Indonesia. *Environmental Humanities, 14*(1), 312-336. https://doi.org/10.1215/22011919-9583533
20. Koh, L. P., & Wilcove, D. S. (2008). Is oil palm agriculture destroying tropical biodiversity? *Conservation Letters, 1*(2), 60–64. https://doi.org/10.1111/j.1755-263X.2008.00011.x
21. Laurance, W.F., Goosem, M., & Laurance, S.G.W. (2009). Impacts of roads and linear clearings on tropical forests. *Trends in Ecology & Evolution, 24*(12), 659–669. https://doi.org/10.1016/j.tree.2009.06.009
22. Leonard, L., Mohammed, Z., Parsons, M., Olawepo, R., & Perz, S. (2021). Transnational land deals, sustainable commodity networks, and women's empowerment in Liberia's oil palm sector. *World Development, 139*, 105292. https://doi.org/10.1016/j.worlddev.2020.105292
23. Maharani, C., AlKatiri, FM, Noor, YR, Damayanti, EK, Junadi, D., Abdoellah, OS, Ulum, B., Aini, FK, Ghazali, A., & Yustian, I. (2022). Gender roles of Indigenous People: experiences from Merauke District, Papua, Indonesia. *Forests, Trees and Livelihoods, 31*(1), 71–84. https://doi.org/10.1080/14728028.2021.2019320
24. Mahmud, M., Huang, H., Xiao, Y., Zhu, X., Huang, J., Li, M.-S., & Yu, D. W. (2021). Deforestation induces bidirectional cascade effects on ecosystem services in tropical forests. *Communications Biology, 4*(1). https://doi.org/10.1038/s42003-021-02457-y
25. 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, 4*(8), 730–735. https://doi.org/10.1038/nclimate2277
26. Mirsella, D., & Van Hensbergen, H. J. (2022). Indigenous women's writing from West Papua: Activism, identity, and development politics. *Journal of Contemporary Asia*, 1-20. https://doi.org/10.1080/00472336.2022.2129130
27. Moran, E.F. (2016). *People and nature: An introduction to human ecological relations*. John Wiley & Sons.
28. Myers, R., Hansen, C. P., Mittermeier, R. A., & Mittermeier, C. G. (2000). Biodiversity hotspots for conservation priorities. *Nature, 403*(6772), 853-858. https://doi.org/10.1038/35002501
29. Narchi, N.E., Cornelius-Costa, F., Sempé, L.S., & da Cunha, C.N. (2021). Cultural ecology in indigenous environmental education: Lessons on ethnicities and territories from Brazilian Amazonia. *The Journal of Environmental Education, 52*(1), 42-54. https://doi.org/10.1080/00958964.2020.1853892
30. Nugroho, B. (2021). The loss of forest wisdom traditions in indigenous communities. *E3S Web of Conferences, 235*, 00060. https://doi.org/10.1051/e3sconf/202123500060
31. Obidzinski, K., Andriani, R., Komarudin, H., & Andrianto, A. (2012). Environmental and social impacts of oil palm plantations and their implications for biofuel production in Indonesia. *Ecology and Society, 17*(1). https://doi.org/10.5751/ES-04775-170125

32. Pattinama, M. J. (2009). Indigenous women workers and leadership in West Papua: The role of Omawita in mediating conflict. *Labor and Management in Development Journal, 10*, 1-15.
33. Merauke Regency Regional Regulation Number 4 of 2013 concerning Empowerment, Protection and Development of Customs and Traditional Institutions
34. Persoon, G. A., & Minter, T. (2008). 'Bribes' or 'Taxes'? Instituting Local Revenue Collection in Remote Forest Areas in Papua New Guinea. *European Journal of Development Research, 20*(1), 84-99. https://doi.org/10.1080/09578810701853177
35. Persoon, G. A., & van Est, D. M. E. (2003). Co-management of natural resources: The concept and aspects of implementation. Persoon, GA & DM van Est (Eds.) Co-management of natural resources in Asia: A comparative perspective. *Nordic Institute of Asian Studies, Copenhagen*, 1-18.
36. Pye, O. (2019). Commodifying sustainability: Development, nature, and politics in the palm oil industry. *World Development, 121*, 218-228.
37. Rizkiana, I. (2022). The Nexus Between Indonesia's Natural Resources and Geopolitics. *Economica: Journal of Islamic Economics, 13*(1), 215-240.
38. Siahaya, ME et al. (2022). Legal Protection Of Customary Community Land Rights In Merauke Regency-Indonesia Based On Legal Justice. *Journal of Legal Dynamics, 22*(2), 370-385.
39. Steward, J. H. (1955). *Theory of culture change: The methodology of multilinear evolution*. University of Illinois Press.
40. Tulchinsky, T. H. (2017). Micronutrient deficiency conditions: Global health issues. *Public Health Reviews, 36*(1), 1-64. https://doi.org/10.1186/s40985-016-0036-0
41. Wardaya, BT (2006). *Bung Karno and agricultural land*. Bung Karno Foundation.