Rethinking Palm Oil Plastic Regulations Sustainable and Ecological Justice

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ABSTRACT

Oil Palm Plantations significantly contribute to Indonesia's economy through agricultural production and exports. However, their development has caused environmental damage and social conflicts, leading stakeholders to resist and call for more sustainable management practices to protect both the environment and local communities. This study aims to evaluate the current regulations on Sustainable Palm Oil Plasma management to identify weaknesses that affect ecological justice and sustainability. It seeks to propose improvements based on ecological justice principles to ensure environmental protection and social fairness. The research uses a constructivist approach, collecting and descriptively analyzing data from stakeholders, supported by relevant legal theories. This research reveals three main findings. First, fundamental problems persist in palm oil plasma management, including land conflicts due to community demands for plasma plantations within company concessions and companies' failure to fulfill legal obligations such as building plasma plantations. Second, perceptions of sustainability standards like RSPO and ISPO differ significantly between certified and uncertified farmers, with many smallholders lacking access, knowledge, and resources to comply, limiting widespread implementation. Third, recent regulatory changes under the Job Creation Law create challenges in land availability for plasma plantations, especially in regions with limited land, impacting both plantation companies and plasma farmers.

1. Introduction

The large-scale development of oil palm plantations in Indonesia began in the 1970s and expanded rapidly through the 1980s, initially concentrated in Sumatra and later spreading to Kalimantan, Sulawesi, Maluku, North Maluku, and Papua. As a flagship commodity initiated during the New Order era, the oil palm sector experienced accelerated growth. According to the latest official data from the Directorate General of Plantations, the total oil palm plantation area across Indonesia currently covers approximately 15.37 million hectares.[1] Of this, around

[1] I Gusti Ayu Ketut Rachmi Handayani, Cindy Yosiana and Sutasinee Kongrawd, 'Reform of Environmental Approval Policy for Renewable Energy in Indonesia', *Journal of Sustainable*

598,781 hectares are managed by state-owned enterprises (BUMN/BUMD), 8.4 million hectares by private companies, and 6.37 million hectares by smallholder farmers. However, independent sources such as Sawit Watch estimate the actual planted area to be nearly double, at about 22.2 million hectares, which likely includes unregistered plantations on forest, protected, and conservation lands that official statistics do not capture. [2]

The demand for expansive land has contributed to increasing land conflicts, particularly since the Reformasi era, as greater public openness allowed affected communities to voice their grievances. One major source of dispute involves plasma plantations, which were first introduced in the 1970s alongside the People's Core Estate (Perkebunan Inti Rakyat or PIR) scheme. The legal framework for plasma plantations was formally initiated with Presidential Instruction No. 1 of 1986, which regulated the development of PIR transmigration plantations. Since then, regulatory instruments governing plasma plantations have evolved to address emerging challenges and ensure more equitable land management, including recent updates under the Indonesian Job Creation Law (UU Cipta Kerja) and Ministry of Agriculture regulations that emphasize community participation and sustainable plantation development.[3]

This study describes the development of legal regulations governing plasma plantations and complements this with an analysis of their implementation and the emerging disputes in this sector. In examining plasma plantation conflict cases, it is important to consider that Indonesia's legal system follows the Continental European legal tradition, where the principle of legality is fundamental. Consequently, disputes are analyzed based on the laws in effect at the time the dispute arose, consistent with the non-retroactivity principle which prohibits applying laws retroactively.[4] The history of oil palm plantations in Indonesia is extensive, beginning during the Dutch colonial era with seeds sourced from West Africa. Since 1911, oil palm cultivation has developed as a commercial enterprise, continuing steadily through Indonesia's various political transitions after independence. This ongoing expansion has positioned Indonesia as a leading country in terms of plantation area and production, with oil palm recognized as a

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Development and Regulatory Issues (JSDERI), 3.2 (2025), 286–323 https://doi.org/10.53955/jsderi.v3i2.101

[2] Joanna Vince and others, '6.24 - Governance and Socio-Ecological Aspects of Plastics Pollution in Coastal and Marine Environments', in *Treatise on Estuarine and Coastal Science (Second Edition)*, ed. by Daniel Baird and Michael Elliott, Second Edition (Oxford: Academic Press, 2024), pp. 765–99 https://doi.org/https://doi.org/10.1016/B978-0-323-90798-9.00089-5

[3] Roberto Cerchione and others, 'Balancing Sustainability and Circular Justice: The Challenge of the Energy Transition', *Journal of Cleaner Production*, 494 (2025), 144942 https://doi.org/https://doi.org/10.1016/j.jclepro.2025.144942

[4] Helen Kopnina and Rory Padfield, '(Im)Possibilities of "Circular" Production: Learning from Corporate Case Studies of (Un)Sustainability', *Environmental and Sustainability Indicators*, 12 (2021), 100161 https://doi.org/https://doi.org/10.1016/j.indic.2021.100161

strategic commodity that significantly contributes to employment creation and national revenue. Oil palm estates in Indonesia vary in size: smallholders manage plantations smaller than 25 hectares, while medium and large-scale plantations are typically owned by the state or private domestic and foreign investors (PMDN/PMA).[5]v

Although Oil Palm Plantations hold a strategic position in Indonesia's national economy, they have also generated significant negative impacts on local communities, particularly in terms of environmental degradation and social conflicts. These adverse effects have sparked opposition from various groups against the expansion of palm oil plantations across the country. Consequently, there have been increasing demands to develop Oil Palm Plantations sustainably, adhering to the principles of Sustainable Agriculture, which emphasize a balance between economic viability, social equity, and ecological preservation.[6]

In response, the industry has adopted standards such as the Roundtable on Sustainable Palm Oil (RSPO) and the Indonesia Sustainable Palm Oil (ISPO) certification. Despite these efforts, many plantations remain unsustainable, continuing to cause problems in multiple regions. Issues such as haze pollution resulting from plantation-related land fires, child labor, land disputes, and poor labor welfare persist as critical challenges linked to unsustainable plantation practices. These ongoing problems underscore the urgent need to strengthen sustainable management and regulatory enforcement to mitigate the environmental and social costs associated with palm oil production.[7]

The implementation of the Indonesia Sustainable Palm Oil (ISPO) certification system faces several critical barriers and challenges. Firstly, there remains a fundamental lack of consensus and clarity on the definition and core concept of sustainability within the Indonesian context, particularly concerning palm oil management and development. Secondly, the institutional mechanisms overseeing ISPO certification have been criticized for lacking independence, transparency, accountability, and credibility. Thirdly, the principles, criteria, and indicators embedded in ISPO are perceived by some stakeholders as prioritizing national interests but failing to address persistent governance issues, such as

[5] Andrea S Winkler and others, 'The Lancet One Health Commission: Harnessing Our Interconnectedness for Equitable, Sustainable, and Healthy Socioecological Systems', *The Lancet*, 406.10502 (2025), 501–70 https://doi.org/https://doi.org/10.1016/S0140-6736(25)00627-0

[6] Nicoly Milhardo Lourenço Nohara and others, 'Are You Drowned in Microplastic Pollution? A Brief Insight on the Current Knowledge for Early CareerNohara, Nicoly Milhardo Lourenço, and Others, 'Are You Drowned in Microplastic Pollution? A Brief Insight on the Current Knowledge for Early Career Researc', *Science of The Total Environment*, 918 (2024), 170382 https://doi.org/https://doi.org/10.1016/j.scitotenv.2024.170382

[7] Benjamin K Sovacool, 'Expanding Carbon Removal to the Global South: Thematic Concerns on Systems, Justice, and Climate Governance', *Energy and Climate Change*, 4 (2023), 100103 https://doi.org/https://doi.org/10.1016/j.egycc.2023.100103

regulatory weaknesses, inconsistent policies, limited transparency, and inadequate law enforcement.[8]

Fourthly, legal compliance and financing for the ISPO system have been insufficiently effective, hindering optimal operation. Moreover, ISPO's position in the global market continues to be a subject of policy debate, prompting the drafting of a Presidential Regulation aimed at strengthening ISPO's framework. Despite ongoing societal controversies, oil palm plantations continue to expand, reflecting their significant role in Indonesia's economy and livelihood for many communities. This growth is supported by government policies that designate palm oil as a national priority sector and promote biofuel (Bahan Bakar Nabati) use, further stimulating the industry's development.[9]

The expansion of the palm oil industry has extended to various potential regions, including the border areas of Kalimantan. Recognizing the strategic importance of these areas, the East Kalimantan Provincial Government launched the "One Million Hectare Palm Oil Program" in 2012, aiming to increase palm oil plantation areas by one million hectares by 2013. This initiative was followed by the "Kaltim Continues Program" in 2016, which sought to further expand plantations to two million hectares. At the national level, the central government also planned in 2015 to establish an additional one million hectares of plantations along the Indonesia-Malaysia border on Kalimantan Island, referred to as the "Palm Oil Development Prospect." [10]

This initiative traces back to the administration of President Susilo Bambang Yudhoyono, which emphasized border region development as a frontline for national sovereignty under the so-called "Palm Oil Plantation Policy." Despite challenges associated with palm oil cultivation, the sector retains strong growth prospects. Palm oil plantations contribute to improving farmers' welfare, particularly those partnering with companies, and provide employment opportunities for non-landowners, thus helping to reduce unemployment rates in these regions.[11]

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[8] Sean Low, Chad M Baum and Benjamin K Sovacool, 'Rethinking Net-Zero Systems, Spaces, and Societies: "Hard" versus "Soft" Alternatives for Nature-Based and Engineered Carbon Removal', *Global Environmental Change*, 75 (2022), 102530 https://doi.org/https://doi.org/10.1016/j.gloenvcha.2022.102530

[9] Ahmed Sodiq and others, 'Towards Modern Sustainable Cities: Review of Sustainability Principles and Trends', *Journal of Cleaner Production*, 227 (2019), 972–1001 https://doi.org/https://doi.org/10.1016/j.jclepro.2019.04.106

[10] Anne P M Velenturf and Phil Purnell, 'Principles for a Sustainable Circular Economy', *Sustainable Production and Consumption*, 27 (2021), 1437–57 https://doi.org/https://doi.org/10.1016/j.spc.2021.02.018

[11] Barbara G Bischof, 'Chapter 6 - Making Marine Geographies: Foundations, Approaches, and Knowledge Organization', in *Marine Geography*, ed. by Barbara G Bischof (Elsevier, 2025), pp. 173–95 https://doi.org/https://doi.org/10.1016/B978-0-443-29156-2.00001-3

The development of oil palm plantations in Indonesia's border regions has been facilitated by a diverse labor force recruited through various channels. These include direct hiring by plantation companies, regional labor exchanges coordinated by the Ministry of Manpower and local governments under the AKAD (Inter-Regional Employment Agreement) scheme, and the government's transmigration program designed to relocate populations from densely populated urban areas to less populated rural regions. Sustainable development of the palm oil industry in Indonesia is firmly anchored in the country's constitutional and legal framework. Article 33(4) of the 1945 Constitution mandates that the national economy be managed based on principles of economic democracy, efficiency, justice, independence, and balanced national progress.[12]

Furthermore, Article 28H (1) guarantees every citizen the right to a prosperous life and a healthy environment. National laws further reinforce sustainability imperatives, such as Law No. 25 of 2007 on Investment, which emphasizes sustainable and environmentally conscious economic development, and Law No. 32 of 2009 on Environmental Protection and Management, which defines sustainable development as a conscious integration of environmental, social, and economic aspects to safeguard future generations. The law requires strategic environmental assessments to ensure sustainability principles underpin all development policies. Complementing these, Law No. 3 of 2014 on Industry promotes "green industry" practices prioritizing efficient and sustainable resource use. Lastly, Law No. 39 of 2014 on Plantations mandates sustainable plantation development, balancing economic, socio-cultural, and ecological factors. Specific to palm oil, the Ministry of Agriculture Regulation No. 19/Permentan/OT.140/3/2015 sets forth guidelines for Indonesia Sustainable Palm Oil (ISPO), codifying the country's commitment to sustainable plantation management.[13]

Although the concept of sustainable development especially in sustainable palm oil development has been embedded in various Indonesian laws and regulations ranging from the 1945 Constitution to ministerial regulations a fundamental issue remains insufficiently addressed which is the shared understanding of the definition and core principles of sustainability within the context of palm oil plantation management in Indonesia. Sustainability in this sector should be comprehensively understood as a management and development

[12] Ellen Messer and Marc J Cohen, 'Chapter Ten - Conflict, Food Insecurity, and Globalization: An Update 20 Years On', in *Advances in Food Security and Sustainability*, ed. by Marc J Cohen, Advances in Food Security and Sustainability (Elsevier, 2023), VIII, 287–345 https://doi.org/https://doi.org/10.1016/bs.af2s.2023.08.001

[13] Lego Karjoko, Abdul Kadir Jaelani and Ravi Danendra, 'Legal Inconsistency on the Right to Build: Investment, Agrarian Rights, and Constitution', *Journal of Sustainable Development and Regulatory Issues (JSDERI)*, 3.2 (2025), 324–46 https://doi.org/10.53955/jsderi.v3i2.106

system that fully complies with and integrates economic social cultural and ecological aspects alongside all applicable legal frameworks.[14]

Consequently adherence to these three pillars and legal compliance must serve as key criteria within the Indonesia Sustainable Palm Oil certification system reflecting mandates from the 1945 Constitution and related legislation. Regarding the relationship between plantation companies and plasma smallholders critical issues include transparency in plasma plantation areas farmers' access to income and expense data the issuance of clear contracts vigilance against exploitative plasma schemes and oversight of market pressures on plasma yields. Unfortunately the partnership model intended to enhance smallholder welfare has often been coopted for specific interests particularly concerning profit sharing arrangements and integrated management systems. These practices have sometimes led to unclear economic outcomes for rural communities exacerbating land conflicts and dispossession despite company led promotions framing such schemes as success stories in farmer empowerment and smallholder palm oil development.[15]v

Palm oil companies derive substantial benefits from partnership schemes with local communities, especially in profit-sharing arrangements where companies manage the entire process from plantation establishment to fruit harvesting. For instance, through land transfer mechanisms from communities, companies can expand their concession areas to secure raw material production, while the costs of land clearing are borne by communities under credit schemes where the companies act as guarantors for financing and marketing services provided by banks, particularly those issuing People's Business Credit. This situation arises from the lack of transparency in plasma management, where agreements tend to favor plantation companies disproportionately. Unfortunately, central and local governments have often failed to conduct proper supervision and evaluation. This scenario raises criticism of certification systems such as the Roundtable on Sustainable Palm Oil (RSPO) and Indonesia Sustainable Palm Oil (ISPO), which appear to allow non-compliant palm oil production to pass certification processes by relying on companies' claims of standardized mechanisms and sustainable practices. Therefore, RSPO, ISPO, and palm oil purchasing companies should strengthen evaluation efforts and impose clear sanctions on certified companies that fail to uphold sustainable standards.[16]

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[14] Alvaro Sevilla-Buitrago, 'Debating Contemporary Urban Conflicts: A Survey of Selected Scholars', *Cities*, 31 (2013), 454–68 https://doi.org/https://doi.org/10.1016/j.cities.2012.08.006

[15] Kusmiyati Kusmiyati and Ahmad Fudholi, 'A Systematic Literature Review on the Pyrolysis of Plastic Waste and Waste Oil for Fuel Production: Targeted Waste Management Solution for Central Java, Indonesia', *Cleaner Waste Systems*, 11 (2025), 100308 https://doi.org/https://doi.org/10.1016/j.clwas.2025.100308

[16] Jajang Supriatna and others, 'Enhancing Soil Fertility, Inorganic Fertilizer Efficiency, and Oil Palm Productivity through Bio-Compost Application in Oxium Biodegradable Sacks on Former

Ecological disasters have increasingly become a recurring experience, primarily resulting from environmental degradation that subsequently diminishes human quality of life. These disasters are often exacerbated by inadequate state management of the environment and natural resources. The consequences of such mismanagement are devastating, swiftly destroying development achievements and community livelihoods, while extinguishing the hopes and dreams of thousands of affected individuals. Moreover, ecological disasters infringe upon the fundamental right to life and deplete essential life-supporting resources, thereby contributing to rising poverty levels and widespread marginalization of affected populations. Environmental and resource management in Indonesia still tends to prioritize corporate and investor interests over those of local communities and the environment itself. Ecological justice represents the pursuit of environmental fairness across generations, aiming to safeguard future populations from environmental crises and degradation to ensure a better quality of life. [17]

This struggle underscores the inherent human right to a healthy environment and highlights the state's responsibility to guarantee environmental law enforcement. Realizing the right to a healthy environment is a prerequisite for sustainable protection of community livelihoods and must be complemented by respect for other fundamental rights, including political participation, access to information, self-determination, freedom of expression, and opinion. Without these rights, enforcing environmental rights as basic human rights becomes unattainable. Despite government claims to prioritize public welfare in development, facilities and programs for community benefit remain inadequate and often misaligned with local needs and characteristics. Furthermore, Indonesia's environmental and natural resource regulations exhibit inconsistencies and contradictions both among various laws and between regulations and their implementing rules. From a social justice perspective, natural resource policies tend to be top-down and insufficiently sensitive to local cultures.[18]

Prolonged social problems often arise from natural resource management policies that have historically been centralized, elitist, paternalistic, and exploitative. Such approaches cause significant ecosystem degradation and exacerbate social inequalities among communities, sectors, and regions. The fragmentation of resource management based on administrative boundaries, sectoral approaches, and overlapping policies results in ineffective environmental governance and widespread resource conflicts between regions. To address these

Mining Land-Podzols: Insights from a Field Study in Indonesia', *Journal of the Saudi Society of Agricultural Sciences*, 2024 https://doi.org/https://doi.org/10.1016/j.jssas.2024.09.006

[17] Benny Irawan and others, 'Perspective of State Sovereignty in Law Enforcement Related to Cyberlaw Jurisdiction', *Law Reform: Jurnal Pembaharuan Hukum*, 21.1 (2025), 120–34 https://doi.org/10.14710/lr.v21i1.68760

[18] Retno Saraswati and others, 'The Role of Indonesia as a Presidency for ASEAN and Blue Economy's Driver: SDG's Issues and Legal Perspective', *Law Reform: Jurnal Pembaharuan Hukum*, 21.1 (2025), 180–202 https://doi.org/10.14710/lr.v21i1.67157

challenges, the state must play an active and responsive role, prioritizing the welfare of the people as part of fulfilling the right to a healthy environment. A transformative reconciliation approach that respects the rights of all parties and integrates local wisdom is essential. The government must shift its development paradigm and undertake comprehensive environmental management reforms grounded in sustainable principles that emphasize human rights, equity, self-determination, and ecological justice to ensure the continuity of life for present and future generations.[19]

At the beginning of 2025, Indonesia encountered significant challenges in forest sustainability, especially following the issuance of Presidential Regulation No. 5 of 2025 concerning the Reorganization of Forest Areas (PKH). This regulation emerged amidst government plans to open approximately 20 million hectares of land for food and energy production, a policy reflecting priorities for national economic growth but also raising complex issues of land tenure, legal certainty, and social justice. The PKH aims primarily to optimize state revenue through administrative sanctions and stricter control over forest utilization. However, these measures have provoked concerns among various stakeholders, particularly regarding their potential to intensify conflicts over land rights and marginalize Indigenous Peoples and local communities who have traditionally depended on forest lands. Recent data from the Ministry of Transmigration highlight that thousands of transmigrant land parcels remain disputed within forest zones, complicating efforts to provide secure tenure and fueling agrarian conflicts, which have surged to over 9,000 cases in the past five years. In response, the government has launched initiatives such as the "*Trans-Tuntas*" program, designed to resolve overlapping land claims and facilitate certification processes, alongside integrated spatial planning endeavors led by the Ministry of Agrarian Affairs and Spatial Planning.[20]

Nevertheless, the effectiveness of PKH remains contested, with calls from environmental and social justice advocates urging the government to ensure that forest governance policies respect the rights of Indigenous and local populations, promote transparency, and balance economic development with ecological preservation. Ultimately, inclusive and participatory management is essential to

[19] I. Gusti Ayu Putri Kartika and others, 'Quo Vadis Energy Legal Policy towards Equitable and Sustainable Development in Indonesia', *Law Reform: Jurnal Pembaharuan Hukum*, 21.2 (2025), 266–94 https://doi.org/10.14710/lr.v21i2.66743

[20] Elfi Anis Saati and others, 'Number and Characteristics of Microplastics Contamination in Commercial Red Palm Oils', *Food and Humanity*, 5 (2025), 100737 https://doi.org/https://doi.org/10.1016/j.foohum.2025.100737

reconcile competing interests and to fulfill constitutional mandates for sustainable development and social equity in Indonesia's forest regions.[21]

Research on palm oil-based plastics highlights the complex relationship between sustainable production and environmental impact. While palm oil-derived bioplastics are often promoted as eco-friendly alternatives due to their potential biodegradability and reduced carbon footprint, the sustainability of these materials is contentious given the significant deforestation, biodiversity loss, and greenhouse gas emissions associated with palm oil cultivation.[22] Regulatory frameworks, such as the European Union's Deforestation Regulation, seek to prevent products linked to deforestation including palm oil from entering the market, thereby influencing the sourcing practices for bioplastics.[23] However, enforcement challenges persist, including the need for robust monitoring systems and standardized definitions to avoid greenwashing claims related to biodegradability.[24] Achieving ecological justice requires a holistic approach encompassing sustainable bioplastic development, reduced plastic consumption, enhanced recycling, and fair inclusion of affected communities in decision-making processes.[25] This multifaceted strategy aims to balance environmental sustainability with social equity, addressing both the ecological consequences of palm oil production and the global plastic pollution crisis. Therefore, responsible sourcing combined with comprehensive policies is essential to realizing sustainable and just outcomes in the palm oil plastic sector.[26]

This research seeks to conduct a comprehensive evaluation of current regulatory frameworks governing the production, use, and management of palm

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[21] Achmad Rifa'i, 'Economy-Wide Impacts of Palm Oil Downstream in North Sumatra: A CGE Approach', *World Development Perspectives*, 39 (2025), 100706 https://doi.org/https://doi.org/10.1016/j.wdp.2025.100706

[22] Alisyah Putri Desvi Takahasi and others, 'Optimization of Liquid Fuel Production from Co-Pyrolysis of Oil Palm Fronds and Expanded Polystyrene Using Response Surface Methodology', *Case Studies in Chemical and Environmental Engineering*, 11 (2025), 101074 https://doi.org/https://doi.org/10.1016/j.cscee.2024.101074

[23] Arif Dwi Santoso and others, 'Sustainable Utilization of Palm Oil Industry By-Products for Livestock Feed: A Digestibility and Environmental Assessment', *Case Studies in Chemical and Environmental Engineering*, 12 (2025), 101263 https://doi.org/https://doi.org/10.1016/j.cscee.2025.101263

[24] David Fernando and others, 'Authentication of Avocado Oil Mixed with Cooking Oils (Branded and Loose Palm Oil) Utilizing Fourier Transform Infrared Spectroscopy in Conjunction with Chemometrics', *Measurement: Food*, 19 (2025), 100241 https://doi.org/https://doi.org/10.1016/j.meafoo.2025.100241

[25] Nisa Novita and others, 'Strong Climate Mitigation Potential of Rewetting Oil Palm Plantations on Tropical Peatlands', *Science of The Total Environment*, 952 (2024), 175829 https://doi.org/https://doi.org/10.1016/j.scitotenv.2024.175829

[26] Meti Ekayani and others, 'Policy Forum: Reducing Expansion of Oil Palm Plantations into Forests through Land Intensification, Agroforestry, and Added Value Creation of Processed Palm Oils', *Forest Policy and Economics*, 178 (2025), 103582 https://doi.org/https://doi.org/10.1016/j.forpol.2025.103582

oil-based plastics. The objective is to identify existing regulatory shortcomings and implementation challenges that hinder the achievement of sustainability goals and ecological fairness. By examining the environmental consequences associated with palm oil plastic products and assessing the effectiveness of prevailing policies, this study aims to develop informed recommendations for enhancing regulatory mechanisms. Furthermore, the research emphasizes the integration of ecological justice principles to ensure that environmental protection efforts also uphold social equity, particularly regarding the rights and welfare of communities impacted by palm oil plastic industries. Ultimately, the study aspires to contribute to a balanced and just approach in regulating palm oil plastics, aligning environmental sustainability with social responsibility.

2. Research Method

This research adopts the constructivist paradigm, which fundamentally contrasts with the positivist approach by understanding reality as a product of human cognition and social construction rather than as an objective, fixed truth. According to Guba and Lincoln, constructivism is grounded in a relativist ontology, transactional epistemology, and employs hermeneutic or dialectical methodologies.[27] The aim within this paradigm is to generate multiple reconstructed understandings of social phenomena, emphasizing trustworthiness and authenticity. The research employs qualitative legal methods, descriptive in nature, focusing on the analysis of legal norms and principles related to Sustainable Palm Oil Plasma Management.[28] This study utilizes a socio-legal research approach, combining legal analysis with insights from social sciences to capture the interdisciplinary complexity inherent in legal issues concerning palm oil plasma. To identify legal gaps and ambiguities, the statute approach is applied, involving systematic examination of relevant legislation and regulations. Primary legal materials reviewed include the 1945 Constitution of the Republic of Indonesia, alongside laws and government regulations on forestry, environmental protection, investment, plantation management, and the Indonesian Sustainable Palm Oil (ISPO) certification system. Secondary sources include scholarly works that support and contextualize the legal framework, while tertiary materials such as legal dictionaries and encyclopedias provide foundational explanations. Data collection is conducted through direct observation and interviews with relevant stakeholders, allowing for a detailed understanding of the practical implementation and challenges of sustainable palm oil plasma management. The analysis proceeds qualitatively and deductively, moving from general legal principles to specific regulatory concerns, producing comprehensive insights into

[27] Anis Mashdurohatun, I Made Dwi Jayantara, and others, 'Delayed Justice in Protecting Emergency Medical Workers', *Journal of Sustainable Development and Regulatory Issues (JSDERI)*, 3.2 (2025), 347–71 https://doi.org/10.53955/jsderi.v3i2.116
[28] Mashdurohatun, I Made Dwi Jayantara, and others.

the effectiveness and limitations of current legal provisions in achieving ecological justice and sustainability within palm oil plasma management.[29]

3. Results and Discussion

Environmental Impact of Palm Oil Based Plastics in Regulatory Frameworks

The Plasma Palm Oil Plantation Program was initially introduced to reduce land inequality by mandating that palm oil plantation companies allocate a portion of their land, typically 20%, to local communities surrounding their core plantations. However, research by the Institute for Ecosoc Rights titled "Plasma Palm Oil Plantations: Reality and Challenges" highlights significant discrepancies between the program's objectives and its implementation. Field evidence reveals that many local farmers encounter serious challenges, including unfair land acquisition practices whereby communities must relinquish ten hectares of land to secure merely one hectare under plasma schemes.[30] This imbalance often results in the transfer of land management control from the local community to plantation companies, frequently through opaque or coercive agreements that place financial risks squarely on the farmers. Such arrangements lack the fundamental principles of fairness, openness, and mutual benefit, undermining the very purpose of plasma partnerships.[31]

Furthermore, the weak bargaining position of local communities in drafting partnership contracts exacerbates their vulnerability, with many agreements existing only informally or unwritten. Government policies, which initially promoted the plasma program, have at times failed to adequately protect community interests. According to Indonesian regulations, including Law No. 39 of 2014 on Plantations and the Indonesian Sustainable Palm Oil (ISPO) certification system, companies are required to ensure plasma plantations are managed professionally, improve the quality of planting materials, increase productivity and income for local farmers, and provide employment opportunities. Nonetheless, the reality deviates from these goals, with many plasma plantations failing to deliver expected benefits and instead facilitating land dispossession. Considering the environmental and socio-economic impacts of the rapid expansion of palm oil plantations, including risks to food security and land tenure, comprehensive governance reform is urgently needed. This reform should

[29] Anis Mashdurohatun, Deni Setiyawan, and others, 'Legal Attitudes Toward Cohabitation: A Review Of Liberal And Islamic States', *PETITA: JURNAL KAJIAN ILMU HUKUM DAN SYARIAH*, 10.1 (2025) https://doi.org/10.22373/petita.v10i1.376

[30] Mohd Rafein Zakaria, Mohammed Abdillah Ahmad Farid, and others, 'Practical Role of Oil Palm Fronds in Malaysia's Sustainable Palm Oil Industry', *Industrial Crops and Products*, 222 (2024), 119753 https://doi.org/https://doi.org/10.1016/j.indcrop.2024.119753

[31] Kai Chen Goh and others, 'Innovative Circular Bioeconomy and Decarbonization Approaches in Palm Oil Waste Management: A Review', *Process Safety and Environmental Protection*, 195 (2025), 106746 https://doi.org/https://doi.org/10.1016/j.psep.2024.12.127

focus on transparent partnership agreements, fair taxation, and clear corporate responsibilities toward local workers and independent farmers to promote sustainable and equitable palm oil development.[32]

The Palm Oil Plasma Partnership Program in Indonesia, intended to promote equitable land distribution between palm oil companies and local communities, has not been fully realized despite established regulations. This shortfall is largely attributed to inadequate supervision from governmental bodies, resulting in ineffective enforcement of plasma land rights. Recent reports indicate instances where regional officials have approved plantation permits, yet the mandated 20 percent plasma land designated for local communities has been unlawfully traded, undermining community welfare. The enactment of the Job Creation Law (UU Cipta Kerja) introduced a risk-based licensing system requiring licensing authorities to conduct evaluations and audits of palm oil companies' compliance with plasma land obligations. Despite this, regulatory weaknesses persist, especially in the legal substance governing sustainable palm oil plasma management, which hampers effective law enforcement and prevents the fulfillment of intended equitable and sustainable outcomes.[33]

The importance of this issue is underscored by constitutional mandates, particularly Article 28H paragraph (1) and Article 33 paragraph (4) of the 1945 Constitution of Indonesia, which guarantee every citizen's right to a healthy environment and stipulate that the national economy must be managed based on principles of fairness, sustainability, and environmental insight. Although these constitutional provisions establish a foundation for environmental governance and economic democracy, Indonesia's current legal framework exhibits only an emerging form of "green constitutionalism," which remains underdeveloped compared to other nations with explicit environmental protections in their constitutions, such as Ecuador and France. To address these challenges, comprehensive reforms are necessary, including strengthening regulatory frameworks, improving institutional oversight, and ensuring transparent, participatory processes involving local communities. Such reforms are critical not only to protect community land rights and promote environmental sustainability but also to align palm oil governance with Indonesia's broader constitutional goals of social justice and sustainable economic development.[34]

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[32] Endarto Wardhono and others, 'Enhanced Cellulose Extraction from Delignified Oil Palm Empty Fruit Bunches Using Sequential Ultrasound-Microwave Processing', *South African Journal of Chemical Engineering*, 54 (2025), 179–90 https://doi.org/https://doi.org/10.1016/j.sajce.2025.07.015

[33] Bambang Trisakti and others, 'Enhanced H2S Absorption and Water Recovery Using Thiobacillus Sp. and Azolla Microphylla for Zero-Waste Palm Oil Mill Applications', *Case Studies in Chemical and Environmental Engineering*, 11 (2025), 101173 https://doi.org/https://doi.org/10.1016/j.cscee.2025.101173

[34] Ilham Zulfahmi, Said Ali Akbar, Adli Waliul Perdana, and others, 'Growth Disorders, Respiratory Distress and Skin Discoloration in Zebrafish (Danio Rerio) after Chronic Exposure to

Although the 1945 Constitution of the Republic of Indonesia incorporates several provisions addressing environmental issues, its framework remains comparatively less robust than those of other nations in terms of constitutionalizing environmental principles. This gap suggests the need for a constitutional amendment that explicitly strengthens norms for environmental protection and human rights, reflecting the urgent necessity to address the adverse impacts of environmental degradation. Ideally, environmental provisions should be articulated as distinct and autonomous sections within the constitution, rather than being subsumed under economic policies that often prioritize exploitation and growth over ecological sustainability. Viewing environmental protection through a human rights lens is crucial, as environmental issues affect all citizens collectively and represent shared interests that transcend political and economic agendas. This approach would elevate environmental safeguarding to a central constitutional mandate, free from the influence of transient political factions.[35]

Furthermore, challenges in sustainable palm oil plasma management reveal weaknesses in legal culture and community participation. Indonesia's welfare state model necessitates active state intervention; however, genuine community involvement remains limited. Community participation should be understood not merely as a formal procedural requirement but as a moral imperative to empower local groups, who are essential stakeholders in the partnership programs, enabling them to contribute meaningfully to policy decisions. Such participation fosters democratic governance and social justice by allowing affected communities to influence macro-level policies that directly impact their welfare. Enhancing community engagement is therefore vital for ensuring that sustainable palm oil plasma management aligns with broader goals of equitable development and environmental stewardship.[36]

Community participation serves as a critical instrument for achieving specific objectives, primarily aimed at enhancing decision-making processes and actions that directly affect the welfare of the involved communities. Empowerment, in this context, implies an equitable redistribution of power, aimed at raising political consciousness and influence among marginalized groups, thereby strengthening their role in sustainable development initiatives. From an environmental standpoint, empowerment entails securing and maintaining community access to

Palm Oil Mill Effluent', *Environmental Pollution*, 366 (2025), 125513 https://doi.org/https://doi.org/10.1016/j.envpol.2024.125513

[35] M R M Asyraf and others, 'Mechanical Properties of Oil Palm Fibre-Reinforced Polymer Composites: A Review', *Journal of Materials Research and Technology*, 17 (2022), 33–65 https://doi.org/https://doi.org/10.1016/j.jmrt.2021.12.122

[36] Anita Apriliani Dwi Rahayu and others, 'The Potential of Arenga Pinnata (Wurmb) Merr. for Enhancing Soil Health, Food, Energy, and Water Security in Indonesia: A Comprehensive Review', *Trees, Forests and People*, 20 (2025), 100808 https://doi.org/https://doi.org/10.1016/j.tfp.2025.100808

natural resources, particularly in the management of Sustainable Palm Oil Plasma.[37]

Legal awareness within communities concerning Sustainable Palm Oil Plasma Management is intrinsically linked to fostering active participation in sustainable development efforts. It is essential to encourage local communities to recognize that sustainable development is inseparable from the preservation of a healthy and balanced environment, with forest sustainability serving as a foundation for improved quality of life. Genuine welfare enhancement must transcend mere rhetoric, as many communities surrounding palm oil plantations remain economically disadvantaged. To address this, Palm Oil Plantation Companies have adopted the "people, planet, profit" framework, which integrates social, environmental, and economic considerations under the principle of good corporate governance. This model promotes activities that benefit the company, support the well-being of local communities, and protect the environment simultaneously. Through this approach, plantation companies, as core actors, are urged not to overlook their social responsibilities to neighboring populations. Concurrently, efforts to elevate community welfare are vital to empower local stakeholders to actively maintain the balance within partnership schemes such as Community Plantations or Palm Oil Plasma Plantations, thereby fostering more sustainable and equitable development outcomes.[38]

The issuance of the Regulation of the Minister of Agriculture Number 18 of 2021, concerning Facilities for the Development of Surrounding Community Plantations (FPKM), is widely regarded as a facilitative measure to strengthen the Palm Oil Partnership Pattern. The Indonesian Palm Oil Entrepreneurs Association (GAPKI) emphasizes that this regulation provides Palm Oil Plantation Companies, particularly those with limited land resources, alternative partnership options that are expected to yield positive benefits for local communities. Specifically, plantations established after 2007 that have yet to develop Plasma areas due to land scarcity may engage in alternative partnership activities, including livestock provision or aquaculture development. Article 7 of this regulation outlines diverse forms of partnership activities spanning multiple plantation subsystems: upstream activities involve supplying certified seeds, pest management, and infrastructure maintenance; downstream activities cover processing and utilization of plantation

[37] Tonni Agustiono Kurniawan and others, 'Innovative Transformation of Palm Oil Biomass Waste into Sustainable Biofuel: Technological Breakthroughs and Future Prospects', *Process Safety and Environmental Protection*, 193 (2025), 643–64 https://doi.org/https://doi.org/10.1016/j.psep.2024.11.073

[38] Ilham Zulfahmi, Said Ali Akbar, Nazwa Amaranggi, and others, 'Dual Function of Sea Grapes (Caulerpa Racemosa) as Phytoremediator for Palm Oil Mill Effluent and as Ornamental Fish Feed Formulation', *Chemosphere*, 367 (2024), 143668 https://doi.org/https://doi.org/10.1016/j.chemosphere.2024.143668

waste; cultivation subsystem partnerships include fire monitoring and harvesting support; and supporting subsystems focus on infrastructure and transportation. [39]

Additionally, the regulation mandates rejuvenation efforts, such as replanting with certified seeds and provision of agricultural inputs and machinery, alongside other activities including human resource development and certification facilitation. Nonetheless, these alternative partnership models apply exclusively to plantations established post-2007 that have yet to implement community plantation development. Heru Tri Widarto, Director of Perennial and Refreshing Plants at the Ministry of Agriculture, acknowledges the regulation's flexibility in addressing land constraints but clarifies that companies with plantations predating 2007 are still required to establish Plasma Plantations following the guidelines of the Minister of Agriculture Regulation Number 98 of 2013. GAPKI Secretary General Eddy Margono highlights the need for implementing regulations to prevent confusion during field execution, stressing that transitional provisions in Article 43 of the 2021 regulation address companies that have not fulfilled obligations under previous regulations. This regulatory framework reflects ongoing efforts to balance land use efficiency, community welfare, and sustainable plantation management within Indonesia's palm oil sector.

Before 2007, there was no formal legal obligation for palm oil companies to develop Plasma plantations, although several government-initiated Core Plasma programs, such as PIR-Bun, PIR-Trans, PIR-KKPA, and plantation revitalization schemes, were already in operation. These programs allowed many companies to establish Plasma partnerships voluntarily, but adherence was inconsistent due to the absence of a binding mandate. Recent legislative reforms under the Job Creation Law have updated the concept of Palm Oil Plasma to better address persistent issues related to limited land availability. Importantly, the realization of Plasma obligations is no longer restricted solely to the establishment of oil palm crops but may include alternative forms of value-equivalent contributions, thereby providing greater flexibility.[40]

This policy direction aligns with government regulations concerning agricultural sector implementation and community plantation development, which emphasize the facilitation of diverse partnership models that accommodate varying regional contexts. Nevertheless, in regions with limited land resources, such as certain forested areas, compliance with Plasma requirements remains challenging. The establishment of plantations in forest zones raises potential legal

[39] Fazliana Abdul Hamid and others, 'Pulp and Paper from Wood and Oil Palm Biomass: Current Development, Issues, Challenges and Opportunities', *Industrial Crops and Products*, 222 (2024), 119938 https://doi.org/https://doi.org/10.1016/j.indcrop.2024.119938

[40] Iftekhair Ibnul Bashar, U Johnson Alengaram and Mohd Zamin Jumaat, 'Enunciation of Embryonic Palm Oil Clinker Based Geopolymer Concrete and Its Engineering Properties', *Construction and Building Materials*, 318 (2022), 125975 https://doi.org/https://doi.org/10.1016/j.conbuildmat.2021.125975

and environmental concerns, while expansion beyond permitted land areas can lead to operational conflicts and jeopardize partnership sustainability. These issues highlight the complexity of implementing equitable and sustainable Plasma partnerships, necessitating regulatory frameworks that balance economic development, environmental conservation, and community welfare within Indonesia's palm oil sector.

Social Justice Issues Related to Palm Oil Plastic

The protection of environmental rights is firmly embedded in Indonesia's constitution and various statutory regulations, serving as the legal foundation to ensure environmental considerations are prioritized in all related activities. These laws aim to regulate the use of natural resources by stakeholders, safeguarding against adverse environmental impacts resulting from their exploitation. Over time, this legal framework has evolved into the concept of a "Green Constitution," which redefines the environment from being a mere object of human use to a subject possessing intrinsic rights that demand preservation and protection. This paradigm shift towards environmental sovereignty, often referred to as ecocracy, underscores the importance of maintaining environmental integrity as a fundamental aspect of state governance. Within the Indonesian constitutional context, this green framework provides a legal basis for sustainable environmental management, emphasizing the government's duty to implement policies that ensure environmental sustainability and inheritance to future generations in a clean and healthy state.[41]

Furthermore, this conception aligns with the progressive evolution of human rights across three generations: the first generation concerning civil and political rights; the second, economic, social, and cultural rights; and the third, collective rights such as development and environmental protection. Recognizing environmental rights as part of this third generation underscores its critical role in comprehensive human rights frameworks and sustainable development goals. Recent regulations, including Law No. 32 of 2009 on Environmental Protection and Management and the Constitutional Court's decisions affirming environmental rights as constitutional rights, reinforce the legal obligation to protect the environment. These developments reflect Indonesia's commitment to integrating environmental protection within its broader human rights and development agendas, thereby promoting an inclusive and sustainable approach to national progress.[42]

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[41] Mohd Azmuddin Abdullah and others, 'New Perspectives on Biomass Conversion and Circular Economy Based on Integrated Algal-Oil Palm Biorefinery Framework for Sustainable Energy and Bioproducts Co-Generation', *Industrial Crops and Products*, 213 (2024), 118452 https://doi.org/https://doi.org/10.1016/j.indcrop.2024.118452

[42] Rais Rahmadi and others, 'Biokinetic Modeling Approach to Investigate the Impact of Rotational Speed Variations in Modified Rotating Biological Contactors for Palm Oil Mill Effluent Treatment',

The concept of third-generation human rights, emerging prominently in the 1980s, primarily encompasses the right to development, reflecting a collective consensus built upon earlier generations of civil-political and socio-economic-cultural rights. This generation emphasizes the communal rights necessary to support sustainable development, recognizing that development activities, while essential for human progress, often result in significant environmental degradation. The adverse consequences of development, including pollution, ecosystem destruction, and social displacement, are particularly pronounced in contexts where corporate interests dominate land use without adequate consideration for environmental protection. In Indonesia, constitutional and legal frameworks have progressively strengthened environmental protection mandates, notably through Law No. 32 of 2009 on Environmental Protection and Management, which affirms environmental rights and criminalizes acts of pollution and destruction. A critical principle applied in environmental law enforcement is strict liability, which holds corporations accountable for environmental harm without requiring proof of fault or intent. This principle ensures that entities causing environmental damage are responsible for remediation and penalties, reflecting the high risk posed to public welfare.[43]

The protection of the environment requires the application of the precautionary principle, which guides the determination of liability for environmental damage and pollution. Liability can be based on negligence, where a party is responsible if it fails to exercise the necessary care, or on strict liability, which holds parties accountable regardless of fault. Strict liability emphasizes that those who cause environmental harm must bear the social and economic costs associated with their actions. This principle encourages preventive efforts to avoid damage before it occurs. Resolving environmental disputes can involve administrative, civil, or criminal law, with criminal responsibility focused on individuals or corporations. Proving fault in environmental cases is often difficult due to the complexity of cause and effect, making strict liability a more effective tool for addressing such challenges. Although strict liability originated in foreign legal systems, it has been increasingly incorporated into national frameworks, ensuring that corporations are held accountable for environmental harm even when negligence cannot be conclusively demonstrated. The adoption of strict liability supports stronger environmental governance by prioritizing public welfare, overcoming evidentiary difficulties, and acknowledging the high risks environmental offenses pose to society. This legal approach is essential for achieving sustainable environmental

Bioresource Technology Reports, 28 (2024), 101992 https://doi.org/https://doi.org/10.1016/j.biteb.2024.101992

[43] Kosheela Devi Poopalam and others, 'Utilization of Oil Palm Biomass and Polyurethanes as Sustainable Construction Materials: A Review', *Developments in the Built Environment*, 17 (2024), 100380 https://doi.org/https://doi.org/10.1016/j.dibe.2024.100380

management and promoting corporate responsibility in line with contemporary regulatory expectations.[44]

Strict liability is a legal doctrine where the responsibility for damage or harm is imposed regardless of fault or negligence. In this framework, an individual or entity engaged in inherently dangerous activities is accountable for any resulting damage, even if all precautionary measures have been taken. This principle serves to ensure compliance with regulations designed to protect public welfare, especially in situations where proving fault is challenging due to the complexity of environmental harm. Strict liability thus shifts the burden of risk to those undertaking potentially hazardous actions, emphasizing prevention and accountability. Compensation for environmental damage under this principle is grounded in the concept of justice, requiring the responsible party to restore or indemnify affected individuals or communities to a state close to their original condition.[45]

The calculation of damages considers the economic value of the loss, which encompasses direct use, ecological functions, potential future benefits, and intrinsic existence values of the environment. Various valuation methods are employed, such as market-based approaches, willingness-to-pay surveys, and cost estimation based on the expenses individuals incur to access environmental resources. These approaches provide a comprehensive framework for quantifying environmental harm and determining fair compensation. Recent legal frameworks emphasize the application of strict liability in environmental protection, reflecting a global trend toward strengthening accountability and promoting sustainable practices to safeguard natural resources for present and future generations.[46]

Indonesia firmly embraces the polluter pays principle as a key foundation in its environmental policy, consistent with international standards observed in developed countries. This principle is reflected in various laws, notably Law No. 4 of 1982 and the updated Law No. 32 of 2009 concerning Environmental Protection and Management. Under this framework, polluters are obligated not only to compensate affected parties but also to bear the costs of environmental restoration, which the government carries out due to its capacity and authority. Judicial rulings highlight that claimants must provide clear evidence of

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[44] Arezoo Fereidonian Dashti, Mohd Omar Fatehah and Mohammad Ali Zahed, 'Waste Management of the Palm Oil Industry: Present Status and Future Perspective', *Journal of Environmental Engineering and Science*, 17.2 (2021), 75–88 https://doi.org/https://doi.org/10.1680/jenes.20.00059

[45] Prieskarinda Lestari and Yulinah Trihadiningrum, 'The Impact of Improper Solid Waste Management to Plastic Pollution in Indonesian Coast and Marine Environment', *Marine Pollution Bulletin*, 149 (2019), 110505 https://doi.org/https://doi.org/10.1016/j.marpolbul.2019.110505

[46] Leslie Cheng-Li Ooi and others, 'Improving Oil Palm Sustainability with Molecular-Precision Agriculture: Yield Impact of SHELL DNA Testing in the Malaysian Oil Palm Supply Chain', *Scientia Horticulturae*, 321 (2023), 112305 https://doi.org/https://doi.org/10.1016/j.scienta.2023.112305

environmental damage and its magnitude to support compensation claims. To address challenges in assessing environmental losses, the government enacted Ministerial Regulation No. 7 of 2014, which provides detailed guidelines on calculating damages caused by pollution or environmental degradation, thereby improving legal certainty and enforcement. The recent removal of the strict liability clause in omnibus law reforms raises concerns about weakening corporate accountability for environmental harm.[47]

Article 88 of Law No. 32 of 2009 remains a vital safeguard, empowering authorities to hold corporations responsible for environmental damage, including deforestation linked to land-use changes. As Indonesia continues its development trajectory, balancing economic growth with sustainable environmental management is essential to preserve natural ecosystems and ensure long-term societal well-being. The issuance of Ministry of Agriculture Regulation Number 18 of 2021 on Facilities for the Development of Surrounding Community Plantations (FPKM) aims to facilitate the Palm Oil Partnership Pattern, especially for plantation companies with limited land, by providing alternative partnership options that benefit local communities. This regulation allows plantations established after 2007 without Plasma development to engage in other partnership activities such as livestock provision or fishery cultivation.[48]

Article 7 outlines various partnership models across upstream, downstream, cultivation, supporting subsystems, plantation rejuvenation, and additional community development efforts including training and sustainable certification, as well as the utilization of palm oil by-products. However, these alternative forms are limited to plantations built post-2007 that have not yet developed community plantations. Companies with plantations established before 2007 that have not fulfilled FPKM requirements must still develop Plasma plantations according to Ministry of Agriculture Regulation Number 98 of 2013 on plantation licensing, while those that have previously implemented partnership programs like PIR KKPA or equivalent are exempt. This regulatory

[47] M Muthukumaran and others, 'Microalgae-Based Solutions for Palm Oil Mill Effluent Management: Integrating Phycoremediation, Biomass and Biodiesel Production for a Greener Future', *Biomass and Bioenergy*, 191 (2024), 107445 https://doi.org/https://doi.org/10.1016/j.biombioe.2024.107445

[48] Ilham Zulfahmi, Sayyid Afdhal El Rahimi, Saed Dedi Suherman, and others, 'Acute Toxicity of Palm Oil Mill Effluent on Zebrafish (Danio Rerio Hamilton-Buchanan, 1822): Growth Performance, Behavioral Responses and Histopathological Lesions', *Chemosphere*, 340 (2023), 139788 https://doi.org/https://doi.org/10.1016/j.chemosphere.2023.139788

framework seeks to address land scarcity challenges while promoting community empowerment and sustainable palm oil plantation management.[49]

The implementation of the Ministry of Agriculture Regulation Number 18 of 2021 concerning the Facilitation of Development for Surrounding Community Plantations has raised calls for clearer and more detailed implementing regulations to ensure consistent application and avoid ambiguity in practice. This regulation, as outlined in its Transitional Provisions Article 43, addresses palm oil plantation companies that have been operational but have not yet fulfilled their obligations as mandated by the earlier Ministry of Agriculture Regulation Number 98 of 2013.[50]

Historically, before 2007, there was no binding requirement for companies to develop plasma plantations, although various core plasma programs such as PIR-Bun, PIR-Trans, PIR-KKPA, and Plantation Revitalization existed and were voluntarily adopted by many companies. The concept of plasma plantations has evolved, particularly following the enactment of the Job Creation Law (UUCK), which acknowledges challenges related to land availability and allows plasma realization to take alternative forms beyond traditional plantation development, provided these alternatives hold equivalent or near-equivalent value. The government holds the responsibility to detail these provisions, guided by the UUCK's plantation cluster and subsequent Ministry of Agriculture regulations, including Number 26 of 2021 on Agricultural Sector Implementation and Number 18 of 2021. Nevertheless, significant practical challenges remain, especially in regions with limited land such as Central Kalimantan, where plantation development in forest areas presents regulatory and environmental risks. Expansion into forest zones or new land without proper clearance can lead to legal disputes and complications affecting both companies and community partnership programs. This situation underscores the need for coherent policy frameworks to balance agricultural development with environmental conservation and legal compliance.[51]

The enactment of the Job Creation Law and Government Regulation Number 2 of 2022 aims to expedite the resolution of challenges within the palm oil plantation sector, particularly issues related to Location Permits, Business Use

[49] Agus Priyadi and others, 'Adaptation and Domestication of Endangered Wild Betta Fish (Betta Channoides) Originating from East Kalimantan, Indonesia', *Aquaculture*, 610 (2026), 742900 https://doi.org/https://doi.org/10.1016/j.aquaculture.2025.742900

[50] Salia S Sheriff and others, 'A Comprehensive Review on Exposure to Toxins and Health Risks from Plastic Waste: Challenges, Mitigation Measures, and Policy Interventions', *Waste Management Bulletin*, 3.3 (2025), 100204 https://doi.org/https://doi.org/10.1016/j.wmb.2025.100204

[51] Mohan Durgadevi and others, 'Expression of Genes Related to Hydrogen Peroxide Generation and Phytohormones in Ganoderma-Inoculated Oil Palm Seedlings Pretreated with Phytohormones and Their Inhibitors', *Plant Gene*, 33 (2023), 100405 https://doi.org/https://doi.org/10.1016/j.plgene.2023.100405

Rights, and Forest Area management. Regional authorities, including regents, hold the authority to grant Location Permits as long as they conform to the Regional Spatial Planning regulations, which also legally validate land rights transfers. The legal framework governing these permits extends beyond the Minister of Agrarian Affairs regulation from 1993 to include Law Number 18 of 2004 on Plantations, which specifically addresses palm oil plantation permits, and aligns with Law Number 41 of 1999 on Forestry that requires forest area designation to consider spatial planning principles.[52]

Furthermore, the government is tasked with enforcing regulations against palm oil companies in accordance with Law Number 25 of 2007 on Investment, which guarantees legal certainty and business security for investors from the licensing process through the conclusion of business activities. When conflicts arise due to Location Permits overlapping with Forest Areas, Government Regulation Number 43 of 2021 provides mechanisms for resolving spatial planning discrepancies. Additionally, Government Regulation Number 22 of 2022 concerning Job Creation, succeeding the previous 2020 legislation, includes provisions that require existing businesses operating in forest areas to fulfill compliance obligations within a three-year period, subject to administrative sanctions if unmet. A primary cause of spatial conflicts is the inconsistency between Regional Spatial Planning maps and Forest Area maps, partly due to the absence of an integrated One Map Policy in Indonesia.[53]

Licensing disputes in the palm oil sector are administrative rather than criminal or corruption-related issues under forestry law. Experts stress that forest area designation must follow a comprehensive procedure including designation, boundary setting, mapping, and formal establishment to provide legal certainty and avoid conflicts. Misunderstandings persist regarding whether forest release is necessary for land rights such as Business Use Rights when spatial planning already excludes these areas from forest classification. This situation is evident in provinces like Riau and Central Kalimantan, where legally issued land rights are sometimes disregarded despite their lawful issuance and no revocation by judicial authorities. Furthermore, dual governance in land administration, where forest land is overseen by the Ministry of Environment and Forestry and non-forest land by the National Land Agency, adds complexity to spatial governance. Resolving these challenges

[52] Tabassum Mumtaz and others, 'Turning Waste to Wealth-Biodegradable Plastics Polyhydroxyalkanoates from Palm Oil Mill Effluent – a Malaysian Perspective', *Journal of Cleaner Production*, 18.14 (2010), 1393–1402 https://doi.org/https://doi.org/10.1016/j.jclepro.2010.05.016

[53] Nura Shehu Aliyu Yaro and others, 'Application and Circular Economy Prospects of Palm Oil Waste for Eco-Friendly Asphalt Pavement Industry: A Review', *Journal of Road Engineering*, 2.4 (2022), 309–31 https://doi.org/https://doi.org/10.1016/j.jreng.2022.10.001

requires harmonizing spatial planning and forest management frameworks to ensure sustainable land use and secure investment environments.[54]

The Indonesian Sustainable Palm Oil (ISPO) policy mandates that starting in 2025, all actors in the palm oil plantation sector, including both businesses and smallholder farmers, must obtain ISPO certification. This requirement aims to accelerate the adoption of sustainable palm oil practices across the country. Compliance with key regulatory documents, such as the Cultivation Registration Certificate and environmental permits, is essential for both investors and farmers. The government is actively developing supporting policies, emphasizing the role of farmer groups and cooperatives, especially in less organized areas, to facilitate understanding and adherence to ISPO standards. Furthermore, integrated supervision and capacity-building efforts by central and regional governments seek to harmonize national regulations with field implementation, minimizing regulatory overlap. From a legal development perspective, the concept advanced highlights law as an instrument for societal renewal, directing human activities towards national development goals. The ISPO policy exemplifies this principle by fostering sustainable palm oil cultivation that aligns with Indonesia's broader objectives of social justice and environmental stewardship. This legal framework not only guarantees order but also actively promotes transformation in agricultural practices, reflecting the latest regulations and government commitments to sustainable development.[55]v

The normative validity of a legal rule is determined by its placement within a hierarchical legal system, where specific rules must be derived from more general, higher-level norms. This formalistic view of validity, which emphasizes the structural relationship of legal norms rather than their substantive content, aligns closely with H.L.A. Hart's legal positivism. Hart explains the evolution of modern legal systems as a transition from primary rules of obligation rooted in customary practices to secondary rules that form the formal legislative framework. Despite this evolution, local wisdom and legal culture remain critical elements that balance the process of legal modernization. Since the emergence of modern nation-states in the eighteenth century, positivist legal theory has emphasized the importance of codified law to legitimize legal processes, supplanting earlier customary,

[54] Mohd Rafein Zakaria, Mohammad Abdillah Ahmad Farid, and others, 'Production of Biochar and Activated Carbon from Oil Palm Biomass: Current Status, Prospects, and Challenges', *Industrial Crops and Products*, 199 (2023), 116767 https://doi.org/https://doi.org/10.1016/j.indcrop.2023.116767

[55] Muhammad Johan Iskandar and others, 'Palm Oil Industry in South East Asia and the Effluent Treatment Technology—A Review', *Environmental Technology & Innovation*, 9 (2018), 169–85 https://doi.org/https://doi.org/10.1016/j.eti.2017.11.003

interaction-based laws. Roberto M. Unger describes this stage as bureaucratic law, which characterizes contemporary state governance structures.[56]

In the management of natural resources and the environment, the state holds a duty to protect the economic, social, and cultural rights of local communities as fundamental human rights while ensuring ecological sustainability. Successful implementation of developmental law depends on increased legal awareness among government institutions, businesses, and society to uphold environmental conservation. Recent Indonesian legislation, including Law Number 32 of 2009 concerning Environmental Protection and Management and its subsequent amendments, reinforces public participation and legal harmonization as mechanisms for societal renewal. Therefore, legislators must actively integrate public aspirations into lawmaking processes to produce laws that reflect social justice and collective welfare, in accordance with Pancasila's philosophy prioritizing community engagement. This approach is consistent with the developmental legal theories of Mochtar Kusumaatmadja and Satjipto Rahardjo, who view law as a vehicle for social transformation and renewal, particularly in the context of Indonesia's environmental and natural resource governance.[57]

The Indonesian government, through the Palm Oil Plantation Fund Management Agency (BPDPKS), plays a crucial role in advancing the sustainability of the palm oil sector by managing the Smallholder Palm Oil Replanting Program. BPDPKS operates under the Ministry of Finance and is governed by a steering committee comprising eight key ministries, ensuring coordinated policy implementation. Established under Law No. 39 of 2014 on Plantations and formalized by Minister of Finance Regulation No. 113/PMK.01/2015, BPDPKS is mandated to collect levies from palm oil producers, known as the CPO Supporting Fund, to finance sustainable development initiatives within the sector. Recent policy reforms have increased the PSR funding allocation to IDR 60 million per hectare, doubling the previous amount to accelerate replanting activities and enhance the productivity of smallholder farmers. As of December 2024, BPDPKS disbursed approximately IDR 10.25 trillion, facilitating the rejuvenation of over 364,000 hectares of palm oil plantations. The 2025 target aims to replant an additional 120,000 hectares, maintaining the financial support per hectare in accordance with prevailing

[56] Manish Kumar and others, 'Retrieving Back Plastic Wastes for Conversion to Value Added Petrochemicals: Opportunities, Challenges and Outlooks', *Applied Energy*, 345 (2023), 121307 https://doi.org/https://doi.org/10.1016/j.apenergy.2023.121307

[57] A H Juliana and others, '18 - Other Types of Panels from Oil Palm Biomass', in *Oil Palm Biomass for Composite Panels*, ed. by S M Sapuan and others (Elsevier, 2022), pp. 321–36 https://doi.org/https://doi.org/10.1016/B978-0-12-823852-3.00010-6

regulations, including Presidential Regulation No. 132 of 2024 concerning Plantation Fund Management.[58]

The fund disbursement process involves a two-stage mechanism: the initial 50 percent is allocated following the signing of cooperation agreements, and the remaining 50 percent is released after verified progress on replanting activities, confirmed by local agricultural offices and supervisory teams. BPDPKS also engages independent surveyors, such as PT Sucofindo, to provide technical guidance and ensure compliance with regulatory frameworks like Minister of Agriculture Regulation No. 5 of 2025 and BPDP's internal directives. This transparent and systematic approach not only safeguards the effective use of funds but also strengthens the capacity of smallholder farmers to adopt sustainable practices. The enhanced funding and governance structure aim to improve productivity, secure economic livelihoods, and promote environmental sustainability in Indonesia's palm oil industry, aligning with national development goals and international sustainability commitments.[59]v

4. Conclusion

The study concludes that the management of plasma palm oil in Indonesia faces several critical and interconnected challenges that hinder the sector's development and sustainability. Firstly, land-related conflicts remain a major issue, as local communities frequently demand the establishment of plasma plantations within palm oil company concession areas. These demands often lead to disputes over land tenure and disrupt cooperative relationships between companies and communities. Moreover, numerous palm oil companies, particularly those operating before the enactment of Minister of Agriculture Regulation No. 26 of 2007 concerning Plantation Business Licensing, have not fulfilled their legal obligation under Article 11 to develop plasma or community plantations. This non-compliance undermines the core objectives of plasma programs aimed at empowering smallholder farmers and promoting inclusive rural economic growth. Secondly, the study identifies significant disparities in the awareness and uptake of sustainability certifications, such as the Indonesian Sustainable Palm Oil (ISPO). Farmers who have participated in socialization programs, typically supported by partner companies, generally demonstrate better compliance and understanding of certification requirements, encountering few obstacles. Conversely, uncertified farmers, lacking access to information, institutional support, and financial resources, remain uninformed and disengaged from the ISPO certification process. This divide limits the broader acceptance of ISPO,

[58] Mairon G Bastos Lima, 'Just Transition towards a Bioeconomy: Four Dimensions in Brazil, India and Indonesia', *Forest Policy and Economics*, 136 (2022), 102684 https://doi.org/https://doi.org/10.1016/j.forpol.2021.102684

[59] Pamela McElwee and others, 'Ensuring a Post-COVID Economic Agenda Tackles Global Biodiversity Loss', *One Earth*, 3.4 (2020), 448–61 https://doi.org/https://doi.org/10.1016/j.oneear.2020.09.011

which is crucial for sustaining Indonesia's palm oil industry competitiveness both domestically and internationally. Thirdly, recent regulatory reforms under the Job Creation Law (Law No. 11 of 2020 as amended by Law No. 6 of 2023) and related Ministry of Agriculture regulations (No. 18 and 26 of 2021) have redefined the plasma palm oil framework. While these reforms intend to strengthen governance, they also expose ongoing challenges related to land scarcity, particularly in densely populated or limited land areas, complicating partnerships between core companies and plasma farmers. To address these issues effectively, the study recommends stronger enforcement of existing policies, enhanced dissemination and socialization of sustainability certification programs, and improved collaboration among government agencies, private sector actors, and local communities. Such comprehensive measures are vital to achieving equitable and sustainable plasma palm oil development aligned with Indonesia's evolving legal framework and sustainability objectives.

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Bastos Lima, Mairon G, 'Just Transition towards a Bioeconomy: Four Dimensions in Brazil, India and Indonesia', *Forest Policy and Economics*, 136 (2022), 102684 https://doi.org/https://doi.org/10.1016/j.forpol.2021.102684

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