

Tax Justice in Indonesia's Palm Oil Industry: Fiscal Contributions, Environmental Externalities, and Regional Distribution

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Abstract

Indonesia's palm oil industry generates substantial economic activity and fiscal revenue while simultaneously producing significant environmental and social externalities. This creates a complex tax justice question concerning whether the fiscal contribution of the industry adequately reflects the environmental costs associated with production and whether revenues are equitably distributed across producing regions. This article examines the tax governance of Indonesia's palm oil sector from a distributive and environmental justice perspective. Using normative juridical and policy analysis, the study evaluates taxation, export-related fiscal instruments, environmental obligations, and revenue distribution between national and regional governments. The article argues that tax policy should internalize environmental externalities while ensuring that producing communities receive adequate public benefits from natural-resource exploitation. The study proposes a palm oil tax justice framework combining polluter-pays principles, transparent fiscal transfers, environmental restoration funding, and community development obligations. Particular attention is given to the relationship between national fiscal revenues and the public services available in palm oil-producing regions. The article concludes that a fair palm oil fiscal regime should balance economic competitiveness with environmental responsibility and regional distributive justice.

[Industri kelapa sawit Indonesia menghasilkan aktivitas ekonomi dan penerimaan fiskal yang substansial, namun pada saat yang sama menimbulkan eksternalitas lingkungan dan sosial yang signifikan. Hal ini memunculkan persoalan keadilan pajak yang kompleks mengenai apakah kontribusi fiskal industri tersebut telah mencerminkan secara memadai biaya lingkungan yang terkait dengan produksi, serta apakah penerimaan tersebut didistribusikan secara adil di wilayah-wilayah penghasil. Artikel ini mengkaji tata kelola perpajakan sektor kelapa sawit Indonesia dari perspektif keadilan distributif dan lingkungan. Dengan menggunakan metode yuridis normatif

dan analisis kebijakan, studi ini mengevaluasi aspek perpajakan, instrumen fiskal terkait ekspor, kewajiban lingkungan, serta distribusi penerimaan antara pemerintah pusat dan daerah. Artikel ini berargumen bahwa kebijakan pajak harus menginternalisasi eksternalitas lingkungan sekaligus memastikan masyarakat di wilayah penghasil memperoleh manfaat publik yang memadai dari pemanfaatan sumber daya alam. Studi ini mengusulkan kerangka kerja keadilan pajak kelapa sawit yang memadukan prinsip "pencemar membayar" (polluter-pays principle), transfer fiskal yang transparan, pendanaan pemulihan lingkungan, dan kewajiban pengembangan masyarakat. Perhatian khusus diberikan pada hubungan antara penerimaan fiskal nasional dan ketersediaan layanan publik di wilayah penghasil kelapa sawit. Artikel ini menyimpulkan bahwa rezim fiskal kelapa sawit yang adil harus menyeimbangkan daya saing ekonomi dengan tanggung jawab lingkungan dan keadilan distributif antarwilayah.]

Keywords: Palm oil, environmental taxation, fiscal justice, regional revenue, Indonesia

Introduction

Indonesia's palm oil industry occupies an unusual position within the national political economy. It is simultaneously an important source of agricultural income, export earnings, industrial activity, employment, and public revenue, while also being associated with deforestation, peatland degradation, greenhouse-gas emissions, fires, air pollution, biodiversity loss, land conflict, and uneven distribution of economic benefits. The resulting policy dilemma is therefore not adequately captured by the conventional question of whether palm oil is economically beneficial or environmentally harmful. The more fundamental question is whether the fiscal institutions governing the industry allocate the benefits and costs of palm oil production fairly among producers, consumers, the central government, local governments, and affected communities.

The scale of the sector makes this question particularly important. Official statistics continue to show that oil palm occupies millions of hectares across Indonesia and is produced by a combination of private estates, state-owned enterprises, and smallholders. The latest national plantation statistics available by the end of 2025 provide provincial-level information on oil-palm area, production, and trade, confirming the sector's continuing significance in the Indonesian agricultural economy (BPS-Statistics Indonesia 2025). At the fiscal level, palm oil is subject to multiple instruments, including corporate income tax, land and building taxation, value-added taxation in relevant transactions, export duties, export levies, and various non-tax or quasi-fiscal mechanisms. The central government has also established the Palm Oil Plantation Fund Management Agency (Badan Pengelola Dana Perkebunan Kelapa Sawit, BPD PKS), whose export-levy mechanism has become an important source of sector-specific public finance.

The fiscal importance of the industry is evident from the magnitude of export-related collections. Between 2015 and 2021, palm-oil export levy revenues reportedly reached approximately IDR 67.53 trillion, illustrating the scale of fiscal resources generated through the palm oil value chain (Nurfatriani et al. 2022). More recently, Indonesia's 2024 audited central-government financial report recorded total export-duty revenue of approximately IDR 20.89 trillion, with the Ministry of Finance identifying higher palm-oil export duties, alongside other policy factors, as one of the drivers of the increase (Ministry of Finance 2025). These figures demonstrate that palm oil should not be treated merely as an agricultural commodity but as an important fiscal institution in its own right.

Nevertheless, fiscal contribution does not automatically imply fiscal justice. A commodity may generate substantial tax and non-tax revenue for the national treasury while the locations where production occurs continue to bear disproportionate infrastructure, environmental, health, and social costs. This distinction is central to environmental fiscal justice. Pigou's classic analysis established the economic rationale for corrective taxation where private decisions generate costs imposed on third parties (Pigou 1920). Contemporary environmental taxation extends this logic by seeking to align private incentives with social costs while simultaneously considering the distributional effects of taxation (Irianto et al. 2018). In Indonesia, the legitimacy of environmental taxation is particularly dependent on whether tax revenues are spent transparently and whether taxpayers and affected communities can observe a credible connection between fiscal extraction and environmental improvement (Irianto, Rosdiana, and Tambunan 2018).

The literature on palm oil has extensively examined economic development and environmental consequences, but these strands have not always been integrated with fiscal justice. Studies of smallholders generally find that oil-palm adoption can increase household consumption, income, and nutrition, although benefits differ by household characteristics and landholding structures (Euler et al. 2017). Euler et al. also show that smallholder expansion has been an important driver of oil-palm growth, demonstrating that palm oil cannot simply be understood as an activity dominated by large corporations (Euler et al. 2016). Wiley Online Library Other research indicates that oil-palm development can reduce poverty but produce heterogeneous effects across villages and livelihood systems (Santika et al. 2019; Euler et al. 2017). Such findings complicate a simplistic environmental critique because fiscal reforms that increase production costs may affect smallholders differently from vertically integrated corporations.

At the same time, environmental research provides strong evidence that palm-oil expansion has significant ecological consequences. Austin et al. (2019) identify large-scale oil-palm and timber plantations as major contributors to Indonesian deforestation, while Vijay et al. (2016) demonstrate the implications of oil-palm expansion for biodiversity and forest conversion. Gaveau et al. (2022) further demonstrate the relationship between oil-palm expansion, palm-oil prices, and

forest loss, showing that market incentives can affect land-use change at a national scale. Greenhouse-gas impacts are especially significant where oil palm expands into peatland and forest. Suharto et al. (2019) estimate substantial spatial variation in greenhouse-gas footprints associated with Indonesian palm-oil production and show that avoiding development on forest and peatland can significantly reduce future emissions.

The social costs are similarly significant. Peatland drainage and fires generate impacts beyond the boundaries of individual plantations. Kiely et al. (2021) estimate that Indonesia's 2015 fires generated approximately US\$28 billion in economic losses and conclude that peatland restoration could have generated substantial economic savings. More recent health research estimates substantial premature mortality, hospitalizations, asthma cases, and lost working days associated with particulate pollution from peatland fires in Sumatra and Kalimantan (Johnston et al. 2022). These costs illustrate a fundamental fiscal problem: the private profitability of land conversion can coexist with public expenditures and social losses that are not fully reflected in the producer's tax burden.

The distributional dimension adds another layer of complexity. Cramb and McCarthy (2016) characterize the palm-oil economy as a complex interaction among land, labor, capital, agribusiness, smallholders, and the state. Research Portal Plus Research on smallholders also demonstrates significant heterogeneity in access to markets, certification, finance, and productive assets (Jelsma et al. 2017). Oil-palm expansion may improve average welfare while simultaneously generating inequality among farmers and between farmers and landless workers (Kubitza et al. 2019). Income differences among plasma farmers also demonstrate the importance of institutional arrangements and cooperative performance in determining who captures economic gains (Ngadi 2019). Thus, tax justice must consider not only central-versus-regional distribution but also the distribution of fiscal benefits within producing communities.

The regional dimension is especially important under Indonesia's decentralized fiscal system. Empirical studies have produced mixed results concerning fiscal decentralization and regional inequality. Siburian (2021) finds that fiscal decentralization is associated with lower regional income inequality and that local public-goods provision and regional inequality are jointly related. Other studies have identified circumstances in which decentralization may increase disparities because fiscally stronger regions possess greater capacity to benefit from decentralization (Ashfahany, Djuuna, and Rofiq 2020). The implication is that merely transferring revenue to producing regions does not guarantee justice; the design, formula, conditionality, transparency, and spending quality of transfers matter.

This issue has become more important following the adoption of Law No. 1 of 2022 on Financial Relations between the Central Government and Regional Governments. The law introduced a new framework for intergovernmental fiscal relations and created the legal basis for developing new revenue-sharing

arrangements. The framework was subsequently operationalized through Government Regulation No. 38 of 2023 on Palm Oil Revenue-Sharing Funds and Minister of Finance Regulation No. 91 of 2023. The latter establishes that DBH Sawit is sourced from a percentage of export duties and export levies on palm oil and its derivatives and allocates funds among provinces, producing districts/cities, and neighboring districts/cities.

Previous research has already identified the potential of DBH Sawit as an ecological fiscal instrument. Nurfatriani et al. (2022), for example, argue that palm-oil revenue sharing can potentially provide incentives for regional sustainability while addressing the unequal distribution of economic benefits between the center and producing regions. However, their work predates the full implementation experience of DBH Sawit under the 2023 regulatory framework. Meanwhile, studies on environmental taxation in Indonesia have generally focused on the legitimacy and design of environmental taxes rather than on the interaction between palm-oil taxation, environmental externalities, and regional revenue distribution (Irianto et al. 2018). Consequently, a gap remains in the literature concerning the integration of sectoral fiscal contribution, environmental cost internalization, and spatial fiscal justice.

This article addresses that gap through three questions. First, what are the principal fiscal contributions generated by Indonesia's palm oil industry, and how are these revenues currently structured? Second, to what extent do existing fiscal and environmental instruments internalize the environmental externalities associated with palm-oil production? Third, whether the post-2022 revenue-sharing framework adequately distributes palm-oil-related fiscal benefits to producing regions and communities.

The contribution of this article is threefold. First, it integrates fiscal, environmental, and distributive dimensions into a single concept of palm-oil tax justice. Second, it evaluates DBH Sawit not merely as a revenue-sharing mechanism but as a potential ecological fiscal instrument. Third, it proposes a policy framework that links fiscal extraction to environmental restoration, regional public goods, and community welfare while maintaining economic competitiveness.

This study uses a normative juridical and policy-analysis approach supplemented by secondary empirical evidence. The normative juridical analysis examines Indonesian legislation governing taxation, export duties, export levies, environmental protection, carbon economic value, plantation governance, and intergovernmental fiscal transfers. Particular attention is given to Law No. 7 of 2021 on Harmonization of Tax Regulations, Law No. 1 of 2022 on Financial Relations between the Central Government and Regional Governments, Government Regulation No. 38 of 2023 on Palm Oil Revenue-Sharing Funds, Minister of Finance Regulation No. 91 of 2023, and relevant BPD PKS regulations. Law No. 7 of 2021 provides the broader statutory foundation for Indonesia's modern tax system and introduced provisions concerning carbon taxation, while the subsequent carbon-pricing framework establishes a broader policy context for internalizing

environmental costs (Republic of Indonesia 2021a; Republic of Indonesia 2021b). Peraturan+1

The policy analysis uses official fiscal and plantation statistics and triangulates them with peer-reviewed literature. Data sources include Statistics Indonesia (BPS), the Ministry of Finance, the Directorate General of Fiscal Balance, BPD PKS, and Indonesian legal databases. The analysis is deliberately interpretive rather than econometrically causal. It does not estimate a new marginal social cost of palm-oil production. Instead, it assesses whether the institutional architecture of taxation and revenue sharing is consistent with principles of environmental and distributive justice.

The analytical framework combines four principles. First is the polluter-pays principle, under which actors generating environmental costs should bear an appropriate portion of those costs. Second is benefit-sharing justice, under which communities and regions supplying natural resources should receive meaningful public benefits. Third is procedural justice, requiring transparency, participation, and accountability in fiscal allocation. Fourth is intergenerational justice, requiring fiscal institutions to prevent current revenues from being generated at the expense of future environmental capacity (Rawls 1971; Schlosberg 2007). The framework also draws on fiscal federalism, which emphasizes the allocation of taxing and spending functions across levels of government according to efficiency, accountability, and distributional considerations (Musgrave 1959; Oates 1972).

Fiscal Contributions of the Palm Oil Industry: From Tax Collection to Fiscal Value

The fiscal contribution of palm oil should be understood as a portfolio rather than a single tax. At the production level, companies and other economic actors may contribute through corporate income tax, land and building taxation, value-added taxation, payroll-related taxation, and local taxes and charges. At the trade level, palm oil is subject to export-related instruments, including export duties and export levies. In addition, the sector generates fiscal resources indirectly through employment, consumption, investment, and associated manufacturing activities.

The historical use of CPO export taxation demonstrates that Indonesia has long treated palm oil as an instrument of economic policy as well as a revenue source. Susila's analysis of the Indonesian CPO export tax found that the instrument could restrain investment, production, exports, and farm income while transferring welfare toward consumers and government revenue (Susila 2004). This finding is important for tax justice because the legal incidence of an export tax is not necessarily identical to its economic incidence. A tax formally imposed on exporters may be transmitted backward through the value chain, affecting processors, mills, traders, and ultimately farmers.

The development of the export-levy regime under BPD PKS altered this fiscal architecture. Unlike a conventional export tax that primarily enters the general budget, the palm-oil export levy has been associated with earmarked sectoral

expenditure, including biodiesel support and smallholder replanting. The arrangement can therefore be interpreted as a form of quasi-fiscal governance: producers and exporters finance a fund that supports policy objectives associated with the broader palm-oil economy.

From a fiscal-justice perspective, earmarking creates both an opportunity and a risk. The opportunity is that the fiscal burden can be linked to sectoral public objectives. The risk is that the revenues may finance policies that generate broad economic benefits without adequately compensating those who bear environmental costs. Nurfatriani et al. (2022) emphasize that palm-oil levy revenues are substantial but have historically remained strongly centralized, making regional benefit-sharing a critical institutional issue.

The 2023 DBH Sawit framework represents an important institutional shift. Government Regulation No. 38 of 2023 establishes Palm Oil Revenue-Sharing Funds as a component of intergovernmental fiscal transfers, with the source consisting of palm-oil-related export duties and export levies. Minister of Finance Regulation No. 91 of 2023 further provides that allocation is based on 50 percent land area and 50 percent productivity. Twenty percent is allocated to the province, 60 percent to producing districts/cities, and 20 percent to directly neighboring districts/cities, while performance-related considerations are incorporated into the allocation mechanism (Ministry of Finance 2023).

The first fiscal lesson is therefore that palm oil already contributes through multiple channels. The central policy problem is not the absence of taxation but the fragmentation of fiscal instruments. Taxes, export levies, environmental obligations, and fiscal transfers are administered through different institutional mechanisms and do not yet form a single coherent tax-justice architecture.

A second issue is the scale of the regional transfer relative to the total fiscal value generated by the industry. Under the 2023 framework, DBH Sawit is linked to a minimum percentage of national palm-oil export-duty and export-levy receipts. This means that regions receive a share of the fiscal value generated by the commodity, but the shared amount does not represent the total environmental or social cost of palm-oil production. The distinction is essential: revenue sharing is not equivalent to environmental compensation.

This distinction becomes clearer when considering the 2024 fiscal realization. The Directorate General of Fiscal Balance reports approximately IDR 2.846 trillion in budgeted DBH Sawit and approximately IDR 2.825 trillion in realization for 2024. This demonstrates that the mechanism had become operational and fiscally material by 2024. However, when compared with the magnitude of environmental losses documented in the literature, such transfers should not be interpreted as a complete valuation of environmental damages. They are better understood as a fiscal-sharing mechanism that can potentially support compensation and sustainability, provided that allocation and expenditure are appropriately designed.

Environmental Externalities and the Incomplete Internalization of Palm Oil Costs

The economic rationale for environmental taxation rests on the existence of externalities. When a production decision generates costs borne by actors who are not parties to the transaction, market prices do not reflect full social costs. Pigou's (1920) classic formulation provides the foundation for corrective taxation, while contemporary environmental fiscal policy seeks to combine environmental effectiveness with economic efficiency and distributive legitimacy.

Palm-oil production provides several examples of such externalities. The first is land-use change. Austin et al. (2019) demonstrate that industrial oil-palm and timber plantations accounted for a substantial share of Indonesian deforestation between 2001 and 2016. Vijay et al. (2016) further show that oil-palm expansion has implications for biodiversity and tropical forest conservation. Gaveau et al. (2022) find that industrial oil-palm expansion and forest loss were closely related to palm-oil prices, demonstrating that market incentives influence environmental outcomes.

The second major externality concerns peatlands. Peat drainage reduces ecological resilience and increases susceptibility to fire. The economic consequences are not confined to plantation owners. Kiely et al. (2021) estimate that the 2015 Indonesian fires caused approximately US\$28 billion in economic losses, while the cumulative costs of major fire events between 2004 and 2015 reached approximately US\$93.9 billion. These estimates include land damage, carbon emissions, and health-related losses, although the authors note that some biodiversity, livelihood, and other costs were not fully captured.

The public-health dimension is especially relevant to tax justice. Johnston et al. (2022) estimate that peatland-fire pollution in Sumatra and Kalimantan contributes to tens of thousands of premature adult deaths and thousands of infant deaths annually, alongside hospitalizations, asthma cases, and lost working days. These are quintessential external costs: affected households may have no contractual or ownership relationship with the plantation activity that contributes to landscape-level vulnerability.

The environmental footprint also varies considerably across locations and production systems. Research on greenhouse-gas emissions shows that palm-oil carbon footprints vary dramatically depending on whether production occurs on mineral soils, peatlands, previously cleared agricultural land, or forested areas (Suharto et al. 2019). This finding has an important tax-policy implication. A uniform tax per tonne of CPO may be administratively simple, but it does not necessarily reflect the marginal environmental damage of different production locations.

A more sophisticated tax-justice regime should therefore move from a uniform commodity-based fiscal burden toward a risk-adjusted environmental fiscal system. Production on legally converted, non-peat, non-forest land should not necessarily face the same environmental fiscal treatment as production associated with peat

drainage, illegal land conversion, or repeated fire events. Such differentiation could be implemented through a combination of taxes, environmental performance payments, restoration obligations, and fiscal-transfer incentives.

Indonesia has already developed a broader institutional basis for carbon-related policy. Law No. 7 of 2021 introduced carbon-tax provisions, while Presidential Regulation No. 98 of 2021 established a framework for the economic value of carbon and greenhouse-gas emission control. Peraturan+1 Although these instruments should not automatically be equated with a palm-oil environmental tax, they demonstrate that Indonesia's fiscal system is moving toward explicit economic valuation of environmental externalities.

The difficulty is implementation. Irianto et al. (2018) argue that environmental taxation in Indonesia faces legitimacy and compliance challenges. Environmental taxes can generate resistance if taxpayers perceive them primarily as additional fiscal burdens rather than as instruments producing visible environmental benefits. The legitimacy problem becomes particularly acute when environmental revenues disappear into general expenditure and affected communities cannot identify the relationship between their environmental burden and government spending. Accordingly, the principle should not be simply "tax palm oil more." The more defensible principle is "tax environmental risk more accurately and spend environmental revenue more transparently." This distinction can preserve the competitiveness of relatively sustainable producers while increasing the fiscal burden associated with environmentally damaging practices.

Regional Distribution and the Problem of Fiscal Justice

Tax justice has a spatial dimension. The location where tax revenue is collected and the location where public expenditure is required are not necessarily the same. This problem is particularly important for natural-resource-based economies because extraction tends to be geographically concentrated while fiscal administration is often centralized.

Indonesia's fiscal decentralization experience provides evidence that fiscal transfers can affect regional inequality, although outcomes depend on institutional capacity and expenditure quality. Siburian (2021) finds that fiscal decentralization is associated with reduced regional income inequality and that public-goods provision is closely related to regional distribution. Suwanan and Sulistiani (2014) similarly find an association between decentralization and lower regional disparities. However, other research identifies potential inequality-enhancing effects when richer regions have stronger fiscal and administrative capacity (Ashfahany, Djuuna, and Rofiq 2020). These conflicting findings suggest that fiscal decentralization should not be evaluated solely by the amount transferred but also by who receives it, how it is spent, and what institutional capacity exists at the receiving level.

Palm-oil-producing regions face a distinctive version of this problem. They host plantations, roads, mills, labor migration, land-use change, environmental

risks, and associated public-service demands. Yet historically, much of the sector-specific fiscal value generated by export levies has been administered centrally. Nurfatriani et al. (2022) identify precisely this imbalance as a rationale for a palm-oil revenue-sharing scheme.

The establishment of DBH Sawit is therefore a significant development in Indonesian fiscal justice. Its allocation formula recognizes producing and neighboring regions rather than limiting benefits to the jurisdiction where fiscal collection occurs. The 20 percent allocation to neighboring regions is especially relevant because environmental externalities do not necessarily respect administrative boundaries. Air pollution, road congestion, water impacts, labor-market pressures, and migration may affect neighboring districts that do not directly host plantations.

However, the allocation mechanism also reveals limitations. First, 50 percent of the allocation is based on plantation area and 50 percent on productivity. This design rewards the scale and output of production, but it does not directly reward ecological performance. A region with extensive plantation areas may receive a large transfer even if its environmental performance is poor. Conversely, a region that successfully prevents deforestation, protects peatlands, or restores degraded landscapes may not receive proportionately greater resources unless performance indicators are sufficiently strong.

Second, the prescribed expenditure structure emphasizes road infrastructure. Under PMK No. 91 of 2023, at least 80 percent of DBH Sawit is directed toward the development and maintenance of roads outside plantation areas, while up to 20 percent can be used for other permitted activities. This has an intuitive distributive rationale because heavy plantation and CPO transportation can impose significant infrastructure costs. Yet infrastructure spending alone cannot fully address environmental externalities.

A road can facilitate economic connectivity, but it can also facilitate further land conversion if spatial planning and environmental controls are weak. Fiscal justice therefore requires a broader definition of compensatory expenditure. Regional governments should be able to use a meaningful portion of palm-oil-related transfers for environmental monitoring, peatland management, fire prevention, watershed protection, public health, community land mapping, smallholder formalization, and restoration.

The experience of Tolitoli illustrates the importance of implementation capacity. A 2024 study of DBH Sawit utilization in Tolitoli examined the implementation of the transfer using document analysis and participatory observation and emphasized the 80-percent infrastructure allocation rule. jurnal.faperta.untad.ac.id The case demonstrates that the emergence of a new fiscal transfer does not automatically produce development outcomes; planning capacity and alignment with local priorities remain essential.

Regional distribution must also be distinguished from household distribution. A district may receive millions or billions of rupiah in DBH Sawit without individual

smallholders receiving a direct transfer. The justice question therefore extends beyond government-to-government allocation to government-to-community outcomes.

Research on smallholders indicates why this matters. Euler et al. (2017) find that oil-palm adoption improved household living standards and nutrition but that absolute gains were larger among better-off households, suggesting potential inequality effects. ideas.repec.org Kubitza et al. (2019) similarly find that oil palm is labor-saving and that its labor-market effects can vary across groups, including gender. Ngadi (2019) demonstrates substantial income differences among plasma farmers depending on institutional arrangements and cooperative performance. These findings suggest that the regional distribution of palm-oil revenues should include intra-regional distributive criteria, not merely intergovernmental formulas.

A tax system may therefore be legally equal while being substantively unequal. If all producing districts receive funds according to the same formula but some districts have much larger populations, weaker infrastructure, greater environmental damage, or higher poverty rates, equal treatment may not generate equitable outcomes. Tax justice requires attention to horizontal equity between regions and vertical equity within regions.

Toward a Palm Oil Tax-Justice Framework

The preceding analysis indicates that Indonesia does not lack fiscal instruments. Rather, the central problem is the absence of sufficiently integrated institutional coordination among taxation, environmental regulation, fiscal transfers, and community development. The reform objective should therefore be to transform the existing system from a collection of separate instruments into a coherent Palm Oil Tax Justice Framework.

The first pillar should be environmental risk-based taxation. The tax burden should reflect the environmental risk associated with production rather than merely the volume of CPO produced. Production on degraded peatland, activities associated with illegal forest conversion, or repeated fire-related violations should attract higher fiscal and regulatory burdens. Conversely, verified compliance with no-deforestation and no-peat commitments could generate limited fiscal incentives.

This approach is consistent with evidence that certification can reduce deforestation under some circumstances but does not automatically eliminate fire or peatland clearance. Carlson et al. (2018) found that RSPO certification reduced deforestation by approximately one-third relative to a counterfactual among participating plantations, but it did not have a causal effect on peatland forest loss or active fire detection. Fiscal policy should therefore complement, rather than replace, certification and regulatory monitoring.

The second pillar should be ecological fiscal transfers. DBH Sawit already creates the institutional foundation for this approach. The allocation formula should gradually incorporate indicators such as:

1. reduction in deforestation and forest degradation;

2. peatland protection and restoration;
3. fire prevention and response;
4. legality and traceability of plantation areas;
5. smallholder formalization;
6. improvement in environmental-quality indicators;
7. poverty reduction in plantation communities; and
8. transparency and quality of local expenditure.

Such an approach would transform DBH Sawit from a compensation mechanism into a performance-oriented ecological fiscal transfer. Nurfatriani et al. (2022) explicitly identify ecological fiscal transfer as a potential strategy for accelerating environmental sustainability in palm-oil-producing regions. The third pillar should be community-centered expenditure. Fiscal justice cannot be achieved if revenue sharing stops at the provincial or district treasury. A proportion of DBH Sawit should support programs directly benefiting communities in producing landscapes. Potential programs include smallholder replanting, agricultural diversification, land certification, cooperative strengthening, environmental education, health services, clean water, fire prevention, and community-based monitoring.

This approach is supported by evidence that palm-oil benefits are heterogeneous. Oil-palm development can increase welfare in some villages while producing less durable or even negative outcomes in subsistence-oriented communities (Santika et al. 2019). It can also generate significant differentiation among smallholders and workers (Kubitza et al. 2019; Ngadi 2019). Fiscal policy should therefore compensate for unequal capacity to participate in the formal palm-oil economy.

The fourth pillar should be transparent fiscal traceability. Tax justice requires taxpayers and communities to know where sector-specific revenues originate and how they are spent. A public digital dashboard could connect four datasets: plantation location, fiscal contributions, DBH allocation, and expenditure outcomes. This would make it possible to assess whether districts receiving large palm-oil transfers are actually improving infrastructure, environmental quality, poverty reduction, and public services. Such transparency is consistent with Irianto et al.'s (2018) argument that the legitimacy of environmental taxation depends substantially on spending quality and accountability. ResearchGate The objective is not simply to increase transparency as an administrative value, but to strengthen the social contract underlying environmental taxation.

The fifth pillar should be differentiated treatment of large corporations and smallholders. A uniform environmental tax can be regressive if smallholders have less access to capital, certification, information, and technology. Research on independent smallholders shows that they face substantial compliance barriers because of informality and limited capacity to meet environmental and market standards (Jelsma et al. 2017).

The appropriate response is not necessarily to exempt smallholders from environmental obligations. Rather, part of sectoral fiscal revenue should finance the transition costs required for smallholders to comply. This could include subsidized certification, digital traceability, replanting support, extension services, and access to formal markets. The principle should be differentiated responsibility with shared sustainability objectives.

The sixth pillar should be environmental restoration financing. A defined portion of palm-oil-related fiscal revenues should be dedicated to restoration in landscapes affected by historical production. This is justified because current fiscal instruments cannot fully compensate for accumulated environmental liabilities. Evidence from peatland restoration demonstrates that restoration can produce substantial avoided economic losses (Kiely et al. 2021). A practical fiscal architecture could therefore be organized as follows:

Fiscal instrument	Primary objective	Justice function
Corporate and ordinary taxes	General public finance	Ability-to-pay and public-service financing
Export duty/levy	Trade and sectoral fiscal policy	Capture part of commodity rents
Environmental performance charges	Externality internalization	Polluter-pays principle
DBH Sawit	Intergovernmental distribution	Regional benefit sharing
Ecological performance transfers	Environmental incentives	Reward conservation and restoration
Smallholder transition funds	Capacity building	Correct structural inequality
Restoration funds	Environmental repair	Intergenerational justice
Public fiscal dashboard	Accountability	Procedural justice

This framework also provides a way to reconcile competitiveness and environmental responsibility. Purnomo et al. (2020) demonstrate that Indonesian palm-oil development and environmental conservation are not necessarily mutually exclusive. Their modeling indicates that intensification, no-deforestation strategies, peatland protection, and land swapping can create more sustainable production trajectories. Similarly, the broader literature suggests that productivity gains can reduce pressure for further land expansion when accompanied by effective land-use governance.

The central policy principle should therefore be not to maximize taxation but to maximize the correspondence between fiscal burden, environmental responsibility, and public benefit. A palm-oil producer that operates legally on low-risk land, maintains environmental standards, supports smallholder inclusion, and contributes to restoration should face a different fiscal profile from an actor whose

business model depends on environmental degradation and uncompensated public costs.

Conclusion

Indonesia's palm oil industry generates substantial fiscal value through a combination of conventional taxation, export duties, export levies, and related economic activity. However, fiscal contribution alone does not establish tax justice. The distribution of palm-oil-related fiscal benefits remains spatially and institutionally different from the distribution of environmental and social costs. Deforestation, peatland degradation, fires, greenhouse-gas emissions, health impacts, infrastructure pressures, and social conflicts are disproportionately experienced in and around producing landscapes. The establishment of DBH Sawit through Government Regulation No. 38 of 2023 and Minister of Finance Regulation No. 91 of 2023 represents an important step toward correcting the historical concentration of palm-oil fiscal benefits at the national level. Nevertheless, the current system should be understood primarily as a revenue-sharing mechanism rather than a complete environmental compensation system. Its allocation formula and infrastructure-oriented expenditure structure remain insufficient to fully connect fiscal extraction with ecological restoration and community welfare.

A more just palm-oil fiscal regime should integrate four principles: polluter pays, ecological fiscal transfers, transparent revenue sharing, and community-centered development. DBH Sawit should gradually incorporate stronger environmental and social performance indicators, while part of palm-oil-related fiscal revenue should support peatland restoration, fire prevention, smallholder formalization, environmental monitoring, public health, and community development. The tax burden should also be differentiated according to environmental risk and the capacity of economic actors, preventing sustainability requirements from disproportionately burdening smallholders. Ultimately, tax justice in Indonesia's palm oil sector should be evaluated not simply by how much revenue the industry contributes to the state, but by whether fiscal institutions ensure that those who benefit from palm-oil production also bear an appropriate share of its environmental costs and whether producing communities receive durable public benefits from the exploitation of their landscapes. Such an approach can strengthen both the legitimacy and long-term competitiveness of Indonesia's palm oil economy.

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