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Green Taxes and Justice: Rethinking 'Polluter Pays' for a Sustainable Future

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Abstract. Environmental degradation driven by negative externalities and fiscal inequality demands a reconfiguration of taxation grounded in the Polluter Pays Principle (PPP). This study aims to develop a normative–comparative framework for a green tax system that internalizes pollution costs while promoting fiscal justice. Using a normative legal research method, the analysis explores the theoretical and institutional foundations of green taxation, drawing from Indonesia's environmental legislation, the Rio Declaration, and European Union guidelines, while examining fiscal equity and progressive redistribution. A comparative perspective highlights the implementation of PPP across jurisdictions: South Africa's carbon tax, Portugal's corporate and VAT-based green tax, and Indonesia's emerging carbon pricing scheme. The study focuses on legal mechanisms of redistribution, including targeted cash transfers, tax credits, and tax-shift models, as well as the role of fiscal transparency and administrative oversight in mitigating regressive impacts. The findings indicate that a green tax framework rooted in PPP and supported by progressive redistribution and legal transparency enhances ecological accountability, social equity, and policy legitimacy. This paper contributes to environmental fiscal reform discourse by proposing a legally grounded and equitable model for sustainable green tax implementation.

1. Introduction

Environmental degradation caused by negative externalities-such as air pollution, greenhouse gas emissions, water pollution, and ecosystem damage-is a multidimensional challenge that impacts not only the economic sector, but also public health, social stability, and ecological justice. In many cases, economic actors do not internalize the social costs of the environmental damage they cause. As a result,

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markets fail to channel resource allocation efficiently, which exacerbates environmental inequality and increases the burden on the state [1].

As argued in the environmental economics literature, negative externalities represent costs that are not internalized by polluters and therefore require state intervention through regulatory and fiscal instruments. Within Indonesia's legal framework, however, the translation of these economic concepts into binding fiscal norms remains fragmented. Although environmental levies and retribution mechanisms are recognized under existing laws, such as the Environmental Protection and Management Act and regional taxation statutes—the absence of a comprehensive green tax regime reveals a normative gap in Indonesia's fiscal law. Current taxation policies still prioritize revenue generation over ecological correction, lacking explicit provisions that operationalize the *Polluter Pays* principle as a legal obligation. Consequently, Indonesia's fiscal system has yet to provide a coherent mechanism to internalize pollution costs or ensure equitable redistribution of environmental tax revenues, leaving the environmental externalities inadequately addressed within the legal and institutional structure.

Ironically, this imbalance is not the case for the health sector in general. The National Immunization Program (2023) shows that child immunization coverage increased from 85% to 95% in the last seven years, which is directly associated with a significant reduction in diphtheria and polio cases by 78%. This fact reinforces that the precision of public interventions can significantly improve externality conditions-both in positive and negative dimensions. Another study noted that private vehicle use in Banda Aceh causes external costs of congestion and pollution of IDR 10,000-15,000 per vehicle per day, leading to annual productivity losses of up to IDR 5.5 billion [2].

In response to this situation, the "Polluter Pays" (PPP) principle emerged as a key normative foundation in global environmental law and policy. This principle was introduced by the OECD in 1972, and then formally recognized in Principle 16 of the Rio Declaration on Environment and Development (1992) [3]. The PPP stipulates that all costs incurred as a result of polluting activities must be borne by the polluter-including the costs of remediation, prevention, and compensation. This principle has also been incorporated into EU legal practice through carbon tax schemes, environmental levies, and cap-and-trade systems, and gradually adopted in the fiscal systems of many countries.

However, the implementation of green taxes is not free from challenges. One of the main criticisms is its regressive character: it disproportionately burdens low-income people, as they spend relatively more on energy and basic consumption. Without strong fiscal redistribution mechanisms-such as direct cash transfers, subsidy schemes, shifting the tax burden from labor to pollution, or tax credit systems-a green tax policy risks undermining its social and legal legitimacy. In the context of fiscal justice, a good tax system should be based on the principles of ability to pay and horizontal and vertical equality, as emphasized by Sulastyawati [4].

Furthermore, inter-jurisdictional disparities in interpreting polluter liability add to the complexity of PPP implementation. For example, although EU countries have adopted PPPs, their approaches vary: from strict liability to subsidiary liability models, depending on the level of proof and institutional structure. These differences complicate the global harmonization of environmental policies, especially in cases where polluters cannot be directly identified.

In Indonesia, the legal framework for environmental fiscal still faces structural and normative challenges. Despite legal foundations such as Law No. 32 of 2009 on Environmental Protection and Management, as well as strengthening through Law No. 7 of 2021 on Harmonization of Tax Regulations, and Presidential Regulation No. 98 of 2021 on Carbon Economic Value, there is no legal system that explicitly regulates revenue redistribution mechanisms that ensure fiscal justice in green tax. In fact, a number of provisions in the Job Creation Law (Law No. 11 of 2020 now Law 6 of 2023) actually weaken the function of environmental supervision and law enforcement - such as the elimination of EIA obligations for plantation businesses and the revocation of criminal penalties for violations of environmental business licenses. This legal affirmation for big business is not matched by protection for small businesses or traditional communities, which has the potential to widen structural and ecological inequalities.

Based on the 2030 Sustainable Development Goals (SDGs), particularly Goal 13 on Climate Action, green tax serves as a strategic legal and fiscal instrument to reduce carbon emissions, promote energy transition, and internalize environmental costs fairly. In this regard, green tax is not merely a source of state revenue but also a normative mechanism to advance ecological and fiscal justice—one that must be designed with strong social accountability and legal legitimacy.[5] Accordingly, this study aims to: (1) design a normative green tax framework consistent with the *Polluter Pays* Principle (PPP); (2) ensure equitable fiscal redistribution through legally mandated mechanisms; and (3) strengthen legal legitimacy by drawing comparative insights from other jurisdictions.

The research utilizes a normative-juridical method and a comparative approach, by examining the national legal framework and comparing environmental fiscal policy practices from countries such as South Africa and Portugal. The main focus lies on how legal instruments-such as targeted cash transfers, tax credits, and administrative oversight-can be used to mitigate regressive effects and strengthen the legitimacy of sustainable fiscal policies.

This research employs a normative-legal method supported by comparative analysis, aiming to formulate a green tax framework grounded in the *Polluter Pays* Principle while ensuring fiscal justice. First, a doctrinal legal research approach is applied through an in-depth analysis of primary and secondary legal sources—including Indonesia's Environmental Law, the Rio Declaration Ratification, as well as European Union regulations and the *Polluter Pays* doctrine—to examine the theoretical basis, principles of fiscal justice, and legal foundations of revenue redistribution mechanisms such as cash transfers and tax credits. Second, a comparative legal approach is used to analyze the implementation of green taxes in three jurisdictions: South Africa, Portugal, and Indonesia. South Africa and Portugal were selected due to their mature carbon tax and redistributive frameworks, which provide relevant legal and institutional lessons for Indonesia's ongoing fiscal-environmental reforms. The comparative analysis applies both functional (how green tax mechanisms operate to achieve equity) and structural (how the legal frameworks are designed) perspectives. The analytical process proceeds systematically through: (1) comparative description of green tax regulations and redistribution mechanisms in each country; (2) identification of similarities and differences in redistribution models (lump-sum, tax credit, labor tax shift); (3) normative evaluation of the legal effectiveness of these mechanisms in preventing regressive impacts; and (4) formulation of recommendations for legal and institutional reforms, including fiscal transparency and administrative judicial oversight, to enhance the legitimacy and sustainability of green taxes within the broader context of sustainable development.

2. Implementation of the Polluter Pays Principle in Green Tax

The *Polluter Pays* Principle (PPP) conceptually stipulates that the burden of costs arising from environmental pollution must be borne by the party responsible for the damage. This principle is not merely declarative but carries practical implications through the use of economic instruments—one of which is environmental taxation or *green tax*. The PPP has been widely endorsed in various international frameworks, including the OECD Guidelines and the 1992 Rio Declaration, and it serves as the normative foundation for fiscal incentive–based environmental policies across many jurisdictions. However, Indonesia's current approach remains predominantly regulatory rather than fiscal, thereby limiting the PPP's effectiveness as a legal deterrent and reducing its potential to internalize environmental costs through taxation mechanisms. [15]

Green tax is a concrete manifestation of this principle, as an instrument to internalize the negative externalities of economic activities that pollute the environment. By raising the cost of pollution, green taxes create economic incentives to reduce emissions and encourage the adoption of clean technologies. In developed countries, environmental tax schemes already contribute significantly to state revenues: in Denmark they account for 10.27% of total tax revenue, the Netherlands 8.93%, the UK 7.57%, and Japan 6.58%.[1] This shows that green tax is not just an additional instrument, but an integral part of a modern tax system that integrates with environmental protection and sustainable growth strategies.

In contrast, taxation policy in Indonesia has tended to emphasize the budgetary function rather than the regulatory function. Although since Law No. 4 of 1982 and Law No. 32 of 2009, the state's right to collect environmental levies has been recognized, its implementation has not been optimal. PP No. 46/2017, which regulates economic instruments in environmental management, is still dominated by local taxes, such as waste retribution and groundwater tax, which are limited in scope and do not directly target pollution or carbon emissions.[6]

Furthermore, Indonesia has yet to fully develop a comprehensive national carbon tax or environmental tax framework, although Presidential Regulation No. 98 of 2021 has introduced carbon pricing through a cap-and-trade scheme and a carbon tax plan. This lag has serious implications for the effectiveness of national environmental policy. Without a strong fiscal instrument, the state relies solely on administrative approaches such as environmental permits and green technology requirements-which have empirically proven to be less effective and prone to manipulation.

In fact, as emphasized by the OECD, green taxes are the most effective form of pollution control because they provide permanent incentives for businesses to reduce emissions and reduce long-term abatement costs. On the other hand, the tax burden also encourages innovation and investment in the renewable energy and clean technology sectors. Portugal, for example, through its Green Taxation Reform (Law 82-D/2014),[7] has shown how the tax system can be used to achieve three objectives at once: (1) environmental protection, (2) economic growth and job creation, and (3) strengthening fiscal responsibility. Portugal's tax law uses tax incentives, tax burden shifting, and emission-based charges to encourage green behavior among individuals and corporations.

Portugal's experience provides an important lesson for Indonesia. The implementation of green tax should be oriented not merely toward revenue generation, but toward disciplining the market and correcting moral hazard in the exploitation of natural resources. This is particularly relevant in the Indonesian context, where natural resources are often perceived as free goods, detached from reciprocal obligations to environmental sustainability. Portugal's success lies in its legal integration—linking tax collection with redistribution mandates that ensure fiscal equity and ecological accountability. In contrast, Indonesia's fiscal design lacks this binding connection, resulting in fragmented implementation and limited redistributive impact. In this regard, the *Polluter Pays* Principle–based legal approach functions not only as a fiscal tool but also as an instrument for public moral reconstruction and the institutionalization of ecological responsibility.

Furthermore, according to Planned Behavior theory, human behavior is strongly influenced by belief strength and outcome evaluation. This means that a tax system designed with transparency, clear incentives, and real impact on quality of life will be more easily accepted and followed by taxpayers. Therefore, policy communication and transparency in the use of green tax revenue are important elements in improving tax morale and compliance.

In the African region, South Africa offers a particularly relevant example of how green tax can serve as part of a sustainable fiscal strategy. The country's carbon tax integrates environmental responsibility with fiscal redistribution by channeling revenues toward renewable energy programs and industrial decarbonization incentives. This model demonstrates that environmental taxation can function not only as a revenue tool but also as a mechanism to correct structural dependence on resource exploitation.[8] For Indonesia, South Africa's experience highlights the importance of designing a green tax system that embeds redistribution and environmental objectives within a unified fiscal framework—transforming taxation into a driver of sustainable development rather than a purely regulatory instrument.

The implementation of green taxes in these countries serves not only as an alternative source of state revenue, but also as a corrective instrument to address environmentally harmful economic behavior. From a fiscal perspective, green taxes offer a strategic approach to shifting the tax burden from labor and capital toward polluting activities, thereby achieving greater equity and economic efficiency. From an environmental standpoint, these taxes encourage businesses and individuals to invest in cleaner technologies, reduce reliance on fossil fuels, and strengthen ecological accountability.

The core argument is that without adopting taxation based on the "Polluter Pays" principle, governments will continue to bear the cost of environmental externalities without having an effective regulatory tool to mitigate them. Thus, despite facing challenges such as low tax compliance and weak institutional capacity, the experience of African countries demonstrates that green taxes represent an adaptive and rational policy choice amid fiscal constraints and escalating environmental crises.

In the Indonesian context, the adoption of PPP principles through environmental taxes provides a great opportunity to strengthen corporate and individual responsibility for the ecological impacts of their activities. However, this can only be achieved if the green tax is complemented with a holistic legal and institutional design, including an equitable tariff structure, redistributive fiscal mechanisms, and effective oversight through administrative institutions and state administrative courts.

A key institutional component that must not be overlooked is fiscal transparency, which serves as the foundation of modern public governance. Transparent tax spending—particularly from environmental tax revenue—can enhance public trust, reduce fiscal information asymmetry, and improve the efficiency and accountability of budget execution. Fiscal transparency, when mandated through regular reporting, legal disclosure obligations, and parliamentary oversight, enables civil society to track the allocation of green tax funds for sustainable programs such as renewable energy subsidies, environmental restoration, or social compensation for vulnerable groups. Ultimately, the legal codification of fiscal transparency ensures that environmental tax revenue attains redistributive legitimacy, transforming green taxation into a credible and accountable instrument of environmental and social justice.

International evidence shows that transparent and digitally enabled fiscal systems, such as electronic procurement platforms and real-time budget monitoring tools—as seen in Brazil, South Korea, and parts of China—can significantly improve oversight and reduce corruption. Applying such systems in Indonesia could enhance public participation and policy legitimacy, particularly in the context of environmental taxation, which directly affects both the economy and social equity.[9]

Therefore, the implementation of the Polluter Pays principle through green tax in Indonesia requires not only fiscal and environmental reforms, but also robust legal and institutional transformation. The state must expand the operational definition of green tax as stipulated in the Environmental Management Law (PPLH Law) and Government Regulation No. 46/2017, establish a clear and binding legal framework for its execution, and integrate mechanisms for fiscal transparency and legal accountability. In doing so, green taxation will no longer be seen as merely a revenue-generating tool, but as an embodiment of the state's constitutional and moral commitment to ecological justice and sustainable development.

3. Fiscal Justice through Progressive Redistribution

The implementation of environmental taxes or often referred to as green taxes has become an integral part of fiscal strategies to encourage more environmentally friendly economic behavior, along with the strengthening acceptance of the polluter pays principle in global environmental law and policy. However, although normatively this instrument is intended to internalize the negative externalities of polluting activities, in practice green taxes also have the potential to cause social distortions if not designed with adequate distributional considerations. This is mainly because taxes on energy consumption, fuel or carbon emissions are generally regressive, which tends to burden low-income groups proportionally more than high-income groups. To uphold fiscal and social justice, legal instruments such as targeted cash transfers, tax credits, and labor tax shifts are crucial to offset the regressive effects of energy, fuel, and carbon taxes, ensuring that green taxation contributes to environmental goals without disproportionately burdening low-income groups.

Environmental tax regressivity arises because the consumption of energy and other basic resources, such as electricity, water, and household fuel, has a low elasticity and accounts for a sizable portion of expenditure in poor household budgets. Meanwhile, high-income households tend to have greater flexibility to adjust consumption, use green technologies, or even invest in energy efficiency. As a result, even if they consume more energy or produce more emissions in absolute terms, the burden borne in the form of environmental taxes remains lighter because the proportion to income is much smaller.[10]

This is where the role of fiscal justice becomes important to ensure that the implementation of green tax does not deepen the existing socio-economic inequality. Fiscal justice, in its broadest sense, demands that the tax system is not only efficient and economically neutral, but also fair in its distribution both horizontally (between equal individuals) and vertically (between individuals with different welfare levels). Within this framework, environmental tax policy needs to be combined with income redistribution strategies so that it does not only function as a market correction tool, but also as an instrument of equity and social protection.

One form of fiscal compensation that is gaining traction is the lump-sum rebate system, or the return of environmental tax revenues in the form of a direct and uniform cash transfer to citizens. This scheme has been piloted in the context of carbon taxes in Switzerland and Canada, where carbon tax revenues are redistributed to the public as carbon dividends, effectively neutralizing the regressive impact of carbon taxation while maintaining strong incentives to reduce fossil fuel consumption.[11] Similarly, Sweden's environmental tax shift, which reallocates the tax burden from labor income to pollution and energy use, demonstrates how fiscal design can align environmental goals with social protection.

For Indonesia, these models provide valuable insights for institutional adaptation. The carbon dividend approach could be localized through the existing social assistance framework to ensure equitable redistribution and administrative efficiency. Meanwhile, adopting a tax-shift mechanism akin to Sweden's could be integrated into Indonesia's Law No. 7/2021 on Harmonization of Tax Regulations, allowing a gradual reduction in labor taxes while increasing levies on pollution-intensive industries. Embedding these redistributive measures within Indonesia's legal and fiscal architecture would operationalize the Polluter Pays Principle not only as an environmental mandate but also as a pathway toward fiscal justice and sustainable economic transformation. In addition to the uniform transfer model, a more socially adaptive approach is to provide tax credits or income tax reduction incentives to individuals or households directly affected by environmental taxes. These tax credits can be based on indicators of social vulnerability such as income level, number of family dependents, or specific geographic location (e.g. rural areas that are highly dependent on certain fuels). In this way, fiscal redistribution can be tailored to the demographic and spatial characteristics of the tax burden borne by society[12].

The third mechanism of interest in the green fiscal policy literature is the environmental tax shift, which shifts the tax burden from socially productive sectors such as labor to environmentally damaging sectors. In this context, governments can lower income tax rates or social security contributions while raising environmental taxes, with the aim of creating a tax system that is more friendly to job creation and green investment incentives. Countries such as Germany and Sweden have implemented this approach with relatively positive results in terms of improved energy efficiency and sustainable economic growth.[13]

However, the effectiveness of these various compensation schemes depends on the extent to which the government is able to design a redistribution system that is not only fair in theory but also effective in implementation. The main challenge in this regard is the limited capacity of fiscal administration, especially in reaching vulnerable groups in a targeted manner. In addition, there is also a risk of politicizing compensation policies, which could lead to public resistance if they are perceived as non-transparent or discriminatory. Therefore, it is important for the government to build a comprehensive social data system, strengthen the capacity of taxation and social protection institutions, and ensure public participation in the policy formulation process. Similarly, the success of progressive redistribution in the context of environmental taxes is also strongly influenced by perceptions of fairness in the eyes of the public. Policy studies show that public support for green taxes significantly increases if tax revenues are used for purposes that are perceived as fair and directly benefit low-income groups. Therefore, public communication strategies that emphasize transparency of fund allocation, clarity of social benefits, and public involvement in monitoring are crucial to maintain the political legitimacy of environmental tax policies.

From a political economy perspective, progressive redistribution within the green tax framework also reflects a paradigm shift in fiscal policy from neutrality orientation towards more explicit allocative and redistributive functions. In the context of developing countries like Indonesia, where social inequality and ecological vulnerability are intertwined, a progressively designed green tax is not only a fiscal instrument, but also part of a social protection and sustainable development strategy. This shows that fiscal justice in green tax is not just a technocratic necessity, but also a moral and constitutional demand [14].

Integrating fiscal justice into environmental policy also supports the principle of intergenerational equity, which is one of the key cornerstones of sustainable development. By ensuring that the burden of transformation to a green economy is not disproportionately placed on the poor today, we are also ensuring that future generations will inherit a more equitable and resilient social and ecological system. Environmental taxes designed with sensitivity to distributional dimensions play an important role in building bridges between social justice today and long-term sustainability. Designing a fair and progressive environmental tax system is not an optional choice, but a normative and practical imperative in the face of the global climate crisis and worsening social inequality. The green tax policy must be guarded by the principle of fiscal justice through inclusive income redistribution mechanisms, such as cash transfers, progressive tax credits, or shifting the tax burden from labor to polluters. Thus, green tax will become not just a fiscal instrument, but also an important pillar in the transformation towards a socially and ecologically just society.

To achieve this, collaboration between fiscal policy designers, environmentalists, development economists and civil society is needed to formulate a comprehensive green tax system. This integration will strengthen the effectiveness of the policy while increasing its accountability. Experience from various countries shows that a progressive environmental tax is not only possible, but can also increase government legitimacy, strengthen social protection, and accelerate the transition to a low-carbon economy.

4. Conclusion

The implementation of the Polluter Pays Principle (PPP) through environmental taxation reflects a transformative approach to integrating ecological accountability within fiscal policy. Green tax functions not only as a fiscal instrument to internalize environmental externalities but also as a mechanism to promote distributive and ecological justice. Comparative evidence from Portugal, South Africa, and Indonesia shows that effective green taxation requires a balance between fiscal efficiency, social fairness, and institutional transparency. To be effective, Indonesia's green tax framework must extend beyond revenue collection and evolve into a legally grounded system that ensures accountability, redistributive equity, and judicial oversight. Embedding fiscal transparency, public participation, and administrative review mechanisms will enhance both legitimacy and public trust in environmental taxation. This study advances the discourse on environmental fiscal reform by proposing a normative–comparative framework that operationalizes the Polluter Pays Principle through progressive redistribution and legal transparency**.** Such a framework enables green tax policy to function not merely as a revenue tool, but as a constitutional and moral commitment to sustainable and equitable development.

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