ISSN: 2599-1086 | e-ISSN: 2656-1778 | Vol. 8 | No. 2 | DOI: 10.35166/jipm.v8i2.139

Closing Legal Loopholes in Public-Private Partnership Schemes for Waste Management in Indonesia

M. Raihan Mappuji[1], Akiyo Ramadhan Sarsito[1], Tsaquila Shafa Raissa Miolo[1], Budi Saputra[2]

[1] Brawijaya University, Malang, Indonesia
[2] Panin Dubai Sharia Bank, Jakarta, Indonesia

Corresponding author:
M. Raihan Mappuji | mraihanmappuji@student.ub.ac.id

ABSTRACT

In recent years, Public-Private Partnership (PPP) schemes have been increasingly used in Indonesia. PPP schemes attract foreign investment because they are cost-efficient. However, the waste-management sector has not reaped these benefits due to a gap in sectoral regulation. This paper addresses the issues of legal loopholes and proposes fundamental elements that should be included in future waste-management PPP legislation. The results of this paper are intended to assist legislators in developing future regulations for the sector. We employed a qualitative research method, specifically through a normative legal approach by relying on international standards and comparative provisions across jurisdictions. Our analysis identifies three main aspects that future legislation should include. First, waste-management PPPs require an explicit legal and policy framework that governs financing schemes, including clear and investor-friendly principles and options. Second, tax incentives are essential. To enable effective participation, legislation should provide tax and customs incentives (e.g., tax holidays and exemptions). Third, incentives related to local content requirements (TKDN) are highly required. One persistent barrier to market entry in PPP projects is strict TKD requirements and high import costs. Therefore, we propose TKDN mechanisms that incentivize investors to participate in the projects by reducing TKDN thresholds in the sector.

Keywords: Legal Loopholes; Tax Incentives; TKDN Incentives; Waste-Management PPP

ABSTRAK

Dalam beberapa tahun terakhir, skema Kerja Sama Pemerintah dan Badan Usaha (KPBU) telah banyak digunakan di Indonesia. Skema ini menarik investasi asing karena efisiensi biaya. Namun, belum ada regulasi sektoral di sektor pengelolaan limbah. Banyaknya peluang yang ditawarkan di sektor ini tidak diakomodasi secara memadai karena kesenjangan hukum. Oleh sebab itu, tulisan ini bertujuan untuk mengembangkan aspek-aspek utama yang harus dimasukkan dalam regulasi KPBU pengelolaan limbah dan berfungsi sebagai pertimbangan bagi legislatif. Kami menggunakan pendekatan hukum normatif sebagai metodologi penelitian, dengan mengandalkan standar internasional dan ketentuan perbandingan di yurisdiksi lain. Temuan utama kami meliputi tiga aspek utama untuk perundangan di masa depan. Pertama, Undang-Undang di sektor KPBU pengelolaan limbah memerlukan kerangka kerja yang jelas untuk skema pembiayaan yang diizinkan, termasuk skema yang jelas dan ramah investor, serta prinsip dan skema pembiayaan utama. Kedua, agar investor dapat berpartisipasi secara efektif, insentif pajak dan kepabeanan perlu mendapat perhatian serius dalam Undang-Undang (misalnya terkait pembebasan pajak dan bea masuk). Terakhir, insentif untuk Tingkat Kandungan Dalam Negeri (TKDN) merupakan salah satu masalah utama dalam proyek KPBU karena sulitnya masuk ke pasar akibat ketatnya persyaratan TKDN dan tingginya biaya impor. Kami mengusulkan mekanisme TKDN yang mendorong partisipasi investor melalui pelonggaran persyaratan TKDN di sektor ini.

Kata Kunci: Insentif Pajak; Insentif TKDN; Kekosongan Hukum; KPBU Pengelolaan Limbah

ARTICLE HISTORY

Received: September 10, 2025
Revised: October 19, 2025
Published: November 15, 2025

CITATION (APA 7TH)

Mappuji, M. R., Sarsito, A. R., Miolo, T. S. R., & Saputra, B. (2025). Closing legal loopholes in public-private partnership schemes for waste management in Indonesia. *Journal of Infrastructure Policy and Management, 8*(2), 97–112. https://doi.org/10.35166/jipm.v8i2.139

INTRODUCTION

The preparation and implementation of infrastructure development in Indonesia require substantial financial resources, largely due to the country's vast geographic scope and sizable population. To address infrastructure needs and ensure equitable distribution across regions, effective solutions is needed to meet these extensive financing demands. The Indonesian government employs specific schemes to allocate sufficient funds for these development objectives (Alfianto & Gayo, 2021).

A funding gap also exists in the waste-management sector, which necessitates financial regulatory mechanisms that enable cooperation between the government and the private sector through Public-Private Partnerships (PPPs) (Vassileva, 2022). An assessment of the PPP legal framework in developing countries such as Indonesia reveals many legal loopholes that can hinder these partnerships, including ambiguity in the legal framework, taxation issues, and local incentives. This paper aims to identify and analyze these legal loopholes and proposes changes aimed at achieving an ideal and enforceable legal framework that protects the public interest while encouraging private-sector participation in PPP schemes, particularly in waste management.

THEORETICAL FRAMEWORK

PPPs are a widely used and viable financing scheme for large-scale infrastructure projects and are often used as the primary financing solution. By definition, PPPs are collaborations between public authorities and private entities to provide and manage infrastructure (Asian Development Bank, 2023). They typically involve long-term contracts under which the private sector and the government develop public assets and services; the private sector bears significant risks and management responsibilities as well as remuneration related to performance, maintenance, and/or demand or use of the asset or service (World Bank, 2021).

In Indonesia, the PPP framework initially appeared in specific sectors such as electricity and highways, which were considered to be closely linked to public assets or services (Saputra, 2024). Starting from regulations such as Law No. 15 of 1985 concerning Electricity and Government Regulation No. 8 of 1990 concerning Toll Roads, it then began to develop into regulations on cooperation between the government and the private sector in Presidential Decree No. 7 of 1998 concerning Cooperation between the Government and Private Enterprises in the Development and/or Management of Infrastructure. In 2015, Indonesia made crucial revisions in

PPP laws by aligning PPP practices with global standards and ensuring that financing is carried out sustainably across the country. Despite this progress, significant institutional and implementation challenges are still commonly found (Saputra, 2024).

Within this framework, there are two methods for implementing PPP projects: government-"proposed" projects and "unproposed" projects. The government will prioritize "proposed" projects, which are initiated based on public and national interests, rather than the "unproposed" projects of private entities (Yun et al., 2015). However, PPP outcomes do not always align with theoretical expectations (Siagian et al., 2019). For example, in the waste-management sector, which in theory should enable efficient delivery, PPPs have at times failed to provide essential infrastructure (Kakeu–Tardy & Véron, 2019).

To address these challenges and continue attracting private investment, the concept of project guarantees is frequently employed. In Indonesia, for instance, special State-Owned Enterprises (SOEs) known as State-Owned Special Mission Vehicles (SMVs) support both the government and the private sector. SMVs are designed to protect the interests of all parties in the event of unforeseen project circumstances. One of such SMVs, namely Indonesia Infrastructure Guarantee Fund (IIGF), acts as a guarantor and plays a crucial role in supporting the PPP ecosystem (Pambudi et al., 2023).

Waste Management Using a Public-Private Partnership (PPP) Framework

The main legal framework for waste management in Indonesia includes Law No. 18 of 2008 on Solid Waste Management, Law No. 32 of 2009 on Environmental Protection and Management, and Government Regulation No. 27 of 2020 on the Management of Certain Types of Waste. Upon closer examination, this framework remains inadequate to attract private investment through PPPs. The framework still lacks detailed provisions on long-term financing structures and risk-sharing mechanisms, which creates legal uncertainty, particularly for waste-management PPPs. As a consequence, the current framework does not ensure that PPPs in waste management operate within an ideal and enforceable legal system.

Fostering the Indonesian Government's Plan and Policy

In accordance with specific PPP regulations, Indonesia has committed to implementing Law No. 16 of 2016 concerning the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change, which is operationalized through the National Energy Policy (KEN) and the Electricity Supply Business Plan (RUPTL). The strategic objectives of KEN are outlined in the National Electricity Master Plan (RUKN), which was established through Decree of the Minister of Energy and Mineral Resources No. 85.K/TL.01/MEM.L/2025. This framework is intended to provide a strategic foundation for integrating renewable energy and Waste-to-Energy (WtE) projects into the national development agenda.

RESEARCH METHODOLOGY

This study employs qualitative methods with a normative legal analysis. The object of analysis focuses on legal norms applied as positive law. Data sources include legislation, government policies in Indonesia, and international best practice legal instruments in waste management that can inform implementation in Indonesia. The study seeks to identify and critically examine legal loopholes and inconsistencies in the

existing regulatory structure and to formulate recommendations that can be applied within the Indonesian legal framework to make it more coherent and enforceable:

1. **Research locus.** The primary locus is Indonesia, with its legislation governing PPPs, environmental protection, and the infrastructure development life-cycle. To strengthen the analysis, selective comparisons to international best practices are used as references for identifying ideal regulatory approaches and adapting them to Indonesia's regulatory framework.

2. **Identification of legal gaps**. The analysis addresses unregulated areas (legal gaps or vacuums), incomplete laws, and overlapping regulations that collectively produce an imperfect and difficult-to-implement framework. These weaknesses hinder the development, financing, and implementation of PPPs in the waste-management sector.

3. **Data sources and analysis.** The sources include legislation, government reports, policy documents, scholarly literature, and PPP evaluations from existing projects within the aforementioned best practice jurisdictions. Analytical techniques include doctrinal analysis, examination of regulatory texts, or evaluation of other countries' regulations related to PPP implementation.

4. **Limitation.** The scope of this paper is limited to the legal and regulatory dimensions of PPPs in waste management. This study recognized the value of practical insights regarding contextual interpretation; however, the research did not include formal interviews with stakeholders such as regulatory bodies or private entities. The analysis is grounded in Indonesia's legal and institutional policy framework and would require adaptation to local legal and policy contexts elsewhere. Technical, financial, and operational aspects of waste-management systems are outside the scope, except where they intersect with legal considerations.

DISCUSSION

Regulating an Investor-Friendly Financing Scheme for Waste-Management PPPs

The source of funding is vital to a project's success. In general, Presidential Regulation No. 38 of 2015 on Public-Private Partnership (PR 38/2015) provides that PPP financing schemes may combine private and government funds. Whether a project is initiated by the government (solicited) or by private parties (unsolicited) influences the project's financing structure. This approach is reinforced by Article 2(1) of Ministry of Finance Regulation No. 68 of 2024 on Government Incentive for Infrastructure Finance through PPP Schemes (MFR 68/2024). As a result, under PPP schemes, the project's originator is typically responsible for financing the project (Dewar, 2015).

Although financing schemes depend on the originator, government funding plays a pivotal role in projects, particularly those designed for public purposes (Dewar, 2015). This situation underscores the need for cost-efficiency and minimal strain on public budgets (OECD, 2012). For waste-management projects, the government is likely to initiate the project and thus serve as the originator (solicited) (Dewar, 2015). This implies a significant impact on the governmental budget for establishing such projects. Although this responsibility accords with the government's fiduciary obligations, the approach does not align with the efficiency principles under PR 38/2015.

Another regulatory gap is the absence of specific provisions on financing energy inputs for projects (Fleta-Asín & Muñoz, 2021). Both PR 39/2015 and MFR 68/2024 are silent on the matter. In contrast, the National Energy Policy (KEN) and the Electricity Supply Business Plan (RUPTL) imply opportunities to adapt financial schemes in particular for Waste-to-Energy (WtE) PPP projects (PT PLN (Persero), 2025). This regulatory dissonance generates uncertainty in application. Accordingly, future legislation should explicitly address financing for energy procurement in waste-management projects (Adam, 2025). Mechanisms such as Power Purchase Agreements (PPAs) could support long-term financial viability (Steelyana & Aulia, 2024).

In the context of waste-management PPPs, the absence of sectoral PPP regulations means that the reliance on PR 38/2015 and MFR 68/2024 does not provide legal certainty for both the government and the investors. This problem arises for three main reasons:

1. **Overlapping regulation.** Developing a sectoral regulation is needed to mitigate conflicts among regulations applicable for specific projects (Maolana, 2018). Decentralization of the regulatory framework could lead to incoherence across government levels, which in turn creates information asymmetries regarding which regulation applies (OECD, 2012).

2. **Lack of sectoral consideration.** Both PR 38/2015, and MFR 68/2024 only govern general infrastructure projects and do not account for sector-specific technical considerations (OECD, 2012). For example, to determine the success of a project, economic productivity metrics are typically used. However, practitioners note that such metrics may overlook sectoral business cycles (Low & Pheng, 2021).

3. **Disincentivizing investors.** As previously mentioned, sectoral regulation plays a pivotal role in legal certainty (OECD, 2012). Having sectoral regulation can boost investors' or private parties' interest in participating in a waste-management project. Posner (1973) argues that regulations can create incentives that lead to entry into related markets. In this context, the absence of sectoral PPP regulation discourages investors from participating. For instance, there is no provision for financing energy inputs for projects. Although KEN and RUPTL emphasize the strategic nature of waste-management, particularly WtE projects and the need for priority treatment in financing (PT PLN (Persero), 2025), PR 38/2015 and MFR 68/2024 remain silent on the matter, thereby amplifying uncertainty of financial schemes.

To close such gaps, establishing a dedicated regulatory framework for waste-management PPPs is required. One such aspect is the financial scheme. The private sector's involvement in financing waste-management PPPs can strengthen its compliance under the efficiency principles. The World Bank reports that private sector involvement can provide access to cost-efficient financing, offer flexible financing options, contribute technical expertise, and reduce state spending (APBN) (Cointreau-levine & Coad, 2000). Furthermore, cost reductions can also enable the government to leverage resources for other projects (Karsayuda et al., 2023).

As a consideration for the legislature, future legislation for waste-management PPP schemes must adhere to the following principles:

1. **Value for Money (VfM).** The concept of VfM is closely related to a project's bankability. The United Nations Commission on International Trade Law (UNCITRAL) Legislative Guide on PPP states that VfM aims to maximize economy (UNCITRAL, 2021). Achievement of VfM can be measured by assessing concession terms and the performance of both the public and private sectors (Son, 2012). According to the Ministry of National Development Planning (Bappenas), financial planning for a Project must meet the VfM criteria to ensure its success (Bappenas, 2025). Regulating a flexible financing system for PPP that includes the participation of private sectors can enable VfM (Karsayuda et al., 2023). To achieve the aim, the Organization for Economic Co-operation and Development (OECD) recommends that the legislature include a VfM test to determine the project's financial capability and long-term sustainability (OECD, 2012).

2. **Cost-efficiency.** Under the principles of effectiveness and efficiency in PP 38/2015, PPPs must increase public utility and adequately finance infrastructure. This approach is supported by the OECD, which emphasizes that PPP financing must be designed, managed, and evaluated effectively and efficiently (OECD, 2012). Furthermore, ensuring efficiency and effectiveness in structuring a project's financial plan can trigger long-term success (Gatti, 2008).

3. **Sustainability and climate mitigation.** For a project to secure proper financing, the sustainability of the project must be taken into consideration. To achieve this, the project should gain significant public support by demonstrating its benefits to society and improvements to better quality of life (UNCITRAL, 2021). In this regard, waste-management PPPs aim to reduce the growing volume of waste, particularly in Indonesia, where infrastructure for the public interest carries significant weight (Gatti, 2008). For example, waste-management projects can employ green financing or bonds to support climate-change mitigation (Maphosa, 2024). Moreover, Incorporating sustainability and climate change principles can also provide both public and private sectors with access to governmental incentives.

4. **Transparency.** Formulating a sectoral regulatory framework that is accessible and establishes efficient procedures for financing waste-management PPPs can attract investors and provide legal certainty (UNCITRAL, 2021). In this case, regulating a sectoral waste-management PPP may foster transparency between public and private parties.

Furthermore, waste-management PPP regulations should explicitly enumerate the financing schemes permitted to the parties. For comparison, Governor Regulation of the Special Capital Region of Jakarta No. 18 of 2018 on PPP for Waste Management in Intermediate Treatment Facility (GRDKIJ 18/2018) explicitly lists the financing schemes that include:

1. Equity from the project company or the Regional Governmental Entities (APBD);
2. Debt from financial institutions, the project company, or the regional governmental entities;
3. Debt securities or obligations;
4. Non-binding sponsors; and
5. Other forms of financing schemes permitted under relevant regulations.

Hence, future legislation must explicitly state the permitted financing schemes. Along with the foregoing principles, we propose the financing schemes that align with the following principles.

1. **Creative financing.** Ministry of Finance Regulation No. 220/PMK.08/2022 on Government Incentives through Creative Financing for Public-Private Partnerships in Ibu Kota Nusantara (MFR 220/2022) establishes the basis for what constitutes creative financing. It encompasses a mixture of public and private participation in infrastructure financing. Article 1(6) of MFR 220/2022 defines creative finance as a financing scheme that relies on a combination of government funds, the private sector, and other stakeholders to fund infrastructure.

2. **Climate-change or green financing.** Green financing refers to funding provided by national or international financial institutions for projects that support sustainable growth (Nursahla et al., 2023). In this case, waste-management projects play a pivotal role in combating climate change and protecting the environment (Maphosa, 2024). This is further supported by RUPTL which highlights that waste-management projects reinforce Indonesia's climate-change initiatives (PT PLN (Persero), 2025). Hence, green financing should be included in future legislation.

3. **Islamic Financing.** The core idea of Islamic finance refers to commercial and financial activities that comply with Islamic law (Dewar, 2015). Its use in PPPs is enshrined under the UNCITRAL Legislative Guide on PPP (UNCITRAL, 2020). In Indonesia, Islamic financing has been applied in various PPP Projects, such as the Singkawang Airport (which uses Government Islamic Securities) and the Makassar-Parepare Railway (which employs Islamic finance for construction and operations) (Bappenas, 2025). The inclusion of Islamic finance within waste-management PPP legislation would incentive parties to utilize this modality in their projects.

Investor-Friendly Tax Incentives on Waste-Management PPPs

The legal regulatory framework for PPP in Indonesia is based on the Presidential Regulation No. 38 of 2015 on Public Private Partnerships, which establishes a framework for private sectors to participate in building state infrastructure based on universal PPP principles, such as partnership, risk allocation, and sustainable provision on infrastructure. However, this Presidential Regulation is general in nature and does not provide a suitable legal framework when applied specifically to waste-management PPPs. Private sectors participating in PPP schemes would need an incentive to make the waste-management projects feasible and bankable. Taxes and customs duties are fees that are accountable when a project is going to be financed.

The Indonesian Tax and Customs fee regulation states that private sectors undertaking PPPs may incur, among others, corporate income tax (PPh), Value-Added Tax (PPn), and import duties (S. Bella & Yudianto, 2021). These taxes and custom fees may be charged to private sectors in a PPP scheme. These billable taxes and fees can render a waste-management PPP infeasible. To support private sector participation and ensure feasible project financing in the waste-management PPPs, the government should issue specific regulations that facilitate private-sector involvement. Since PPPs in waste management have a high

and distinctive risk profile, investors need to consider several challenges, including:

1. **High capital requirements (CAPEX).** Building infrastructures that are capable of accommodating waste to energy conversion requires substantial capital, potentially up to trillions of rupiah, because the necessary technology in these PPP projects are scarce and often has a high price ceiling.

2. **Income and affordability risk.** The primary revenue for investors in waste-management PPPs will come from tipping fees (fees charged per unit of waste managed) paid by the local governments. The risk of this payment creates uncertainty on the tipping fees billed by investors.

3. **Long period of return on investment.** Waste-management projects structured as PPPs typically require a high period of investment, which may require up to 15 to 25 years of investing. Such long durations make PPPs vulnerable to political risks, regulatory changes, and macroeconomic fluctuations.

4. **Non-financial risks.** Waste-management PPPs, particularly on waste-to-energy projects, have certain risks investors may encounter, such as rejection of the project by the citizens and environmental regulations that strictly adheres to carbon emission requirements.

This analysis indicates that the waste-management PPPs present a high-risk profile that can create worries for investors. To reduce risks and enhance feasibility, the government support is necessary, including fiscal incentives in the form of tax or fee relief (Alifia et al., 2024). The forms of incentives given to investors undertaking waste-management PPPs include the following (Rahardjo & Farudin, 2025):

1. **Tax holiday.** A tax holiday is an incentive given by the government towards the corporate income tax. The incentive is usually a 100% tax exemption for a certain amount of time that can last between 5-20 years. The amount of time for the tax exemption is based on the value of the investment (S. Bella & Yudianto, 2021). When the exemption period expires, the corporation may still receive a 50% tax reduction for the subsequent two years. This incentive can significantly assist investors who seek to participate in waste-management PPPs. The legal basis of a tax holiday is the Minister of Finance Regulation No. 130/PMK.010/2020.

2. **Tax allowance.** A tax allowance differs from a tax holiday, in which tax allowance provides a set of tax reliefs, including (Surbakti et al., 2023):

   a. a reduction of net income by 30% of the total investment value, charged evenly over six years;

   b. accelerated depreciation and amortization of assets;

   c. extended fiscal loss compensation (up to ten years);

   d. a 10% withholding tax under Article 26 on dividends paid to foreign tax subjects, or a lower rate in accordance with applicable double taxation-avoidance.

   These tax reliefs are based on Law No. 36/2008 on Income Tax, as amended by Law No. 7/2021 on Harmonization of Tax Regulation, and Government Regulation No. 78/2019 on Income Tax Facilities for Investment in Certain Business Fields and/or in Certain Regions.

3. **Exemption of customs duties.** Customs-duty exemption may be granted for imports of capital goods, machinery, and tools used directly in the construction or development of infrastructure. The legal basis for customs-duty exemption is found in the Minister of Finance Regulation No. 171/PMK.04/2019.

4. **Exemption from VAT charges.** In addition to customs relief, the government may provide incentives by giving a Value-Added Tax (VAT) facility so that imported Taxable Goods, such as machinery and factory equipment otherwise subject to VAT, are exempted (R et al., 2024).

These four mechanisms can be recommended for incentivizing investors in waste-management PPPs (Shannia Angelia Rahardjo & Muhamad Farudin, 2025). If it were to be compared with the PPP schemes in the transportation sector, a specified regulation can be found, i.e., Minister of Transportation Regulations No. 58/2018 on the Procedures for Implementing PPP in the Provision of Transportation Infrastructure within the Ministry of Transportation. That regulation includes government support in the form of tax incentives for PPP projects, thereby providing investors with greater flexibility in project financing. Consequently, a sector-specific regulation for waste-management PPPs is urgently needed to create legal certainty for investors considering entry into this sector.

Providing fiscal incentives is not merely a means of reducing the capital burden on investors; such incentives can fundamentally change a project's financial feasibility (Patu & Akhmadi, 2021). For investors, decisions to make capital investments on long-term infrastructure projects are based on the metric, quantitative financial analysis (Citrazalzabilla & Suyatno, 2024). Each incentive described in this chapter has its own impacts that complete each other and structurally support the financial close of this project, including:

1. **Exemption from import customs duties and VAT.** The impact of this incentive will provide relief to investors during the early stages of a project by reducing total investment costs (CAPEX). Lower CAPEX means the project requires less debt and equity. The implications will be that the interest expenses during construction and operations are less burdensome and likely to help generate free cash flow in the first year of operations.

2. **Tax holiday.** This facility, as explained, will give an exemption from the corporate income tax during the incentive period. This will drastically increase the profits after being taxed, and, most importantly, generate free cash flow for investors. The impact of this incentive is most evident in the early stages of operations, which is a critical time stamp of the project where the investors need to pay back the debt and interest of the loan. A tax holiday will also support the main business activities of a WtE project that enters into a PPA, aligning with Indonesia's RUPTL (PT PLN (Persero), 2025).

3. **Tax allowance.** Although the impact of a tax allowance is generally less significant than that of a tax holiday incentive, it still contributes positively to the project. Accelerated depreciation allows companies to recognize larger non-cash expenses in the early years, thereby reducing taxable income and, consequently, the income tax payable. The reduction in net income also directly lowers the tax base.

Under the current regulations of Indonesian taxes, projects in the PPP sectors may be subject to taxation at various phases. Accordingly, the government needs to establish specific regulations that address investors' needs for incentives related to taxable items across a PPP's life cycle. These tax incentives may take the form of tax holidays, tax allowances, exemptions from custom duties, and exemptions from VAT.

These incentives will trigger creativity towards the Project Implementing Entity's options for structuring financing schemes to return the investments, under the assumption that such incentives are provided in a regulation specific to PPPs in waste management.

Enhancing Incentives through Reduction of Local Content Requirements (TKDN)

Local Content Requirements (LCR) or *Tingkat Komponen Dalam Negeri* (TKDN) are strategic policies that strengthen local industries by requiring a specified percentage of domestic components or value in goods or services, including materials, overhead, labor, and related production processes. Based on the provisions of Law of the Republic of Indonesia No. 3 of 2014 on Industry, the government states that to empower domestic industries, the government should increase the use of domestic products, particularly in state agencies, ministries, non-ministerial government agencies, state-owned enterprises, regional-owned enterprises, and private business entities, in the procurement of goods/services financed by the state budget, regional budgets, and/or cooperation between the government and private business entities and/or the exploitation of state-controlled resources.

Law of the Republic of Indonesia No. 29 of 2018 on Industrial Empowerment provides that domestic products comprise goods and services, including design and engineering, that are produced or worked on by companies investing and operating in Indonesia, using all or part Indonesian labor and raw materials or components derived wholly or partially from within the country. Accordingly, TKDN is implemented to foster the development of Indonesia's domestic industries and reduce dependence on foreign investment or imports. In the infrastructure domain, this policy aims to increase the use of local products in government projects, with the expectation of strengthening domestic industries, creating employment opportunities, and decreasing reliance on imported products (Hidayat et al., 2024).

Nevertheless, the implementation of TKDN, particularly in infrastructure sectors, is crucial yet challenging. The challenges are primarily due to the limited capacity of domestic supporting industries, which have yet to sufficiently enhance development-based technology, as well as the absence of a fully established upstream raw material industry capable of sustaining comprehensive industrial needs from upstream to downstream (Ravianti, 2024). Additionally, infrastructure development requires substantial procurements, and limitations in local resources—and their quality—that often fail to meet the required standards have become a major problem.

Indonesian regulation on Industry, namely Presidential Regulation (Perpres) No. 16 of 2018 on Government Procurement of Goods and Services, as amended by Presidential Regulation No. 12 of 2021 and Presidential Regulation No. 46 of 2025, mandates the use of domestic products with a minimum TKDN threshold of 40% for the combined TKDN and Company Benefit Weight (or *Bobot Manfaat Perusahaan*, BMP), with a fallback minimum TKDN of 25% if not applied in the

project. Strict adherence to this threshold may hinder project feasibility due to the absence of local suppliers for key components.

The application of TKDN incentive provision across Indonesia's infrastructure sectors, particularly in solar module or solar photovoltaic (PLTS) projects, presents a notable example of regulatory flexibility. Under Minister of Energy and Mineral Resources (MEMR) Regulation No. 11/2024, domestic and foreign solar module manufacturers that commit to local production and TKDN compliance by 31 December 2025 are granted a relaxation from the obligation to use domestic products. This incentive specifically applies to projects whose Power Purchase Agreements (PPAs) are signed by 31 December 2024 and that are scheduled to reach commercial operation by 30 June 30 2026, with eligibility determined through coordination by the Coordinating Minister for Maritime Affairs and Investment. (Partners, 2024). In contrast, the Waste to Energy (WtE) projects under PPP schemes face challenges in meeting the TKDN threshold, such as limited domestic capacity for advanced waste-management technologies. The lack of a comparable relaxation mechanism for TKDN in WtE projects risks hindering private sector engagement and delaying project realization, unlike the more flexible solar sector regulation.

While intended to develop domestic industry in Indonesia, the implementation of TKDN in the context of PPP projects, especially in waste management, still poses considerable challenges. In PPPs, these difficulties can be categorized as the main factors affecting the feasibility of waste-management PPPs in Indonesia:

1. **Limited domestic production capacity.** A strict TKDN threshold may create barriers to investment and the entry of advanced technologies into Indonesia. Domestic industries in Indonesia have not yet developed sufficient capacity, particularly in waste-disposal technologies. The majority of WtE Facilities heavily rely on sophisticated technologies such as incineration and gasification systems, which must meet TKDN threshold. This mandatory compliance can affect investors' interests because they must maintain project feasibility while covering large investment and operational costs (Azis et al., 2021).

2. **Key implications for the project's budget, procurement schedule, and bankability.** As discussed previously, Indonesia's TKDN threshold applies within the PPP schemes, which also includes the WtE sector. This threshold has a significant impact on project feasibility and financing. Because WtE technologies are not locally produced in Indonesia, project developers are either compelled to localize production to satisfy TKDN or to import technologies, which directly increases project costs due to the TKDN requirement. Procurement schedules often experience delays stemming from prolonged tender procedures and legal uncertainties, which raise investor costs and slow financial close. Bankability is likewise weakened by high capital expenditures and stringent regulations. In sum, private investors' interest in WtE PPPs decreases when significant TKDN thresholds are imposed without complementary policies that provide fiscal incentives and capacity building.

3. **Investor reluctance.** Excessively high TKDN thresholds may be perceived as economically restrictive, discouraging both domestic and foreign investors from participating in project tenders. Some investors are not interested in proceeding due to difficulties in obtaining locally produced components that meet the regulated standards. Investors also take into account the high cost and risk of overruns and the possibility of delays in the procurement process.

   A similar situation has been observed in several developing regions, including the Middle East, where PPP schemes are commonly used to enhance the efficiency of infrastructure development (Tamošaitienė et al., 2021). Observations from the Middle East cases indicate that efforts to attract investors often face similar obstacles, such as insufficient availability of suitable technology and equipment to meet project specifications. This comparison is relevant to Indonesia's WtE projects, where overly strict TKDN requirements may discourage participation by private and foreign investors and, in turn, undermine overall feasibility (Tamošaitienė et al., 2021).

Further insights can be drawn from the People's Republic of China (PRC), which has encountered similar challenges. The PRC's WtE sector has adopted PPP schemes, such as municipal solid waste-to-energy plants, that rely on investor funding to procure essential equipment, including incineration technology, while maintaining substantial local involvement in construction, operations, and workforce participation (Cui et al., 2020). This method increased the overall completion of the project, promoted effective transfer of knowledge, and improved both the financial viability and the ability to develop the domestic industry.

An examination of China's and Indonesia's WtE approaches indicates clear differences in how each manages the use of foreign technologies while cultivating local expertise. In China's case, it follows a step-by-step progression that initially focuses on adopting advanced technology from abroad to stimulate its industrial growth. Over time, the experience gained from this adoption phase is used to strengthen domestic research capacity, adjust the technology to match local waste characteristics, and gradually develop national production for specialized incineration equipment. (Cui et al., 2020). China employed this strategy to overcome domestic content restrictions by utilizing imported technology as a transitional tool to cultivate and strengthen its own sustainable innovation capabilities over the long term.

Conversely, Indonesia's focus on TKDN requirements tends to create barriers for the adoption of advanced technologies such as the incineration system. This limitation weakens the ability of WtE plants to process waste with high moisture and low caloric value, which impedes the broader progress of waste-management infrastructure development (Azis et al., 2021). Reducing or relaxing the TKDN threshold has the potential to expand opportunities for adopting advanced technologies.

Although both Indonesia and China rely on PPP schemes to address waste challenges, China's gradual and pragmatic policy direction has proven more effective in accelerating industrial growth. In Indonesia, maintaining rigid TKDN standards may slow the progress. Providing incentives through more adaptable TKDN policies could facilitate access to imported technologies capable of managing wet and low-calorific waste. With consistent policy support, effective implementation, and greater public participation, such an approach could

enhance the feasibility of WtE initiatives and reduce investment risk.

Relaxing TKDN requirements may serve as an effective approach to encourage greater participation from the private sector in waste-management infrastructure development. Lowering these thresholds can ease initial investment barriers and create a more feasible environment for implementing WtE projects. Such regulatory flexibility enables projects to begin with reduced financial pressure while progressively supporting the growth of local industries.

Based on Article 5(1)(g) of Law No. 30/2009 on Electricity, the Indonesian government holds the authority to grant permits for cross-border electricity trade, including PPAs with other countries. However, rather than prioritizing electricity imports or direct overseas procurement, a more contextually relevant policy would revise the TKDN threshold applicable to technologies used in the WtE industry. Such an adjustment would facilitate the use of advanced technologies that are not yet domestically manufactured, while simultaneously serving as a strategic mechanism to strengthen Indonesia's industrial capabilities, especially in WtE. Thus, the relaxation of TKDN requirements may be viewed as a transitional policy instrument consistent with national objectives to boost domestic technological development and secure long-term energy sustainability.

CONCLUSION

This Manuscript concludes that there is an urgency for Indonesia to create a specific, investor-friendly scheme for waste-management PPPs. The current scheme is slightly hindered by general PPP regulations, principally the Presidential Regulation No 38/2015, which do not address specific PPPs for waste management and thereby contribute to regulatory overlap, legal uncertainty, and a discouraging environment for private investors. Challenges also arise from the nature of the waste-management sector, including high capital requirements, long return-on-investment periods, and uncertain income from tipping fees.

Indonesia needs a more investor-friendly regulatory framework. This paper has analyzed regulatory and fiscal reforms from different perspectives and approaches. The first step is for the government to create a specific regulation on financing schemes for waste-management PPPs. This regulation should be grounded in the principles of value for money, cost-efficiency, sustainability, and transparency. There is also a need to include financing mechanisms, such as PPAs, to support stable financial viability. In addition, innovative funding mechanisms, including creative financing, green financing, and Islamic financing, should be regulated to broaden access to capital for private investors.

The second step is to include explicit provisions on fiscal incentives in the specific regulation on waste-management PPPs. These incentives include:

1. Tax holidays: A short-term 100% exception from corporate income tax to improve early-stage cash flow.

2. Tax allowances: Tax relief from net-income reductions and accelerated asset depreciation.

3. Exemption of customs duties and VAT: The exception towards customs fees and VAT on imported machinery and capital goods to reduce investment costs.

Finally, this paper looks towards the soft restriction of investment arising from local content requirements (*Tingkat Komponen Dalam Negeri*, TKDN). The current TKDN

threshold, i.e., 40% domestic components, poses challenges because Indonesia's domestic capacity for WtE technologies remains limited. Consequently, the policy increases project costs and deters investors. A reduction in the TKDN threshold is proposed as a crucial incentive to attract private investors, lower investment barriers, and enable technology transfer to Indonesia, similar to policies implemented in the solar energy sector. Although the electricity law permits cross-border PPAs, a targeted reduction of the TKDN threshold is more relevant for technologies used in the WtE sector and for the development of Indonesia's WtE industry. It is strongly recommended that the Indonesian government provide regulatory support to strengthen TKDN-related incentives for waste-management infrastructure, particularly WtE projects. By implementing these integrated reforms, Indonesia can create a more predictable and financially viable environment for private investment in critical waste-management infrastructure.

ABOUT THE AUTHORS

The authors of this paper bring a combination of academic and professional backgrounds. The authors are three final-year law students from Brawijaya University and a Law Graduate who is working as a legal officer at Panin Dubai Sharia Bank. The authors have a strong interest in the legal framework of waste-management PPPs, which is also supported by their legal backgrounds. The authors' main goal is to recommend solutions for creating an investor-friendly PPP regulation that provides legal certainty and attractive investment opportunities for private investors.

REFERENCES

Adam, R. C. (2025). Between attraction and evasion: Legal factors shaping FDI in Indonesia and neighboring countries. *Indonesia Law Review*, *15*(1), 87–100. https://doi.org/10.15742/ilrev.v15n1.6

Alfianto, D., & Gayo, S. (2021). Government cooperation with business entities in the procurement of infrastructure based on the presidential regulation number 38 year 2015. *Research and Critics Institute-Journal (BIRCI)*, *38*, 8078–8090. https://bircu-journal.com/index.php/birci/article/view/2724

Alifia, A. S. A., Herawati, A. R., & Purnaweni, H. (2024). Public-private partnership dalam program pengolahan sampah menjadi energi listrik (PSEL) di TPA Putri Cempo, Surakarta. *Journal of Management & Public Policy*, *13*(4), 578–601. https://doi.org/10.14710/jppmr.v13i4.47495

Asian Development Bank. (2023). *Public-Private Partnership Handbook Acknowledgments*. 101.

Azis, M. M., Kristanto, J., & Purnomo, C. W. (2021). A techno-economic evaluation of municipal solid waste (MSW) conversion to energy in Indonesia. *Sustainability*, *13*(13). https://doi.org/10.3390/su13137232

Bappenas. (2025). *PPP Book 2025*.

Citrazalzabilla, R., & Suyatno. (2024). Perlindungan hukum terhadap foreign direct investment (FDI) dalam kerja sama investasi antara pemerintah dengan badan usaha di Indonesia. *JICN: Jurnal Intelek dan Cendikiawan Nusantara*, *1*(2), 1816–1822. https://journal.perbanas.id/index.php/psn/article/view/822

Cointreau-levine, S., & Coad, A. (2000). Private sector participation in municipal solid waste management. *Swiss Centre for Development Cooperation in Technology and Management*. https://www.eawag.ch/fileadmin/Domain1/Abteilungen/sandec/E-Learning/Moocs/Solid_Waste/W2/Guidance_pack_Private_sector_2000.pdf

Cui, C., Liu, Y., Xia, B., Jiang, X., & Skitmore, M. (2020). Overview of public-private partnerships in the waste-to-energy incineration industry in China: Status, opportunities, and challenges. *Energy Strategy Reviews*, *32*, 100584. https://doi.org/10.1016/j.esr.2020.100584

Dewar, J. (2015). *International Project Finance Law and Practice*. Oxford University Press. https://doi.org/10.1093/law/9780198715559.001.0001

Fleta-Asín, J., & Muñoz, F. (2021). Renewable energy public–private partnerships in developing countries: Determinants of private investment. *Sustainable Development*, *29*(4), 653–670. https://doi.org/10.1002/sd.2165

Gatti, S. (2008). *Project Finance in Theory*.

Hidayat, T., Ekha Putera, R., & Koeswara, H. (2024). Analisis kebijakan penerapan tingkat komponen dalam negeri (TKDN) dalam pengadaan barang dan jasa di kementerian pendidikan, kebudayaan, riset, dan teknologi: Studi kasus di biro umum dan pengadaan. *Jurnal Ilmu Administrasi Negara ASIAN (Asosiasi Ilmuwan Administrasi Negara)*, *12*(1), 85–94. https://doi.org/10.47828/jianaasian.v12i1.203

Kakeu–Tardy, R. C. M., & Véron, R. (2019). Hunting for tonnage: Waste workers' incentives in a public-private partnership in Bafoussam, Cameroon. *International Journal of Urban Sustainable Development*, *11*(2), 154–171. https://doi.org/10.1080/19463138.2019.1604526

Karsayuda, M. R., Fadli, M., Khusaini, M., & Kusumaningrum, A. (2023). Legal construction of infrastructure financing based on public-private partnership to realize national resilience. *International Journal of Humanities Education and Social Sciences (IJHESS)*, *3*(1), 353–364. https://doi.org/10.55227/ijhess.v3i1.563

Low, J. O., & Pheng, S. (2021). *Management in the Built Environment Series Editor: Low Sui Pheng Waste Reduction in Precast Construction Using Lean and Shared Mental Models*. http://www.springer.com/series/15765

Maolana, M. I. (2018). Regulation simplification and implementation of regulatory reform agenda. *BAPPENAS Working Papers*, 66–79. https://portal.mahkamahkonstitusi.go.id/eLaw/mg58ufsc89hrsg/UUD_1945_Perubahan.pdf

Maphosa, J. (2024). *Sustainable Finance and Climate Change*. Edward Elgar Publishing. https://doi.org/10.4337/9781800377288

Nursahla, R. S. A., Paramayoga, N., Fadli, M. A., & Hamidi, M. P. (2023). Legal aspects of the central bank's green finance instruments in Indonesia: An overview. *Journal of Central Banking Law and Institutions*, *2*(1), 123–152. https://doi.org/10.21098/jcli.v2i1.38

OECD. (2012). *Recommendation of the Council on Principles for Independent Fiscal Institutions*. http://www.oecd.org/gov/budgeting/OECD-Recommendation-on-Principles-for-Independent-Fiscal-Institutions.pdf

Pambudi, J. A. A., Dayana, I., Alfirman, D. M., Susanto, D., & Widianingrum, R. (2023). Accelerating Indonesia sustainable infrastructure development through ESG initiatives in PPP ecosystem. *IOP Conference Series: Earth and Environmental Science*, *1266*(1). https://doi.org/10.1088/1755-1315/1266/1/012020

Partners, W. A. (2024). *More Favourable Local Content Requirements for Power Producers*. August, 1–5.

Patu, A. S. P. A., & Akhmadi, M. H. (2021). Evaluasi penyiapan proyek kerja sama pemerintah dengan badan usaha (KPBU) kereta api Makassar-Parepare. *Jurnal Kebijakan Pembangunan*, *16*(2), 221–235. https://doi.org/10.47441/jkp.v16i2.200

Posner, R. (1973). *Economic Analysis of Law.* Aspen Casebook Series. https://doi.org/10.2307/ 3003108

PT PLN (Persero). (2025). *Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) PT PLN (Persero) Tahun 2025–2034*. https://web.pln.co.id/statics/uploads/2024/04/buku-ruptl-2025-2034.pdf

R, M. A., R, N. G. W., & Sendjaja, T. (2024). Menelisik regulasi PPN pasal 16d pada KPBU: Membongkar implikasi perpajakan penyerahan aset infrastruktur. *Perbanas Journal, 1,* 1–14. https://journal.perbanas.id/index.php/psn/article/view/822

Rahardjo, S. A., & Farudin, M. (2025). Evolusi normatif peran penanggung jawab proyek kerjasama (PJPK) dalam skema kerja sama pemerintah dan badan usaha (KPBU): Rekonstruksi hukum dalam tata kelola penyelenggaraan infrastruktur berkelanjutan di Indonesia. *Mandub: Jurnal Politik, Sosial, Hukum, dan Humaniora*, *3*(1), 144–160. https://doi.org/10.59059/mandub.v3i1.2171

Ravianti, D. A. (2024). Analisis tingkat komponen dalam negeri (TKDN) terhadap iklim investasi energi surya di Indonesia. *Honeste Vivere*, *34*(1), 41–51. https://doi.org/10.55809/ hv.v34i1.271

S. Bella, M. I., & Yudianto, I. (2021). The impact of tax incentives on foreign direct investment: The case of tax holiday and corporate income tax rates in Indonesia. *Journal of Accounting Auditing and Business*, *4*(2), 105–135. https://doi.org/10.24198/jaab.v4i2.34397

Saputra, B. (2024). Disharmonisasi Pengaturan Skema Public-Private Partnerships dalam Penyediaan Infrastruktur di Indonesia. https://doi.org/10.5040/9798892050999.ch-005

Siagian, E. S., Sumaryana, A., Widianingsih, I., & Nurasa, H. (2019). Public-private partnerships in solid waste management in Indonesia: The need for technical regulation. *Asia Pacific Journal of Public Administration*, *41*(4), 246–250. https://doi.org/10.1080/23276665.2019.1694236

Son, S. (2012). *Legal Analysis on Public-Private Partnerships regarding Model PPP Rules*. http://www.uncitral.org/pdf/english/colloquia/public-private-partnerships-2013/20120704_Report_on_PPP_legal_IssuesSon_Seungwoover.11.pdf

Steelyana, E. W., & Aulia, P. R. (2024). Maximizing the benefits of public-private partnership for infrastructure in energy sector: A study of key challenges and recommendations. *Journal of Governance, Taxation, and Auditing*, *3*(1), 01–11. https://doi.org/10.38142/jogta.v3i1.1081

Surbakti, S. T. T., Tjondro, E., & Pontjoharyo, W. (2023). Analysis of the implementation of tax incentives in the form of tax allowance and tax holiday in Indonesia compared to Thailand. *Jurnal Ekonomi*, *12*(03), 2023. http://ejournal.seaninstitute.or.id/index.php/Ekonomi

Tamošaitienė, J., Sarvari, H., Chan, D. W. M., & Cristofaro, M. (2021). Assessing the barriers and risks to private sector participation in infrastructure construction projects in developing countries of Middle East. *Sustainability*, *13*(1), 1–20. https://doi.org/10.3390/su13010153

UNCITRAL. (2021). *UNCITRAL Legislative Guide on Public-Private Partnerships*. https://doi.org/ 10.18356/9789210048057

Vassileva, A. (2022). Green public-private partnerships (PPPs) as an instrument for sustainable development. *Journal of World Economy: Transformations & Transitions*, *2*(05), 1–18. https://doi.org/10.52459/jowett25221122

World Bank. (2021). *Public-Private Partnerships Reference Guide*. www.worldbank.org

Yun, S., Jung, W., Han, S. H., & Park, H. (2015). Critical organizational success factors for public private partnership projects. *Journal of Civil Engineering and Management*, *21*(2), 131–143. https://doi.org/10.3846/13923730.2013.802715