

## Rethinking Value-added Tax Policy on Domestic Wastewater Treatment Services in Indonesia

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### Abstract

The provision of wastewater treatment services is crucial for protecting human health and maintaining clean water availability. This goal is also a key priority in the Sustainable Development Goals (SDGs). However, the wastewater treatment sector in Indonesia is subject to Value-Added Tax (VAT), resulting in higher expenses for wastewater services, including the costs associated with tax collection. Excessive taxation, including VAT, might decrease the availability of domestic wastewater treatment services from the producers' side and restrict consumers' access to these services. Instead, tax policy should provide incentives for domestic wastewater services aiming to promote development. This study examines the adoption of a VAT policy for domestic wastewater treatment services in Indonesia, emphasising its effects on affordability and sustainability in domestic wastewater management and its policy alternatives. This study employs a qualitative approach. Field observations with in-depth interviews and Focus Group Discussions were conducted in several domestic wastewater treatment sites in DKI Jakarta, Medan, and Surakarta. These field observations were conducted to collect data and information about the business processes in the industries and taxation aspects, especially VAT that affects the industries. The results indicate that providing VAT facilities is crucial for advancing the SDGs program. The VAT facilities policy will result in more significant advantages for the government and society than the revenue forgone from the facilities. This study suggests that developing a policy regarding VAT facilities is essential for domestic wastewater treatment systems. The facilities should apply to services provided by local governments or private entities in collaboration with the government. This VAT incentive proposal is simplified due to its compliance with Article 4A paragraph (3) letter (m) of VAT Law No. 42 of 2009, recently amended by Law No. 7 of 2021. While this study has provided insights into the current situation, further studies need to be conducted to investigate VAT facilities' impact on producers and consumers in the wastewater treatment sector, including the multiplier effects of providing VAT incentives.

### Keywords:

domestic wastewater; tax policy; Value Added Tax (VAT); wastewater management system

### Introduction

The impact of water pollution is increasingly recognised as one of the threats to human health and well-being (Babuji et al., 2023; Chen et al., 2017; Lin et al., 2022; Shi et al., 2020). It becomes one of the Sustainable Development Goals (SDGs) targets, i.e., the sixth goal, 'ensure access to water and sanitation for all.' It requires "availability and sustainable management of water and

sanitation for all" to improve water quality by halving untreated wastewater and increasing recycling and safe reuse worldwide (Tortajada, 2020). However, the universal access to this sector still needs to be improved. Several studies have stated that the lack of adequate wastewater management, rather than freshwater availability, is the leading cause of the water crisis in the future (Biswas & Tortajada, 2011).

Unfortunately, although many countries seek to integrate wastewater management into the overall water management framework, only (clean) water management has become a priority for policymakers (Perard, 2018). Wastewater policies must also advance in policy formulation, implementation, and evaluation (Ramseur, 2018). Despite its importance, wastewater management has long been neglected (Andersson et al., 2016; Perard, 2018). The services "are undervalued and considered worthless with considerably weak law enforcement and regulation, if any," resulting in difficult cost recovery (UN-Water, 2015). Factors such as low political willingness, inadequate technical, financial, and institutional capacities, and failure to integrate safe sanitation systems into broader urban development have led to unsustainable systems and missed opportunities to address overlaps and interactions of challenges in urban sanitation (Zimmer et al., 2014; Tortajada, 2020).

Wastewater is generally discharged to the water bodies without or with little treatment, which delivers pollutants into the environment (Qadir et al., 2010). Thus, wastewater management plays an essential part in the water supply system to minimise the adverse effects of wastewater. The cost of adequate wastewater management is more essential compared to the costs that would arise when wastewater management is not carried out. If water contamination persists, it will significantly reduce economic benefits due to massive water pollution that impacts the health and education sectors (Naik & Stenstrom, 2012). The benefits of prevention and treatment far outweigh the long-term costs of non-action (UN-Water, 2013). Studies on economic returns from sanitation interventions show that septic tanks and treated sewerage have a cost-to-benefit ratio of 1:4 in the Philippines and 1:2.3 in Indonesia (WSP, 2011). This ratio compares the downstream impact of water pollution by comparing the costs and benefits of domestic

and industrial wastewater management, particularly in Indonesia (WSP, 2011). In Vietnam, the annual negative impacts of inadequate sanitation are distributed among health (34%), water resources (37%), and the environment (15%), resulting in financial losses (Van Minh & Hung, 2011).

The lack of financial and technical support for wastewater technology in developing countries highlights the importance of wastewater analysis in these countries. Prioritising wastewater management can only be done with sufficient funding. Public finance in the water, sanitation, and hygiene sectors refers to the government's involvement in these sectors' economies by utilising public revenue, often derived from taxes, to fund public expenditures (Humphreys et al., 2018). The government can charge fees, remove subsidies for industries and agriculture, or impose other levies, such as environmental taxes, to finance wastewater management services—however, more than these funding sources are needed to cover all wastewater treatment costs. In addition, more investment in wastewater treatment is needed in developing countries, including from the private sector (OECD, 2018, 2019; Qadir et al., 2010). Even in many developed countries, investment and wastewater management must be financed through budget allocations or donor support (WSP, 2011).

Sanitation problems in Indonesia tend to be seen as private household problems instead of state responsibility or public issues. However, there has been increasing interest and attention from the government in this sector through limited investment (Garbarino et al., 2011). The issue of clean water and sanitation in Indonesia still needs to be addressed sufficiently. It requires government intervention, including policies and regulations, to achieve the SDGs targets comprehensively and impartially, such as domestic wastewater management services (domestic wastewater management system

abbreviated – SPALD). Tax policy is one of the policies that has a strategic role in encouraging SPALD.

Taxes are essential in implementing government functions as a development instrument (Rosdiana & Irianto, 2011). On the one hand, as a development instrument, tax policy should promote the acceleration of the development implementation in society, including the provision of SPALD as part of the SDGs. Over the last decades, issues related to the public finance sector on the water supply and sanitation/wastewater have become increasingly important, considering that funding for this sector is still limited (Machete & Marques, 2021). For large infrastructure projects, private investment was needed. The allocation of public funds may have exacerbated the problem since central governments favoured urban areas and other sectors.

On the other hand, the tax burden on wastewater disposal can be used as compensation for financing secondary and tertiary processing. A study in Spain shows that the Spanish tax structure must be reviewed to ensure sufficient income to cover sanitation operating and investment expenditures. Environmental-prone private institutions, enterprises, NGOs, and foundations could enhance these resources (Gallego Valero et al., 2018). Economic rationality, resource conservation, and environmental protection should be considered alongside financial equilibrium. Effluent discharge tax charges must be uniform nationwide to prevent varying tax expenses for the same taxable event based on location.

Other tax-related research by Morris (2016) also demonstrates the importance of tax policy in supporting water infrastructure. This study analysed funding options for water infrastructure, including drinking water and wastewater facilities, particularly in the United States of America. According to this analysis, water infrastructure funding has

four possibilities: self-funding, federal grants, federally financed state-administered loans, and privatisation. However, it was discovered that all available financing sources needed to be increased to fund water infrastructure. This study identified the need to modify American tax policies to incentivise private investment, particularly in water infrastructure, such as accelerated depreciation and tax-free bonds.

Every tax imposition, including VAT, will burden the government (tax authority), taxpayer, and society with several costs related to the tax imposition, including deadweight losses from substitution, evasion, and avoidance activities and direct, administrative, and compliance costs, or cost of taxation (Robson, 2005a; Slemrod & Yitzhaki, 1996). Compliance costs by taxpayers or society members as the consumers of goods and services (Schorn & Eichfelder, 2012) consist of direct money, time, and psychological costs (Sandford et al., 1989). Particularly for industry, an additional cost, namely administrative burdens, occurs from doing business with the government (Petersen et al., 2022). As a significant government tax revenue source, Value-Added Tax (VAT) has been criticised for its regressiveness to income or expenditure, especially for low-income or poor consumers. To reduce regressiveness, the government can provide VAT incentives or exemptions for certain goods and services and allocate the VAT revenue to support the program that empowers low-income or poor society (Humphreys et al., 2018; Thomas, 2022). Therefore, tax policy must be carefully designed to minimise taxation costs for the government (e.g., tax collection and policy costs) and the community (e.g., compliance costs, such as direct money costs, time costs, and psychological costs). Despite this risk, economic instruments like taxes or other levies can be used to promote changes in sanitation behaviour in the community (UN-Water, 2015).

A taxation concern in wastewater services relates to VAT. The sanitation sector

in Indonesia remains subject to VAT on production and consumer goods, including SPALD. This has an impact on the high costs of providing this service. This has also sparked debate considering the limited availability of domestic wastewater management services and the significant VAT burden on this sector.

Taxes are crucial in the government's implementation in allocating, distributing, stabilising, and regulating functions (Musgrave & Musgrave, 1993). VAT is a sales tax based on added value from all production and distribution lines. As a tax on consumption, the imposition of VAT is carried out without distinguishing whether the consumption is used all at once or in stages. All goods are subject to VAT regardless of whether the goods are movable or immovable. In addition, consumption includes intangible goods, including the use of services (Rosdiana & Irianto, 2011). VAT's legal characteristic is a general indirect tax on consumption (Terra, 1988), meaning that it is imposed on all goods and services included in public-private expenditures. The characteristics of VAT as an indirect tax cause consumers to bear the total tax burden. Moreover, sellers can partly bear this burden by reducing profits or making efficiency (Rosdiana & Irianto, 2011).

A country applying VAT recognises the concept of tax exemption for certain institutions, activities, goods, or services for non-economic, social, and political purposes. Tax exemptions are different from zero rates. The concept of a tax exemption means that certain goods or services are not subject to tax (they are not tax objects). Tax exemption means sellers must pay input VAT without the right to credit it. Meanwhile, the zero rate fully compensates sellers for input VAT (Tait, 1988).

Few studies have investigated sanitation and wastewater treatment from a taxation perspective, especially concerning VAT exemption. Given the sensitivity of taxing, most of the research in wastewater management

and public finance has focused on taxation as a financing mechanism for the sector, rather than evaluating potential tax burdens related to wastewater services. There is limited research on how VAT policies impact domestic wastewater treatment and the broader implications for public service delivery.

This research analyses Indonesia's VAT policy regarding domestic wastewater treatment services, emphasising its effects on affordability and sustainability in domestic wastewater management. This study aims to investigate the following critical question: How does the VAT policy on wastewater treatment services influence the affordability and sustainability of domestic wastewater management in Indonesia, and what alternative VAT policies could accelerate progress toward the SDGs? This research focuses on the VAT policy on domestic wastewater management services, particularly those administered by locally owned Drinking Water Companies (*Perusahaan Daerah Air Minum* – PDAM), which manage the majority of wastewater and clean water services in Indonesia (Interview with FORKALIM, 2019).

The study indicates that the existing VAT policy imposes a significant burden on the wastewater management sector, especially on PDAMs. The study argues that a VAT exemption or incentive program for domestic wastewater treatment could mitigate this financial burden, enabling tax savings to be allocated toward enhancing sanitation services. The results suggest that the VAT policy needs to be evaluated to ensure the accessibility and financial sustainability of wastewater services.

This study enhances the literature by including a tax policy viewpoint in the discussion on sanitation and wastewater management, which has been under-researched. It emphasises the intersection of public finance and environmental sustainability, presenting a novel approach to evaluate the fiscal limitations of sanitation services.



This research highlights the importance of VAT exemptions or incentives to enhance domestic wastewater management. The study recommends tax policy reforms to support the achievement of SDGs concerning sanitation and clean water in Indonesia. Policymakers may employ these findings to develop tax policies that encourage effective and sustainable wastewater treatment while maintaining affordability for households and local service providers.

## Methods

### Overview

This research employs a qualitative approach because it focuses on the meaning and understanding of a social phenomenon so that it can be understood (*verstehen*) from an interaction occurring in society (Taylor & Bogdan, 1984). This study aims to analyse the Indonesian VAT policy regarding domestic wastewater treatment. It is carried out by applying the legal character theory of VAT, considering tax incentives and the cost of taxation. The study utilised a qualitative approach with an interpretive paradigm to describe the phenomenon of VAT burden in domestic wastewater treatment. According to Neuman (2014), most interpretive researchers employ participant observation and field research methods. The study incorporates a literature review and in-depth interviews for data collection.

### Data Collection

In the early stages of research, secondary data, and a literature review were collected to understand the context of changes in tax policies and regulations and their relevance to the current objective conditions of wastewater treatment services. After analysing the data, the research continued with field observation, in-depth interviews, and Focused Group Discussions (FGDs). The document research examined the law, the

Minister of Finance's regulation/decreed, and other regulations pertinent to VAT policy, clean water, wastewater management, and SPALD. This step aimed to improve the comprehension of VAT policy and legislation in the wastewater sector.

FGDs were carried out twice, specifically before and after conducting in-depth interviews and field observations on 11 November 2019 and 29 January 2020. These FGDs served as the initial step in collecting and cross-referencing data, which was in line with the principles of triangulation (Bryman, 2012). FGD is a part of qualitative data collection techniques (Taylor & Bogdan, 1984) conducted by completing interviews with 6-12 people at once, with a moderator leading the respondents in a relatively free discussion on a particular topic. The FGDs were conducted with stakeholders, including informants from policymakers from advisory bodies, relevant ministries, representatives from non-government wastewater operator organisations, wastewater treatment operators from several areas in Indonesia, and academics in taxation and environmental sanitation/wastewater management services.

In addition, the field research involved SPALD, a local company managed in three cities in Indonesia, namely DKI Jakarta, Medan (North Sumatera), and Surakarta (Central Java). Field observations and in-depth interviews were conducted with wastewater treatment operators in PDAMs, namely PDAM Tirtanadi Medan on 20-21 November 2019 in Medan, North Sumatera, and PDAM Surakarta in Surakarta, Central Java on 4 December 2019. In addition, FGDs were conducted at DKI Jakarta, where PD PAL Jaya manages wastewater operations. Currently, only 13 cities in Indonesia have large-scale Wastewater Treatment Plant Systems. These sites represent the three biggest companies that handle wastewater treatment at the domestic or household level.

**Table 1.**  
**Data Collection Process**

Focus Group Discussions 1	Field observation and in-depth interviews in Medan	Field observation and in-depth interviews in Surakarta	Focus Group Discussions 2
<b>11 November 2019</b> Policymakers: Directorate General of Taxes, Fiscal Policy Agency  Relevant ministries: Coordinating Ministry for Economic Affairs, Ministry of Public Works and Public Housing, Ministry of Home Affairs, Ministry of National Development Planning  Wastewater treatment operators: Wastewater treatment operator in DKI Jakarta (PD PAL Jaya), Association of drinking water companies (PERPAMSI)  Non-government organizations: Communication Forum for National Wastewater Treatment Operators (FORKALIM)  Academics in taxation and environmental sanitation/wastewater management services	<b>20-21 November 2019</b> Wastewater treatment operator in Medan (PDAM Tirtanadi)  Non-government organizations: FORKALIM	<b>4 December 2019</b> Wastewater treatment operator in Surakarta (PDAM Kota Surakarta)  Non-government organizations: FORKALIM	<b>20 January 2020</b> Policymakers: Directorate General of Taxes  Relevant ministries: Ministry of Health, Ministry of National Development Planning  Wastewater treatment operators: PD PAL Jaya, Drinking water operator in West Java (PDAM Bandung)  Non-government organizations: FORKALIM  Academics in taxation and environmental sanitation/wastewater management services

Source: Authors own work, 2023

## Data Analysis

The qualitative data analysis technique used in this research is successive approximation. Successive approximation is not a mere mechanical repetition but a reflective process that entails ongoing meaning construction and incremental refinement (Neuman, 2014). This iterative method facilitates the generation of insights and interpretations from the data. This approach entails gradually refining and restricting the scope of the investigation through repeated phases of observation, data gathering, and analysis. Each iteration aims to gain a more accurate and detailed understanding of the phenomenon under investigation, bringing the study closer to the "truth" or a more sophisticated conceptualization. Analytic categories were created inductively (from the data). This method provides flexibility and adaptability in refining categories when examining new data (Pope et al., 2020).

Ensuring reflexivity and trustworthiness through member checks, triangulation, and

peer debriefing is essential (Raskind et al., 2019). Two co-authors of the manuscript (M and EE) independently coded the interview transcripts line-by-line using inductive coding, informed by the findings from in-depth interviews and field observations related to the problematic situations of VAT policy on SPALD. The data were systematically categorised line-by-line by researchers M, HR, or I and subsequently verified for accuracy by the other researcher. These practices contribute to the validation of findings and the robustness of the analysis.

## Data Reporting

Upon reaching data saturation, researchers synthesise the components while preserving the overarching context. This entails correlating various data points and ensuring that overarching themes are coherent and interconnected. Determining the fundamental categories provides insights into the entire dataset (Carrillo-Pineda et al., 2011). This step synthesises the data into critical themes

or categories that reflect the main findings outlined in the results and findings section.

## **Results and Discussion**

The characteristics of domestic wastewater treatment services fulfil the political salience dimension. Politically, the significance of domestic wastewater management services is not only to achieve the SDGs target, which is the government's commitment, but also to actualize a constitutional mandate. In line with the publication of USAID IUWASH Plus (2017), sanitation is a human right that becomes a basic human need. Water, sanitation, and hygiene (WASH) are basic human needs closely related to health and significantly impact business and the economy. Economic research conducted by the World Bank (2011) shows that Indonesia loses 2.4 per cent of the total Gross Domestic Product (GDP) or around USD 6.3 billion annually due to poor access to water, sanitation, and hygiene. Similarly, a study by the Asian Development Bank also states that Indonesia's economic losses related to poor sanitation are estimated at around IDR 42.3 trillion a year, or 2% of GDP (Ministry of Public Works and Public Housing, 2018).

Wastewater treatment is one of the VAT objects in Indonesia. The imposition of VAT on wastewater treatment services has various implications for the wastewater treatment industry and society as consumers, including the cost of taxation. The costs related to the tax imposition include deadweight losses from substitution and evasion, as well as direct, administrative, and compliance costs borne by the tax authorities and taxpayers (Robson, 2005b; Slemrod & Yitzhaki, 1996).

From the wastewater industry's side, compliance costs consist of direct money, time, and psychological costs (Schorn & Eichfelder, 2012; Sandford et al., 1989) and other administrative burdens from doing business with the government (Petersen et al., 2022), which add more burden to the

industry. When the industry purchases goods and services or makes investments to support increasing wastewater processing production, the government levies VAT on the input side, adding a burden of 11% to the total costs borne by the industry. Despite its creditability, this VAT burden can disrupt industrial cash inflows and reduce efficiency due to increased costs. In addition, the industry incurs additional administrative costs to fulfil its VAT obligations. Making wastewater services a VAT object impacts consumers by increasing service prices, which may decrease consumers' interest or willingness to use wastewater services provided by the industry.

This condition increasingly imposes a more significant burden on SPALD, especially PDAMs, the leading providers of wastewater services. The local government obligates PDAMs to provide public wastewater services. This condition leads us to limit our research subject to PDAMs that provide wastewater service.

The obligation to provide wastewater service has placed PDAMs under challenging conditions, such as in PDAMs in Surakarta (Central Java) and Medan (North Sumatera), which still suffer losses from managing domestic wastewater. This condition increasingly burdens SPALD (Field observations and in-depth interviews in PDAM Tirtanadi and PDAM Surakarta, 2019). The Profit and Loss Report of PDAM Surakarta shows that wastewater treatment activities have suffered losses for five consecutive years in varying amounts. PDAM Tirtanadi also experiences this condition in Medan. VAT levied on goods and services used by the industry has increased the total cost, thus decreasing cost efficiency.

On the other hand, the imposition of 11% VAT on wastewater treatment services to consumers (based on the determination of wastewater treatment and disposal services as taxable services) also increases the total fee that consumers must bear. The imposition

of VAT has a profound impact because of its regressiveness to income or expenditure, especially for low-income or poor consumers (Humphreys et al., 2018; Thomas, 2022). Also, since VAT is an indirect consumption tax, the imposition of VAT on goods or services will affect the price and productivity.

On the other hand, there is a debate between the industry and tax authorities regarding VAT imposition. The industry contends that domestic wastewater treatment is a government responsibility, raising doubts about its classification as a VAT-liable service (Results of FGD 1, FGD 2, and in-depth interviews in PDAM Tirtanadi and PDAM Kota Surakarta, 2019). Meanwhile, domestic waste treatment services are taxable from the tax apparatus's perspective since the current VAT regulations do not exclude them as VAT objects. This condition causes trust problems and relationship disruption between the tax apparatus and business actors, in this case, PDAM or SPALD, due to the dispute that emerged.

### **Mapping of VAT Policy on Domestic Wastewater Management System**

The government should support the wastewater treatment industry to ensure clean and healthy sanitation for the public interest. However, the government's current support, mainly through fiscal policy instruments, has yet to yield significant results. The VAT policy, which has been in place since the implementation of VAT Law No. 8 of 1983, is a prime example. The VAT Law adopts the negative list principle, meaning that all goods and services are objects of VAT except those exempted. In the explanation of Article 4, paragraph (1), letters (b), and (d) in the regime of this law, it can be seen that wastewater and wastewater treatment services are not subject to VAT (Government of Indonesia, 1983). Presidential Decree No. 18 of 1986, as amended by Presidential Decree No. 41

of 1994, emphasises this point, excluding wastewater and wastewater treatment from the government-borne VAT facilities (Government of Indonesia, 1994).

In the regime of Law No. 11 of 1994, no policy regulates the treatment of VAT on wastewater. While this regime includes clean water among the tax-free goods, it does not apply to wastewater. Similarly, the exemption from VAT does not extend to wastewater treatment services. One of the progressive policies in Law No. 11 of 1994's regime is to apply a VAT exemption for certain taxable goods. However, Article 16B paragraph (1) stipulates that delivering taxable goods eligible for VAT exemption facilities does not include wastewater (Government of Indonesia, 1994). The government believes that wastewater treatment activities do not fall under high-priority economic activities, making them ineligible for VAT exemption facilities. However, the significance of adequate sanitation access for community activities, including economic ones, was evident, as described in the previous section.

The third regime of Law No. 18 of 2000 on VAT still needs to implement progressive policies for the wastewater treatment industry, encompassing both wastewater and wastewater treatment services. Following Article 4A paragraph (2) and its explanation, wastewater is not a type of good subject to VAT. Furthermore, according to Article 4A paragraph (3), wastewater treatment services do not qualify as services exempt from VAT (Government of Indonesia, 2000). Government Regulation No. 144 of 2000, a derivative regulation, further regulates this by defining wastewater and wastewater treatment services as goods and services not subject to VAT. This legal regime applies Article 16B consistently, similar to the previous VAT Law regime, but with several changes, particularly concerning providing VAT exemption facilities (Government of Indonesia, 2000). According to the law's



explanation, the purpose of providing VAT exemption for certain taxable goods has been expanded. However, wastewater treatment activities that contribute to public health improvements, particularly in sanitation, are not exempt from VAT, as explained in Article 16B. As a derivative regulation of this legal regime, Government Regulation No. 31 of 2007 also governs similar matters, explicitly prohibiting the inclusion of wastewater treatment as taxable goods eligible for VAT exemption (Government of Indonesia, 2007a).

The fourth regime of Law No. 42 of 2009 on VAT has yet to positively impact the waste processing industry. This is consistent with Article 4A paragraphs (2) and (3), which regulate goods and services exempt from VAT. According to this regime, wastewater and wastewater treatment services do not qualify as goods and services exempt from VAT. Furthermore, as stated in Article 16B paragraph (1) and its explanation, the wastewater transfer does not qualify as a strategic taxable good that receives VAT exemption facilities.

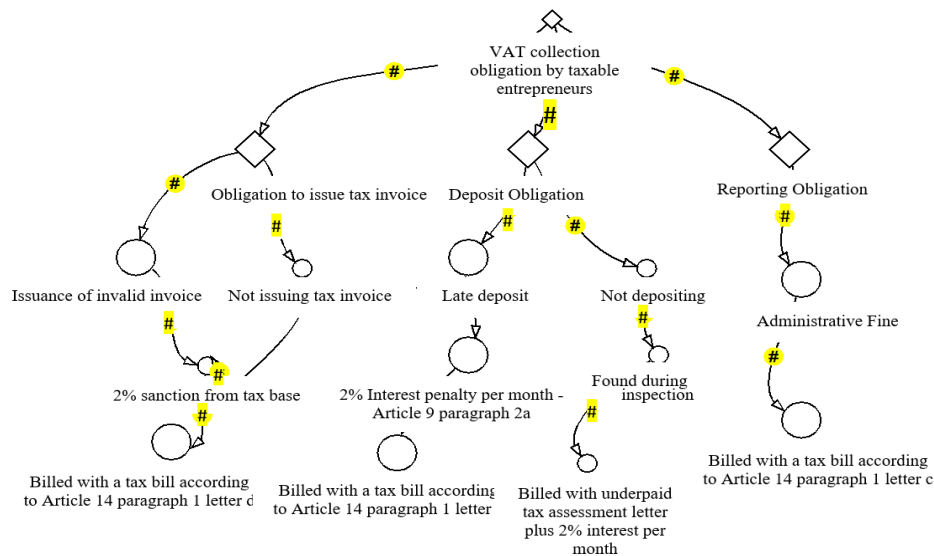
Under the framework of the enactment of Law No. 7 of 2021 concerning Harmonization of Tax Regulations (henceforth HPP Law No. 7 of 2021), which relates to VAT provisions, wastewater, and wastewater treatment services are not classified as goods or services exempt from VAT (Article 4A paragraph (2) of HPP Law No. 7 of 2021). Thus, goods and/or services related to wastewater are still the object of VAT. Not only did VAT facilities not pay attention to taxable goods and/or services related to the wastewater sector under the old tax system, but they also did not pay attention to facilities listed in Article 16B paragraph (1) (Government of Indonesia, 2021b).

However, clean water is regulated in its derivative regulations, specifically in Article 4, Article 6, and/or Article 8 of Government Regulation No. 49 of 2022 (Government of Indonesia, 2022). Prior to the issuance of Government Regulation No. 49 of 2022, the

government regulated the delivery of clean water exempt from VAT as regulated in Government Regulation No. 58 of 2021, which was previously regulated in Government Regulation No. 40 of 2015 concerning the delivery of clean water exempt from value added tax (Government of Indonesia, 2021a). However, the scope of both regulations only covers clean water. Since the establishment of the Indonesian Capital City (IKN), the government has been biased towards providing non-collection of VAT facilities, as evidenced by Government Regulation No. 12 of 2023 concerning the Granting of Business Licensing, Ease of Doing Business, and Investment Facilities for Business Actors in the Indonesian Capital City, and Regulation of the Minister of Finance No. 28 of 2024 concerning Tax and Customs Facilities in the Indonesian Capital City (Government of Indonesia, 2023, Government of Indonesia, 2024). In this case, the non-collection of VAT facilities is provided for certain strategic taxable services in the IKN area related to:

- a. Construction services are provided to construct waste and/or waste processing installations.
- b. Taxable entrepreneurs who engage in business activities within the standard classification of Indonesian business fields provide waste and/or waste processing services for waste generated in the IKN area:
  1. Managing and disposing of non-hazardous wastewater
  2. Management and disposal of hazardous wastewater
  3. Management and disposal of non-hazardous waste
  4. management and disposal of hazardous waste; and/or
  5. remediation activities and management of other waste and garbage.

In this case, the government is less concerned about the urgency of the wastewater



**Figure 1. Consequences of VAT Tax on SPALD**

Source: Authors own work, 2023

treatment services in people's lives. The government is providing exceptional treatment for several goods or services, such as clean water, that are, in principle, closely related to its allocation function. However, despite its crucial role in promoting community and environmental health, the general wastewater treatment services have yet to benefit from this special treatment. Only the IKN has access to the current VAT facilities.

### The Problematic Situation of VAT Policy on Domestic Wastewater Treatment Services in Indonesia

VAT is a tax levy that can impose relatively high direct costs compared to other taxes, such as income tax. Additionally, as taxable entrepreneurs, producers must comply with VAT collection and administrative procedures as outlined in Law No. 28 of 2007 and the HPP Law No. 7 of 2021 (Government of Indonesia, 2007b; Government of Indonesia, 2021b).

Also, there is a significant additional burden in imposing tax penalties compared to other taxes. The principal tax and penalties taxable entrepreneurs can bear are 79% of the tax base regulated in Law No. 28 of

2007 concerning General Provisions and Tax Procedures and HPP Law No. 7 of 2021.<sup>1</sup> From the perspective of direct money costs, the tax penalty (maximum) of 79% is very burdensome as it differs from income tax, whose tax base is based on net income (taxable income), reflecting taxpayers' ability to pay. The tax base in VAT is based on gross, and the negative impact on taxpayers' cashflows is relatively larger. This VAT burden has broad implications that can distort SPALD productivity, as presented in Figure 1.

Figure 1 presents the consequences of VAT taxation on domestic wastewater treatment under the current VAT Law. The consequence of this penalty is a problem that requires careful consideration by the government because there are differences in perceptions between SPALD and tax authorities regarding wastewater treatment services. In the view of SPALD, the services provided are part of the duties that must be undertaken by both the central and

<sup>1</sup> Law No. 28 of 2007 concerning the Third Amendment to Law No. 6 of 1983 concerning General Provisions and Tax Procedures. The details of the calculation are 11% (VAT rate) + 20% (Tax Bill) + 48% (assuming 2% Interest per month maximum of 24 months).

local governments so that they are not objects of VAT.

There are various services related to wastewater treatment, such as piping wastewater treatment services, faecal waste transportation services, and wastewater treatment services provided by private desludging companies. VAT on each transaction is only partially collected as the service delivery

**Table 2.**  
**Taxation Costs of Transactions**  
**with Tax Dispute (IDR)**

Component	Amount
Tax base	1,000,000,000
VAT (11%)	110,000,000
SKPKB Fine Article 13 paragraph (2) 2% x 24 months*	240,000,000
Penalty for not issuing Tax Invoice 1% x 1,000,000,000 (as stipulated in Article 14 paragraph (4) HPP Law No. 7 of 2021)	10,000,000
<b>Total tax burden (cashflow)</b>	<b>360,000,000</b>
<b>Effective tax burden</b>	<b>36%</b>

Notes: The illustration employs the regulations found in VAT Law No. 42 of 2009 and HPP Law No. 7 of 2021. It is assumed that Article 13 paragraph (2) of the General Provisions and Tax Procedures Law, as outlined in HPP Law No. 7 of 2021, specifies an administrative penalties rate of 2% interest with a maximum duration of 24 months.

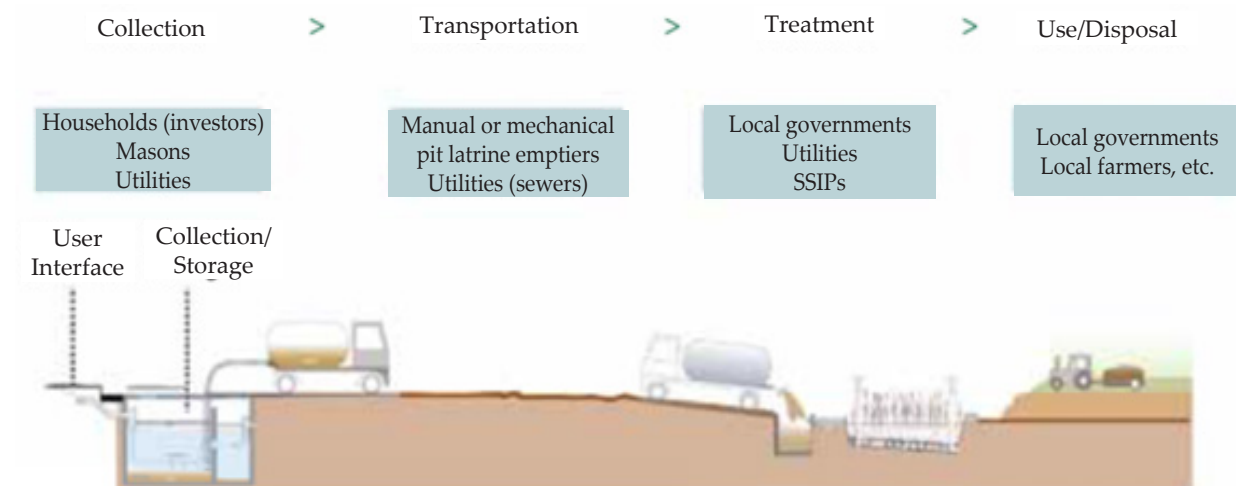
Source: Authors own work, 2024

takes place. Thus, it results in the enormous VAT burden that SPALD must bear in this case. As an illustration, Table 2 shows the potential cost of taxation from a transaction containing a tax dispute because the taxable entrepreneurs do not collect VAT.

The 36% penalty levy structure places a significant financial burden on PDAMs, which continue to improve their domestic wastewater treatment processes. Furthermore, PDAM Surakarta continues to offer a subsidy of IDR 20,000 per tank to desludging companies that utilise domestic wastewater treatment services. This subsidy aims to prevent desludging companies from disposing of faecal waste carelessly. The VAT levy on domestic waste treatment services could reduce the interest of private desludging companies in using PDAM's domestic waste treatment services (Results of FGD 1, FGD 2, and in-depth interviews in PDAM Tirtanadi and PDAM Kota Surakarta, 2019).

### VAT Incentive on Domestic Wastewater Management Services in Indonesia

In determining the scope of the VAT incentive policy on wastewater management services, it is necessary to pay attention to the business processes of the wastewater treatment services, especially domestic wastewater,



**Figure 2. Flow of Domestic Sanitation and Faecal Sludge Management (FSM)**

Source: Strande & Brdjanovic, 2014

to provide VAT facilities. In this case, the government can provide the VAT incentive for the community's basic sanitation needs, such as faecal sludge. The scope of this VAT facility provision can refer to the essential Faecal Sludge Management usually carried out for domestic wastewater management services (Figure 2).

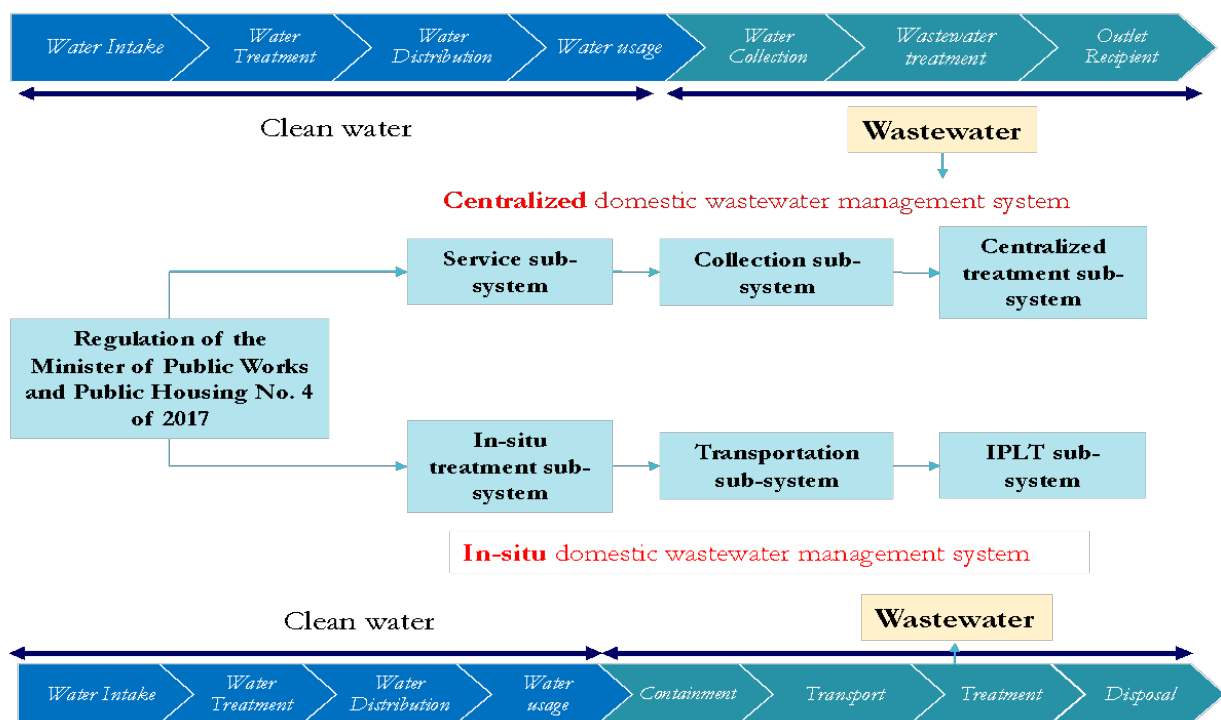
According to the flow of FSM shown in Figure 2, The FSM mechanism is highly relevant to the provision of clean water since it influences the formation of wastewater. Wastewater is a continuation process of clean water. There are two divisions of wastewater management approach, namely centrally (piped) (centralised SPALD) or local (non-piped) (in-situ SPALD), as presented in Figure 3 based on the provisions under the Regulation of the Minister of Public Works and Public Housing No. 4 of 2017 concerning the Implementation of the Domestic Wastewater Management System.

If Figure 3 is derived from several parts of

activities between in-situ SPALD (SPALD-S) and centralized SPALD (SPALD-T), the technical scope of domestic wastewater management activities shown in Figure 4:

As regulated by Regulation of the Minister of Public Works and Public Housing No. 4 of 2017, SPALD-S is a management scheme that treats domestic wastewater at the source location, resulting in sludge outputs then transferred to the faecal sludge management sub-system. Meanwhile, SPALD-T is a management system that collectively drains domestic wastewater from sources to the centralized management sub-system to be treated before being discharged into surface water bodies.

Relating SPALD-S and SPALD-T management, there are five types of domestic wastewater management services provided for the community, as follows: (1) septic tank installation services; (2) septic tank desludging service; (3) domestic waste treatment services for piped and non-piped; (4) new customer



**Figure 3. Water Cycle and Domestic Wastewater Management Based on Regulation of the Minister of Public Works and Public Housing No. 4 of 2017**

Source: Government of Indonesia, 2017, In-depth Interview with FORKALIM, 2020





**Figure 4. Domestic Wastewater Management Concept Based on Regulation of the Minister of Public Works and Public Housing No. 4 of 2017**

Source: Government of Indonesia, 2017, FORKALIM, 2020

connection service; and (5) customer services in the form of routine fees monthly paid by the customer to the SPALD-T operator for domestic wastewater management services. Figure 5 shows the map of the domestic wastewater management cycle (Government of Indonesia 2017).

These services can be divided into several wastewater management stages, starting from SPALD-S and SPALD-T. All SPALD-S sub-systems (septic tank installation services, septic tank desludging services, domestic waste treatment services) are closely related to domestic wastewater management services directly linked to the community because SPALD-S covers both communal and individual scale scope. On the other hand, new customer connection services and (old) customer services are included in SPALD-T sub-systems, and customers consuming SPALD-T services must pay for the services on an urban scale,

residential scale, and specific local scale. If all of the SPALD-S and SPALD-T services related to the community are subject to 11% VAT, there will be an 11% rise in service fees that the community must bear. Consequently, the rise may reduce the public's ability to pay and interest or consumer behaviour in using the services amid the urgency of domestic wastewater management from the aspects of public health and environmental health (Wasim & Alzoubi, 2019; Samaduzzaman et al., 2015).

These arguments culminate in proposing a VAT facilities scheme for wastewater management consumers and producers. In terms of efforts to provide VAT facilities for domestic wastewater management services, it is required to technically map the types of Taxable Goods and Services that will be granted VAT facilities. Generally, the types of domestic waste management services provided by SPALD can be grouped into two, namely: (1)

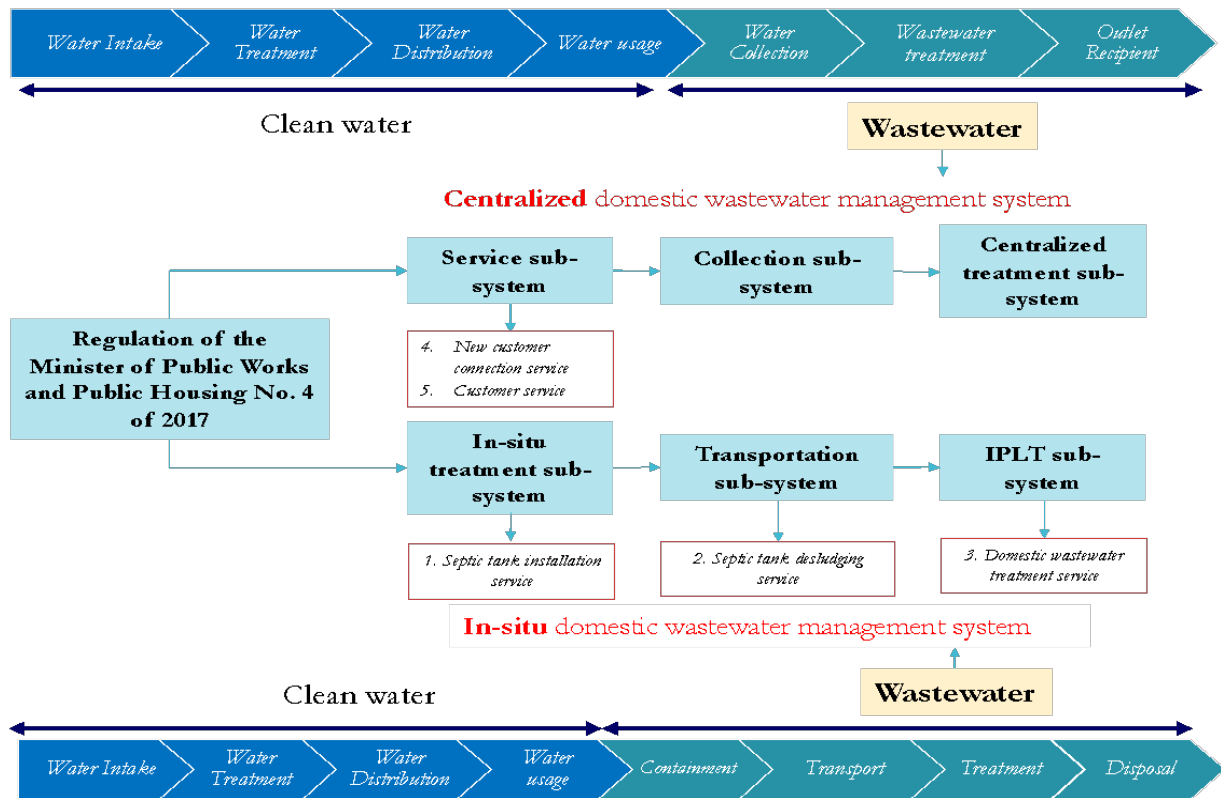


Figure 5. Mapping of Domestic Wastewater Management Services Based on Regulation of the Minister of Public Works and Public Housing No. 4 of 2017

Source: Government of Indonesia, 2017, In-depth Interview with FORKALIM (2020)

Table 3.  
Types and Providers of Domestic Wastewater Treatment Services

Service Types	Service Providers		
	Agencies	Local Companies	Private Parties
<b>Piped Services (SPALD-T)</b>			
• New Customer Connection Services	Type A	Type B	Type C
• Customer Services			
<b>Non-piped Services (SPALD-S)</b>			
• Septic tank installation services	Type D	Type E	Type F
• Septic tank desludging services	Type G	Type H	Type I
• Domestic waste treatment services	Type J	Type K	Type L

Source: Authors own work, 2023

piped services in SPALD-T and (2) non-piped services in SPALD-S with service providers divided into (a) Agencies (Local Government); (b) Local companies (e.g., PDAMs); and (c) private parties as shown in Table 3.

In general, service types in the form of new customer connection services and customer services provided by SPALD-T, as well as septic tank installation services, septic

tank desludging services, and domestic waste treatment services provided by SPALD-S are included in Taxable Services, which are the object of VAT, except those provided by the local government. Thus, two types of VAT treatment for domestic wastewater management services are provided: those payable to VAT and those excluded, as shown in Table 4.

Referring to Table 4, it appears that most

**Table 4.**  
**Classification of Taxable Services**  
**Based on Service Types**

Service Providers	Type	VAT Treatment	
		Taxable Services	Non-Taxable Services
Local Government/office	A		√
Local Companies	B	√	
Private Parties	C	√	
Local Government/office	D		√
Local Companies	E	√	
Private Parties	F	√	
Local Government/office	G		√
Local Companies	H	√	
Private Parties	I	√	
Local Government/office	J		√
Local Companies	K	√	
Private Parties	L	√	

Source: Authors own work, 2023

of the service types are taxable services payable to VAT, namely Types B, C, E, F, H, I, K, and L. Collecting VAT on domestic waste treatment services raises the community's burden by 11% of the value of services. This additional burden can reduce the public's intention to use domestic waste treatment services and willingness to pay bills for water treatment services, particularly customers of piping services provided by PDAMs. This condition also implies the inequality or unfair VAT treatment for the same services as one of the most essential principles in taxation.

By considering a) the obligations of local governments stipulating that domestic wastewater is one of the mandatory affairs related to essential services assigned by the government (Government of Indonesia, 2014) and b) the amount of SPALD service fees determined by regulations prioritising social aspects, the VAT exemption policy on domestic wastewater management services is prioritised only for services carried out by institutions formed by local governments in a variety of forms such as Local Work Units (*Satuan Kerja Perangkat Daerah* – SKPD), Local Public Service Agencies (*Badan Layanan Umum*

*Daerah* – BLUD), Local Companies, or Local-Owned Enterprises (*Badan Usaha Milik Daerah* - BUMD). This VAT incentive proposal is considered easier due to the presence of Article 4A paragraph (3) letter (m) and its elucidation and Article 16B and its elucidation of Law No. 42 of 2009 and HPP Law No. 7 of 2021 (Government of Indonesia, 2009; Government of Indonesia, 2021b).

However, by considering State Budget limitations in allocating funds to implement the program to accelerate the achievement of the SGDs' target on adequate and safe sanitation and efforts to encourage investment in the SPALD sector, mainly dealing with:

- a gap between the availability of sanitation development funds and the needs
- low utilisation of special allocation funds and sanitation grants,
- low allocation for operational and maintenance costs in the sanitation sector,
- scheme of sanitation service tariff that has yet to achieve the total cost recovery,
- unexplored alternative funding sources, and
- potential for cooperation with the private sector that has not been optimized (Ministry of Public Works and Public Housing, 2020)

The subject of VAT for taxable entrepreneurs who can be given VAT incentives in the form of VAT exemptions on domestic wastewater management services can be expanded, including private parties in partnership with the government. This scheme can reduce the inequality in VAT treatment in the wastewater industry for the public and private sectors. Thus, the proposed scope of VAT incentives provided for domestic wastewater management services involving both SPALD-S and SPALD-T are as follows:

Proposals for VAT incentives on Taxable Services in SPALD services can be included in the amendments to the provisions of Government Regulation No. 49 of 2022. These changes should be made to Article 4, Article

**Table 5.**  
**Proposed Classification of VAT Incentives**  
**for Taxable Entrepreneurs Based on Service Types**

Service Scope	Service Providers	VAT Incentives	
		Yes	No
<b>Piped Services (SPALD-T)</b>	1. Local government/ agencies	√	
• New Customer Connection Services	2. Local companies		
• Customer Services	3. Public and Private Partnership		
<b>Non-piped Services (SPALD-S)</b>	Private Parties		√
• Septic tank installation services			
• Septic tank desludging services			
• Domestic waste treatment services			

Source: Authors own work, 2023

6, and/or Article 8 of Government Regulation No. 49 of 2022, which discusses clean water. Prior to the issuance of Government Regulation No. 49 of 2022, the government regulated the delivery of clean water that is exempt from value-added tax as regulated in Government Regulation No. 58 of 2021, which was previously regulated in Government Regulation No. 40 of 2015 concerning the delivery of clean water exempt from VAT. Since the clean water and wastewater cycles are integrated and interrelated, wastewater is the output/product of clean water consumption.

The wastewater producer requires several goods to conduct its processes, including Taxable Goods. Considering that VAT collection applies a crediting mechanism with the recording of both Input and Output Tax, the mapping of Taxable Goods and Taxable Services must pay attention to the types of capital goods and non-capital goods in all production and distribution lines used in service types applying the concept of SPALD-S and SPALD-T. In this case, it is necessary to map Taxable Goods carefully and thoroughly so that the VAT facility would not be disincentive to domestic wastewater treatment services.

Considering the types of taxable goods required in the construction of SPALD installation, the scope of the VAT incentives for taxable goods needed by this sector can be added to the clause (Government of Indonesia, 2015). Article 16B of Law No. 42 of 2009, in conjunction with HPP Law No. 7 of 2021,

provides a legal framework that simplifies the proposed regulation of VAT incentives (Government of Indonesia, 2009; Government of Indonesia, 2021b). The Taxable Goods required to construct the SPALD installation can be categorized as Certain Strategic Taxable Goods Exempted from VAT imposition.

VAT incentive clause on Certain Strategic Taxable Goods includes several transactions, namely (1) import of Taxable Goods into Custom Areas and/or (2) delivery of Taxable Goods within Custom Areas both in the context of (1) construction of SPALD installations and/or (2) SPALD investments. Moreover, the proposal to include Taxable Goods related to SPALD investments in objects of VAT incentives is made by considering the minimal funding in Indonesia's domestic wastewater management sector. The VAT incentives scheme can stimulate investment growth in this sector. These provisions can be regulated by adding a clause on the list of Certain Strategic Taxable Goods regulated in Article 4, Article 6, and/or Article 8 of Government Regulation No. 49 of 2022. Table 6 presents alternative proposed VAT policies for domestic wastewater management and a detailed description of these policies.

Considering the relatively long chain of domestic wastewater treatment services, it is essential to ensure that the VAT facility covers all lines of production and distribution (upstream-downstream) of domestic wastewater treatment services, from the collection to the disposal stages, from the intake (including goods and



**Table 6.**  
**Alternative Proposed Changes to VAT Policy on Domestic Wastewater Management**

Proposed Changes			Alternative 1	Alternative 2	Alternative 3
CHAPTER II Import and/or delivery of certain taxable goods and/or delivery of certain taxable services excluded from VAT	Article 4	Certain taxable services whose delivery is exempt from VAT.	-	-	The addition of letter (d) is related to domestic wastewater management services.
CHAPTER III Import and/or delivery of certain taxable goods of a strategic nature exempted from VAT	Article 6 Paragraph (1)	Certain strategic goods are exempt from VAT upon import.	Adding the letter (w) to represent the raw materials and capital goods directly used in constructing SPALD-S and SPALD-T installations/ investments.	The letter (w) addition represents the raw materials and capital goods used to construct SPALD-S and SPALD-T installations/ investments.	The addition of letter (w) pertains to the raw materials and capital goods directly used in constructing SPALD-S and SPALD-T installations and investments.
	Article 6 Paragraph (2)	Certain strategic goods are exempt from VAT upon delivery.	Adding "domestic wastewater" to the letter (m).	Adding "domestic wastewater" to the letter (m)	Adding "domestic wastewater" to the letter (m).
	Article 8	This discussion pertains to the clean water regulation outlined in Article 6, paragraph (2), letter (m).	Incorporating the definition and extent of "domestic wastewater" into paragraphs (5), (6), and (7).	The addition of paragraphs (5), (6), (7), and (8) pertains to the definition and extent of "domestic wastewater." Paragraph 8 explains the scope of domestic wastewater management services	The addition of paragraphs (5), (6), (7), and (8) pertains to the definition and extent of "domestic wastewater."

Source: Authors own work, 2024

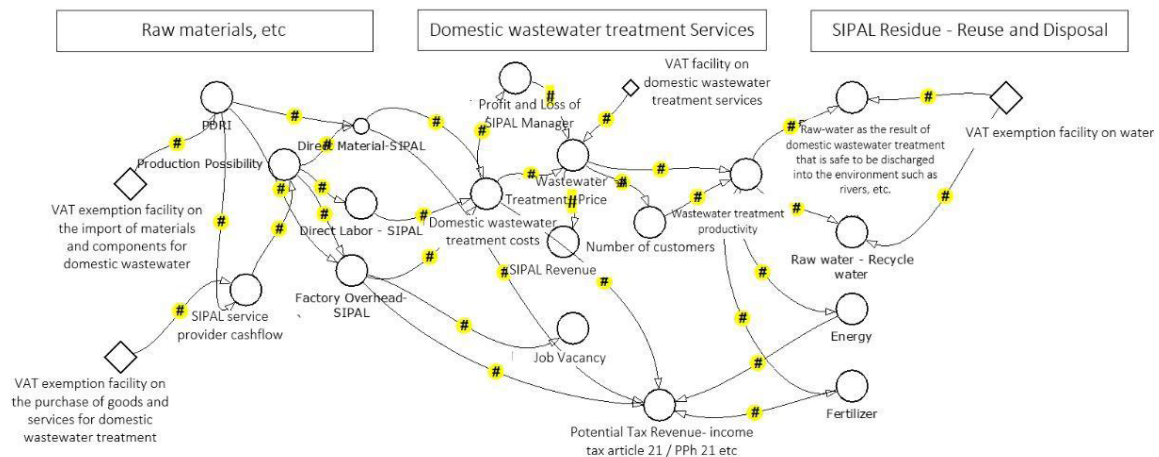
services required in the domestic wastewater management system) to the output (the result of the domestic wastewater management) implementing both the SPALD-S and SPALD-T concepts.

In addition, the community still considers domestic wastewater treatment unimportant, although it plays a vital role in mitigating sanitation, health, and environmental issues. Therefore, this type of service is expected to be excluded or given VAT facilities comprehensively and impartially without distinguishing between upstream and downstream processes of domestic wastewater treatment services. The VAT incentive facility

model can be seen in Figure 6 as follows:

The VAT incentives must include all the equipment and materials for wastewater treatment, both from abroad (through imports) and domestically. The aim is to provide cash flow relaxation and reduce direct money costs, even taxation costs. Table 7 explains the cash flow relaxation simulation through import.

Producers can reduce costs if the government grants an exemption from VAT for the procurement of wastewater treatment goods and services. For example, when goods and services are acquired through a loan, tax expenses may be avoided to allocate resources for alternative activities or reassessed to



**Figure 6. VAT Incentive Model of Domestic Wastewater Management Services**

Source: Authors own work, 2020

**Table 7.**  
**Simulation of Purchasing Wastewater Treatment Equipment Through Import**

Description	Tax Fees without VAT Facilities		Tax Fees with VAT Facilities	
FOB price (Cost), Insurance & Freight	USD	1,000,000	USD	1,000,000
Custom Value (assuming an exchange rate of IDR 14,000)	IDR	14,000,000,000	IDR	14,000,000,000
Import Duty (assuming 10%)	IDR	1,400,000,000	IDR	0
Import Value	IDR	15,400,000,000	IDR	15,400,000,000
Import VAT (11%)	IDR	1,694,000,000	IDR	0
Import Article 22 Income Tax (assuming 2.5%)	IDR	350,000,000	IDR	350,000,000
Cashflow for the payment of Import Duties and Import Taxes	IDR	3,444,000,000	IDR	0

Notes: The illustration follows the regulations outlined in VAT Law No. 42 of 2009 and HPP Law No. 7 of 2021, with a VAT rate of 11%.

Source: Authors own work, 2024

establish the loan amount. The government can reduce taxation costs by minimising the likelihood of inspections resulting from overpaid submissions. The VAT exemption for goods and services related to domestic wastewater management eliminates input tax obligations. The absence of input tax would eliminate the possibility of VAT overpayment.

The VAT exemption policy will influence production costs, resulting in reduced fees for customers. The reduction in fees is expected to increase the number of customers, thereby enhancing the productivity of domestic wastewater treatment providers. The effectiveness of this implication will increase

if VAT exemption incentives are extended to domestic wastewater treatment services in the upstream sector, resulting in a reduction of fees charged to customers. Government provision of a subsidy for the fee can reduce the losses incurred by the providers.

The related products of domestic wastewater treatment are also regarded for obtaining VAT facilities, including the recycling of air, fertiliser, and energy (briquettes). This consideration includes the sustainability of the domestic wastewater treatment business, the provision of incentives to support environmental conservation, and the ongoing availability of safe and suitable raw water for

drinking purposes.

## Conclusions

The results of this study support the idea that the government must exclude or provide VAT incentives comprehensively and impartially without distinguishing between the upstream and downstream processes of domestic wastewater treatment services. The VAT incentives must include all the equipment and materials for wastewater treatment, both from abroad (through imports) and domestically. The aim is to provide cash flow relaxation and reduce direct money costs—even taxation costs.

If the government decides to implement the VAT Exemption policy, it must extend from the upstream to the downstream. Government Regulation No. 12 of 2023, which pertains to the Granting of Business Licensing, Ease of Doing Business, and Investment Facilities for Business Actors in the Capital City of the Archipelago, can serve as a model for alternative VAT incentive policies. This policy can extend its scope to infrastructure and public services, specifically developing and managing wastewater treatment. This study proposes amending Article 4, Article 6, and Article 8 of Government Regulation No. 49 of 2022 to implement the VAT Exemption Policy on infrastructure and public services, specifically developing and providing clean water.

Only institutions formed by local governments, such as SKPD, BLUD, Local Companies, or BUMD, prioritise the VAT exemption policy on domestic wastewater management services. Implementing this VAT incentive plan is facilitated by Article 4A paragraph (3) letter (m) and Article 16B of the VAT Law No. 42 of 2009 and HPP Law No. 7 of 2021, along with its explanation. Furthermore, the government can enhance the facilities available to private parties through partnerships. Future studies explore a more detailed VAT incentives policy for the wastewater sector and its quantitative impact

on producers and consumers, including the multiplier effects of providing VAT incentives.

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