



Challenges in the Implementation of Groundwater Tax Collection in Sumedang Regency: A Fiscal Decentralization Perspective and Islamic Normative Support

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Received: December 15, 2025, *Revised:* June 1, 2026, *Accepted:* June 1, 2026,
Published: June 18, 2026

Abstract: This study examines the implementation challenges of the Groundwater Tax (Pajak Air Tanah, PAT) in Sumedang Regency from the perspective of fiscal decentralization and Islamic normative support for Sustainable Resource governance. Drawing on audited financial reports for the 2022-2024 fiscal years and a review of taxation, water resource, and licensing regulations, the study finds that PAT realization consistently fell short of the target, dropping from 64.15% in 2023 to 55.57% in 2024, despite high extraction potential. These weaknesses are driven by partial revenue assignment, reliance on provincial authorities to determine the Groundwater Acquisition Value, regulatory disharmony, licensing delays, and weak inter-agency coordination. Beyond institutional constraints, Islamic ethical principles – *khalifah* (stewardship), *israf* (prohibition of waste), and *maslahah* (public interest) – reinforce the legitimacy of groundwater taxation for environmental protection and social welfare. The study highlights the urgency of harmonizing regulations, strengthening administrative capacity, and integrating licensing and taxation systems.

Keywords: fiscal decentralization; Groundwater tax, Islamic Normative; local revenue, NPA.

Introduction

To achieve the welfare of all Indonesian people, the government implements fiscal decentralization as stipulated in Law Number 23 of 2014 concerning Regional Government, which emphasizes that budgetary decentralization is carried out in accordance with the principle of regional autonomy. However, its implementation faces various challenges, particularly related to institutional capacity, administrative readiness, and fiscal disparities between regions (Bank, 2003; Canton, 2021). These challenges become even more complex given Indonesia's diverse geography and topography. Indonesia is the world's largest archipelagic country, with over 17,000 islands stretching from Sabang to Merauke. The region's physical conditions also vary, including mountains, valleys, highlands, lowlands, and water bodies such as rivers and lakes. The diversity of these regional characteristics poses a challenge for the government in formulating and implementing appropriate, effective, impartial, and proportional fiscal decentralization policies.

The implementation of fiscal decentralization aligns with Musgrave's view that the government has three primary roles in the public financial system: maintaining economic stability, regulating income distribution, and providing public goods and services. Among the three, the allocation function, namely the provision of public goods and services, is more appropriately carried out by local governments due to their proximity to the community and their ability to understand local needs.

Oates reinforces this view through the decentralization theorem, which holds that the provision of public services is more efficient when delegated to the level of government closest to citizens, provided there are no significant externalities across regions (Oates, 1999). Oates decentralization thesis resonates with modern institutional expressions of Islamic governance values, as it emphasizes participatory decision-making and strengthens public accountability.

Beyond formal legal and administrative arrangements, Islamic ethical values which are particularly relevant in Indonesia as a Muslim-majority country also offer meaningful moral support for sustainable groundwater management. In Zoelva's analysis, Islamic governance ethics impose moral limits on authority, prioritize consultative governance and public responsibility, and imply that the concentration of absolute power in a single central authority is incompatible with Islamic principles. These ethical foundations further ensure that public policies remain oriented toward local welfare and the broader public interest (Zoelva, 2022).

To improve the quality of fiscal decentralization in terms of fairness, transparency, accountability, and fiscal decentralization performance, the government has reformed its policies using several approaches. These reforms include strengthening the local taxation system, reducing vertical and horizontal fiscal disparities, improving the quality of local spending, and harmonizing central and local government spending. These reform efforts have been realized through the enactment of Law Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments, which came into effect in January 2022 (Puspita et al., 2021). This reform aligns with the principles of Public Financial Management (PFM) in the context of fiscal decentralization. One of the primary roles of PFM is to ensure that rules are clearly formulated and consistently applied to create accountable public financial management (Smoke, 2015). However, problems can arise in the implementation of fiscal decentralization policies if a clear road map or framework is not formulated. Bahl and Martinez-Vazquez (2006) emphasize the importance of "sequencing," which is a strategic step in implementing fiscal decentralization that can minimize the risk of system failure in achieving objectives (Bahl & Martinez-Vazquez, 2006). In implementing the transfer of tax collection authority to local governments, various challenges must be addressed. One of these is the suboptimal collection of local revenue (PAD), especially from the Groundwater Tax (PAT). PAT is a local tax imposed on businesses that use groundwater to support their activities. One of the main obstacles to optimizing PAT revenue is the incompatibility between licensing and tax collection. In many cases, local governments are unable to immediately collect groundwater taxes because business operators do not yet have groundwater exploitation permits. This discrepancy implies that the potential for local revenue cannot be maximized.

The issue of suboptimal groundwater tax collection by local governments was highlighted in the Supreme Audit Agency (BPK RI) audit report. The BPK RI audit report reveals that the suboptimal collection of groundwater tax is due to taxpayers not yet having a Groundwater Use Permit, being in the process of extending their groundwater use permit, or still in the process of applying for a permit extension, so they cannot obtain an NPA determination from the West Java Provincial ESDM Office. West Java Provincial Representative Office of the Audit Board (2025).

Previous studies have analyzed the factors that influence Local Own-Source Revenue (PAD). The results show that the number of residents, local taxes, inflation, and the number of tourists simultaneously have a significant effect on PAD (Theresia et al., n.d.). Other studies have also concluded that local taxes and levies have a positive and significant effect on PAD. The greater the regional revenue from local taxes and the local levy sector, the higher the PAD (Ardianti et al., 2023). However, neither study specifically addressed the problems encountered in PAT collection, including regulations, licensing, and coordination between agencies. PAT is an important component of the local tax structure that can increase PAD, especially in areas where business-sector groundwater use is high. Therefore, further research is needed to specifically highlight the problems in collecting Groundwater Tax to identify existing obstacles and formulate appropriate policy solutions. Thus, this study offers new insights by highlighting regulatory, licensing, and institutional coordination obstacles to the collection of the Groundwater Tax (PAT). This focus distinguishes this study from previous studies that emphasized macro factors, such as Local Own-Source Revenue, thereby

providing a new perspective on revenue assignment within the framework of fiscal decentralization in Indonesia.

Based on the audited Financial Reports of the Sumedang Regency Government for the 2022–2024 fiscal years, the achievement of PAT revenue shows that conditions in the region are not yet optimal. The situation in Sumedang Regency is alarming. In 2023, PAT realization was only able to meet around 64% of the target, and even decreased to around 56% in 2024 (Keuangan, 2021).

This low achievement indicates serious obstacles to PAT management at the regional level. This situation raises critical questions: Is this problem related to a weak regulatory framework, a lack of synchronization in the licensing process, or suboptimal coordination between the agencies involved? These questions serve as an important starting point for this study, which aims to explore the problem's root in greater depth and to seek policy solutions to strengthen the optimization of regional revenue from the tourism sector.

Literature Review

In the decentralization implementation framework, there are three main interrelated dimensions: political, administrative, and fiscal decentralization (Boex et al., 2023). In the Indonesian context, Law Number 23 of 2014 concerning Regional Government defines decentralization as the transfer of government affairs from the central government to autonomous regions, which is carried out in accordance with the principle of regional autonomy. Among the three, fiscal decentralization is an important pillar for strengthening the capacity of regions to manage resources independently.

The Indonesian government consists of three levels: the central government, provincial governments led by governors, and regency/city governments led by regents/mayors. Under the regional autonomy policy, local governments at all levels are authorized to regulate and manage community interests in accordance with local aspirations.

In designing a system of central and regional financial relations based on the principle of fiscal decentralization, four main pillars form the conceptual framework (Boex et al., 2023). The four pillars are as follows:

- a. Expenditure assignment, which is the division of expenditure authority and responsibility for providing public services
- b. Revenue assignment, which is the division of authority and responsibility for revenue collection.
- c. Intergovernmental fiscal transfers, namely, transfers between governments
- d. Local government borrowing, debt, capital finance rules, responsibility, and accountability include the management of local government debt, borrowing, and capital financing.

Within this framework, the authority to collect local taxes falls under the revenue assignment pillar, which affirms local governments' fiscal rights to raise revenue in accordance with laws and regulations. This pillar is important for strengthening local fiscal independence and reducing dependence on transfers from the central government.

Local taxes play a strategic role in the decentralized government system. Theoretically, there are two main advantages to strengthening local taxation. First, dependence on own-source revenue encourages local governments to be more efficient in providing public services. Second, community involvement as taxpayers strengthens public participation in monitoring and demanding accountability from local governments (Lewis, 2023).

Increasing fiscal autonomy through the optimization of local revenue, rather than relying solely on transfers from the central government, can also improve spending and budget management efficiency, strengthen fiscal responsibility, and open up opportunities for external financing, as long as adequate human resources and technical institutional capacity are available (Canton, 2021).

Unlike central government transfers, whose use is increasingly directed, local taxes give local governments the flexibility to respond to community needs and set development priorities according to local characteristics. In addition, there has been a change in the General Allocation Fund (DAU) scheme, which was initially a block grant but is now divided into general and specific allocations, thereby reducing local governments' fiscal flexibility (Lewis, 2023). This situation underscores the

importance of increasing the capacity of local governments to optimize PAD collection to maintain fiscal sustainability and support independent regional development.

From a theoretical perspective, Musgrave (1959) emphasized the government's allocation function in the efficient provision of public goods and services. In the context of local taxes, including the Groundwater Tax (PAT), this allocation function is relevant because local governments have closer knowledge of community needs.

In line with this, the Decentralization Theorem proposed by Oates (1999) asserts that the provision of public services will be more efficient if managed by the level of government closest to the community, as long as it does not cause cross-regional externalities. This principle reinforces the argument that delegating authority to manage PAT as part of fiscal decentralization is an appropriate step, given that local governments are better able to respond to the different characteristics of groundwater use in each region.

However, the success of fiscal decentralization is not only determined by the principles of efficiency and proximity of services. Bahl and Martinez-Vazquez (Bahl & Martinez-Vazquez, 2013) emphasize the importance of sequencing, namely, determining the strategic stages in the implementation of fiscal decentralization so that the transfer of authority does not cause revenue gaps or inefficiencies. In the context of PAT, these stages include regulatory reform, licensing harmonization, and administrative capacity building before the revenue collection authority is fully transferred to the regions.

In addition, Smoke (2015) emphasizes that Public Financial Management (PFM) reform is an important prerequisite for decentralization to deliver the expected results. PFM plays a role in strengthening the managerial efficiency, transparency, and accountability of local governments to both the central government and the community.

Thus, the integration of allocation functions, the principles of the Decentralization Theorem (Oates, 1999), the concept of fiscal policy sequencing (Bahl & Martinez-Vazquez, 2013), and PFM reform (Smoke, 2015) show that PAT optimization is not merely an effort to increase PAD. Moreover, the PAT is an important instrument for strengthening regional fiscal capacity and realizing more responsive, accountable, and sustainable public financial management. In Islamic thought, humans are viewed as khalifah (stewards) of the earth, with a clear responsibility to avoid israf (wasteful and excessive use). This perspective places water as a shared trust that must be protected for the well-being of society as a whole (Lubis, 2025). At the same time, the principle of *maslahah* (public interest) provides ethical justification for state intervention, including taxation, to safeguard common resources and promote social justice (Rahima et al., 2025). From this viewpoint, the Groundwater Tax is not only tool for raising revenue, but also a practical way to encourage environmental responsibility and collective welfare.

Based on this conceptual framework, this study further examines the empirical conditions of PAT collection in Sumedang Regency. This region was chosen because it has significant economic activity and high potential for groundwater use, but its PAT revenue is still far from being optimal. Analysis of this region allows for the identification of regulatory, licensing, and inter-agency coordination barriers, while also testing the relevance of fiscal decentralization theories to regional tax management. This part consists of the research results and how they are discussed. Research results can be presented in a table or figure, followed by easy-to-understand information. In the discussion section, it is stated that there is a relation between results and basic concepts or the research hypothesis, so that its suitability and contradiction with other research can be seen. The discussion also explains the limitations of the research.

Method

This study used a qualitative descriptive approach with a case study in Sumedang Regency, West Java. The location was selected purposively because this area has a high level of groundwater utilization, but the realization of Groundwater Tax (PAT) revenue is still far from optimal. The primary research data were sourced from the Audit Report (LHP) of the Supreme Audit Agency of the Republic of Indonesia (BPK RI) (Keuangan, 2021) on the Financial Statements of the Sumedang

Regency Government for the 2022-2024 Fiscal Year, which contains information on the realization of PAT revenue, targets, potential, and problems in the implementation of collection. This data was reinforced by reviewing laws and regulations related to regional taxation, water resource management, groundwater exploitation permits, and official documents from the local government.

The analysis was conducted descriptively and thematically, examining the consistency between normative provisions (*de jure*) and practical implementation (*de facto*), as well as identifying regulatory obstacles, the relationship between permits and the determination of the Water Acquisition Value (NPA), and inter-agency coordination. The results of the analysis are expected to provide a comprehensive picture of the root causes of PAT collection in Sumedang Regency, as well as a basis for formulating policy recommendations to improve the effectiveness of local tax collections. This study is limited to audited fiscal data and regulatory analysis and does not include taxpayer perception surveys or hydrogeological measurements.

Results and Discussion

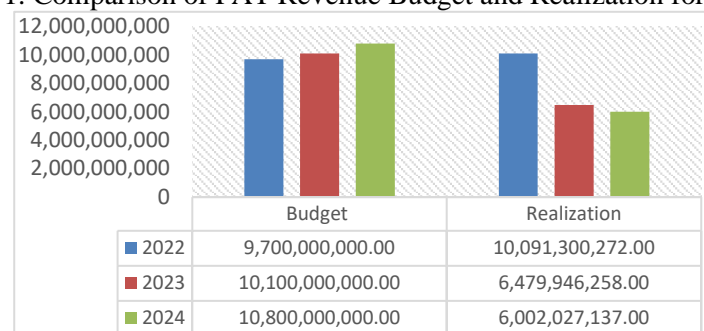
Partial Revenue Assignment in Groundwater Tax Collection

Groundwater Tax (PAT) is a type of tax under the authority of the Regency/City Government, as stipulated in Law Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments and Government Regulation Number 35 of 2023 concerning General Provisions on Regional Taxes and Levies. The determination of the types of taxes the region can collect reflects the principle of revenue assignment in the framework of fiscal decentralization, which grants local governments the authority to collect taxes as a source of budgetary revenue to finance regional affairs, in accordance with their assigned functions. Thus, the existence of PAT functions as a source of regional revenue and as an instrument for implementing the principle of decentralization.

The establishment of PAT as a local tax is in line with the principle of revenue assignment proposed by Bahl and Linn (Bahl & Martinez-Vazquez, 2013) and Shah (Shah, 2007), as cited in Smoke (Smoke, 2015). This principle emphasizes that relatively immobile revenues are more appropriately collected by local governments because they do not cause spatial distortions or serious competition with the central government's tax base. In the Indonesian context, PAT is a location-based tax that taxpayers cannot avoid. Additionally, setting uniform rates for all regions reduces the risk of fiscal competition. Thus, the existence of PAT as a local tax is not only consistent with the principle of fiscal decentralization but also supports the stability of local revenue without disrupting the central tax base, such as income and VAT taxes.

The collection of PAT in Sumedang Regency, as shown by the BPK audit of the Sumedang Regency government on the 2024 financial statements, was suboptimal. The suboptimality of PAT revenue is evident from the data on unrealized revenue in 2023 and 2024.

Figure 1. Comparison of PAT Revenue Budget and Realization for 2022-2024



Source: 2024 Financial Report on the Sumedang Regency Government

According to the financial report, the PAT revenue target increases annually. However, in 2023, PAT revenue reached only 64.15% of the target, and in 2024, it decreased to 55.57%.

Furthermore, based on the BPK report on the 2024 Financial Report of the Sumedang Regency Government, Bapenda submitted an NPA determination to the West Java Provincial ESDM Office with a total proposal of IDR 33,879,601,464.00. Of this amount, NPA worth IDR 10,724,864,436.00 has not been determined, resulting in a potential PAT of IDR 2,144,972,887.00 ($20\% \times \text{IDR } 10,724,864,436.00$) in 2024 that cannot be collected. The non-determination of NPA has resulted in Bapenda being unable to issue Tax Assessment Letters (SKP). This information is important because it shows that the root cause of suboptimal PAT revenue is not low potential but rather administrative constraints in determining the NPA.

The guidelines for determining NPA are regulated by West Java Governor Regulation No. 50 of 2017, concerning the Guidelines for Determining Groundwater Acquisition Value. This regulation stipulates that the Groundwater Acquisition Value (NPA) is the value of groundwater that has been extracted and is subject to groundwater tax, which is equal to the volume of water extracted multiplied by the base price of water. The NPA is determined for each groundwater extraction point that already has a Groundwater Use Permit. However, the provisions of Article 2, paragraph (2) of this West Java Governor Regulation have resulted in the collection of PAT being hampered because many taxpayers do not yet have a Use Permit or are still in the process of applying for a Permit. Thus, the link between permits and NPA determination has become a factor hindering the effectiveness of PAT collection in Sumedang Regency, even though, in principle, this tax is in line with the theory of revenue assignment.

Although it has the authority to collect PAT (revenue assignment), in practice, Sumedang Regency shows a gap between authority and its implementation. Based on the results of the 2024 financial report audit by the Indonesian Audit Board (BPK RI), the Sumedang Regency Revenue Agency (Bapenda) cannot issue a Tax Assessment Letter (SKP) for PAT because the determination of the Groundwater Acquisition Value (NPA) is entirely dependent on the West Java ESDM and Mineral Resources Office.

The mechanism for determining NPA in Sumedang Regency illustrates the limited administrative capacity of this regency. The applicable process is as follows.

- a. Bapenda records and calculates the NPA monthly.
- b. Bapenda coordinates with the West Java Provincial ESDM Office Branch V regarding the calculation.
- c. Bapenda submits a proposal for the determination of NPA to the Governor of West Java through the Head of the Provincial ESDM Office; and
- d. Bapenda determines the PAT based on the approved NPA, multiplied by a 20% tax rate.

With this mechanism, Bapenda's role is limited to administrative matters. Suppose the basis for imposing PAT is the NPA, which a higher level of government must first determine. This indicates that the authority of regencies/cities to collect PAT is not complete but rather partial.

In the literature on fiscal decentralization, revenue assignment is not only understood as the transfer of tax types to local governments but also concerns the degree of authority attached to their collection (Shotton, 2022). This spectrum of authority encompasses several levels, from merely retaining the right to revenue without setting rates to piggybacking or imposing surcharges on central taxes to full authority, which includes determining the base, rates, and administration of tax collection.

Within the framework of fiscal decentralization, the empirical findings of this study confirm the existence of partial revenue assignment, a situation in which district governments normatively have the authority to collect taxes but, in practice, still depend on provincial authorities for technical aspects, such as determining the NPA. These findings enrich the literature on fiscal decentralization, in line with Boadway & Shah's (Shotton, 2022) argument that "matching revenue means with expenditure needs as closely as possible ... in practice ... [faces] greater difficulties in decentralizing taxing powers than expenditure responsibilities". The concept of partial revenue assignment can be understood as an elaboration of the mismatch problem between expenditure and revenue assignments, which has been widely highlighted in the fiscal federalism literature. This situation reflects the

fragmentation of authority, in which taxation rights, such as the PAT, are granted to local governments but their implementation still technically depends on provincial governments.

Administrative Capacity Gap Authority to Grant Groundwater Use Permits (IPAT)

The implementation of IPAT is crucial for the effectiveness of PAT collection. Normatively, the legal basis is regulated by Law No. 17 of 2019 concerning Water Resources, Government Regulation No. 30 of 2024 concerning Water Resources Management, and Minister of Energy and Mineral Resources Regulation No. 14 of 2024 concerning the Implementation of IPAT and Approval for Groundwater Use. The obligation to have a permit is emphasized in Law No. 17 of 2019, Article 44, paragraph (3), which states that permits for the use of water resources are granted by the central government and/or local government in accordance with their authority, while Article 49, paragraph (2) of the same law emphasizes the obligation to obtain a permit for every use of water resource for business activities. The authority to issue water-use permits is divided into areas under the authority of the central, provincial, and regency/city governments, as stipulated in Law No. 17 of 2019, namely:

- a. The Central Government has the authority to determine and issue permits for the use of water resources in transboundary, interprovincial, and national strategic rivers.
- b. The provincial government has authority over river basins that cross regencies/municipalities; and
- c. The regency/city government has authority over river basins within a single regency or city.

In line with the provisions of Law No. 17 of 2019, Minister of Energy and Mineral Resources Regulation No. 14 of 2024 concerning the Implementation of IPAT and Approval of Groundwater Use Article 2, paragraph (4) also reaffirms the authority of the Minister, Governor, and Regent/Mayor in the implementation of permits in accordance with the scope of the groundwater basin.

- a. Minister: for groundwater in basins and groundwater sources located in transboundary rivers, transprovincial rivers, and national strategic areas.
- b. Governor: for basins and groundwater sources within cross-district/city areas.
- c. Regent/Mayor: for other groundwater located within a regency or city.

This provision reflects the rights of each level of government, namely the central, provincial, and regency/city governments, to regulate and manage water resources in their respective regions through permit issuance. This regulation is in line with the principle of autonomy in fiscal decentralization as stipulated in Article 18 paragraph (2) of the 1945 Constitution of the Republic of Indonesia, namely, "Provincial, regency, and city governments shall regulate and manage their own governmental affairs according to the principles of autonomy and assistance," and is reinforced in Law Number 23 of 2014 concerning Regional Government, which is the general basis (*lex generalis*) for the implementation of decentralization in the Indonesian government system. Meanwhile, Law Number 17 of 2019 concerning Water Resources serves as a sectoral regulation (*lex specialis*) that regulates the SDA sector framework more specifically: state control, conservation/utilization, and the division of authority between the central government, provinces, and regencies/cities. Minister of Energy and Mineral Resources Regulation No. 14 of 2024 is considered a technical implementation instrument that operationalizes the mandates of the two laws.

Furthermore, the district/city government has failed to take action against business operators who continue to operate without a permit in the Sumedang area. In fact, the aspect of supervision has already been regulated by the government. Ministerial Regulation No. 14 of 2024, Article 30, paragraph (1) states that ministers, governors, or regents/mayors are required to carry out guidance and supervision functions over the implementation of IPAT or Groundwater Use Permits in accordance with their respective authorities. This regulation emphasizes the authority and function of the government to supervise. Article 32 even includes administrative sanctions in the form of written warnings, temporary suspension of activities, and/or revocation of Groundwater Use Permits or Groundwater Use Approvals. However, these normative provisions are not effectively implemented in Sumedang Regency.

This condition reveals an administrative capacity gap in the region. Although the legal framework provides apparent authority, the administrative capacity of the regency government remains limited. The functions of supervision and enforcement have not been optimally carried out, while substantive authority remains at the provincial level of government.

Within the framework of fiscal decentralization, this licensing function falls within the realm of expenditure assignment. The World Bank (Bank, 2003) asserts that "technical or conceptual issues do not cause the biggest challenges with the assignment of functions and expenditure responsibilities during policy design; instead, the main challenges are typically encountered during the policy implementation stage," including "weak vertical and horizontal intergovernmental coordination" and "inadequate local government administrative capacity." (Fiscal Decentralization Local Public Sector Finance and Intergovernmental Fiscal Transfers, n.d.). Thus, licensing is not only a matter of normative legality but also part of public service functions that require administrative capacity to be carried out effectively.

Weaknesses in expenditure assignment directly impact the implementation of the second pillar, namely revenue assignment. As emphasized by Bahl and Martinez-Vazquez (Bahl & Martinez-Vazquez, 2013), regarding the importance of sequencing, the transfer of tax authority should be preceded by strengthening administrative capacity, including human resources, technology, and tax management procedures. The Sumedang case shows that when administrative capacity is inadequate and coordination between levels of government is weak, the authority legally granted to the district amounts to little more than a normative authority. This implies that fiscal decentralization in the field of PAT is incomplete, so that it does not result in fiscal empowerment as envisioned by Oates (1999), but rather reveals fiscal limitations due to administrative gaps.

Implementation of OSS-RBA in Groundwater Utilization Permits: Regulatory Dynamics and the Urgency of Technical Regulations in the Regions

The implementation of Groundwater Utilization Permits (IPAT) based on Law No. 17 of 2019 can be divided into two categories: 1) IPAT implementation before Law No. 11 of 2020 concerning Job Creation (which has been re-enacted as Law No. 6 of 2023 after the Constitutional Court's decision No. 91/PUU-XVIII/2020 concerning conditional unconstitutionality) and the implementation of IPAT after the issuance of the Job Creation Law, and Prior to the enactment of the Job Creation Law, the implementation of IPAT referred to Law No. 17 of 2019, Government Regulation No. 43 of 2008 concerning Groundwater (still in force as long as it does not conflict with Law No. 17 of 2019), and Government Regulation No. 121/2015 concerning Water Resources Management (which was revoked by Government Regulation No. 30 of 2024). After the Job Creation Law was issued, the Online Single Submission Risk-Based Approach (OSS-RBA) was introduced as the main channel for business licensing in Indonesia. Through this mechanism, the entire licensing process is carried out electronically in an integrated manner with a risk-based approach, as regulated by Government Regulation No. 5, 2021.

Government Regulation No. 5 of 2021, concerning Risk-Based Licensing, serves as the technical basis for classifying business activities into low-, medium-, and high-risk categories. Medium- and high-risk activities require business standards, certification, and complete permits with technical verification. In water resource management, applications for business activities are submitted through OSS-RBA: IPAT (groundwater) at the Ministry of Energy and Mineral Resources and SDA Business Permit (Surface Water) at the Ministry of Public Works and Public Housing. For non-business activities, approval is submitted through sectoral licensing applications: ESDM Online Licensing Application (groundwater) and SIPSDA PUPR (surface water).

Initially, as a follow-up to PP No.5 of 2021 concerning the Implementation of Risk-Based Business Licensing, a Joint Decree (SKB) was issued by three Ministers, namely the Minister of Energy and Mineral Resources (ESDM), the Minister of Public Works and Public Housing (PUPR), and the Minister of Investment/Head of BPKM, to harmonize the implementation of OSS-RBA in the water resources sector. This SKB divides the roles between ministries and assigns the preparation of Norms, Standards, Procedures, and Criteria (NSPK) as technical references, as detailed sectoral

regulations were not available at the time the SKB was issued. In the context of the transition to the OSS-RBA regime in the SDA sector, the SKB serves as a temporary operational guideline.

The division of tasks and authorities in the Joint Decree is as follows:

- a. The Ministry of Energy and Mineral Resources (ESDM) administers groundwater exploitation permits (IPAT) in transboundary, interprovincial, and national strategic watersheds in Indonesia.
- b. The Ministry of Public Works and Public Housing (PUPR) issues permits for the use of surface water resources (IPSDA) in transboundary, interprovincial, and national strategic watersheds.
- c. The Investment Coordinating Board (BKPM) is responsible for preparing and processing an integrated electronic business licensing system through OSS.

Based on the division of tasks and authorities in the Joint Decree, the Ministry of Energy and Mineral Resources issued Minister of Energy and Mineral Resources Decree No. 259.K/GL.01/MEM.G/2022, concerning the Standards for the Implementation of Groundwater Use Permits (October 19, 2022). With the enactment of OSS-RBA (Government Regulation No. 5 of 2021), the implementation of groundwater permits at that time referred to a Ministerial Decree that contained two main points:

- a. Service Standards for Groundwater Exploration Drilling/Excavation Approval and Groundwater Use Feasibility Study Approval, which are implemented through the Ministry of Energy and Mineral Resources' integrated licensing web portal, as listed in Appendix I; and
- b. PAT Determination Standards were implemented through the Electronically Integrated Business Licensing System (OSS System), as stated in Appendix II.

However, with the issuance of ESDM Regulation No. 14 of 2024 and ESDM Decree No. 259, K/GL.01/MEM.G/2022 has been revoked and declared invalid. Currently, the operational reference for implementing IPAT (business activities via OSS) and Groundwater Use Approval (non-business via the ESDM Online Licensing Application) is ESDM Regulation No. 14 of 2024.

Although the Ministry of Energy and Mineral Resources has regulated the implementation of Groundwater Use Permits (IPAT) and Groundwater Use Approval through Permen ESDM No.14 of 2024 based on OSS RBA, these regulations need to be reinforced at the regional level through local regulations/Perkada as technical-operational rules. Regional clarification is necessary because the issuance of groundwater permits is governed by the division of authority stipulated in Law No. 17 of 2019, Government Regulation No. 30 of 2024, and the ESDM Ministerial Regulation No. 14 of 2024.

Why do technical regulations regarding groundwater management require technical arrangements at the district/city government level? The answer is quite simple: so that the authority that already exists on paper can be fully understood and implemented in practice. Currently, ESDM Regulation No. 14 of 2024 has established a licensing framework, namely IPAT, through OSS-RBA, while non-business approvals are submitted via the Ministry of Energy and Mineral Resources application. However, the role of the DPMPTSP, which has been delegated authority by the Regent to implement Business Licensing in the region, requires clarification. This includes the role between the DPMPTSP and related agencies, as well as the coordination form with the Provincial ESDM agency related to IPAT.

In line with the principle of autonomy (Law No. 23 of 2014) and the provisions on the formation of legislation (Law No. 12 of 2011 and its amendments), local governments have the authority to establish technical regulations to carry out matters under their authority, while still adopting the central regime, namely: IPAT is processed through OSS-RBA (Government Regulation No. 5 of 2021; Government Regulation No. 6 of 2021), while Groundwater Use Approval is processed through the Ministry of Energy and Mineral Resources' Online Licensing Application. These regional technical regulations are crucial for ensuring the flow of procedures, the division of roles between the DPMPTSP/Technical OPD, service standards, the integration of permit data with NPA and PAT collection determinations, and permit supervision by Provincial and Regency/City Governments.

Discrepancy between Normative Authority and IPAT Service Practice

De jure, the authority to implement IPAT is regulated in ESDM Regulation No. 14 of 2024, which stipulates that IPAT is submitted to the Minister/Governor/Regent-Mayor in accordance with the authority of the basin area (cross-province/strategic by the Minister; cross-district/city by the Governor; within a single regency/city by the Regent/Mayor) and regulates service channels (business IPAT via OSS-RBA, non-business approval via the Ministry of Energy and Mineral Resources' Online Licensing Application).

The Groundwater Basin (CAT) map in West Java illustrates this division. The Bandung-Soreang CAT (+1,716 km²) administratively covers Bandung Regency, Sumedang Regency, West Bandung Regency, Garut Regency, and Bandung City (inter-regency/inter-city). In Sumedang Regency, there are also local CATs, such as the Sumedang CAT and the Sukamantri CAT (around the foot of Mount Tampomas). Hydrogeological studies refer to both as part of the Sumedang groundwater system (Garinas et al., 2007). For points located entirely within the Sumedang Regency CAT, the IPAT authority rests with the Regent of Sumedang. The official list of CATs that cross or are located in Sumedang is also included in the Sumedang Regency Spatial Plan (RTRW) (Bandung-Soreang, Malangbong, Sumedang, Sukamantri, and Majalengka) and is reinforced by ESDM Regulation No. 2 of 2017 (List & Map of National CATs). This serves as the technical basis for determining the level of authority by overlaying the well coordinates with the CAT. The determination of authority is carried out by overlaying the wells' coordinates with the CAT map under ESDM Regulation No. 2 of 2017 and the administrative boundaries; if the CAT polygon does not exceed the regency boundaries, the authority lies with the Regent.

In practice, the official service portal of the Sumedang Regency Government displays a service titled "Permit for Groundwater Utilization/Use within the Province" with the SKPD service: "West Java Provincial PMPTSP Office." This indicates that the IPAT service is currently handled at the provincial level and not at the regency level. All IPAT applications may be located in CATs that cross regencies/cities, so they fall under the authority of the provinces. However, the regency/city's readiness is also needed to serve IPAT in future CATs that are purely within the regency. This condition also shows an administrative capacity gap: even though legal norms grant the regency authority, the technical, institutional, and service infrastructure at the regency level is not fully developed.

The configuration of the OSS RBA channel is a combination of three parties: (i) sectoral authority norms (Permen ESDM No. 14 of 2024), which determine the authorized officials (Minister/Governor/Regent-Mayor) based on the CAT scale; (ii) the OSS administrator (Ministry of Investment/BKPM), which activates/routes services in accordance with NSPK and geospatial data; and (iii) the readiness of the regional DPMPTSP as the endpoint (onboarding of signing officials, SOP/SLA, forms, TTE integration, and regional information systems). Because the Sumedang district government service catalog displays the "within the province" package and no "within the district" channel has been found, it appears that the Sumedang DPMPTSP endpoint for IPAT has not been fully activated/integrated in OSS, so that applications or even those that fall under the authority of the regency (intra-regency CAT) will be routed to the provincial level until the activation is carried out.

Challenges in PAT Collection due to Regulatory Disharmony and Shifts in the Conservation Paradigm

However, inconsistencies exist between the provisions governing the Groundwater Determination Guidelines in the Minister of Energy and Mineral Resources Regulation No. 5 of 2024 and those of the Groundwater Acquisition Value Determination Guidelines issued through West Java Governor Regulation No. 50 of 2017.

How does this governor regulation determine the NPA? The NPA amount is calculated by considering some or all of the following factors: Type of Groundwater Source, Location of Groundwater Source, Groundwater Quality, Purpose of Groundwater Extraction and/or Utilization,

Volume of Groundwater Extracted and/or utilized, and Level of Environmental Damage Caused by Groundwater Extraction and/or utilization. These factors are formulated for NPA calculation, which is expressed in two components as follows:

- a. Natural resource component, which includes the following factors: type of groundwater source, location of groundwater source, and groundwater quality; and
- b. The allocation and management component includes the following factors: purpose of groundwater extraction and/or utilization, volume of groundwater extracted and/or utilized calculated in cubic meters (m³) based on water meter readings, and level of environmental damage caused by groundwater extraction and/or utilization based on the groundwater conservation zone.

Furthermore, the allocation and management of groundwater are divided into five (5) groups of groundwater users, each defined by the businesses that utilize groundwater. The multiplication of the Natural Resources component weight (60%) by the Allocation and Management component weight (40%) determines the Water Value Factor (FNA). In addition to FNA, the NPA will be determined by the Raw Water Price (HAB) and the volume of water extracted and/or utilized (Progressive Volume).

The fundamental difference between Governor Regulation No. 50 of 2017 and ESDM Regulation No. 5 of 2024 lies in the calculation of the Raw Water Price (HAB). In the Governor Regulation, the HAB is calculated from the total investment cost, namely the cost of constructing production wells and operational costs during the production period, which is then divided by the total volume extracted over five years. This formula follows the provisions of ESDM Regulation No. 20 of 2017, which was in effect at the time (but has now been revoked). In contrast, ESDM Regulation No. 5 of 2024 expands the scope of the HAB calculation by including conservation and monitoring. HAB is defined as the sum of the construction and maintenance costs of the Imbuhan well (BPH) divided by the extraction volume during the production period, and the construction, operational, and maintenance costs of the Pantau well (BPL) divided by the extraction volume during the production period.

This difference shows a normative gap and a paradigm shift in the field. The West Java Governor Regulation focuses on the extraction cost approach, where the price of raw water is calculated based on the construction and operational costs of the production wells. In contrast, the ESDM Ministerial Regulation adds the dimensions of conservation and monitoring by calculating the construction and maintenance costs of injection and monitoring wells.

The shift in the HAB formula from merely extraction costs, as used in West Java Governor Regulation No. 50 of 2017, to conservation and monitoring in the ESDM Ministerial Regulation No. 5 of 2024 can be understood as a transition from the user-pays principle to the polluter-pays principle. Previously, groundwater users only paid for the construction and operational costs of production wells; the latest regulation requires them to also bear the costs of recharge and monitoring wells as conservation instruments. This shift is in line with the analysis of Tietenberg & Lewis (2018), which emphasizes that user pays only covers the costs of resource consumption, while polluter pays internalizes the costs of environmental externalities, namely the side effects of economic activities on the environment, which are not automatically reflected in market prices (Tietenberg & Lewis, 2023).

Thus, the ESDM regulation is actually more consistent with the principle of water resource management oriented towards conservation as emphasized in Article 47 of Law No. 17 of 2019 in paragraph (2), which states that "The use of water resources for business needs shall be carried out with due regard to social and environmental functions and the guarantee of the safety of state assets and environmental sustainability." The consistency between the ESDM Regulation and the provisions of the law demonstrates the strengthening of the sustainability paradigm in water resource management.

However, this paradigm shift has several implications. For business actors, the additional obligation to build recharge and monitoring wells can be a burden in terms of cost and technical

capacity. This means that even progressive policies may not align with the readiness of actors in the field. This condition has the potential to generate resistance, as explained by Pressman and Wildavsky (Pressman & Wildavsky, 1984) and Winter (Winter, 2012), who found that the behavior of the target group greatly influences the success of implementation. Interest group theory (Olson Jr, 1971) and policy feedback theory (Pierson, 1993) also emphasize that resistance from interest groups not only hinders implementation but can also have political consequences for government actors who promote such policies (Pressman & Wildavsky, 1984).

From the perspective of constitutional law and the hierarchy of regulations, ESM Regulation No. 5 of 2024 takes precedence over West Java Governor Regulation No. 50 of 2017, in accordance with the principles of *lex superior derogat legi inferiori* and *lex posterior derogat legi priori*, meaning that the norms in the Governor Regulation must be adjusted or deemed invalid. In addition, based on Law No. 12 of 2011 in conjunction with Law No. 13 of 2022, the ESDM Ministerial Regulation obtains legitimacy from Article 68, paragraph (1) of Law No. 1 of 2022, concerning financial relations between the central and regional governments. This explicitly instructs the Minister to establish technical guidelines for calculating NPA. Conversely, West Java Governor Regulation No. 50 of 2017 has no legal legitimacy.

As stipulated in Article 251 paragraph (1) of Law No. 23 of 2014 on Regional Government, which states that "Provincial regulations and governor regulations that conflict with higher laws and regulations, public interests, and/or morality shall be revoked by the Minister," the mechanism for revoking the West Java Governor Regulation must be carried out by the Minister of Energy and Mineral Resources.

A similar situation occurred when the Supreme Court (MA) revoked a Regional Regulation that conflicted with higher laws and regulations through a judicial review mechanism. A notable example is the Supreme Court Decision No. 56P/HUM/2016, which revoked South Tangerang City Regulation No. 3 of 2012 concerning Certain Licensing Retributions because it conflicted with Law No. 28 of 2009 concerning Regional Taxes and Retributions. This local regulation stipulated specific licensing fees that were considered to conflict with Law No. 28 of 2009 on Regional Taxes and Levies (PDRD). In its ruling, the Supreme Court granted the request for judicial review and declared that the local regulation conflicted with higher regulations and, therefore, was legally invalid. As a result, local regulations lost their binding legal force, and local governments were required to adjust their regional regulations to the PDRD Law's provisions. This case reaffirms the principle of *lex superior derogat legi inferiori*, which states that lower regulations cannot deviate from higher regulations.

This confirms that the synchronization and harmonization of regulations between the central and regional governments are crucial for achieving legal certainty and the effectiveness of decentralization policies. The lack of synchronization and harmony in regulations, as occurred between West Java Governor Regulation No. 50 of 2017 and Minister of Energy and Mineral Resources Regulation No. 5 of 2024, became a real obstacle to implementation. This lack of synchronization not only triggers differences in interpretation at the implementation stage, but also causes legal uncertainty, ineffective and inefficient implementation, and even legal dysfunction—that is, when the law fails to perform its function as a guide for behavior, a social control mechanism, a dispute resolution mechanism, and a means of orderly social change (Syahlan, 2021).

In line with Syahlan (Syahlan, 2021), discussions on increasing local revenue (PAD) need to distinguish between two separate issues: first, the issue of tax policy (determining and/or delegating the appropriate types of revenue sources to local governments); second, the issue of regulatory and capacity constraints that hinder local governments from utilizing their regulated authority (Carrasco et al., 2023). This distinction is important so that solutions do not stop at normative design but also address real implementation obstacles in the field, including in the case of PAT, which concerns clarity of authority, integration of permit data, NPA collection, and the readiness of local government administration (LGA).

Islamic Normative Support for Groundwater Conservation

The empirical findings in Sumedang reveal that weak supervision of groundwater use, delayed permit processing, and fragmented authority between levels of government have allowed environmentally harmful practices to persist without effective control. From an Islamic ethical standpoint, these conditions directly contradict the principle of *khalifah* (stewardship), which places humans under a moral obligation to protect natural resources from over-exploitation and waste (*isrāf*). At the same time, the persistence of unlicensed groundwater extraction indicates a failure to uphold *maslahah* (public interest), as private economic gains are prioritized over collective environmental protection. In this context, the Groundwater Tax and licensing regime should not only be understood as administrative instruments but also as mechanisms to uphold ethical responsibility toward shared resources. Strengthening enforcement and institutional coordination, therefore, carries not only fiscal and legal significance but also moral legitimacy in safeguarding intergenerational resource sustainability (Priantina & Saleem, 2021).

Conclusion

This study emphasises that fiscal decentralisation is not sufficient through the delegation of tax collection authority alone, but must also ensure regional capacity in all stages of tax management, from determining tax objects to monitoring taxpayer compliance. Findings in Sumedang show that regulatory conflicts, weak inter-agency coordination, and minimal supervision are the main obstacles to optimising Groundwater Tax (PAT).

The recommendations proposed include harmonising regulations between the Governor's Regulation and the Minister's Regulation, accelerating the activation of OSS-RBA at the district level, integrating licensing data with taxation, establishing an inter-agency coordination forum, and strengthening supervision and law enforcement against licensing violations. If implemented consistently, these measures can increase the effectiveness of PAT collection, strengthen regional fiscal independence, and support sustainable groundwater resource management.

The uniqueness of this study lies in its specific focus on PAT, the analysis of legal conflicts between levels of government, and empirical evidence that the delegation of fiscal authority must be accompanied by strong institutional capacity. This study also opens up space for further research on similar practices in other regions and their relationship to the Sustainable Development Agenda.

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