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INTEGRATING RESOURCE-BASED VIEW AND SOCIAL INNOVATION FOR ORGANIZATIONAL TRANSFORMATION: EVIDENCE FROM A LEADING INDONESIAN WATER UTILITY COMPANY

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Abstract

This study investigates the transformation strategy of Perusahaan Umum Daerah. This study examines the transformation strategy of PERUMDAM Tirta Kerta Raharja (TKR) in Tangerang Regency to enhance drinking water service performance through the lens of the Resource-Based View (RBV) and social innovation. In 2024, the utility achieved a service coverage of 69.34 percent, surpassing its 60 percent target, despite persistent challenges such as limited raw water, a 15.60 percent water loss rate, and unchanged tariffs since 2009. Employing a qualitative document analysis of business plans and performance reports, the research identifies strategically valuable internal resources: water utilization permits (5,640 liters/second), SPAM infrastructure (6,267.5 liters/second across six zones), comprehensive demand data, BUMD legitimacy, and robust collaborative capacity. These resources are configured through production expansion, water-loss reduction, and idle-capacity optimization. Four key social innovations are identified: multi-stakeholder collaboration (e.g., SPAM asset grants from developers), hybrid public funding (APBN/APBD), community-needs approaches via surveys, and service digitalization (SCADA). The integration of RBV strategies and social innovation underpins performance gains, though profitability pressures and water-source vulnerability persist. This research contributes to public sector strategic management theory and offers practical insights for regional water utilities pursuing sustainable transformation.

Keywords: Resource-Based View, Social Innovation, Regional Water Utility, Service Performance, Organizational Transformation

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INTRODUCTION

Within Islamic economic thought, water is regarded as a public trust (amanah) and a common resource (al-mubahat al-asliyyah) that must remain accessible to all members of society. The Prophet Muhammad, PBUH, stated, "Muslims are partners in three things: water, pasture, and fire" (Sunan Abi Dawud), thereby establishing the principle that essential natural resources should not be privately owned or monopolized to the detriment of public welfare. This foundational concept aligns with the maqasid al-shariah (objectives of Islamic law), which prioritize the protection of life (hifz al-nafs) and human dignity. Contemporary Islamic economists maintain that water governance should balance economic efficiency with social justice, ensuring affordability while maintaining service sustainability (Chapra, 2008). In Indonesia's Muslim-majority context, the constitutional mandate that water resources be utilized for the greatest prosperity of the people closely aligns with these Islamic principles, presenting both an obligation and an opportunity for public water utilities to implement values of equity, stewardship, and communal benefit.

Water is a fundamental human need whose fulfillment is constitutionally guaranteed under Article 33, paragraph (3), of the 1945 Constitution, which stipulates that the earth, water, and natural resources contained therein are under the control of the state and utilized for the greatest prosperity of the people. This mandate is further elaborated in Law Number 17 of 2019 concerning Water Resources, which regulates the management of water resources to sustainably meet the community's living needs. The Government of Indonesia, as part of the global community, is also committed to achieving Sustainable Development Goal (SDG) 6, namely ensuring access to safe and affordable drinking water for all by 2030. In achieving this ambitious target, Regional-Owned Water Utilities (BUMD Air Minum) are positioned at the forefront as operators of Drinking Water Supply Systems (SPAM) at the district/city level.

Despite these mandates, most BUMDs continue to encounter persistent and complex challenges, such as limited and declining raw water quality, high non-revenue water (NRW) levels exceeding 30 percent in certain regions, operational inefficiencies, and financial pressures resulting from tariff structures that do not achieve full cost recovery (BPPSPAM, 2023). Consequently, these entities often demonstrate suboptimal performance and remain dependent on subsidies.

The complexity of these issues is concretely reflected in the case of the Regional Public Water Utility Company, Tirta Kerta Raharja (PERUMDAM TKR),

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Tangerang Regency. As one of the buffer zones around the capital city of Jakarta, Tangerang Regency is experiencing rapid population growth and economic development. According to data from the Central Bureau of Statistics, the population of Tangerang Regency in 2024 reached approximately 3.37 million people (BPS Kabupaten Tangerang, 2024). This population explosion, driven by the expansion of industrial, commercial, and residential areas, has direct implications for the exponential increase in demand for clean water. PERUMDAM TKR, as mandated by the BUMD to organize SPAM, is required to provide drinking water services not only for the administrative area of Tangerang Regency but also for parts of Tangerang City, South Tangerang City, and even DKI Jakarta. The Regional Government of Tangerang Regency, through the 2019-2023 Regional Medium-Term Development Plan (RPJMD), has set an ambitious target to achieve 60 percent coverage of piped drinking water services by the end of 2023 (PERUMDAM TKR, 2023).

PERUMDAM TKR has demonstrated notable progress despite these challenges. The 2024 Performance and Financial Report indicates that service coverage surpassed the target, reaching 69.34 percent (PERUMDAM TKR, 2025). Customer connections increased from 181,179 in 2020 to 230,048 in 2024. This expansion was accompanied by strong financial performance, with water revenue totaling Rp755.7 billion and net profit reaching Rp115.78 billion. The company received a "Healthy" designation with a score of 4.49 in the performance assessment conducted by the Financial and Development Supervisory Agency (BPKP) of Banten Province for the 2023 fiscal year (BPKP Perwakilan Banten, 2024). These outcomes reflect the company's managerial capacity and effective adaptive strategies.

Nevertheless, these achievements do not resolve persistent structural challenges. Operationally, the water loss rate (NRW) remained at 15.60 percent in 2024, slightly higher than the previous year and above the business plan target of 11.37 percent (PERUMDAM TKR, 2025). Upstream, the quality of raw water from the Cisadane and Cidurian Rivers, the primary sources, exhibits signs of heavy metal pollution. Variability in water discharge and quality, particularly during the rainy season, can disrupt production continuity. Seawater intrusion, which has reached 7 kilometers inland in the northern coastal area of Tangerang Regency, renders groundwater unsuitable for consumption and increases reliance on piped water (RTRW Kabupaten Tangerang, 2011-2031). Despite rising operational costs due to inflation and increased electricity tariffs, the drinking water tariff has not been adjusted since its establishment by Regent Regulation

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Number 07 of 2009. Consequently, the operating ratio (operating costs to revenue) stands at 85.71 percent, significantly above the ideal threshold of 60 percent (PERUMDAM TKR, 2025).

This complexity necessitates scholarly analysis. Although PERUMDAM TKR has surpassed service coverage targets, it continues to face strategic resource vulnerabilities and financial pressures that threaten long-term sustainability. In response, PERUMDAM TKR has transitioned from reliance on internal capacity to adopting innovative collaboration schemes within its SPAM implementation model. The third amendment to the business plan details several strategic initiatives, including SPAM asset grants from private developers (PT Jakarta Baru Cosmopolitan and PT Ciputra Residence), operational cooperation with PT Bumi Serpong Damai (BSD) for production unit management, bulk water purchases from PT Aetra Air Tangerang, and planned cooperation with Perseroda Pengembangan Investasi Tangerang Selatan (PITS) for services in South Tangerang City (PERUMDAM TKR, 2023). The company also conducts real demand surveys across all service zones, revealing that 53.1 percent of household respondents are interested in becoming customers, with an ability to pay (ATP) of approximately Rp175,000 per month (PERUMDAM TKR, 2024). These data inform targeted marketing and network expansion strategies. Collectively, these initiatives signify a shift from a conventional technocratic approach to a more participatory and collaborative model that prioritizes community needs and capacities.

The transformation phenomenon at PERUMDAM TKR is interesting to analyze using relevant theoretical perspectives, particularly the Resource-Based View (RBV) and social innovation. RBV theory, pioneered by Barney (1991), argues that an organization's sustainable competitive advantage stems from internal resources that are valuable, rare, imperfectly imitable, and non-substitutable (often referred to as VRIN criteria). In the context of a regional water utility, these resources can be tangible physical assets such as water treatment plants (IPA) and pipeline networks, or intangible ones such as water resource utilization permits (SIP SDA), legitimacy as part of the regional government, integrated customer databases, and the technical and managerial competencies of human resources. However, the application of RBV in the public sector remains relatively limited, although this framework offers deep insights into how public organizations develop unique capabilities from their resources (Bryson, Crosby, & Bloomberg, 2017). Strategic resources such as political support, public trust, and collaborative capacity can differentiate performance among BUMDs.

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On the other hand, efforts to increase service coverage and operational sustainability cannot rely solely on optimizing internal resources. This is where the concept of social innovation plays a crucial role. Social innovation is defined as new solutions—whether in the form of products, services, models, or processes—that simultaneously meet social needs and create new social relationships or collaborations (Mulgan, 2006; Phills, Deiglmeier, & Miller, 2008). In the context of public organizations like BUMDs, social innovation is often manifested in cross-sector collaboration (government-private-community), the development of creative funding schemes, and the involvement of service users in planning and evaluation processes (Voorberg, Bekkers, & Tummers, 2015). This approach is highly relevant given that BUMDs have a dual mandate: to seek profit distributed as dividends to the regional government, while simultaneously carrying out a social mission to provide affordable basic services to the community (Defourny & Nyssens, 2017). In practice, social innovation at PERUMDAM TKR is reflected in strategic partnerships with private developers, hybrid financing schemes combining loans and private investment, and the use of real demand surveys as a basis for integrating RBV and social innovation perspectives, thereby offering a comprehensive analytical framework for understanding BUMD transformation strategies. RBV facilitates the identification of internal resources that underpin PERUMDAM TKR's advantage, their configuration, and their alignment with VRIN criteria. The social innovation perspective elucidates how the company develops new solutions through external interactions, builds collaborative networks, and generates social value for the community. These perspectives are mutually reinforcing: robust internal resources enable organizational innovation, while social innovation can generate new resources, such as public trust and reputation, further strengthening the company's competitive position.

Studies on regional water utilities in Indonesia have so far been dominated by analyses of technical and financial aspects. The study by Maryati, Humaira, and Pratiwi (2020), for example, used Data Envelopment Analysis (DEA) to measure the efficiency level of PDAMs in West Java Province. That research provided important insights into technical performance but did not touch upon the strategic dimensions of resource management and business model innovation. Meanwhile, research by Kurniawan and Yudoko (2021), which examined PDAM service innovation in Surabaya City, focused more on the implementation of information technology, such as online payment systems and application-based services. The aspect of multi-stakeholder collaboration, central

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to social innovation, was not the main focus. In other words, there is a significant research gap: the absence of studies that integrate the RBV and social innovation lenses to analyze the transformation strategies of regional water utilities, particularly by using medium-term planning documents (business plans) and performance reports as empirical data sources.

Given the identified research gap and the complexity of these challenges, this study pursues two primary objectives. First, it analyzes PERUMDAM TKR's valuable, rare, and difficult-to-imitate internal resources using the Resource-Based View (RBV) framework, evaluating how these resources are configured to achieve superior performance in drinking water service provision. This analysis identifies strategic assets, core capabilities, and resource management mechanisms that underpin organizational success. Second, the study examines the social innovation initiatives developed by PERUMDAM TKR to expand access and enhance service quality, with a focus on collaboration models, innovative funding schemes, and community participation mechanisms. Drawing on comprehensive secondary data from business plan documents, performance reports, and relevant regulations, the study offers an in-depth understanding of the dynamics of regional water utility transformation amid resource constraints and service improvement demands, while contributing to academic discourse on strategic management theory in the public sector.

LITERATURE REVIEW

Resource-Based View (RBV)

The Resource-Based View theory, pioneered by Barney (1991), explains that an organization's competitive advantage stems from internal resources that are valuable, rare, imperfectly imitable, and non-substitutable – known as the VRIN framework. In the context of public organizations, these resources can include physical assets (infrastructure, technology), human resources (competence, experience), organizational resources (culture, reputation, legitimacy), and dynamic capabilities to reconfigure resources in response to environmental changes (Teece et al., 1997). Eisenhardt and Martin (2000) emphasize that dynamic capabilities enable organizations to integrate, build, and reconfigure competencies to adapt to rapidly changing environments.

The application of RBV in the public sector has been developed by several researchers. Bryson et al. (2017) adapted RBV for public organizations by emphasizing the importance of strategic resources such as political legitimacy, stakeholder support, and collaborative capacity. These resources are not always physical in nature but can be performance differentiators among public

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organizations. In the context of a regional water utility, VRIN resources can include water-use permits, land-use rights for treatment plants, accurate customer databases, and employees' technical and managerial competencies.

Social Innovation

Social innovation is defined as new solutions (products, services, models, processes) that simultaneously meet social needs and create new social relationships or collaborations (Mulgan, 2006; Phills et al., 2008). Social innovation is oriented not only towards economic efficiency but also towards creating social value and empowering communities. In the context of public service delivery, social innovation can emerge through cross-sector collaboration (government-private-community), innovative funding schemes (e.g., APBN/APBD mixes, loans, Public-Private Partnerships), and user participation in planning and service evaluation (Voorberg et al., 2015).

Studies on social innovation in regional enterprises are still limited. Defourny and Nyssens (2017) categorize organizations with a social mission as "social enterprises," which combine economic and social logic. A regional water utility can be viewed as a form of social enterprise because it has a mandate to provide affordable basic services while simultaneously seeking to generate profits to be distributed as dividends to the regional government. Social innovation in this context includes developing service models responsive to the needs of vulnerable groups, involving communities in water resource management, and partnering with various parties to expand access.

Integration of RBV and Social Innovation

The integration of RBV and social innovation offers a rich perspective for analyzing BUMD transformation strategies. On the one hand, RBV helps identify which internal resources underpin the organization's advantage. On the other hand, social innovation explains how the organization develops new solutions through interaction with the external environment, including collaboration with stakeholders. The two complement each other: strong internal resources enable the organization to innovate, while social innovation can create new resources (e.g., public trust, partnership networks) that strengthen the competitive position.

This study uses both lenses to analyze how PERUMDAM TKR manages internal resources (physical assets, HR competencies, information systems, permits, and legitimacy) and develops social innovation (collaboration with the private sector, community needs surveys, hybrid funding schemes, service digitalization) in its efforts to achieve performance targets and organizational sustainability.

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RESEARCH METHOD

This study adopts a qualitative case study approach to analyze PERUMDAM Tirta Kerta Raharja's transformation strategy in Tangerang Regency, utilizing the Resource-Based View (RBV) and social innovation perspectives. The qualitative approach enables in-depth exploration of complex phenomena within public sector organizations and captures the richness of data from planning documents and policies, which serve as the primary sources for this research.

The data utilized are entirely secondary, sourced from official company and government documents. The main data sources include: (1) PERUMDAM TKR's 2020-2024 Business Plan along with the third amendment document from 2023; (2) PERUMDAM TKR's Performance and Financial Reports for 2020-2024; (3) executive summary reports of real demand surveys conducted from 2019 to 2021; (4) performance evaluation reports by the BPKP Banten Representative Office for 2021-2023; (5) the 2024 Performance Book of Regional Drinking Water Utilities published by the Ministry of Public Works and Public Housing; and (6) various relevant laws and regulations, including Minister of Home Affairs Regulation Number 21 of 2020 concerning drinking water tariffs and Tangerang Regency Regional Regulation on spatial planning.

Data collection was conducted through a documentation study, tracing and inventorying all relevant documents. Data analysis employed content analysis techniques with a thematic approach, categorizing data according to two main theoretical frameworks: RBV to identify internal resources that are valuable, rare, and difficult to imitate; and social innovation to identify forms of collaboration, funding schemes, and community-based approaches. The analysis process involved data reduction, data presentation, and interactive conclusion drawing.

Data validity was ensured through source triangulation, comparing information across documents to achieve consistent findings. The study is limited by its exclusive reliance on secondary data and the absence of in-depth interviews, and it focuses primarily on the "what" and "how" of the implemented strategies. The unit of analysis is PERUMDAM TKR as an organization, with the observation period spanning 2020 to 2024.

RESULTS AND DISCUSSION

Overview of the Research Object

Perusahaan Umum Daerah Air Minum Tirta Kerta Raharja (PERUMDAM TKR) Tangerang Regency is a Regional-Owned Enterprise (BUMD) engaged in

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drinking water supply. Based on Tangerang Regency Regional Regulation Number 6 of 2019, this company is mandated to organize the Drinking Water Supply System (SPAM) in the Tangerang Regency area and its surroundings. PERUMDAM TKR's service area covers three administrative regions: Tangerang Regency, Tangerang City, and South Tangerang City, and also supplies bulk water to DKI Jakarta.

By the end of 2024, PERUMDAM TKR served 230,048 customer connections (SL), with details: Tangerang Regency accounted for 164,256 SL, Tangerang City 53,247 SL, South Tangerang City 12,502 SL, and bulk water customers numbered 43 SL (PERUMDAM TKR, 2025). This number represents a 3.62 percent increase compared to the previous year's 222,006 SL. The company's installed production capacity reached 6,267.5 liters per second, spread across 17 water treatment plant (IPA) units, with main raw water sources from the Cisadane and Cidurian Rivers. This overview provides an essential foundation for understanding the context of the company's resource management and innovation.

Analysis of PERUMDAM TKR's Internal Resources from a Resource-Based View Perspective

Identification of Valuable Resources

Within the RBV framework developed by Barney (1991), a resource is considered valuable if it enables the organization to exploit opportunities or neutralize threats from the external environment. Analysis of PERUMDAM TKR's business plan documents and performance reports reveals several resources with high strategic value.

Physical Resources. PERUMDAM TKR manages SPAM infrastructure spread across six service zones with a total installed production capacity of 6,267.5 liters per second in 2024. This infrastructure includes 17 water treatment plant units strategically located, such as IPA Cikokol (1,575 l/s), IPA Serpong (3,000 l/s), IPA Gading Serpong (450 l/s), and IPA Sampora (400 l/s) (PERUMDAM TKR, 2025). The company's transmission and distribution pipeline network extends over more than 3.3 million meters, enabling water distribution to vast and densely populated areas. This infrastructure is valuable because it is an absolute prerequisite for providing drinking water services. Without an adequate pipeline network, the company cannot reach potential customers. The presence of IPAs in various locations also creates system redundancy, so disruption in one unit does not paralyze the entire service. This aligns with the concept of dynamic capabilities proposed by Teece, Pisano, and Shuen (1997), which holds that

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organizations need to configure their assets to respond to environmental uncertainty.

Legal Resources and Legitimacy. As a BUMD, PERUMDAM TKR possesses strong formal legitimacy. The company holds water resource utilization permits (SIP SDA) for the Cisadane and Cidurian Rivers totaling 5,640 liters per second. This permit is a resource not owned by ordinary private entities, given the complexity of its acquisition process involving various government agencies. As stipulated in Minister of Public Works and Public Housing Regulation Number 01/PRT/M/2016 concerning Procedures for Licensing Water Resource Utilization, obtaining such a permit requires in-depth technical and environmental studies as well as cross-sectoral coordination. The strategic value of this permit lies in the guarantee of legal certainty for raw water abstraction, which is the main foundation for the company's operational sustainability.

Legitimacy within the regional government also provides advantages, including easier coordination with relevant agencies, access to supportive policies, and opportunities to receive capital participation from the APBD. This support is a valuable resource not possessed by purely business entities. Bryson, Crosby, and Bloomberg (2017), in their study on public value governance, emphasize that political legitimacy and stakeholder support are strategic resources that differentiate performance among public organizations.

Information Resources. PERUMDAM TKR possesses a highly comprehensive database from real demand surveys. Surveys conducted across all service zones, involving thousands of respondents, yield detailed information on the socio-economic characteristics of potential customers, water sources used, consumption patterns, and levels of willingness and ability to pay (WTC, WTP, ATP). Survey results indicate that 53.1 percent of household respondents are interested in becoming customers, with an ability to pay ranging from Rp60,000 to Rp102,000 per month (PERUMDAM TKR, 2021). This data is a valuable information resource, enabling the company to formulate more targeted marketing and network development strategies and serving as a basis for investment planning and tariff setting.

Rarity of Resources

The rarity criterion in RBV refers to resources that few competitors possess. In the context of a regional water utility, competitors are alternative water service providers, including private entities and community-managed schemes. Several of PERUMDAM TKR's resources meet this criterion for rarity.

Water Resource Utilization Permits. In the Tangerang Regency area, few entities hold large-scale surface water utilization permits. Most housing

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developers or industrial estates have permits for only limited groundwater extraction, which is increasingly restricted due to its impact on groundwater levels and seawater intrusion. In the northern coastal area of Tangerang Regency, seawater intrusion has reached 7 kilometers inland, rendering groundwater unfit for consumption (RTRW Kabupaten Tangerang, 2011-2031). In this situation, the surface water utilization permit held by PERUMDAM TKR becomes increasingly rare and valuable.

Extensive Pipeline Network. Building a distribution pipeline network requires substantial investment and a long time. PERUMDAM TKR's pipeline network, spanning hundreds of kilometers, is an asset that cannot be quickly replicated by other entities. Moreover, constructing networks in densely populated urban areas faces complex technical and permitting challenges. The rarity of this network creates an entry barrier for potential competitors.

Collaborative Capability. PERUMDAM TKR's ability to build and manage partnerships with various parties is a rare organizational resource. Not all BUMDs possess the capacity to establish strategic collaborations like those undertaken by PERUMDAM TKR with PT TKCM (operator of IPA Cikokol), PT TTC (operator of IPA Serpong), PT Aetra Air Tangerang, PT BSD, and housing developers. This capability is reflected in the company's success in obtaining SPAM asset grants from PT JBC (IPA Gading Serpong, 450 l/s) and PT Ciputra Residence (IPA Citra Raya, 130 l/s) (PERUMDAM TKR, 2023). This ability to build networks and trust is an intangible resource that is difficult to imitate.

Imperfectly Imitable Resources

Resources are considered imperfectly imitable if competitors cannot easily develop them, whether due to unique historical conditions, causal ambiguity, or social complexity (Barney, 1991). Several of PERUMDAM TKR's resources possess these characteristics.

Legitimacy and Long History. PERUMDAM TKR was established in 1976 based on Tangerang Regency Regional Regulation Number 10/HUK/1976. This long journey of nearly half a century has built public and government trust. This legitimacy cannot be acquired quickly by a new entity. This unique historical condition creates a competitive advantage that is difficult to imitate.

Social Complexity in Collaboration. The collaborative relationships established with various parties involve high social complexity. Mutual trust, shared understanding, and collaborative routines formed over many years cannot be easily replicated. Eisenhardt and Martin (2000) emphasize that dynamic

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capabilities are often idiosyncratic because they develop through an organization's unique experiential learning.

Local Knowledge. Deep understanding of regional characteristics, community socio-economic conditions, and local political dynamics represents tacit knowledge embedded within the organization and its personnel. This knowledge is acquired over years of experience and is difficult to document or transfer to others. The results of periodic real-demand surveys further enrich this knowledge, making it even harder to imitate.

Configuration of Resources to Achieve Superior Performance

Having strategic resources alone is insufficient; organizations need to configure them synergistically. PERUMDAM TKR demonstrates the ability to configure its internal resources through several key strategies.

Production Capacity Development Strategy. The company optimizes the use of existing assets through a water transfer program from IPA Cikokol and IPA Babakan to the Tangerang Regency, totaling 1,655 liters per second. The transferred water is allocated to Zone A (1,200 l/s), Zone C (305 l/s), Soekarno-Hatta Airport (45 l/s), and DKI Jakarta (80 l/s) (PERUMDAM TKR, 2023). This strategy utilizes idle capacity previously used to serve the Tangerang City area, thereby increasing asset utilization efficiency. Additionally, the company plans to add 2,123 l/s of production capacity through the construction of new IPAs (1,000 l/s), IPA uprating (143 l/s), and SPAM grants from developers (980 l/s) (PERUMDAM TKR, 2023). This configuration demonstrates the company's ability to integrate internal resources (existing IPAs) with external resources (asset grants) to achieve service coverage targets.

Water Loss Reduction Strategy. The water loss rate (NRW) remains a challenge, but the company has implemented a systematic NRW control program. This program includes replacing aging customer water meters, establishing District Metered Areas (DMAs), and repairing network leaks. Data shows the water loss rate decreased from 17.15 percent in 2020 to 15.60 percent in 2024, although it remains above the 11.37 percent target (PERUMDAM TKR, 2025). This effort configures technical resources (pipeline network, water meters) with human resources (NRW control team) and information systems (real-time monitoring). Reducing NRW directly increases the volume of sold water and company revenue.

Financial Resource Optimization Strategy. The investment plan amounting to Rp3.7 trillion for 2020-2024 presents a significant challenge for a company with limited internal funding capacity. PERUMDAM TKR responded by developing a hybrid funding scheme combining various sources: internal

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company funds, bank loans, and private-sector cooperation (PERUMDAM TKR, 2023). Table 1 shows the composition of these funding sources.

Table 1.
Sources of PERUMDAM TKR Investment Funding 2020-2024 (Rp billion)

APBN	-	-	-	-	-	-
APBD	-	-	-	-	-	-
PERUMDAM Internal	83.56	102.86	163.24	263.27	261.41	874.34
Private Cooperation	-	222.28	-	488.39	2,111.79	2,822.46
Total	83.56	325.13	163.24	768.38	2,373.20	3,713.52

Source: PERUMDAM TKR (2023)

The company's success in attracting Rp2.82 trillion in private investment, or 76 percent of the total investment, demonstrates an exceptional capability in building trust and partnerships. The cooperation schemes developed, such as Public-Private Partnerships (PPP/KPBU) and Business-to-Business (B2B) arrangements, allow the company to continue expanding despite its limited capital.

Data Utilization Strategy for Decision Making. Real demand survey data is not merely a document; it is integrated into planning and decision-making processes. Information on potential customer characteristics, willingness to connect, and ability to pay is used to determine regional development priorities, design service products, and formulate marketing communication strategies. This approach explains the company's success in adding an average of 20,000 new customers per year during the 2021-2024 period. As stated in the business plan document, the company sets customer connection addition targets based on survey results indicating market potential in each service zone (PERUMDAM TKR, 2023).

Forms of Social Innovation at PERUMDAM TKR

Social innovation, as defined by Mulgan (2006), refers to innovative activities and services motivated by the goal of meeting social needs and are predominantly developed and diffused through organizations whose primary purposes are social. In the context of PERUMDAM TKR, social innovation manifests in several forms that simultaneously create economic and social value.

Multi-Stakeholder Collaboration in SPAM Implementation

The most prominent form of social innovation is the development of collaboration models with various parties. The company does not operate in isolation but actively establishes strategic partnerships with private entities, government, and communities.

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SPAM Asset Grants from Private Developers. In 2020, PT Jakarta Baru Cosmopolitan (PT JBC) transferred SPAM assets in the Gading Serpong area—including land, buildings, a 450 l/s-capacity IPA, a pipeline network, and other supporting facilities—to PERUMDAM TKR. A year later, PT Ciputra Residence transferred SPAM assets in the Citra Raya area, including land, buildings, an IPA with a 130 l/s capacity, and pipeline networks (PERUMDAM TKR, 2023). These asset grants represent a significant form of social innovation for several reasons. First, assets built by the private sector to serve residential areas are handed over to the BUMD for management, thereby integrating drinking water service systems at the district level. Second, management by a single entity enables standardization of service quality and long-term operational efficiency. Third, communities in these areas gain assurance of service sustainability without depending on developers who may lack core competency in water management. Operational Cooperation with PT BSD. The planned handover of SPAM assets from PT BSD to PERUMDAM TKR, and the 2023 cooperation agreement for managing production units between PT BSD and PERUMDAM TKR, demonstrate the expansion of the collaboration model. PT BSD will transfer SPAM assets in the Sampora area, including land, buildings, a 400 l/s-capacity IPA, and pipeline networks. Furthermore, cooperation will cover the management of existing production units and the construction and management of a new IPA with a capacity of 200 l/s (PERUMDAM TKR, 2023). This model not only transfers assets but also establishes long-term, mutually beneficial operational partnerships.

Cross-Regional Cooperation. The planned cooperation agreement, signed in 2023, to manage SPAM service units with Perseroda Pengembangan Investasi Tangerang Selatan (PITS) to provide drinking water services in the South Tangerang City area demonstrates innovation in cross-regional collaboration. This is important because PERUMDAM TKR's service area extends beyond Tangerang Regency's administrative boundaries. This cooperation creates synergy between BUMDs and avoids duplicating infrastructure investments.

Hybrid Funding Schemes for Infrastructure Development

Social innovation in financing is demonstrated by PERUMDAM TKR's capacity to access diverse funding sources. As shown in Table 1, the company employs a combination of internal funds, bank loans, and private investment. This scheme not only addresses budget constraints but also allocates development risks to the parties best able to manage them.

Cooperation with Private Parties. Projects undertaken in cooperation with the private sector include the construction of new intakes and IPAs in Zone B (500

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l/s), the construction of a production reservoir in Rajeg, the installation of a drinking water transmission pipeline from Cikokol to the sports center, optimization of the Perumnas IPA, and development of distribution networks in various zones (PERUMDAM TKR, 2023). This scheme enables accelerated **infrastructure development without overburdening the APBD.**

Internal Funding. PERUMDAM TKR also allocates internal funds to priority programs, including rehabilitating existing systems, optimization, and non-technical activities. The ability to generate consistent net profits of over Rp100 billion per year during the 2021-2024 period (PERUMDAM TKR, 2025) enables the company to finance part of its investments independently, thereby reducing its dependence on external parties.

Community Needs-Based Approach

Social innovation is also reflected in the shift from a supply-driven, technocratic approach to a demand-driven one. PERUMDAM TKR consistently conducts customer satisfaction surveys and real demand surveys as a basis for planning.

Customer Satisfaction Surveys. The 2022 customer satisfaction survey involved 1,500 respondents and measured the five dimensions of the RATER service quality model (reliability, assurance, tangibles, empathy, responsiveness). Survey results indicated that, in general, customers were satisfied with the services provided, with an average score of 2.8 on a scale of 4 across the four main elements (water quality, water quantity, water continuity, water pressure) (PERUMDAM TKR, 2023). The survey also yielded a Net Promoter Score (NPS) of -9 percent, indicating the need for service improvement so that customers are willing to recommend the company to others. This data serves as crucial input for improving service quality.

Real Demand Surveys. Real demand surveys conducted across all service zones involved thousands of respondents and generated comprehensive data on the socio-economic characteristics of potential customers, water sources used, consumption patterns, and levels of willingness and ability to pay. Table 2 summarizes the survey results for each zone.

Table 2.
Real Demand Survey Results by Service Zone

Average income (Rp/month)	**4,273,333**	**2,756,522**	**3,256,186**	**5,943,045**	**5,195,522**
Dominant electrical power	1300 watt	450 watt	450 watt	1300 watt	1300 watt

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Source of drinking water	Bottled water (66%)	Bottled water (54.9%)	Bottled water (57.7%)	Bottled water (50.7%)	Bottled water (68%)
Source for bathing/washing	Borehole (91%)	Borehole (91.2%)	Borehole (97.4%)	Borehole (98.7%)	Borehole (79.6%)
Water consumption (l/person/day)	174.0	171.5	147.4	137.8	261.4
WTC (interest in connecting)	41.0%	64.0%	41.5%	40.7%	83.1%
ATP (ability to pay/month)	Rp60,000-102,000	Rp60,000-102,000	Rp60,000-102,000	Rp60,001-102,000	Rp60,000-102,000

Source: PERUMDAM TKR (2021)

These data provide a critical foundation for formulating development strategies. For example, the high interest in connections in Zone E (83.1%) supports prioritizing development in that area. The predominance of groundwater use across all zones (79.6%-98.7%) presents both a challenge and an opportunity, underscoring the need for community education on the risks of using unsuitable groundwater and the benefits of transitioning to piped water.

Service Digitalization and Public Participation

Social innovation is also realized through digital service transformation, which enhances accessibility and transparency.

Online Payment Systems. PERUMDAM TKR collaborates with banks, e-commerce platforms, and e-wallets to add online payment channels. This facilitates customer bill payments, reduces queues at counters, and improves collection effectiveness. The company's collection effectiveness rate was recorded at 93.32 percent in 2023 (BPKP Perwakilan Banten, 2024), indicating the success of this system.

Management Information System Development. The company develops application systems for finance, procurement, inventory, asset management, and human resources. The integration of these systems improves internal efficiency and data accuracy, thereby supporting better decision-making.

SCADA Development Plan. The plan to develop a Supervisory Control and Data Acquisition (SCADA) system for all IPAs demonstrates a commitment to enhancing operational reliability through technology. SCADA enables real-time monitoring and control of production and distribution systems, allowing faster detection and response to disruptions.

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Community Engagement. The company also develops customer communication forums as a platform for public participation. Although the SWOT analysis rated the customer communication forum as a strength with a score of 0.09 (PERUMDAM TKR, 2023), this potential can be further developed to increase community ownership of drinking water services.

Contribution of RBV and Social Innovation Integration to Performance

The integration of a resource-based strategy and social innovation has been proven to significantly contribute to PERUMDAM TKR's performance. Several key performance indicators show positive trends during the 2020-2024 period.

Service Coverage Achievement. Table 3 shows the development of PERUMDAM TKR's service coverage during the 2020-2024 period.

Table 3.
Development of PERUMDAM TKR Service Coverage 2020-2024

Population served (people)	1,316,766	1,427,040	1,682,364	2,048,297	2,339,058
Total population of Tangerang Regency	3,245,619	3,293,533	3,352,472	3,309,365	3,373,149
Service coverage (%)	40.57	43.33	50.18	61.89	69.34

Source: PERUMDAM TKR (2025)

Achieving 69.34 percent service coverage in 2024 exceeds both the RPJMD target of 60 percent for 2023 and the business plan target of 63.91 percent for 2024. This success is closely linked to the company's ability to integrate internal resources (infrastructure, permits, data) with social innovation (collaboration, hybrid funding, and a community needs-based approach).

Customer and Revenue Growth. Table 4 presents customer and water revenue growth during the 2020-2024 period.

Table 4.
Customer and Water Revenue Growth 2020-2024

Number of customers (connections)	**181,179**	**186,469**	**205,401**	**222,006**	**230,048**
Customer growth (%)	21.59	2.92	10.15	8.08	3.62
Water revenue (Rp billion)	524.8	597.2	613.9	675.3	755.7
Revenue growth (%)	1.60	13.79	2.80	10.00	11.90

Source: PERUMDAM TKR (2025)

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Significant customer growth in 2022 (10.15%) was partly due to the handover of SPAM assets from developers, which instantly added to the customer base. Consistent double-digit revenue growth in 2021, 2023, and 2024 demonstrates the company's ability to increase sales value, even without tariff adjustments.
Financial Performance. Table 5 presents key financial performance indicators.

Table 5.
Key Financial Performance Indicators 2020-2024

Net profit (Rp billion)	85.15	99.97	102.11	106.03	115.78
ROE (%)	12	12	11	11	11
Operating ratio (%)	83	82	89	90	86
Cash ratio (%)	156.02	-	-	-	-

Source: PERUMDAM TKR (2025)

Consistent net profits above Rp100 billion per year since 2021 indicate healthy profitability. Return on Equity (ROE) above 10 percent meets the reasonable profit criteria as stipulated in Article 28B of Minister of Home Affairs Regulation Number 21 of 2020, which states that Full Tariffs are implemented based on reasonable profit with a profit-to-asset ratio of at least 10 percent.

Performance Assessment by BPKP. Based on Minister of Home Affairs Decree Number 47 of 1999, BPKP conducts performance evaluations of regional water utilities. Table 6 shows the development of PERUMDAM TKR's performance scores.

Table 6.
Development of PERUMDAM TKR Performance Scores 2021-2023

Finance	1.15	1.10	1.10
Service	0.79	0.99	1.05
Operations	1.75	1.75	1.75
HR	0.59	0.59	0.59
Total Score	4.28	4.43	4.49
Category	Healthy	Healthy	Healthy

Source: BPKP Perwakilan Banten (2024)

The score increased from 4.28 in 2021 to 4.49 in 2023, indicating consistent performance improvement. This achievement places PERUMDAM TKR among the best-performing regional water utilities in Banten Province, with the highest score among BUMDs in the province (Kementerian PUPR, 2024).

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Sustainability Challenges Faced

Despite demonstrating impressive performance, the analysis also identifies several challenges still faced by PERUMDAM TKR. These challenges need to be addressed to ensure long-term performance sustainability.

Water Loss Level. The water loss rate (NRW) of 15.60 percent in 2024 remains above the business plan target of 11.37 percent and even increased slightly from the previous year (15.48%). The causes are diverse, ranging from physical leakage in aging pipeline networks to difficulties in meter reading due to locked houses to the time lag between new connection installation and tag activation. This indicates that technical aspects and operational management still require improvement. By comparison, several BUMDs in West Java, such as PERUMDAM Tirta Kahuripan in Bogor Regency, achieved an NRW of 27.39 percent (Kementerian PUPR, 2024), indicating significant room for improvement.

Profitability Pressure. The operating ratio (operating costs to revenue) stood at 85.71 percent in 2024, far from the ideal 60 percent. This condition is exacerbated by water tariffs that have not been adjusted since 2009, while cost components such as electricity, chemicals, and employee wages continue to rise. According to the Minister of Home Affairs Regulation Number 21 of 2020, drinking water tariffs should be set considering full cost recovery and an upper limit of 4 percent of community income. Without tariff adjustments, profitability pressure will intensify, potentially threatening the company's ability to finance maintenance and development investments.

Raw Water Source Vulnerability. Dependence on two main rivers (Cisadane and Cidurian) creates vulnerability to changes in raw water quality and quantity. Data from the Tangerang Regency Environmental Agency (BLHD) indicates heavy metal pollution in both rivers (PERUMDAM TKR, 2023). In the northern coastal area, seawater intrusion has reached 7 kilometers inland, threatening groundwater quality. Climate change can also increase the frequency and intensity of droughts, potentially reducing river discharge. Diversification of raw water sources, including the use of reservoirs and lakes and the planned use of the Karian Dam, is becoming increasingly urgent.

Governance and Regulatory Challenges. The licensing process for surface water extraction (SIP SDA) and environmental approvals often faces obstacles due to changes in laws and regulations. Limited land availability for new infrastructure development is also a constraint. In the SWOT analysis, raw water availability and remaining installed capacity (idle capacity) were identified as weaknesses with influence scores of -4.00 and -1.00, respectively (PERUMDAM

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TKR, 2023). This indicates that upstream aspects remain a critical point requiring serious attention.

Disparities Between Service Zones. Performance achievements across service zones are uneven. Table 7 shows the NRW realization per zone in 2022.

Table 7.
Water Loss Level per Service Zone in 2022

Zone A	62,622,589	61,243,645	46,509,292	24.06
Zone B	7,146,861	6,677,590	3,337,012	50.03
Zone C	2,816,979	2,725,160	1,907,894	29.99
Zone D	1,358,258	1,290,588	749,233	41.95
Zone E	7,053,151	6,178,153	4,538,261	26.54
Zone F	96,590,986	96,590,986	91,088,972	5.70
Total	177,588,824	174,706,122	148,130,664	15.21

Source: PERUMDAM TKR (2023)

NRW in Zone B reached 50.03 percent and in Zone D 41.95 percent, far above the company average. This disparity indicates that NRW control strategies need to be more differentiated, taking into account the characteristics of each zone.

Discussion

The findings of this study reinforce and extend the application of RBV theory in the public sector. Barney (1991) and his followers predominantly applied RBV to private companies. Bryson et al.'s (2017) study, which adapted RBV to public organizations, emphasized the importance of resources such as political legitimacy and stakeholder support. The findings at PERUMDAM TKR confirm this: water resource utilization permits, regional government support, and collaborative capabilities are proven to be strategic resources that differentiate company performance.

The findings on social innovation also align with existing literature. Defourny and Nyssens (2017) categorize organizations with a social mission as "social enterprises." PERUMDAM TKR, with its dual mandate—seeking profit and providing basic services—is a concrete example of a social enterprise in the public sector. Social innovation in the form of multi-stakeholder collaboration, hybrid funding schemes, and community needs-based approaches reflects the characteristics identified by Voorberg et al. (2015) in their systematic review of co-creation and co-production in the public sector.

The integration of RBV and social innovation undertaken in this study offers a theoretical contribution. These two perspectives are often treated

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separately, whereas they complement each other. RBV helps identify "what" the organization possesses (strategic resources), while social innovation explains "how" the organization interacts with the external environment to create value. In the case of PERUMDAM TKR, strong internal resources (infrastructure, permits, data) enable the company to innovate (through collaboration and hybrid funding), and social innovation in turn creates new resources (public trust, partnership networks) that further strengthen the company's competitive position. This creates a virtuous cycle explaining the continuous performance improvement.

From the perspective of dynamic capabilities (Teece et al., 1997; Eisenhardt & Martin, 2000), PERUMDAM TKR demonstrates the ability to integrate, build, and reconfigure internal and external competencies in response to environmental changes. The ability to redirect water from the Cikokol IPA to Tangerang Regency when cooperation with Tangerang City ended, the ability to secure asset grants from private developers, and the ability to access various funding sources reflect rare dynamic capabilities.

The findings of this study offer practical insights for other regional water utilities in Indonesia. PERUMDAM TKR's success demonstrates that transforming a BUMD requires more than technical improvements; it demands a paradigm shift in resource management and the advancement of social innovation. Collaboration with multiple stakeholders, diversification of funding sources, and a community needs-based approach are effective strategies for accelerating access expansion.

However, the challenges still faced indicate that transformation is dynamic and continuous. Reducing NRW, adjusting tariffs, diversifying raw water sources, and equalizing performance across zones must be continuously addressed. The company's ability to overcome these challenges will determine whether the superior performance achieved can be sustained in the long term.

CONCLUSION

1. This study demonstrates that PERUMDAM TKR's success in surpassing its 60 percent service coverage target, achieving 69.34 percent in 2024, stems from the strategic integration of Resource-Based View (RBV) and social innovation frameworks. The company's performance is not coincidental but deliberately constructed through effective resource management and innovative practices.
2. PERUMDAM TKR possesses a distinctive portfolio of valuable and rare internal resources that underpin its competitive advantage. These include

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water utilization permits totaling 5,640 liters per second, extensive infrastructure comprising 17 water treatment plants with 6,267.5 liters per second installed capacity across six zones, a pipeline network exceeding 3.3 million meters, comprehensive real demand survey data, institutional legitimacy as a BUMD, and exceptional collaborative capabilities.

3. The company has developed four principal forms of social innovation that significantly contributed to its transformation: multi-stakeholder collaboration through asset grants and operational partnerships; hybrid funding schemes aggregating Rp3.7 trillion from diverse sources; a community needs-based approach utilizing large-scale surveys; and service digitalization through integrated information systems and SCADA development.
4. Despite these achievements, persistent sustainability challenges remain: a water loss rate of 15.60 percent, exceeding the 11.37 percent target, an operating ratio of 85.71 percent, far from the ideal 60 percent due to tariffs unchanged since 2009, and critical dependence on two river systems vulnerable to pollution and seawater intrusion.

Recommendations

1. **For PERUMDAM TKR:** The company should intensify NRW control by expanding DMA implementation and accelerating meter replacement. Urgent advocacy for tariff adjustments is necessary, supported by community ability-to-pay data. Continued expansion of collaborative models and investment in human resource development through structured training programs are essential for long-term sustainability.
2. **For Regional Government:** Facilitate land provision for infrastructure development and strengthen cross-sectoral coordination in water resource management, particularly addressing pollution in the Cisadane and Cidurian rivers through multi-stakeholder conservation programs.
3. **For Future Research:** Subsequent studies should employ primary data collection through interviews to complement document analysis, conduct comparative analyses across multiple BUMDs to enhance generalizability, and undertake longitudinal research to observe the long-term dynamics of transformation strategies.

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