PUBLIC ACCOUNTING and SUSTAINABILITY

Sustainability Aspects in Water Management Policies in Regional Drinking Water Companies (RDWC)

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Research aims: This research aims to provide good policy proposals regarding managing and maintaining water sources carried out by Regional Drinking Water Companies (RDWC) by paying attention to sustainability aspects.
Design/Methodology/Approach: The method used in this study was a *scoping review*. *A scoping review* can be interpreted as a review to detail the concepts that form the basis of a research domain, the sources of evidence, and the types of evidence available. The data were analyzed using content analysis, a technique used to conclude by finding the characteristics of a message, which was carried out objectively and systematically.
Research findings: The research results demonstrated that the passion for preserving the environment and biodiversity has still not explicitly been reflected in regional regulations about RDWC.
Theoretical contribution/Originality: This research is expected to contribute to adding literature in the accounting sustainability, environment, and public policy fields.
Practitioner/Policy implication: This research suggests that the Ministry of Public Works and Public Housing, the Ministry of Environment and Forestry, the Ministry of Home Affairs, as well as all regional governments in Indonesia, can create and repair policy in the context of providing, managing, and utilizing water resources by taking into account environmental and sustainability issues. Furthermore, RDWC performance evaluators such as BPKP and Inspectorate are expected to add assessment points related to environmental and sustainability aspects.
Research limitation/Implication: There was limited information from overseas water companies, and this study did not highlight all RDWCs in Indonesia.

Keywords
RDWC; Sustainability; Water Resources

History
Submitted:
January 01, 2024

Revised:
January 26, 2024

Accepted:
January 29, 2024

DOI:
10.18196/pas.v1i1.7

Citation: Mubarok, D. A., & Firmansyah, A. (2024). Sustainability Aspects in Water Management Policies in Regional Drinking Water Companies (RDWC). *Public Accounting and Sustainability, 1*(1), 19-34.

Introduction

Water is a highly vital component in this world. Approximately 70% of the surface of the Earth is covered by water. Water is a primary source of life and is essential in guarding the continuity and sustainability of life for almost all creatures on Earth. Water also provides sanctuary for numerous species, ranging in size from microscopic to enormous organisms, such as the blue whale, which is 30 meters long and weighs up to 200 tons (Bruyninckx, 2018). For humans, water plays a role not only in maintaining their lives but also in providing many other benefits from using water, ranging from personal needs such as bathing, washing, cooking, and watering flowers, and others, to massive or large needs such as the use of water in industry, agriculture, power plants, means of transportation, and others.

However, water-related problems are increasingly worrying, especially clean water problems. Excessive water consumption without paying attention to sustainability, pollution of water sources, and global warming will gradually impact human life (United Nations Educational Scientific and Cultural Organization, 2023). Therefore, maintaining the sustainability of water sources is crucial so that every human can enjoy abundant water and maintain the water supply for generations of children and grandchildren.

United Nations Educational, Scientific and Cultural Organization (2023) states that water use has increased globally by around 1% per year over the last 40 years and is expected to continue growing at the same rate until 2050. Population growth, socio-economic developments, and changes in consumption patterns drive this condition. In almost all corners of the world, attention is paid to the need for clean water. This can be seen from the seriousness of the United Nations, including the issue of clean water as one of the goals of the Sustainable Development Goals (SDGs), namely the sixth goal, "Clean Water and Sanitation."

Moreover, countries worldwide are competing to provide access to clean water for their citizens. For example, institutions in the United States, such as the Los Angeles Department of Water and Power, the New York City Water Board, and the Chicago Department of Water Management, provide clean water. Then, in European countries, for example, in England, there are institutions such as Thames Water, United Utilities, and Severn Trent Water; in Australia, there are Sydney Water, Melbourne Water, and Queensland Urban Utilities. Apart from that, in Asian countries such as China, there are also water management institutions, for example, the Beijing Waterworks Group and the Shanghai Waterworks Group, and in Japan, there are the Tokyo Metropolitan Waterworks and the Osaka Municipal Waterworks. These institutions have similar duties and functions, providing water and other utilities to residents in their respective areas.

In Indonesia, water needs are very much considered to create a reflection of a prosperous nation. The sustainability of providing clean water to citizens will significantly support the nation's ideals, advancing general welfare. Access to sufficient and adequate clean water is a basic human need that can improve their quality of life (Purwanto, 2020). Along with development dynamics, the need for clean water in Indonesia is increasing, whether used for drinking water for households, industry, agriculture, or supporting other commercial businesses (Hendrayana, 2007). Based on data from Badan Pusat Statistik or Central Bureau of Statistics (CBS) (2022), the volume of clean water distributed by the Clean Water Company has increased every year. For example, in 2017, the amount was 3,583,525 (thousand m^3); in 2018, it increased to 3,856,435 (thousand m^3); in 2019, it became 4,130,273 (thousand m^3); in 2020, it grew to 4,350,726 (thousand m^3), and in 2021, it rose to 4,375,697 (thousand m^3). This data indicates that water demand in Indonesia will be even higher. Therefore, the government's role is very much needed to provide clean water for its citizens.

Water resources are controlled by the state and used for the greatest prosperity of the people (Republic of Indonesia, 2019). Article 6 of Indonesian Act Number 17 of 2019 states that the state guarantees the people's right to water to fulfill minimum daily basic needs for a healthy and clean life in sufficient quantity, good quality, safe, sustainable, and affordable. For this reason, both central and regional governments must carry out their duties in providing clean water to citizens. Based on a press release from the Coordinating Ministry for Economic Affairs (2022), the central government has taken various steps related to clean water. For example, in 2019, Indonesia achieved several water resource management targets. It can be seen from the national water source capacity reaching 14.48 billion cubic meters and household access to clean water of 90.2%, with around 23% coming from the pipe system. Sustainable irrigation water supply from reservoirs attained 107.8 thousand hectares, and Indonesia's total stock of clean water infrastructure was 49.4% of GDP. Then, to maintain clean water security, the central government created four draft policies regarding drinking water, water resources, water resource management, and irrigation, which were derived from the Indonesian Act Number 17 of 2019 concerning Water Resources.

The Central Government manages and maintains clean water security in general throughout Indonesia. Regarding the need and provision of clean water in the regions, the regional government has a significant role considering the principle of regional autonomy, where regions regulate their affairs within their administrative areas. Government affairs related to basic services are concurrent and mandatory (Republic of Indonesia, 2014). One of the basic services is the field of public works and spatial planning, including water resources and drinking water. In their task of providing and managing clean water, regional governments in Indonesia have formed a regional company or regionally owned company called the Regional Drinking Water Company (RDWC). RDWC is a drinking water company managed by the regional government which aims to

meet the needs of the community, especially in the field of clean water and individual raw water used for daily needs (Gusril, 2016). The establishment of the RDWC prioritizes equal distribution of health services and requirements, assists and encourages regional economic growth, and is a source of Regional Original Income (Bogor City Government, 2011).

Therefore, regional governments have the authority to manage water resources in their territory (Republic of Indonesia, 2019). RDWCs, established through regional regulations, are given permits to manage these water sources. As a company, they pay attention to the principles of good corporate governance, which consist of transparency, accountability, independence, and fairness. Apart from that, several regional regulations regarding RDWC, such as North Sumatra Province Regional Regulation Number 3 of 2018, Padang City Regional Regulation Number 1 of 2020 concerning Padang City Regional Public Drinking Water Company, Surabaya City Regional Regulation Number 13 of 2014 concerning Amendments to Surabaya City Regional Regulation Number 2 of 2009 concerning RDWCs, Semarang City Regional Regulation Number 2 of 2019 regarding the Tirta Moedal RDWC, Semarang City, and technical instructions for RDWC performance assessment prepared by the Drinking Water Supply System Implementation Improvement Agency (DWSSIIA), in general, mention that RDWC performance assessment consists of four main aspects, covering financial, service, operational, and human resources aspects. Of the four existing aspects, the operational aspect is closely related to water source management and maintenance. Nevertheless, this aspect has not covered much about environmental issues and maintenance of water source areas or sustainability issues. As a result, it can be said that RDWC performance assessments still focus on profit and people but have not discussed much about the planet or sustainability.

RDWCs are closely related to natural and environmental conditions when carrying out their operations. The operations they carry out depend on the availability of water sources. Examples of their water sources usually come from rivers, lakes, local springs, reservoirs/dams, and even seawater. Utilization of this water source will continue as long as the need for clean water in an area still exists. Business operations that they carried out impact the environment around water sources. The impacts on water sources are water pollution, environmental damage in water source areas, disruption of habitat for flora and fauna, and others. Apart from that, this impact could also increase, considering that the need for clean water is increasing every year and causes RDWCs to expand or explore new water sources to increase the quantity of water they produce. Nonetheless, regulations and policies for RDWCs related to operations and performance assessments do not yet address environmental sustainability issues. Most of it still focuses on profit or economic aspects. The issue of sustainability should be fundamental to pay attention to because it is related to the primary source of RDWC operations, water springs. If the water source is damaged or polluted, their operations will certainly be disrupted, and of course, this will disrupt the performance of this regional company and disrupt clean water services to community members. Apart from that, it is essential to pay attention to sustainability, considering that the need for clean water is increasing along with population growth. Therefore, current policies must be able to accommodate environmental issues to maintain the level of water security in Indonesia.

Based on the background discussed, the research questions formulated are as follows:

RQ_1*: *How are water management practices at several water companies abroad?
RQ_2*: *What are the sustainability policies and performance of RDWCs in Indonesia?
RQ_3*: *How can the role of environmental issues be applied in a policy that will encourage sustainability?

Hence, this research aims to provide good policy proposals regarding managing and maintaining water sources carried out by RDWCs by paying attention to sustainability aspects. Hopefully, this research can contribute to sustainability accounting, the environment, and public policy literature. In addition, it is expected that this research can be used as consideration for stakeholders, such as the Ministry of Public Works and Public Housing, the Ministry of Environment and Forestry, as well as all regional governments in

Indonesia, in creating or improving a policy for the provision, management, and utilization of water resources that take into account environmental and sustainability issues. Furthermore, RDWC performance evaluators such as BPKP (Financial and Development Supervisory Agency) and Inspectorate are anticipated to add assessment points related to environmental and sustainability aspects.

Literature Review and Hypotheses Development

Water Resources

Act of the Republic of Indonesia Number 17 of 2019 concerning Water Resources in Article 1 states that what is meant by water resources is water, water sources, and the waterpower contained therein. Meanwhile, water itself is all water found on, above, or below the land's surface, including, in this definition, surface water, groundwater, rainwater, and seawater on land. A water source is a place or container of natural and artificial water on, above, or below the ground's surface. Since humans and living creatures have the same right to utilize and protect water resources, misuse of the role and function of water, wasteful use, and destruction of water sources are highly discouraged and prohibited (Pratiwi, 2022).

Local Water Company

Regional Drinking Water Company, or RDWC, is a regionally owned enterprise that operates drinking water services (Ministry of Home Affairs, 2007). Meanwhile, the Ministry of Public Works and Public Housing (2020) defines RDWC as a unit for managing and providing drinking water services to the community belonging to the regional government. RDWCs are generally formed to provide services to the community per their business scope, contribute to local original income, improve the regional economy, and create a healthy living environment (Surabaya City Government, 2014). To achieve this goal, RDWC carries out activities consisting of producing drinking water; distributing drinking water to customers; establishing, building, and managing treatment plants and drinking water distribution networks; assisting the government in providing services to the community following RDWC's capacity and not in conflict with statutory regulations; and developing the potential of RDWC resources by carrying out other activities/businesses that do not conflict with statutory regulations.

Then, as one of the providers of the Drinking Water Supply System (SPAM), RDWC needs to be monitored and evaluated through a measure of the level of management success, mainly regarding the achievement of drinking water services to the community in terms of quality, quantity, and continuity; achievement of financial management based on sound and sustainable economic principles; technical, operational achievements following the appropriate Norms, Standards, Guidelines and Manuals (NSPM); and achievement of professional organizational growth (Drinking Water Supply System Implementation Improvement Agency, n.d.).

Company Performance

Performance is an activity carried out by each individual concerning achieving planned goals. According to KBBI (2012), performance means something achieved, achievements demonstrated, and workability. Performance is considered excellent and successful if the goals are achieved well. In assessing performance, efficiency and effectiveness are two critical aspects. While efficiency is how much output is achieved with as little input as possible, effectiveness is how well the output that has been achieved supports the expected outcome.

Company performance is a complete display of the company's condition over a certain period, where it is a result or achievement that is influenced by the company's operational activities in utilizing its resources. Performance is a general term used for some or all the actions or activities of an organization in a period

concerning standard amounts, such as past or projected costs, based on efficiency, accountability, or management accountability (Srimindarti, 2004).

Performance is also a description of the level of achievement of results from implementing an operational activity. Performance assessment is a method and process of assessing the implementation of the duties of a person or group of people or work units within a company or organization following the performance standards or objectives set. In realizing an organization's vision and mission, a company needs to measure how it achieves its goals and objectives within a certain period. Thus, performance as an illustration of the achievement of the results of implementing an operational activity is vital in realizing the vision and mission of the organization (Priatna, 2016).

Sustainability

Sustainability is defined as development that meets the needs of the present without compromising the ability of future generations to meet their needs by considering economic, social, and environmental aspects in a balanced manner (International Institute for Sustainable Development, 2023). The issue of mature sustainability is now an important global issue of concern to top management. Top management is expected to encourage implementing sustainability to increase transparency and corporate ethics (Firmansyah & Estutik, 2020). The implementation of sustainability is the desire of stakeholders who expect companies to prioritize company profits in terms of profits or economics and pay attention to environmental and social issues within their companies. In addition, companies implementing sustainability are expected to increase their competitive advantage in the future (Firmansyah, 2017).

Sustainability implementation is beneficial information for investors or stakeholders regarding the company's response to current global conditions. Therefore, disclosure of sustainability activities carried out by a company is information that can increase company value and sustainability in the future (Rahman et al., 2021).

Methodology

The research method used was a scoping review. A scoping review can be interpreted as a review to detail the concepts that form the basis of a research domain, sources of evidence, and the types of evidence available (Arksey & O'Malley, 2005). A scoping review is also a study approach that is very useful for determining the scope or coverage of a collection of literature on a particular topic and providing an overview or clear indication of the existing research collection (Munn et al., 2018). The scoping review in this research was carried out in several stages, as stated by Akram et al. (2023). The first step was to retrieve data and information related to the research questions and objectives from various sources, such as Google Scholar, central government websites, regional government websites, and overseas water company websites. The next step was literature selection based on the inclusion and exclusion in Table 1.

Table 1 Literature Selection

Type	Source	Criteria
Inclusion		
Paper	Google Scholar	Papers contain clean water or water resources from Indonesia.
		Papers contain company sustainability, performance, and value.
Regulation	Central Government Websites	Regulation of Local Government
		Regulation on Water Resources

Table 1 Literature Selection (Cont.)

Type	Source	Criteria
		Regulation on RDWC
		Regulation on Drinking Water Supply System
		Regulation on Technical Instructions for RDWC Performance Assessment
	Regional Government Websites	Local Regulation on RDWC
Data of Water company abroad	Overseas Water Company Websites	All websites containing information about water companies abroad
Exclusion		
		Irrelevant to the research questions and objectives Inadequate information provided
		Inability to access the complete information (related to the website)

After obtaining various kinds of literature, the next stage was to analyze data through content analysis (by discussing the content). According to Berelson (2000), content analysis is a technique used to conclude by finding the characteristics of a message and is carried out objectively and systematically. In the scoping review, the final stage was to present the information in the results and discussion section.

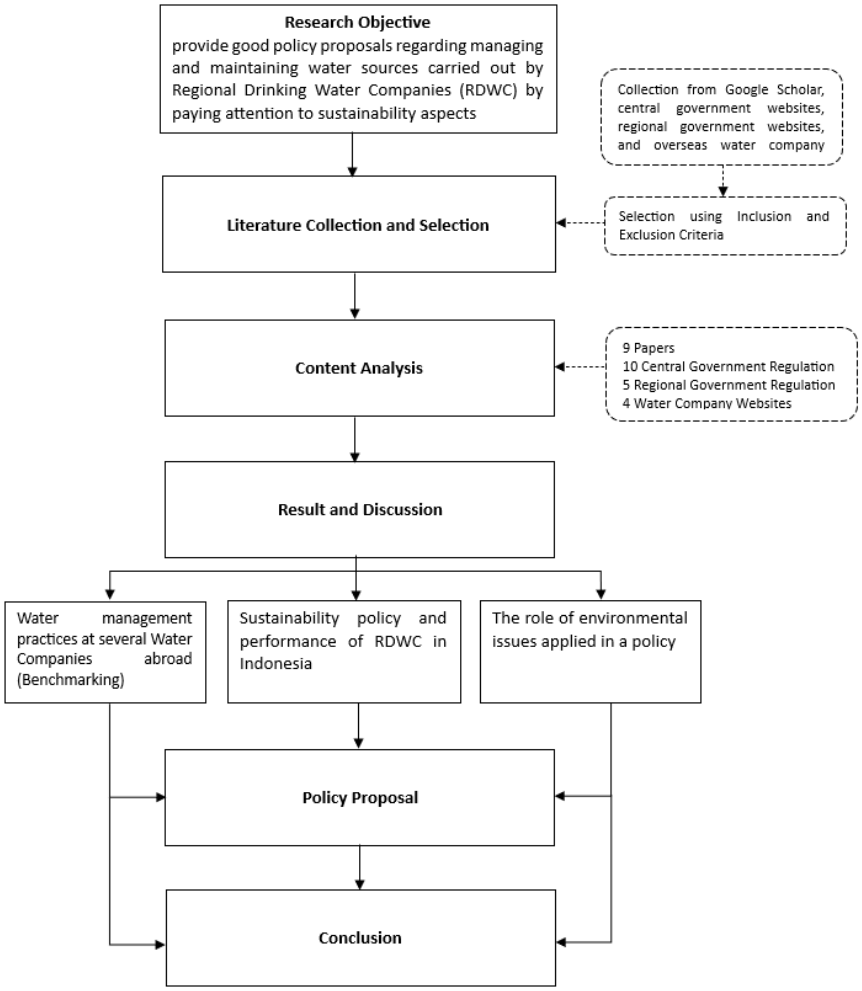

Figure 1 Conceptual Study Framework

Results and Discussions

Water Management at Water Companies Abroad

Governments throughout the world are highly aware and concerned about clean water problems. Every single one has ways of providing clean water to their community members. Almost all countries have agencies tasked with providing citizens access to clean or drinking water, usually called water companies. Of course, each water company's characteristics and business processes vary between countries according to the characteristics of the country concerned.

The Los Angeles Department of Water and Power (LADWP)

One of the United States' water companies is the Los Angeles Department of Water and Power (LADWP), the largest water and electricity utility in Los Angeles. LADWP has a website that contains accountability for its operational processes (LADWP, 2023). Several things that can be concluded from LADWP activities are as follows.

The first is the Urban Water Management Plan (UWMP). The California Urban Water Management Planning Act requires each urban water supplier to prepare and adopt an Urban Water Management Plan every five years. The main objective of the UWMP is to estimate future water demand and water supply under average and dry hydrological conditions and identify future water supply projects. It provides reliability assessments for average, single, and multi-day years and assesses short-term drought risk. LADWP's UWMP presents general policies that guide LADWP's decision-making process to maintain and secure a sustainable water supply for the city. UWMP has explicitly two goals: a master plan for water supply and resource management consistent with LADWP policy goals and objectives and a complete compliance form with the requirements of the act.

Second is the existing water sources and their maintenance. The primary sources of water for the LADWP service area are the Los Angeles Aqueducts (LAA), local groundwater, the State Water Project (supplied by the Metropolitan Water District of Southern California, MWD), and the Colorado River Aqueduct (supplied by MWD). Many of LADWP's traditional water supply sources are becoming increasingly limited due to hydrologic variability, environmental regulations, and contamination of groundwater basins. To reduce impacts on supply resources, LADWP continues its path towards sustainability by investing in conservation, water use efficiency, water recycling, rainwater capture, and local groundwater development and remediation while protecting its imported water supplies.

Third is water conservation (water-saving campaign). Water conservation and efficient use significantly impact water use patterns in cities, and the benefits can reduce demand and pressure on water supplies. This has become a permanent part of the company's water management philosophy. LADWP has long recognized (since the 1980s) that water conservation is a core strategy for improving long-term water use efficiency and customer water supply reliability.

Fourth is water sources in the future. LADWP maintains a diversified water supply portfolio strategy and invests in local groundwater, recycled water, stormwater capture, water conservation, and use efficiency. Some strategies used include (1) Water recycling: to keep pace with demand, expanding potable recycled water has been recognized as one method that will help LADWP achieve its goal of increasing the local sustainability of its water supply; (2) Wastewater treatment infrastructure: LADWP uses waste treated from four city wastewater installations to meet recycled water needs inside and outside the city. The city's water recycling program seeks to replace drinking water with recycled water to meet the need for clean water use; (3) Groundwater replenishment: LADWP and the Los Angeles Department of Public Works, Bureau of Sanitation (LASAN) continue to implement the Los Angeles Groundwater Replenishment Project (LA GWR) to channel recycled water from the Donald C. Tillman Water Reclamation Plant to the Hansen Spreading Grounds for percolation into the Water Basin Land of San Fernando. In the future, the LA GWR project will

include advanced treatment to meet or exceed existing regulatory requirements and may include increasing the recycled water supply by reclaiming recycled water flows flowing through nearby lakes and (4) Stormwater capture; rainwater runoff from urban areas is an underutilized local water resource. Most rainwater runoff within the city is directed into stormwater drains and channeled to the sea. This unused rainwater carries many pollutants that harm marine life and public health. Rainwater capture can be achieved by increasing infiltration into groundwater basins (groundwater recharge) and on-site capture and reuse of rainwater for landscape irrigation (direct use). Conservatively, additional rainwater capture projects would provide increased groundwater recharge.

United Utilities – Water for the Northwest

United Utilities – Water for the Northwest water companies in Europe have a website (unitedutilities.com) containing information ranging from vision and mission to operations. Several things that can be concluded from United Utilities' activities are as follows. The first is the business goals. United Utilities' business goals include sustainability and providing good water for a stronger, greener, healthier Northwest region. The second is the sustainability report. United Utilities is aware that they utilize water from various water sources. Therefore, they highly value concerns about sustainability. This can be seen from preparing the sustainability report for United Utilities.

Third is the existing water sources and their maintenance. The company collects water from reservoirs in the Pennines and Lake District, Lake Vyrnwy in Wales (for customers in Merseyside and Cheshire), the River Dee, boreholes, and rivers. Their two largest reservoirs are Thirlmere and Haweswater Cumbria. The Water Resources Management Plan (WRMP) produced by United Utilities sets out strategies to achieve a long-term, best-value, and sustainable plan for water supplies in the Northwest. This was developed to ensure the company has sufficient supply to meet demand for the next 25 years. United Utilities said it would continue to balance customer needs with environmental needs, ensuring it does not draw too much water from natural sources.

Fourth is the water-saving campaign. The company implements various activities to encourage customers to save more water. The water efficiency message is supported by year-round campaigns and dedicated web pages with specific information, hints, tips, and devices for customers to order. Fifth is the highlight performance to the environment (as of 2023). United Utilities has made various contributions to the environment. This is as stated on its website, among others. Since 2020, it has delivered 100% of the Water Industry National Environmental Program (WINEP) scheme; over the last three years, it has planted more than 500,000 trees throughout the region, achieved two promises related to 100% renewable electricity, and others (United Utilities, 2023).

Bureau of Waterworks Tokyo Metropolitan Government

Next, the water company in Japan is the Bureau of Waterworks Tokyo Metropolitan Government (Bureau of Waterworks Tokyo Metropolitan Government, 2023). Tokyo Waterwork has a website (waterworks.metro.tokyo.lg.jp) that contains information about its operations. Several conclusions can be drawn from Tokyo Waterwork activities. The first is the waterworks management plan. Customer needs for safe and smooth water continue to increase. Since the maintained water sources are vulnerable to drought, comprehensive action is needed to reduce the environmental burden against global environmental problems. Against this background, Tokyo Waterworks has built a more reliable water channel system to expand high-quality water services and carry out its mission as a lifeline that supports the Tokyo metropolis. Taking over the history and traditions passed down from generation to generation, the Tokyo Water Bureau tries to provide safer and more reliable water services for customers.

The second is the sustainability report. The company has produced a Tokyo Waterworks Environmental Report every fiscal year since 2000 to publicize the outline of environmental conservation activities. This

report summarizes the relationship between water projects and the environment and the status of their environmental action efforts. Third is the existing water sources and their maintenance. Tokyo Waterwork has four basic environmental policies: (1) reduction of CO2 emissions, (2) conservation of the good water cycle and rich greenery, (3) sustainable use of resources, and (4) environmental communication with various entities. To achieve the goals of this initiative, they continuously manage water sources using the Plan, Do, Check, Action (PDCA) cycle and make further efforts to realize environmentally friendly water projects. One water source comes from the water conservation forest in the upper reaches of the Tama River, which stores quite a lot of clean water. The Water Bureau has managed this water conservation forest for around 120 years to conserve forests and preserve water. Protection of water sources is carried out in ways such as forest conservation operations, purchasing privately owned forests, forest development activities in collaboration with Tokyo residents, and consideration of biodiversity.

Fourth is their efforts to the environment. Tokyo Waterworks Bureau carries out environmental efforts to prevent global warming by promoting the effective utilization of renewable energy by installing solar power generation equipment over filters and distribution reservoir covers in purification plants and small hydraulic power generation equipment that uses inflow pressure to water supply stations.

Sydney Water

The last overseas water management party is the water company in Australia, namely Sydney Water (Sydney Water, 2023). Sydney Water (SW) has a website (sydneywater.com.au) containing information ranging from vision and mission to operations. Three things can be concluded from Sydney Water's activities. The first is the Sydney Water Strategy.

SW has an ambitious vision of creating better lives with world-class water services. By providing world-class water services, a better life for employees, business partners, and communities, safe and clean drinking water, tree-lined streetscapes, parks, green spaces, and access to local waterways and beaches safe for recreation can be created.

The second is the sustainability report. SW continues to monitor their environmental performance. Pipelines carrying wastewater and owned water resource recovery facilities must meet strict environmental protection permit requirements. The New South Wales Environmental Protection Authority (EPA) is the one that sets these requirements. In addition, every year, SW reports on its environmental performance through the Annual Environmental Performance Report, which includes a statement on implementing Special Targets and an environmental performance indicator report.

Third is the existing water sources and their maintenance. Rainwater that falls in the river catchment area is Sydney's primary drinking water source and forms an extensive network of water sources. SW plays a considerable role in contributing to a healthy water network. SW considers the environment when planning, designing, and managing sustainable city water solutions. Fourth is their efforts to the environment. Another way to help protect the environment is to improve operations to become a more sustainable business. This is done with several steps, such as supporting the United Nations Sustainable Development Goals to achieve Goal 6: Clean water and sanitation, water recycling – treating wastewater by turning it into a valuable water source that can be used for various things, and others.

Benchmarking Water Management

From several examples of water companies in countries abroad, several essential concepts can be inferred that can be used as benchmarking material for Indonesia. Some of these things include the following.

First, policies that support the business operations of water management institutions abroad are almost all based on and guided by one of the United Nations programs and the Urban Water Management Program

(UWMP), which aims to promote sustainable management of water resources in urban areas by helping countries develop and implement effective strategies and policies for urban water management through the dissemination of scientific policy guidance, scientific knowledge and information on new and innovative approaches, solutions and tools for sustainable urban water management, as well as by providing capacity building support on main issues urban water.

The main focus or goal of water management institutions abroad is not to prioritize economic aspects, financial aspects, or whatever the term is. Most abroad institutions, especially in developed countries, have shifted their focus from profit to the planet or environment. The sustainability of water sources is vital to pay attention to because it will maintain water security in the relevant area.

Several waterworks companies abroad have also launched water-saving programs for residents and customers. This is to support the sustainability of water security. The public must be educated about the importance of water in life, the growth of water needs in the future, and water availability. With this education, it is hoped that people will be wiser in using water.

Waterworks abroad manages and maintains water sources and surroundings to support environmental conservation efforts. They realize that their primary source of operations is related to water sources, so the sustainability of the environment where the water sources are located will help the sustainability of their business processes. Several water companies abroad have also innovated in providing new water sources, such as stormwater capture or rainwater storage. This will help increase the amount of water supply in the future.

Finally, water companies abroad are much more aware of environmental issues. For this reason, they consciously create sustainability reports to disclose their environmental performance. This will increase the company's value (Firmansyah, 2017). Increased value will increase customer trust and can have implications for increasing the number of loyal customers of existing customers and indirectly increasing company profits.

Sustainability Policy and Performance of RDWCs in Indonesia

The legal bases for the formation of RDWCs in Indonesia are Act Number 32 of 2004 concerning Regional Government, Act Number 17 of 2019 concerning Water Resources, Government Regulation Number 121 of 2015 concerning Water Resources Management, Government Regulation Number 16 of 2015 concerning the Development of Drinking Water Supply Systems, Government Regulation Number 38 2017 concerning the Division of Government Affairs between the Government, Provincial Regional Governments and Regency/City Regional Governments, as well as regulations for each region regarding RDWCs. RDWCs are generally formed to carry out regional government duties in providing basic clean or drinking water services in their respective areas. RDWC has a mandate to regulate clean water affairs in certain areas. However, RDWCs must have a water resources exploitation permit before operating per Government Regulation Number 121 of 2015 concerning Water Resources Management.

Applications for permits to exploit water resources are submitted in writing to the Governor for Water Resources Cultivation activities that use water resources in river areas across regencies/cities and the Regent/Mayor for water resources business activities that use water resources in river areas in 1 (one) regency/city. Permits submitted by RDWC must have technical recommendations from water resource managers. The contents of the technical recommendations are (1) type of business permitted; (2) location of water exploitation or collection; (3) number of operations or water withdrawals; (4) method of exploiting or extracting water; (5) building and infrastructure design plans; (6) water balance in river areas; and (7) water source conditions.

Furthermore, in GR 121 of 2015, after RDWC obtains a water exploitation permit, they have obligations and responsibilities to care for and maintain the water sources they use and the surrounding environment. Water

source maintenance is intended to maintain the continuity of water resources carrying capacity and function. Meanwhile, environmental maintenance balances the ecosystem and the environment's carrying capacity. Based on this, it can be said that policies to support the preservation of water resources and biodiversity nationally have been launched.

Nevertheless, unfortunately, the spirit of preserving the environment and biodiversity is not explicitly reflected in regional regulations governing the establishment of RDWCs. Existing regional regulations mainly highlight RDWC as a company whose focus is on aspects of organs and management, business activities, working capital, and provisions regarding profits, and some even state that RDWC's business principle is economic democracy, best service, efficiency, transparency, and accountability (without including environmental aspects in it). This can be a concern for stakeholders, considering that global and environmental issues are imperative to include.

In line with the current regional regulations, the assessment of RDWC performance also does not mention environmental issues and the sustainability of water resources. Based on the technical instructions for RDWC performance assessment made by the Drinking Water Supply System Implementation Improvement Agency, Ministry of Public Works and Public Housing, it is stated that RDWC performance assessment is by assessing four aspects: financial, service, operational, and human resource aspects. Aspects that are close to sustainability or environmental issues are operational. However, looking further into the performance indicators, it turned out that they contained nothing related to water management or the surrounding environment.

Policies and performance assessments that do not yet include sustainability issues indicate that RDWCs are not encouraged to pay attention to this matter. RDWCs are indicated to be more concerned with their financial targets because these are easier to measure than others. Too deep a focus on profit will make them neglect the sustainability of their water sources. Such neglect of the condition of water sources will damage the surrounding area, water pollution, biodiversity due to operations, and others.

The Urgency of Sustainability in RDWCs

Water sources are a critical and vital aspect of RDWCs. As a drinking water provider for the community, RDWC must ensure the availability of adequate and high-quality water supplies to meet domestic, commercial, and industrial needs. On the one side, daily life relies heavily on clean water for drinking, cooking, hygiene, and sanitation. On the other side, the sustainability of RDWC operations is highly dependent on stable and sustainable water sources. Therefore, RDWC must play an active role in the protection and conservation of water sources as well as efficient management. Monitoring and protecting water sources from pollution and environmental damage is RDWC's primary responsibility to ensure that people can enjoy clean, safe, and affordable water in the long term.

The vital role of RDWCs in conserving water sources cannot be separated from the impact of their operations. Some impacts of their operations can, in fact, damage existing water resources and have implications for disrupting water supplies or destroying biodiversity. Some RDWC operations have the potential to disrupt natural resources. For example, the excessive withdrawal of water from springs by RDWC can decrease groundwater levels or reduce the volume of water in rivers or lakes. As a result, the ecosystem will be disrupted and can even disrupt people's lives.

Another example is that the potential for water pollution is immense due to RDWC's business operations. Using chemical substances and compounds in water treatment can leave residual chemicals that pollute the environment. Poor infrastructure development will also disrupt the environment. For instance, constructing a water treatment installation building that is not appropriately planned with attention to the environment will cause many problems in the surrounding area.

The negative impacts of RDWC operational activities impact the environment and residents. The loss to residents includes a reduction in the volume of water used for agriculture, irrigation, and others, whereas damage to the water ecosystem results in fish becoming scarce and has implications for a decrease in residents' income due to their livelihoods being disturbed. Local communities will feel disadvantaged, so that they could refuse business operations for RDWC. Based on this impact, gaining public trust is crucial for RDWC, so sustainability must be included in all their strategic plans.

Policy Proposals that Include Environmental Aspects

From the various points of view and problems discussed above, it is essential for the Indonesian government and regional governments for RDWCs to review existing policies and implement policies that must include sustainability elements and issues. This is to support RDWC business operations better. Developing policies or revising new policies can be based on benchmarking with other countries or looking at existing best practices, as well as taking into account issues that the UN, namely sustainability issues, are intensively raising.

The following policies can be proposed to improve the sustainable water management in RDWC. The first is incorporating sustainability criteria into existing policies. Government Regulation Number 121 of 2015 concerning Water Resources Management is the existing regulation regarding water exploitation permits. In this case, sustainability issues can be included in water exploitation licensing requirements. Sustainability issues related to water exploitation that can be used as requirements include business entities carrying out maintenance of the water sources used, business entities carrying out optimal water conservation to prevent wasteful water collection, business entities maintaining water ecosystems around water sources, and business entities maintaining the balance of biodiversity in the surrounding area.

The second is incorporating sustainability aspects in the RDWC performance assessment. The existing regulation is Minister of Public Works Regulation Number 18 of 2007 concerning the Implementation of Drinking Water Supply System Development, mentioning four aspects of RDWC performance assessment. It would be better to add one more aspect to assess performance, i.e., the sustainability aspect. It has the following proposed performance indicators: water use efficiency, which can be calculated from the volume released divided by the total water supply; number of construction of facilities and infrastructure that support environmental sustainability and preservation of water sources; the effectiveness of facilities and infrastructure supporting sustainability, which can be assessed from the number of events that threaten natural sustainability; number of public complaints related to RDWC operations; and the effectiveness of handling public complaints, which can be calculated from the proper resolution of existing complaints.

Third is incorporating sustainability goals into RDWC's vision and mission. This is similar to what United Utilities in the UK does, which prioritizes stronger, greener, and healthier water management. Regional regulations can include sustainability ideals after mentioning community service objectives. This is because RDWC, apart from being a regional company that supports local revenue, is also a community service institution, which, of course, must also pay attention to environmental impacts. Aside from that, it can include sustainability elements in regional regulations regarding RDWCs rather than only including corporate governance elements. Sustainability elements that can be included in the regional regulations establishing RDWCs are as follows: RDWC identifies areas around water sources regarding the potential and risks of operational work on environmental sustainability; RDWC makes an action plan to handle the risks that have been identified; RDWC always maintains sustainability in water source extraction areas; RDWC builds environmentally friendly facilities and infrastructure; If the infrastructure being built is not environmentally friendly, RDWC must think of the best solution to minimize the impact on the environment; RDWC carries out outreach to residents regarding their operational plans; RDWC holds deliberations regarding their operational plans with residents; If problems arise from residents, the RDWC and residents hold discussions until they find a middle point that benefits all parties.

Fourth, the regional government makes a policy regarding preparing and disclosing high-risk RDWC sustainability reports. For now, the need to disclose sustainability reports is proposed only for RDWCs with high environmental risks, such as RDWCs in Jakarta (PAM). Not many human resources in the regions understand sustainability, and not all RDWCs have high environmental risks. In addition, the costs of producing sustainability reports may be quite high for RDWCs in areas with low profits. Making sustainability reports will be a new problem for RDWCs in this small business category. For this reason, a sustainability disclosure policy may be suitable for large RDWCs in urban areas or areas with high environmental risk. Sustainability reports must be able to reveal environmental performance, environmental conservation efforts, and other matters related to the sustainability of business operations that have implications for preserving the surrounding nature.

The last proposed policy is that various lines carry out environmental monitoring policies. This policy will include supervision of water resource utilization operations carried out by RDWC. Supervision can involve but is not limited to collaboration with institutions in local government, such as the Public Works and Spatial Planning Department, the Water Resources Management Service, the Environmental Service, and the Regional Inspectorate. Supervision in the area can be conducted more intensively, considering the location is close, and the supervisors know the area conditions and characteristics better. Besides, supervision must also be carried out periodically by the central government, which can be performed but is not limited to the collaboration of the Ministry of Public Works and Public Housing, Ministry of Environment and Forestry, Ministry of Home Affairs, BPKP, and others. Good monitoring of RDWCs regarding the environment is hoped to provide an early warning system regarding managing the water resources they use.

Figure 2 Policy Proposal Summary

Figure 2 represents a summary of the policy proposals discussed above. Based on Figure 2, the proposed ideas on the sustainability aspect that can be included in the regulation governing regional drinking water companies cover three important stages: planning, reporting, and monitoring. The policy proposals at the planning stage consist of four ideas. Meanwhile, each consists of one idea at the reporting and monitoring stages.

Conclusion

The need for clean water and drinking water is a crucial worldwide issue. In Indonesia, the need for clean drinking water increases almost every year. Clean water, which is the primary source of human life, must be provided by the government considering the ideals of the Indonesian nation contained in the fourth paragraph of the Preamble to the 1945 Constitution, advancing general welfare. The central and regional governments should also provide drinking water for their citizens, which follows Government Regulation Number 38 of 2017 concerning the Division of Government Affairs between the Governments, Provincial Regional Governments, and Regency/City Regional Governments.

Nevertheless, nowadays, the policies in Indonesia, which are the basis for the formation and operation of RDWCs, still do not have elements of sustainability. Even the assessment of RDWC performance does not include environmental and sustainability elements. Unlike Indonesia, other countries see sustainability and environmental issues as very important and pay attention to the operations of their water management bodies or water companies. Attention to sustainability arises from the increasing human population in the world, resulting in increasing water extraction. Without good maintenance of these water sources, the future water supply is threatened with depletion. This is a concern for prioritizing sustainability for water companies in various countries.

Therefore, Indonesia should take a benchmark with other countries, bearing in mind that sustainability issues are rarely discussed in existing policies. The urgency of sustaining water managed by RDWCs is necessary because Indonesia's population is also increasing over time, and water consumption is also increasing. Proposed policy updates on water sustainability in RDWCs can be generally formulated as follows: incorporating sustainability criteria in existing policies; incorporating sustainability aspects in the RDWC performance assessment; incorporating sustainability goals into RDWC's vision and mission; incorporating sustainability elements into regional regulations regarding RDWCs; creating a policy regarding the preparation and disclosure of RDWC sustainability reports; and carrying out environmental monitoring policies by various lines. With this proposal, there is great hope that RDWCs can pay more attention to environmental aspects at their water intake sites to support nature conservation and environmental sustainability, which, of course, will ultimately impact the sustainability of RDWC operations.

The limitation of this research is that the number of water companies from overseas countries mentioned was small. Hence, the discussion could not yet capture the overall picture of water companies worldwide. Furthermore, the data and information obtained from the websites of each water company in this study were incomplete. Some only mentioned a brief description of sustainability or the environment. Apart from that, researchers had not looked at the condition of all RDWCs in Indonesia, so the data obtained and analyzed was a general picture from several RDWCs only.

For future research, researchers can add more water companies in countries worldwide. This is to enrich knowledge of the conditions and characteristics of water management abroad. Apart from that, researchers can increase the number of observations of RDWCs in Indonesia to see how water is operated and managed there. This also aims to obtain more complete information on RDWCs in Indonesia so that conclusions can be drawn better.

For policymakers, this research suggests that the Ministry of Public Works and Public Housing, the Ministry of Environment and Forestry, the Ministry of Home Affairs, as well as all Regional Governments in Indonesia, can create and repair policy in the context of providing, managing, and utilizing water resources by taking into account environmental issues and sustainability issues. Aside from that, parties who evaluate RDWC performance, such as BPKP, ministry inspectorates, provincial inspectorates, and regency/city inspectorates, are expected to add assessment points related to environmental and sustainability aspects besides financial and human resource aspects.

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Conflicts of interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.