

# SUSTAINABLE INVESTMENT IN THE WATER SECTOR: THE ROLE OF ACCOUNTING AND FINANCE IN ATTRACTING CAPITAL AND SUPPORTING SUSTAINABLE DEVELOPMENT GOALS

Dika Fuji Okta<sup>1</sup>, Rimi Gusliana Mais<sup>2</sup>

<sup>1</sup>Institut Bisnis Indonesia Kwik Kian Gie

<sup>2</sup>Sekolah Tinggi Ilmu Ekonomi Indonesia Jakarta

Email: <sup>1</sup>[dikafuji21@gmail.com](mailto:dikafuji21@gmail.com), <sup>2</sup>[Rimi\\_gusliana@stei.ac.id](mailto:Rimi_gusliana@stei.ac.id)

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## ABSTRACT

*Achieving the Sustainable Development Goals (SDGs) and tackling the world's water issues depend heavily on sustainable investment in the water sector. In order to raise money, encourage sustainable investments, and improve accountability in water management, accounting and finance are essential. By using sustainable accounting practices and transparent reporting, firms may efficiently manage water resources and make a positive impact on a more sustainable future. For example, green bonds can be used to finance initiatives aimed at sustainable sanitation and water conservation. However, there are obstacles to putting sustainable accounting techniques into reality, such as precisely calculating environmental consequences and upholding international standards. Notwithstanding its drawbacks, including sustainable accounting builds stakeholder confidence and raises awareness of the importance of water resource management. Moving forward, improving methodologies and collaboration between public and private sectors will strengthen the role of sustainable accounting in achieving water sustainability goals.*

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## Corresponding Author:

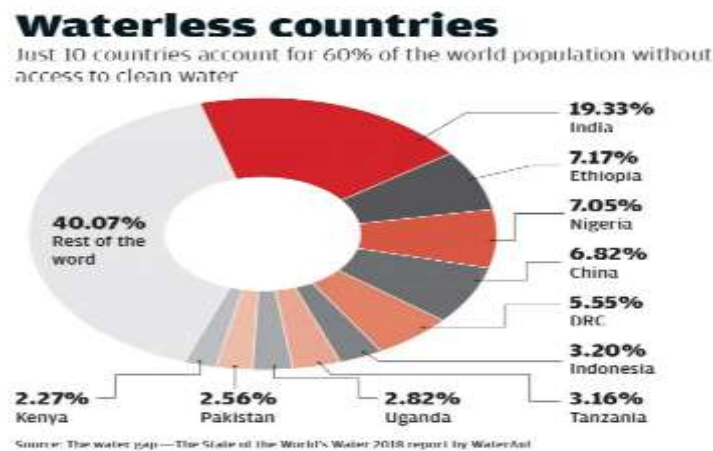
Dika Fuji Okta

Institut Bisnis Indonesia Kwik Kian Gie

Email: [dikafuji21@gmail.com](mailto:dikafuji21@gmail.com)

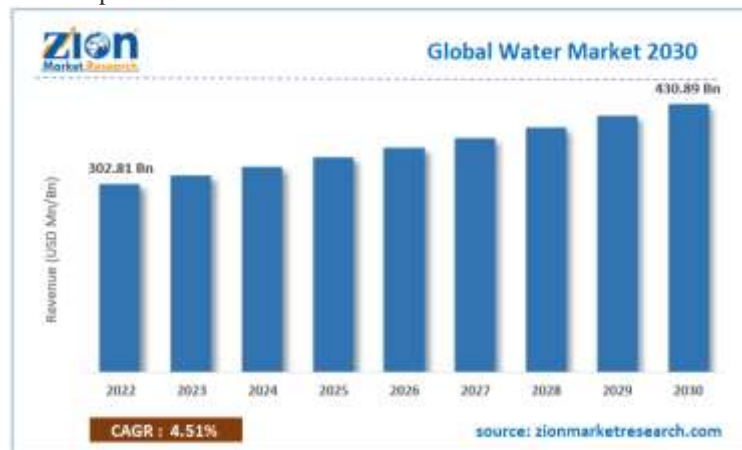
## 1. INTRODUCTION

One of the major problems of the twenty-first century, impacting billions of people worldwide, is the global water crisis. According to UNICEF, half of the world's population will face water shortage by 2025, 700 million people will become homeless by 2030 as a result of water scarcity, and by 2040, one in four children would live in an area with limited access to water (UNICEF, 2024). Climate change, increasing urbanization, and a sharp rise in water demand all worsen these situations. Health, food security, and economic well-being are all directly impacted by a lack of access to clean water. Millions of people lack access to clean water in various areas, including Sub-Saharan Africa and South Asia, which causes infectious illnesses to spread and early.



**Figure 1 Percentage of global population with access to clean water and safe sanitation**

Significant continuing investments in water infrastructure are needed to address this situation. A research published in 2019 by the Organization for Economic Co-operation and Development (OECD) states that until 2030, an estimated USD 6.7 trillion in worldwide investment would be needed to satisfy the existing demands for water infrastructure. Infrastructure for wastewater management, sanitation, and an effective and sustainable water supply will all be built and maintained as part of this investment.



**Figure 2 Estimated global investment needs in water infrastructure to 2030**

Funding from the public and commercial sectors should be raised to improve water security through technical advancements like desalination and the application of cutting-edge wastewater treatment techniques. Governments, businesses, and communities may work together to develop sustainable solutions for managing water resources, as shown by projects like The Nature Conservancy's Water Funds initiative (Smith et al., 2021). In order to maintain the health and functionality of aquatic ecosystems, the program integrates upstream conservation with downstream need for clean water.

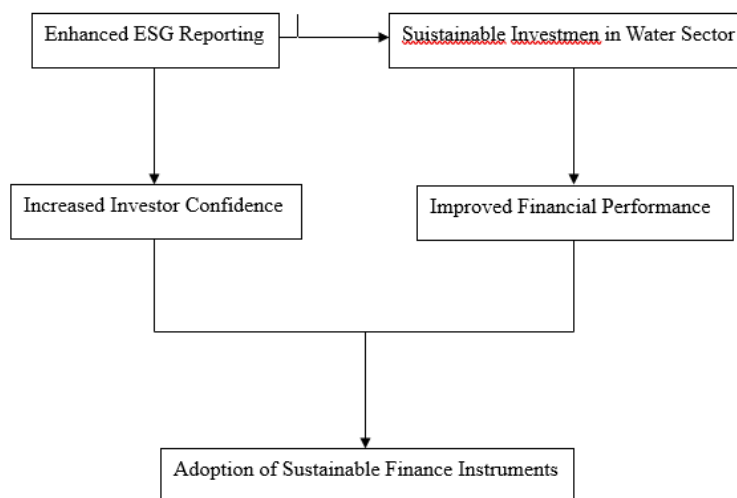
However, laws and rules that encourage sustainable investments are necessary to accomplish this aim. The government must establish a structure that uses financial incentives and public-private partnerships to promote private sector involvement. To encourage more prudent and effective water usage practices, there is also a need to enhance public education and understanding of the significance of water conservation.

Long-term sustainable investments in the water industry would help accomplish the Sustainable Development Goals (SDGs), especially the sixth objective, which is focused on providing everyone with access to clean water and sanitation, in addition to addressing the problem of water shortages. We can make sure that water, this vital resource, is managed sustainably for future generations if there is significant commitment from a number of sources.

Accounting and finance, by offering a clear and responsible framework for the assessment and reporting of environmental, social, and governance (ESG) consequences, are essential to promoting sustainable investment and the accomplishment of the Sustainable Development Goals (SDGs). Robust financial systems enable the effective allocation of resources to initiatives that promote the SDGs, while good accounting standards help organizations identify, measure, and manage the risks and opportunities associated with sustainable investments. Reporting

standards, such the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI), assist focus funding on projects that are more socially and environmentally sustainable and boost investor trust by providing transparent information (Agustia et al., 2023). In addition, initiatives such as Green Bonds and Social Impact Bonds provide innovative financial instruments that direct funds to projects that support sustainability and global development goals.

## 1. Theoretical Framework and Hypothesis Development



**Figure 3 Conceptual Model**

### Hypothesis Development

Hypothesis 1: Enhanced ESG reporting quality positively influences investor confidence and attracts sustainable investment in the water sector.

- Rationale: High-quality ESG reporting provides transparency, reduces information asymmetry, and signals a company's commitment to sustainability.

Hypothesis 2: Companies in the water sector that adopt sustainable finance instruments (e.g., green bonds) experience increased access to capital.

- Rationale: Sustainable finance instruments are designed to attract investors who prioritize environmental and social impact, thus increasing capital availability.

Hypothesis 3: The integration of sustainability practices in water management leads to improved financial performance.

- Rationale: Sustainable practices can reduce operational risks, improve efficiency, and enhance brand value, leading to better financial outcomes.

## 2. RESEARCH METHOD

This study used a thorough literature review as its research method, which entails methodically finding, assessing, and synthesizing theoretical frameworks and research that already exists on sustainable investment in the water sector and the role that accounting and finance play in facilitating such investments. Diverse viewpoints and conclusions from a range of sources, including scholarly publications, industry reports, and pertinent standards like the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI), can be integrated using this methodology. The study is to provide a solid knowledge of how improved ESG reporting and the use of sustainable finance instruments might draw resources and help the accomplishment of Sustainable Development Goals (SDGs) in the water sector by critically examining various sources. The literature review serves as a foundation for developing the theoretical framework and hypotheses, ensuring that the research is grounded in existing knowledge and identifies gaps for future investigation (Chun Tie et al., 2019).

### 3. RESULTS AND DISCUSSION

#### Role of Accounting and Finance

Measuring and disclosing the environmental effects of a business's operations—such as water use, water contamination, and greenhouse gas emissions—requires the use of environmental accounting. Danone-AQUA, for instance, is committed to openness in all facets of its business and has adopted good corporate governance standards. A corporation is said to have strong corporate governance if it has an effective management system (Mais & Nuari, 2016). The "Bringing Goodness to Indonesia's Progress" Sustainability Report, published in 2017–2018, provides evidence of this. The company's dedication to sustainability and the environment is shown in the report, which won the gold category at the 2019 Asia Sustainability Reporting Rating (Danone-AQUA, 2019).

Danone-AQUA aims to operate a sustainable business and contribute to the resolution of social and environmental issues by utilizing the "One Circular Planet" strategy. More than 2.5 million trees have been planted, more than 1,300 infiltration wells have been constructed, and more than 57,000 biopores have been created as part of initiatives to conserve water resources. The firm also works to lessen its carbon footprint by encouraging the use of renewable energy. In the 2017–2018 period, it was able to do so by decreasing its carbon footprint by 2,399 tons of CO<sub>2</sub> and achieving 22,920 GJ of energy efficiency (Danone-AQUA, 2019).

Danone-AQUA made 70% of its business totally circular by introducing reusable and recyclable gallon bottled water as part of its packaging management strategy. The firm is now able to collect 12,000 tons of plastic yearly because of the expansion of the "AQUA Peduli" recycling program, which was started in 1993. Furthermore, the #BijakBerplastik initiative, which was introduced the previous year, reaffirms the dedication to lowering the amount of plastic trash produced, emphasizing the development of infrastructure for garbage collection, consumer education on recycling, and innovative product packaging. By 2025, it is hoped to have more plastic collected than used, utilize packaging that is 100% recyclable, reusable, or biodegradable, and raise the percentage of recycled material in packaging to 50% (Danone-AQUA, 2019).

In addition to demonstrating regulatory compliance, Danone-AQUA's environmental accounting approach promotes both the long-term viability of the business and the environment at large. In the end, a transparent sustainability report promotes the accomplishment of sustainable development goals (SDGs) by enabling stakeholders to evaluate the company's success in controlling environmental consequences.

The field of social accounting tracks and analyzes how a business's activities affect social issues such local communities' effects, access to clean water, and sanitation. In this situation, businesses are held responsible for their contributions to the social and environmental well-being in addition to their financial performance.

In keeping with its commitment to social responsibility, SUEZ is a multinational corporation that works in the waste and water management industries. SUEZ is dedicated to enhancing community access to sanitary facilities and clean water, particularly in regions that are vulnerable. Article 74, paragraph 2, specifies that the Social and Environmental Responsibility mentioned in paragraph (1) is a company obligation that is budgeted and calculated as a cost of the company, and that its implementation is done so while giving proper consideration to propriety and fairness executed with appropriate deference to propriety and equity (Mais et al., 2017). Transparently disclosing the benefits of its social efforts to the environment and public health, SUEZ reports on them. For instance, SUEZ recently introduced the "Water for All" initiative, which attempts to supply impoverished areas across the world with clean water and sanitary facilities. Through the provision of sustainable clean water infrastructure and sanitation services, the initiative has helped millions of people (SUEZ, 2020).

Additionally, social accounting gives businesses the ability to recognize and control any social hazards associated with their activities (LL et al., 2024). Businesses may make sure that their operations don't negatively effect nearby communities and instead advance the general welfare of society by keeping an eye on and disclosing information about their social consequences. This is crucial to uphold the company's reputation with the public and investors, foster positive relationships with stakeholders, and fulfill corporate social responsibility.

In reality, the implementation of social accounting by businesses like SUEZ shows that corporations may significantly contribute to the achievement of the sustainable development goals (SDGs) if they are transparent and dedicated to social responsibility. This includes the sixth aim, which is to provide everyone with access to clean water and sanitary facilities. By using this strategy, businesses can make sure that they are not only conducting their operations in a sustainable manner but also significantly enhancing both the environment and human well-being.

To draw capital and guarantee the sustainability of water infrastructure projects, transparent and accurate financial disclosures pertaining to sustainable investments in the water sector are crucial. Capital costs, financing sources, and financial hazards related to water shortages and climate change are all included in the reported financial data. In this sense, one state-owned business in Indonesia is an excellent example: PT Sarana Multi Infrastruktur (Persero) (SMI). SMI actively funds large-scale water infrastructure projects that are intended to provide community access to safe and sustainable sanitation practices as well as clean water. The first Green Bond to be issued in Indonesia

was the Berkelanjutan I Sarana Multi Infrastruktur Phase I Year 2018. As of December 31, 2021, investors of the outstanding amount are dominated by Government-related agencies, Corporations, and Pension Funds (PT SMI, 2022).



**Figure 4 Issuance Structure**

A few of the significant projects funded by SMI include the Rp800 billion Kuningan Dam, the Rp1.2 trillion Semawang Dam, and the Rp700 billion Krian-Sidoarjo Drinking Water Supply System (SPAM). The government's initiative to achieve the sixth Sustainable Development Goal (SDG), which is Clean Water and Adequate Sanitation, is supported by these projects in addition to their goal of increasing access to clean water and sanitation. To further address long-term environmental concerns, these initiatives promote green investment in the water infrastructure sector (PT SMI, 2022).

Additionally, SMI releases a Green Bond report every year that includes comprehensive data on how green bond money are used. The report contains information about the initiatives that were funded by the funding, such as their location, extent, and advantages to the community. For instance, the Krian-Sidoarjo SPAM project aims to dramatically raise the standard of living in the neighborhood by giving thousands of homes access to clean water. The study also enumerates the ways in which the funded projects have improved water quality, saved water, and decreased greenhouse gas emissions. For instance, it is anticipated that the building of the Kuningan and Semawang dams will lower the danger of flooding, increase the amount of water available for cultivation, and supply drinking water to the nearby populations (PT SMI, 2022).

SMI's Green Bond report includes information on the projects' financial success in addition to their environmental effect. This covers the profitability of the project, the ROI, and how it affects the enterprise value. Investors should take note of these disclosures as they provide them a clear picture of how their money is being spent and the financial and environmental advantages that follow. SMI can boost investor trust and encourage the expansion of green investment in Indonesia by openly disclosing financial performance and environmental implications (PT SMI, 2022).

All things considered, SMI's financial disclosures show how businesses may make a big difference in sustainability by making ethical investments in the water industry. It also emphasizes how crucial openness is to drawing in capital and assisting in the accomplishment of sustainable development objectives. SMI raises the bar for sustainability and responsibility in the water infrastructure industry by consistently documenting and assessing the financial and environmental effects of its projects.

To sum up, accounting's social and environmental divisions are essential to promoting sustainable investment strategies. Businesses such as PT SMI, SUEZ, and Danone-AQUA demonstrate how sound accounting procedures may have a major positive impact on society and the environment. These businesses set high standards for sustainability and responsibility by upholding accountability and transparency, which eventually promotes a more just and sustainable society.

#### 4.2. Supporting Sustainable Development Goals (SDGs)

For the sake of everyone's health, happiness, and prosperity, the Sustainable Development Goal (SDG) number six, "Access to clean water and sanitation for all," must be met. As of the now, 4.2 billion people lack access to adequate sanitation facilities and 2.2 billion people lack clean drinking water (United Nations, 2020). The commercial sector, civil society, and governments must work together to implement SDG 6.

By providing money for initiatives like the Kuningan Dam, Semawang Dam, and Krian-Sidoarjo Drinking Water Supply System (SPAM), PT Sarana Multi Infrastruktur (Persero) (SMI) in Indonesia makes a substantial contribution. These initiatives give the larger population better access to sanitary facilities and clean water. The usage of money,



environmental effects including reduced emissions and water savings, are all covered in depth in SMI's annual report on Green Bonds. It is anticipated that the project would enhance irrigation, lower the danger of flooding, and supply clean water (PT SMI, 2022).

Danone-AQUA has also contributed to SDG 6 by establishing 57,000 biopores, more than 1,300 infiltration wells, and more than 2.5 million trees. They also put a lot of effort into using recyclable packaging and lowering their carbon footprint. According to Danone-AQUA (2019), the #BijakBerplastik effort aims to collect more plastic than is consumed and raise the percentage of recycled content in packaging to 50% by 2025.

Through its "Water for All" initiative, which offers clean water and sanitation to impoverished areas, businesses like SUEZ also promote SDG 6. By supplying sustainable infrastructure, this program offers several advantages (SUEZ, 2020).

By offering a framework for assessing, disclosing, and controlling the environmental and social effects of a business's operations, environmental and social accounting plays a significant role. Achieving SDG 6 is made possible for stakeholders to evaluate a company's efficacy and contribution through transparent reporting. By doing this, businesses improve their reputation, draw in additional funding for sustainable initiatives, and satisfy their social and environmental obligations. SDG 6 may be accomplished by ensuring that everyone has access to clean water and good sanitation, which will eventually improve quality of life and the state of the world's wellbeing. This will require strong collaboration and commitment from a variety of stakeholders, including communities, governments, and the corporate sector.

In order to fulfill SDG 6: Access to clean water and sanitation for everyone, accounting and finance are crucial. First, accounting improves water management's accountability and transparency. Companies may assess and report on the effects of their activities on water resources, including water usage, pollution, and conservation, through thorough financial statements and environmental audits. For instance, Danone-AQUA, which upholds sound corporate governance standards, releases a Sustainability Report that details its initiatives to save water, including the planting of trees and the building of infiltration wells (Danone-AQUA, 2019). Stakeholders can evaluate the company's water management performance and make sure that its operations align with sustainability objectives by examining this report.

Second, finance and accounting aid in the capital raising process for long-term investments in the water industry. Companies can raise capital for initiatives that promote sustainable water management by issuing financial instruments like Green Bonds. In Indonesia, PT Sarana Multi Infrastruktur (Persero) (SMI) is a prime example. In order to increase access to clean water and sanitation, SMI issued Green Bonds to finance water infrastructure projects such the Krian-Sidoarjo Water Supply System (SPAM) and Semawang Dam (PT SMI, 2022). SMI's annual report on Green Bonds offers comprehensive details on the project's financial performance, environmental implications, and usage of cash. This enhances transparency and draws in additional investors that prioritize sustainability.

Third, the fields of finance and accounting support best practices and innovation in water management. Through the utilization of cutting-edge technologies and smart water management strategies, businesses may enhance their operational efficiency and mitigate their adverse environmental effects. For instance, businesses like SUEZ have started a program called "Water for All" that leverages cutting-edge technology to supply clean water and sanitary services to marginalized communities (SUEZ, 2020). In order to comply with international standards like the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI), organizations may discover areas for improvement and innovate in water management through sustainability reports and environmental audits.

All things considered, accounting and finance offer a crucial framework that promotes sustainable water management, raises responsibility and transparency, raises money for green investments, and stimulates innovation in the management of water resources. Companies that use sound accounting procedures and openly disclose their environmental effects not only satisfy their social and environmental obligations, but they also make a substantial contribution to the accomplishment of Sustainable Development Goal 6.

#### 4. CONCLUSION

Achieving the Sustainable Development Goals (SDGs) and resolving the global water issue need sustainable investment in the water sector. Millions of individuals worldwide lack access to proper sanitation and clean water, which is an unfulfilled human right. To tackle this obstacle, significant financial resources must be allocated towards the construction of dams and the provision of potable water systems. Through attracting money, distributing funds to environmentally friendly projects efficiently, and enhancing accountability in the management of water resources, accounting and finance play a significant role in assisting these efforts. Companies can collect money for programs that emphasize sustainable sanitation and water conservation, for instance, by issuing Green Bonds. Transparent financial and sustainability reporting not only helps attract investors concerned about environmental issues, but also

enables better monitoring of the management of water projects. By implementing sustainability accounting practices and reporting detailed impacts, organizations in the water sector can more effectively achieve their sustainability goals and play an active role in building a more sustainable future for all.

## 5. IMPLICATION AND LIMITATION

A greater understanding of the significance of managing water resources in a sustainable and transparent manner is one of the implications of using sustainability accounting in the context of sustainable investment in the water sector. Organizations may more effectively assess and report on the environmental effects of their operations, such as carbon emissions and water consumption, by adopting appropriate accounting procedures. This improves the company's credibility and reputation among stakeholders in addition to drawing in sustainable investments. However, there are a number of drawbacks that must be taken into account, such as the difficulty of precisely and consistently evaluating environmental consequences and the expense of putting in place an accounting system that conforms with global standards. Furthermore, difficulties in acquiring thorough and reliable data on the usage of water resources may further restrict the efficacy of sustainability reporting. However, the application of sustainability accounting can significantly aid international efforts to address the water crisis and realize sustainable development goals by carrying out more research and development of improved methodologies and frameworks as well as fostering greater collaboration between the public and private sectors.

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