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# INTEGRATING SUSTAINABLE WATER RESOURCES MANAGEMENT PRACTICES INTO PUBLIC UNIVERSITY ADMINISTRATION IN LAGOS STATE, NIGERIA: A MULTI-VARIABLE ANALYSIS

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## **Abstract**

*This research study investigated the integration of sustainable water resources management practices into public university administration and the factors that impact their successful implementation in Lagos State, Nigeria. The study utilises a multi-variable analysis approach, incorporating three key variables: educational administration and management, water resources management, and sustainability. The study incorporated desk review method to evaluate existing research on sustainable water resources management in universities. The study contributed to the growing body of knowledge on sustainable water resources management in public universities in Nigeria and provide practical recommendations for university administrators and policymakers on how to integrate these practices into their institutions. Findings showed that effective integration of sustainable water management practices is dependent on the development of clear policies, effective communication and collaboration between stakeholders, and the availability of financial and human resources. Challenges such as inadequate funding, limited stakeholder engagement, and poor infrastructure are also identified as barriers to the successful implementation of sustainable water management practices. The findings of this study have implications for university administrators and policymakers seeking to promote sustainability in public universities in Nigeria and other similar contexts.*

**Keywords:** educational administration, sustainability, water resources management, public universities

## **Introduction**

Water resources management is critical to the livelihood of human beings, as water is an essential resource for human survival and the development of societies. Water is required for a wide range of activities, including drinking, irrigation, livestock watering, industrial processes, and energy generation. Inadequate water resources management can lead to water scarcity, water pollution, and environmental degradation, which can have negative impacts on human health, food security, and economic development. Chukwu (2015), averred that effective water resources management requires the development and dissemination of scientific and technical knowledge related to water resources, as well as the acquisition of local and traditional knowledge that can inform water management practices. This practical knowledge of managing water resources is obtainable in no other place, than in higher education institutions. The intersection of educational administration and management, sustainable water resources management, and public universities highlights the need for effective governance and management of water resources in higher education institutions. Public universities in Lagos State, like many other universities in Nigeria, face

significant water-related challenges, including inadequate and unreliable water supply, poor wastewater treatment, and lack of awareness and commitment to sustainable water management practices (Ajiboye, Olaniyi & Adegbite, 2012).

Researches abound (Balogun et al 2017; Abdul Ghani, 2019; Augustine & Mohd Hanafiah, 2019; Makanda et al, 2022) on the crucial role that effective educational administration and management play in promoting sustainable water resources management practices in public universities in Lagos State. This involves the adoption of policies and strategies that promote sustainable water use, the integration of sustainable water management practices into institutional operations and decision-making, and the provision of resources for capacity building and education on sustainable water management practices (Macheve et al, 2015).

According to Powel and Larsen, (2013) sustainable water resources management practices in public universities in Lagos State can also have a positive impact on environmental sustainability, as they can help to conserve water resources, reduce water pollution, and promote the use of alternative water sources such as rainwater harvesting and greywater reuse. EL-Nwsany et al (2019) is of the opinion that public universities can play a significant role in promoting sustainable water management practices by organizing awareness campaigns, seminars, workshops, and educational programs. These initiatives can raise awareness among students, staff, and the wider community about the importance of water conservation, pollution prevention, and the use of alternative water sources. Education and engagement are key to fostering a culture of sustainability and responsible water use. These practices can also generate cost savings through reduced water bills and improved operational efficiency.

However, there are challenges that must be addressed for effective integration of sustainable water resources management practices into public university administration in Lagos State. These challenges include inadequate funding for water infrastructure and facilities, lack of technical expertise and capacity, inadequate enforcement of regulations and policies, and limited awareness and education on sustainable water management practices among stakeholders. Overall, the effective integration of sustainable water resources management practices into educational administration and management in public universities in Lagos State is critical for achieving environmental sustainability, improving water resources management, and promoting sustainable development in Nigeria (Ajiboye et al, 2012; Chepyegon & Kamiya, 2018).

Nigeria is a country facing significant challenges related to water resources management, including scarcity of water, pollution, and inadequate infrastructure for water supply and wastewater treatment. These challenges are particularly acute in urban areas such as Lagos State, which is one of the most populous and fastest-growing cities in Africa (Ajiboye et al, 2012). The rapid urbanization and population growth in Lagos have put immense pressure on its water resources, exacerbating existing water-related challenges. Public universities in Lagos State are also faced with water-related challenges, including inadequate and unreliable water supply, poor wastewater treatment, and lack of awareness and commitment to sustainable water management practices (Ngene et al, 2021). Despite these challenges, there have been efforts by some universities to integrate sustainable water resources management practices into their administration and management. However, there is limited research on the factors that facilitate or hinder the successful integration of these practices in public universities in Lagos State. This study aims to address this gap in

knowledge by conducting a multi-variable analysis of the integration of sustainable water resources management practices into public university administration in Lagos State. By appraising existing literature, this study gathers works of scholars on state of water resources management practices in public universities in Lagos State, as well as the factors that impact their successful implementation. The study also provides practical recommendations for university administrators and policymakers on how to integrate sustainable water management practices into their institutions, which can potentially lead to positive impacts on water resources and environmental sustainability in Lagos State.

### **State of Water Resources Management Practices in Public Universities in Lagos State**

There appears to be limited information available on empirical studies specifically focused on the state of water resources management practices in public universities in Lagos State. However, there are some related studies and reports that provide insight into the general state of water resources management in Lagos State and in Nigerian universities. According to Longe et al, (2015) a report by the Lagos State Water Regulatory Commission (LSWRC), averred that access to safe drinking water is a major challenge in Lagos State due to population growth, inadequate infrastructure, and poor management practices. The report also highlights the need for increased investment in water infrastructure and improved governance and regulation of water resources.

Another study conducted by the Centre for Sustainable Development, University of Ibadan, Nigeria, examined the state of water supply and sanitation facilities in Nigerian universities. The study found that many universities lacked adequate water supply and sanitation facilities, which had negative impacts on the health and well-being of students and staff. The study recommended increased investment in water infrastructure and improved management practices (Macheve et al, 2015; Ojo et al, 2020). Additionally, a study by Chukwu (2015) examined the challenges facing water supply systems in Nigeria. The study found that poor management practices, inadequate funding, and lack of technical expertise were major barriers to effective water resource management.

### **Integrating Sustainable Water Resources Management Practices into University Administration and Management in Public Universities in Lagos State Nigeria**

Several research works (Macheve et al, 2015; Sobowale et al 2015; Kandissounon et al, 2018; Abdul Ghani, 2019; Augustine & Mohd Hanafiah, 2019; Makanda et al, 2022) have provided insight into the integration of sustainable water resources management practices into university administration and management in public universities in Lagos State Nigeria. These studies all suggested a multi-faceted approach that involves different stakeholders and departments within the university. Some specific steps that can be taken to achieve this include:

1. Conduct a water audit: The first step is to conduct a comprehensive water audit to identify the current water usage patterns, wastage, and opportunities for conservation. This audit can be conducted by a team of experts in water management or sustainability.
2. Develop a water management plan: Based on the findings from the water audit, a water management plan should be developed. The plan should outline specific measures to reduce water consumption, increase efficiency, and promote sustainable water use practices across all university departments.
3. Establish water management team: A water management team should be established to oversee the implementation of the water management plan. The team should

comprise of representatives from different university departments, including engineering, facilities management, environmental health, and sustainability.

4. Implement water-saving technologies: The university should invest in water-saving technologies, such as low-flow showerheads, automatic shut-off faucets, and water-efficient toilets. These technologies can significantly reduce water usage and promote sustainable water practices.
5. Promote water conservation awareness: The university should also launch a water conservation awareness campaign to educate staff and students on the importance of sustainable water practices. This campaign should include posters, flyers, and social media messages to promote behavior change and encourage water conservation.
6. Monitor and evaluate water usage: The water management team should monitor and evaluate water usage regularly to ensure that the water management plan is effective. Regular monitoring can help identify areas where improvements can be made and ensure that the university is meeting its sustainability goals.
7. Developing partnerships with external stakeholders: The university can also develop partnerships with external stakeholders, such as local water authorities, to promote sustainable water use practices and ensure a reliable water supply for the university.

### **Factors that Impact the Successful Implementation of Sustainable Water Resources Management Practices in Public Universities in Lagos State, Nigeria**

Several factors can impact the successful implementation of sustainable water resources management practices in public universities in Lagos State, Nigeria. Some of these factors include:

1. Lack of awareness and understanding: A lack of awareness and understanding of the importance of sustainable water practices among staff and students can hinder the successful implementation of water management practices. There may be resistance to change, and some individuals may not see the need for water conservation (Chukwu, 2015; Okeola & Balogun, 2017).
2. Limited funding: According to Balogun et al (2017), limited funding can impact the implementation of sustainable water management practices. The cost of implementing new technologies or upgrading existing infrastructure can be high, and universities may not have the necessary resources to invest in sustainable water practices.
3. Inadequate infrastructure: Inadequate infrastructure can also impact the implementation of sustainable water management practices. Some universities may not have access to reliable water sources or may have outdated plumbing systems that are prone to leaks and water wastage (Ojo et al, 2020).
4. Lack of policy support: The absence of policies that support sustainable water management practices can hinder their successful implementation. Without clear guidelines and regulations, universities may not prioritize water conservation and management (Ojo et al, 2020).
5. Cultural and behavioral factors: Cultural and behavioral factors can also impact the successful implementation of sustainable water management practices. For example, certain cultural practices may involve the excessive use of water, or some individuals may have a lack of concern for water conservation (Balogun et al, 2017, Shiru et al, 2020).
6. Institutional factors: Institutional factors such as bureaucratic structures, lack of communication, and insufficient coordination between different departments can also hinder the implementation of sustainable water management practices (Chukwu, 2015).

7. Lack of stakeholder involvement: Ajiboye et al, (2012) asserted that the involvement of stakeholders such as local communities, water authorities, and environmental organizations is crucial in the successful implementation of sustainable water management practices. According to Aluta (2017) the absence of these stakeholders' involvement can hinder the success of sustainable water management practices.

### **Strategies for Addressing the Challenges in Integrating Sustainable Water Resources Management Practices into Public Universities in Lagos State Nigeria**

Integrating sustainable water resources management practices into public university administration in Lagos State, Nigeria is a complex issue that requires a multi-variable analysis. The challenge of ensuring sustainable water resources management practices in public universities in Lagos State is multifaceted and includes issues such as inadequate funding, lack of political will, poor infrastructure, and weak institutional capacity. Here are some strategies for addressing these challenges:

1. Conduct a needs assessment: Conducting a needs assessment is an important first step in identifying the specific challenges and opportunities for sustainable water resources management in public universities in Lagos State. This can help inform the development of effective strategies and initiatives (Gaye & Tindimugaya, 2019).
2. Build capacity and awareness: Building capacity and awareness among students, faculty, and staff is critical to the successful integration of sustainable water resources management practices in public universities. This can include training programs, awareness campaigns, and education initiatives to promote sustainable water practices (Oloruntoba et al, 2022).
3. Develop partnerships and collaborations: Developing partnerships and collaborations with government agencies, non-governmental organizations, and other stakeholders can provide public universities with access to funding, technical expertise, and other resources to support sustainable water management practices (Daramola & Olawuni, 2019; Dano et al 2020).
4. Leverage technology and innovation: According world Bank Group, (2019) leveraging technology and innovation can help public universities in Lagos State overcome some of the challenges associated with sustainable water resources management. This can include the use of water-efficient fixtures and equipment, as well as innovative solutions such as rainwater harvesting systems and wastewater treatment plants.
5. Advocate for policy change: Advocating for policy change can help create an enabling environment for sustainable water resources management in public universities in Lagos State. This can include advocating for regulations and policies that promote water conservation and the use of sustainable water management practices (WHO, 2017).
6. Engage in research and monitoring: Engaging in research and monitoring can help public universities in Lagos State identify areas for improvement and track progress in sustainable water management practices. This can help guide decision-making and ensure that resources are being used effectively (Ezeudu, 2020).

By adopting these strategies, public universities in Lagos State can overcome the challenges associated with integrating sustainable water resources management practices into their operations, promote environmental sustainability, and ensure access to clean and safe water for all.

## **Conclusion**

In conclusion, integrating sustainable water resources management practices into university administration and management in public universities in Lagos State Nigeria requires a coordinated effort between different departments and stakeholders. Addressing the challenges that serves as clog in the wheel of sustainable water resources management in universities can significantly impact the successful implementation of sustainable water resources management practices in public universities in Lagos State, Nigeria. It requires a multi-variable analysis that takes into account the complex interplay between various factors that influence water resources management practices. It also requires a multi-stakeholder approach involving collaboration between universities, local communities, environmental organizations, and water authorities. Overall, these efforts can help the university to promote sustainable water use practices, reduce water usage, and contribute to a more sustainable future.

## **Recommendations**

Integrating sustainable water resources management practices into public university administration in Lagos State, Nigeria is an important step towards promoting environmental sustainability and ensuring access to clean and safe water for all. Here are some recommendations for integrating sustainable water resources management practices into public university administration in Lagos State:

- Public universities in Lagos State should develop a comprehensive water management plan that outlines strategies for sustainable water use, conservation, and management. The plan should include measures to reduce water consumption, recycle and reuse wastewater, and harvest rainwater.
- Water-efficient fixtures and equipment such as low-flow toilets, urinals, and faucets should be installed in public universities in Lagos State to reduce water consumption and promote sustainability.
- Regular monitoring of water use and quality should be carried out to ensure that water resources are being used efficiently and that water quality standards are being met. This can help identify areas for improvement and guide the development of sustainable water management practices.
- Public universities in Lagos State should conduct awareness campaigns to educate students, faculty, and staff about sustainable water management practices. This can include workshops, seminars, and other forms of education to promote water conservation and sustainable water use.
- Partnerships and collaboration should be fostered with government agencies, non-governmental organizations, and other stakeholders in public universities in Lagos State to promote sustainable water management practices. This can include seeking funding and technical support for water conservation and management initiatives.
- Public universities in Lagos State should implement rainwater harvesting systems to capture and store rainwater for use in non-potable applications such as irrigation and toilet flushing.

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