AWARENESS AND PRACTICE OF WATER CONSERVATION AMONG UNIVERSITY OF BENIN STUDENTS

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DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION (ENVIRONMENTAL EDUCATION)

FACULTY OF EDUCATION

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION,FACULTY OF EDUCATION, UNIVERSITY OF BENIN,BENIN CITY, EDO STATE, IN PARTIAL FUFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR DEGREE B.Sc.(ED.) IN ENVIRONMENTAL EDUCATION, UNIVERSITY OF BENIN,BENIN

CITY

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CERTIFICATION

We, the undersigned certify that this project work was carried out by Oghenerukevwe Akpojovwo , with matriculation number EDU2102492 and that the research work is adequate in scope and quality in the Department of Health, Safety and Environmental Education, University of, Benin city, Edo state, in partial fulfillment of the award of Bachelor of Education (B.Ed.) degree in Health Education.

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DEDICATION

This project work is dedicated to God Almighty.

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The researcher special appreciation goes to God Almighty the giver of life for everything that happened throughout her study period and during the course of this project work.

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The researcher appreciates her friends, Gift and Lome for their life long labour of love towards her growth and well-being. Then lastly the researcher appreciate herself for her commitment and resilience throughout the project

God bless you all.

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ABSTRACT

This study examined the Awareness and Practice of Water Conservation among Students of the University of Benin. Five research questions were raised to guide the study, the study sought to determine the level of awareness of water conservation among students, the extent to which they practice water-saving behaviors, the factors influencing their engagement, institutional challenges affecting participation, and students' perceptions of the university's role in promoting water conservation.

A descriptive survey research design was adopted. The population consisted of 39,037 undergraduate students in fourteen faculties, from which a sample of 204 respondents was drawn using proportional sampling. The instrument for data collection was a structured twenty-item questionnaire validated by experts, and its reliability was established using the test–retest method, yielding a coefficient of 0.763. Data collected were analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviation.

Findings revealed that while students demonstrated high awareness of water, their practical engagement was inconsistent. Most respondents turned off taps after use, but few reported leaks or reused water. Factors such as water shortages, peer influence, and cultural background significantly shaped conservation behavior, while institutional shortcomings like limited sensitization campaigns, poor maintenance systems, and lack of visible infrastructure undermined effective participation. Students also perceived the university's efforts as insufficient and recommended stronger leadership, policy enforcement, and integration of conservation education into orientation and campus life. The study concludes that awareness of water conservation among University of Benin students is high but does not consistently translate into practice. It recommends that the University of Benin management should take the lead in integrating water conservation education into student orientation programs and General Studies (GST) courses.

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CHAPER ONE

INTRODUCTION

Background to the Study

Water conservation is a global issue that requires immediate attention, particularly given the rising threats of climate change, population growth, and industrialization. Water scarcity has emerged as one of the most pressing environmental challenges worldwide, affecting millions of people across different continents. It is estimated that by 2025, two-thirds of the global population may be living in water-stressed conditions, United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020). Consequently, governments and institutions worldwide have begun prioritizing sustainable water use practices, focusing on both reducing consumption and ensuring equitable access to this critical resource.

The global focus on water conservation has gained momentum as international bodies like the United Nations (UN) and the World Health Organization (WHO) have consistently raised alarms about the increasing rates of water scarcity and pollution. Water conservation is recognized as a fundamental component of environmental sustainability. In many parts of the world, especially in arid and semi-arid regions, the reduction of water wastage and the implementation of sustainable practices are critical for survival. For instance, in areas of the Middle East and North Africa, nations have

instituted stringent water management policies, focusing on both water conservation and wastewater reuse (UN-Water, 2021). These measures include the promotion of water-saving technologies in agriculture and industry, as well as public awareness campaigns aimed at encouraging individual water-saving behaviors. However, despite the growing importance of water conservation, widespread global awareness and practice vary significantly. While developed countries have relatively high awareness of water conservation practices, the same is not true for developing countries, where a lack of infrastructure, awareness, and resources exacerbate water scarcity problems.

In Africa, the challenge of water conservation is intertwined with issues of poverty, inadequate infrastructure, and climate variability. The continent faces significant water scarcity, with approximately 40% of the population living in areas of high water stress (African Development Bank, 2020). While some African countries, such as South Africa and Botswana, have made strides in water management practices, others struggle to meet the basic water needs of their populations. This discrepancy highlights the importance of water conservation education and awareness, particularly within urban populations and institutions of higher learning.

Many African countries, including those in Sub-Saharan Africa, have seen a rapid expansion of urban areas, which has led to an increased demand for water. The need to

educate young people, especially university students, on the importance of water conservation cannot be overstated. Water conservation education has been integrated into various academic programs, particularly in environmental studies and engineering, but the overall awareness levels among students remain inconsistent (Okon, 2021). University students are often exposed to environmental issues through academic curricula, but their practical engagement with water conservation practices on campus may be minimal. It is therefore essential to explore the extent to which students at African universities are aware of and engaged in water conservation practices.

Nigeria, as one of Africa's most populous countries, faces significant challenges in water management. According to the United Nations (2020), over 40% of Nigeria's population lacks access to clean and safe drinking water, with many relying on unsafe water sources. The country's water resources are unevenly distributed, and the growing urban population exacerbates the demand for water. Nigeria's water crisis is further complicated by issues such as pollution, lack of infrastructure, and climate change, which have led to unpredictable rainfall patterns and rising water scarcity.

In response, the Nigerian government has initiated various policies and strategies aimed at improving water supply and promoting water conservation, particularly in urban areas. However, these efforts are often undermined by inadequate implementation and the lack of awareness among the general population, including students. Despite these challenges, there has been a growing recognition of the need for water conservation

education within Nigerian universities. Universities have the potential to be hubs of environmental activism, where students can learn about sustainable water management practices and take these lessons into their communities and future workplaces.

Research on water conservation practices at the University of Benin is sparse, and no comprehensive study has been conducted to evaluate the level of awareness among students. This study, therefore, aims to fill this gap by investigating the level of awareness of water conservation practices among University of Benin students. By exploring the factors that influence students' awareness and behaviors, this research will provide recommendations for improving water conservation efforts at the university level.

Statement of the Problem

Water conservation is a growing global concern due to climate change, population growth, and the depletion of freshwater resources, with over 2 billion people affected by water scarcity (UN-Water, 2021). In Sub-Saharan Africa, including Nigeria, water stress is a major issue, exacerbated by inadequate infrastructure and climate variability.

Studies have consistently shown that water conservation awareness and practice among Nigerian populations, particularly students, remain low (Oluwatayo et al., 2019; Nwankwo & Igwe, 2018; Adebayo & Ogunyemi, 2020; Okon, 2021). In institutions of higher learning—where students are being trained as future leaders and policymakers—this gap is particularly troubling. Although many universities include environmental

education in their curricula, practical engagement in water conservation initiatives by students is often minimal or superficial. Research findings indicate that inadequate infrastructure, lack of consistent sensitization campaigns, and poor maintenance of water facilities contribute to low engagement in water-saving behaviors on campuses (Adebayo & Ogunyemi, 2020).

Recognizing the severity of the water crisis, the Nigerian government has developed various policies to improve water supply and promote conservation, including the National Water Resources Master Plan and the Water, Sanitation and Hygiene (WASH) strategy. Similarly, universities have attempted to implement water-saving measures, such as providing boreholes and modern plumbing systems. However, the effectiveness of these efforts is often undermined by poor implementation, limited funding, lack of maintenance, and, most critically, insufficient awareness among the target population students.

At the University of Benin, located in Edo State, these issues are equally relevant. Despite the presence of water infrastructure and a university community that includes thousands of students, there is no clear empirical evidence that documents the level of water conservation awareness among students. Seasonal climatic changes affecting the region, including frequent droughts and flooding, make it even more critical to assess how students understand and respond to water use challenges. While the university may be making institutional efforts to improve water supply, the success of any water

conservation initiative ultimately depends on student knowledge, attitude, and participation.

Given the absence of research on student-level awareness and behavior regarding water conservation at the University of Benin, this study becomes both timely and essential. It seeks to fill this knowledge gap by investigating how aware students are of water conservation issues, the factors influencing their behavior, and the effectiveness of any existing campus-level water conservation initiatives.

Research Questions

The following research questions guide this study:

1. What is the level of awareness of water conservation among students at the University of Benin?
2. Do University of Benin students practice water conservation?
3. What factors influence students' engagement in water conservation practices on campus?
4. In what ways do institutional challenges affect students' participation in water conservation practices at the University of Benin?
5. How do students perceive the role of the University of Benin in promoting water conservation awareness?

Purpose of the Study

The main purpose of this study is to:

1. Assess the level of awareness of water conservation among students at the University of Benin.
2. Determine whether students at the University of Benin actively engage in water conservation practices.
3. Examine the factors that influence students' participation in water conservation practices on campus.
4. Analyze how institutional challenges affect students' involvement in water conservation efforts.
5. Explore students' perceptions of the University of Benin's role in promoting water conservation awareness.

Significance of the Study

This study will provide valuable insights that can benefit several key stakeholders: The findings will enhance students' understanding of water conservation practices and encourage them to adopt sustainable water-saving behaviors, benefiting both the campus environment and the broader community.

The study will help the university administration identify gaps in students' awareness and engagement with water conservation, enabling the development of more effective educational programs and water management strategies on campus. The outcomes will guide policymakers in shaping policies aimed at promoting water conservation, with a specific focus on enhancing awareness and participation among students in university settings.

Educators can use the results to design more targeted awareness campaigns and curriculum content that promote water conservation and environmental sustainability within higher education institutions. The research will have an impact beyond the university, as students who are better educated on water conservation are likely to implement these practices in their communities, thus contributing to a wider culture of sustainability.

Scope/Delimitation of the Study

This study focuses on the level of awareness and practice of water conservation among students at the University of Benin, located in Edo State, Nigeria. It is delimited to students enrolled at the university, excluding staff, faculty, and non-student groups. The research will primarily examine students' engagement with water-saving behaviors on campus, their understanding of the university's water management practices, and the role

of the university in promoting awareness. The study does not extend to other universities or communities outside the University of Benin.

Definition of Terms

- **Water Conservation**: The practice of using water efficiently to reduce unnecessary water usage. It includes efforts to reduce waste, reuse water, and implement sustainable water management strategies.
- **Awareness**: The state of being informed or conscious of water conservation practices, including the knowledge of techniques, benefits, and the importance of sustainable water use.
- **Water Management Policies**: The strategies and rules implemented by the University of Benin to regulate and control water use on campus, including water-saving devices, educational programs, and infrastructure investments.
- **Water-Saving Behaviors**: Actions taken by individuals to reduce their water consumption, such as using water-saving appliances, taking shorter showers, and promoting water reuse.
- **University of Benin**: A major higher education institution located in Edo State, Nigeria, offering a wide range of academic programs and serving as a key educational hub in the region.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter is concerned with the review of related literature on water conservation and students' awareness and participation in sustainable water practices. The review will be carried out under the following subheadings:

- Concept of Water Conservation
- Awareness of Water Conservation Among University Students
- Water Conservation Practices Among Students
- Factors Influencing Student Engagement in Water Conservation
- Institutional Challenges Affecting Students' Participation in Water Conservation
- Perception of the Role of the University in Promoting Water Conservation Awareness
- Empirical Review
- Summary of Reviewed Literature

Concept of Water Conservation

Water conservation refers to the strategies, policies, and activities implemented to manage the natural resource of fresh water, with the aim of protecting the hydrosphere and ensuring sustainability for present and future generations (Gleick, 2018). It involves

reducing unnecessary water usage, preventing wastage, and enhancing efficient water management systems. Water conservation is not only about saving water but also about using it wisely and responsibly in a way that maintains the balance of natural ecosystems.

The concept gained global recognition in response to rising concerns over climate change, population growth, urbanization, and industrial activities, all of which place intense pressure on freshwater resources (UN-Water, 2021). According to the Food and Agriculture Organization (FAO, 2020), water scarcity already affects more than 40% of the global population, with projections showing this figure could increase due to current consumption patterns and environmental degradation. Thus, water conservation has become a vital component of sustainable development and climate resilience.

At the core of water conservation lies the fundamental principle of sustainable water use. This principle stresses the importance of meeting the water needs of the present generation without compromising the ability of future generations to meet their own needs (United Nations, 2015). In other words, it calls for a careful balance between current consumption and long-term preservation of water resources to ensure availability for all. Achieving sustainable water use requires a multifaceted approach. Key practices include rainwater harvesting, which captures and stores rainfall for later use, thereby reducing dependence on conventional water sources. The adoption of water-efficient technologies—such as low-flow faucets, drip irrigation, and smart meters—plays a critical role in minimizing water wastage. Additionally, wastewater treatment and reuse

allow for the recycling of water in agriculture, industry, and even for potable use after adequate purification, greatly enhancing water availability. Equally important is the role of public education and behavioral change in water conservation. Without awareness and commitment at the individual and community levels, technological solutions alone cannot guarantee sustainable water use. Educational campaigns and community programs that promote responsible water habits encourage people to value water as a scarce and precious resource, fostering a culture of conservation that supports the sustainability agenda (Kreamer, 2016).

Water conservation strategies generally fall into two broad categories: technical approaches and behavioral approaches. Technical strategies involve the deployment of technologies and infrastructure designed to reduce water use and waste. Examples include the installation of water-efficient appliances like washing machines and dishwashers that use less water per cycle, leak detection systems that identify and repair leaks before they cause significant water loss, and low-flow toilets and faucets that limit water flow without compromising functionality. In agriculture, where water consumption is often the highest, techniques such as drip irrigation deliver water directly to plant roots, dramatically reducing evaporation and runoff compared to traditional flood irrigation methods (Postel, 2017).

On the other hand, behavioral strategies emphasize changing the habits and daily practices of individuals and communities to reduce water consumption. This involves

raising awareness and encouraging actions such as turning off taps while brushing teeth or washing dishes, repairing leaks quickly to prevent continuous water loss, and avoiding unnecessary water use in activities like lawn watering or car washing. These behavioral changes, while seemingly small on an individual level, can collectively lead to substantial water savings when adopted widely (EPA, 2020). Successful water conservation requires integrating both technical and behavioral strategies. Even the most advanced technologies cannot reach their full potential without the cooperation and commitment of users to adopt water-wise behaviors. Conversely, behavioral efforts can be hampered by outdated infrastructure and inefficient appliances if technical upgrades are not pursued. Therefore, sustainable water management relies on a combination of modern technology and continuous public education to foster water conservation at every level (Postel, 2017; EPA, 2020).

The effectiveness of water conservation efforts is closely tied to the level of public awareness and active participation. Research by Vörösmarty et al. (2019) highlights that well-designed awareness campaigns and educational programs play a crucial role in promoting water-saving habits among individuals and communities. Such campaigns help to shift societal attitudes and social norms, making water conservation a shared responsibility rather than an optional behavior. This is particularly critical in urban centers, where population density is high, and water demand often exceeds supply, putting immense pressure on limited water resources. Without widespread awareness,

technological solutions alone may fail to achieve meaningful reductions in water consumption.

Within educational institutions, water conservation efforts extend beyond physical infrastructure improvements to include comprehensive strategies that engage students and staff. According to Obeta (2021), integrating water conservation concepts into academic curricula raises students' understanding of the environmental, economic, and social importance of sustainable water use. Beyond classroom instruction, universities are increasingly adopting green campus initiatives that promote conservation through practical actions—such as rainwater harvesting systems, water-efficient landscaping, and the installation of low-flow fixtures. These initiatives not only reduce the institution's water footprint but also provide living laboratories where students can observe and participate in sustainability efforts firsthand.

Universities and colleges, therefore, have a unique opportunity to serve as role models for sustainable water use within their communities. By fostering a culture of conservation through education, student-led environmental campaigns, and institutional policies, these institutions can encourage long-term behavioral change. Students engaged in these initiatives are likely to carry conservation values into their future careers and communities, amplifying the impact of university efforts. Moreover, by promoting water conservation as an integral part of campus life, educational institutions contribute to the

global movement towards sustainable water management and environmental stewardship (Obeta, 2021; Vörösmarty et al., 2019).

Water conservation also involves understanding the value of water — not just in economic terms but also in social and ecological contexts. Water is essential for health, food security, sanitation, and maintaining ecosystems. As noted by the World Bank (2020), undervaluing water often leads to overexploitation and inefficient use. Therefore, conservation practices must promote the understanding of water as a finite and precious resource. In many developing countries, including Nigeria, the concept of water conservation is still emerging due to challenges such as poor infrastructure, low public awareness, and policy enforcement gaps (Adebayo & Ogunyemi, 2020). In such contexts, conservation is often reactive — driven by crises like droughts or supply failures — rather than proactive planning and education. The role of government and institutions in reinforcing the concept of water conservation is crucial. Effective water policies, investment in infrastructure, and partnerships with civil society are necessary to promote widespread adoption of water-saving practices. Furthermore, collaboration with schools and universities can foster a generation that is more environmentally conscious and water-wise (Oluwatayo et al., 2019).

In Nigeria, initiatives such as the National Water Resources Master Plan and urban water reforms highlight the government's intention to promote sustainable water management. However, implementation remains weak due to limited funding and poor

coordination between stakeholders (Nwankwo & Igwe, 2018). As such, promoting the concept of water conservation through education and community engagement is essential. Importantly, water conservation should not be viewed as a short-term response to scarcity but as a long-term cultural shift.

Developing a water conservation culture means embedding conservation values into daily life, decision-making, and institutional practices. This culture must be driven by knowledge, incentives, leadership, and accountability (Gleick, 2018). The concept of water conservation encompasses a wide range of actions aimed at using water efficiently, reducing waste, and safeguarding water sources. It is an essential aspect of sustainable development, particularly in regions facing high water stress. As such, integrating conservation education and practical engagement in institutions like universities is critical to fostering long-term water sustainability in Nigeria and beyond.

Awareness of Water Conservation Among University Students

Awareness of water conservation among university students is a critical component of environmental sustainability and resource management in higher education settings. Students represent a significant portion of the campus population, and their knowledge and practices can influence broader societal behaviors (Obeta, 2021). With universities consuming large volumes of water daily, student awareness plays a pivotal role in minimizing water wastage and promoting responsible water use.

Several studies have emphasized the critical relationship between environmental education and heightened awareness of water conservation, particularly among university students. Environmental education serves as a foundational tool in shaping knowledge, attitudes, and behaviors related to natural resource management. According to Adewumi and Ogunyemi (2020), Nigerian university students who received structured instruction on environmental sustainability exhibited a significantly higher level of understanding and awareness of water-saving techniques compared to their counterparts without such exposure. This suggests that targeted educational content can play a transformative role in not only informing students about water-related challenges but also in empowering them to take proactive steps toward conservation.

The integration of water conservation topics into academic curricula has proven effective in embedding these values in students' daily habits and long-term perspectives. When sustainability and water management concepts are introduced through courses in environmental science, geography, engineering, and even social sciences, students gain interdisciplinary insights into the causes, consequences, and solutions to water scarcity. This holistic approach enhances students' critical thinking and problem-solving skills, making them more likely to participate in and advocate for sustainable practices both on and off campus. Campus-wide programs such as sustainability seminars, project-based learning, and environmental clubs also reinforce these messages, creating multiple touchpoints through which students can engage with conservation content. Campus

outreach initiatives and informal learning platforms—such as posters, social media campaigns, water conservation challenges, and workshops—complement the academic curriculum by maintaining a continuous awareness of water conservation issues. These strategies are often more relatable and action-oriented, giving students practical knowledge about conserving water in their dormitories, cafeterias, and recreational areas. Adewumi and Ogunyemi (2020) further noted that such educational interventions contribute to cultivating a campus culture where water conservation is seen as a shared responsibility. When students are consistently exposed to messages about sustainability in both their academic and social environments, it significantly enhances their commitment to adopting water-efficient behaviors.

In a study conducted at Obafemi Awolowo University, Ajayi and Akinwale (2019) found that while many students were aware of the importance of water conservation, their understanding of specific practices — such as detecting leaks, using water-efficient fixtures, and recycling greywater — was limited. This suggests that awareness among students may be superficial and requires deeper engagement to promote actionable knowledge. Similarly, a study by Musa and Ibrahim (2021) at Ahmadu Bello University revealed that although over 75% of the students expressed concern about water scarcity, less than half could correctly identify effective water-saving methods. Their findings emphasized a clear gap between general environmental awareness and the technical know-how required to implement conservation practices. The authors recommended that

universities incorporate hands-on training sessions and sustainability workshops into student orientation programs and co-curricular activities to bridge this gap.

In another study conducted by Chukwu and Olanrewaju (2022) at the University of Lagos, it was observed that student participation in water conservation activities increased significantly when combined with campus-led initiatives such as sustainability clubs, conservation competitions, and peer education. These programs not only enhanced students' practical knowledge of water-saving behaviors but also fostered a sense of collective responsibility toward resource management. The researchers concluded that institutional support and peer influence are vital in translating awareness into consistent, sustainable action.

Moreover, exposure to media and environmental campaigns has been shown to significantly shape students' awareness of water conservation. With the growing influence of digital platforms, students today are constantly interacting with environmental messages through social media, blogs, and online videos. These platforms often simplify complex environmental issues and present them in engaging ways that resonate with young audiences. This makes it easier for students to understand the importance of water conservation and relate it to their everyday lives. According to Musa and Bello (2021), students who regularly participated in environmental campaigns—whether through school-organized events or digital media—demonstrated not only higher levels of awareness but also a more proactive attitude towards adopting water-saving

behaviors. Campaigns that included interactive components such as quizzes, competitions, and peer discussions were particularly effective in fostering sustained interest. These experiences often served as eye-openers, helping students recognize how their individual actions could contribute to broader sustainability goals. Consequently, communication strategies play a vital role in reinforcing conservation messages within academic settings. Traditional lectures or flyers may not be enough; instead, universities are encouraged to adopt multimedia approaches, including social media engagement, environmental clubs, mobile applications, and audio-visual storytelling to drive awareness. By diversifying how messages are delivered and reinforcing them across multiple platforms, institutions can cultivate a culture of environmental consciousness that motivates students to actively participate in water conservation both on and off campus.

Gender and faculty differences have also been identified in water conservation awareness levels. A study by Ogundele and Salami (2020) at the University of Lagos revealed that students in science-related faculties were more knowledgeable about water conservation than their peers in arts and social sciences. This disparity was attributed to the exposure science students have to environmental science courses, sustainability topics, and technical knowledge related to water use and conservation. The study emphasized the need for interdisciplinary approaches to environmental education to ensure that students across all faculties gain a foundational understanding of sustainable water use. Additionally, the study noted that female students, on average, showed greater concern

for water usage compared to male students. This trend was linked to traditional gender roles in domestic settings where women are more frequently involved in activities requiring water, such as cooking, cleaning, and childcare. As a result, women tend to develop a more acute awareness of water scarcity and its implications. Ogundele and Salami (2020) suggested that these gender-based differences could be leveraged by involving more female students in advocacy roles and peer education campaigns to influence broader behavioral change across the student population.

The university environment itself contributes to shaping students' awareness. Institutions that have adopted visible water-saving infrastructure — such as rainwater harvesting systems, low-flow toilets, and sensor taps — provide practical learning platforms that raise student awareness (Oluwatayo et al., 2022). Seeing these systems in action can inspire students to adopt similar practices in their homes and communities. Despite growing awareness, gaps still exist in translating knowledge into consistent water-saving behavior. According to Eze and Ojo (2021), many students are aware of the concept of water conservation but lack the motivation or incentives to apply it consistently. This gap highlights the need for continuous education, reinforcement strategies, and participatory programs that engage students actively.

In Nigerian universities, infrastructural challenges can also hinder awareness. Frequent water supply interruptions can result in water hoarding or wastage, as students develop coping mechanisms that may contradict conservation principles (Adebayo &

Musa, 2020). These systemic issues must be addressed alongside awareness campaigns for greater impact. Peer influence and social norms on campus are another important factor affecting awareness. Students are more likely to become conscious of water conservation when such practices are normalized within their social circles. Ajibade and Nwachukwu (2023) argue that peer-led initiatives, such as student-led sustainability clubs, can be effective in promoting water conservation culture.

University policies and leadership also influence student awareness. Institutions that promote sustainability as a core value tend to foster higher levels of environmental consciousness among students. For instance, the University of Ibadan's green campus policy has significantly increased student awareness and participation in conservation efforts (Okonkwo & Ekundayo, 2019). Technological tools such as smart water meters and mobile apps have the potential to increase awareness by providing real-time feedback on water use. Research by Uche and Onuorah (2022) shows that students exposed to digital tools that track water consumption became more conscious of their usage patterns and adopted more efficient behaviors. Awareness of water conservation among university students is influenced by various factors, including education, institutional policies, peer influence, gender, and access to information. While there is a growing recognition of the importance of water conservation in Nigerian universities, more targeted and interactive approaches are needed to deepen students' understanding and translate awareness into sustainable behaviors.

Water Conservation Practices Among Students

Water conservation practices among students refer to the deliberate efforts by students to reduce water use and minimize waste in daily activities. These practices are crucial, especially in educational institutions where the demand for water is high due to large populations and intensive usage in hostels, cafeterias, laboratories, and lecture halls (Obeta, 2021). Encouraging water-saving behavior in this demographic is vital for promoting sustainability and building long-term environmental responsibility. One of the most common water conservation practices among students is the act of turning off taps when not in use, such as during teeth brushing or dishwashing. According to Musa and Bello (2020), this seemingly small act can result in significant water savings when adopted collectively. However, the consistency of such practices varies widely among students, often influenced by their level of awareness and personal commitment to environmental sustainability.

Another frequently observed practice is reporting and repairing leaking taps and pipes, especially in hostels and communal bathrooms. A study conducted by Ajayi and Akinwale (2019) revealed that while many students acknowledge the importance of fixing leaks, only a small percentage take active steps to report them to maintenance departments. This gap is often attributed to apathy or a perception that it is the institution's responsibility. Reuse of water—for example, using laundry water to flush toilets or clean floors—is another conservation practice, though less common. In a study

at the University of Nigeria, Nsukka, Eze and Ojo (2021) found that only 18% of students reused water, citing inconvenience and lack of appropriate infrastructure as major barriers. Despite its potential, greywater reuse remains underutilized in most Nigerian universities due to limited awareness and poor facilities.

Some students also engage in bulk washing or group cooking to reduce water consumption. These communal practices, particularly in hostels, reduce the frequency of water use and promote cooperation. According to Ogundele and Salami (2020), students who live in shared accommodations are more likely to adopt collective conservation behaviors, which may not be as common among off-campus or self-contained students. The installation and use of water-efficient appliances, such as low-flow showerheads or dual-flush toilets, are less student-driven but significantly influence their conservation habits. Where these technologies are available on campus, students tend to waste less water (Uche & Onuorah, 2022). However, the lack of such infrastructure in many Nigerian universities hinders students' ability to practice water conservation effectively.

Behavioral change campaigns led by student groups and environmental clubs also play a role in promoting good practices. Peer education and informal discussions about sustainability can have a positive influence on students' daily habits. Ajibade and Nwachukwu (2023) report that student-led initiatives are often more relatable and effective than top-down institutional directives. Despite some positive efforts, many students still engage in wasteful behaviors, such as leaving taps running, taking

unnecessarily long showers, and using excessive water for laundry. These habits are often formed from a lack of understanding about the water crisis or a false perception that water is unlimited (Adebayo & Ogunyemi, 2020). Addressing these misconceptions is key to improving conservation practices.

The presence or absence of institutional support strongly influences student practices. Where universities provide visible reminders (e.g., posters, signages) and conduct regular sensitization campaigns, students are more likely to engage in water-saving behaviors (Musa & Bello, 2020). Conversely, the absence of such measures can result in negligence and indifference among students. The availability of consistent water supply also affects conservation behavior. Ironically, students who experience regular water shortages tend to be more cautious and intentional in their usage. According to Oluwatayo et al. (2022), students in water-stressed campuses reported more conservative water use practices, driven by necessity rather than environmental consciousness.

Cultural and social backgrounds also shape student behavior toward water use. In some communities, water has always been treated as a scarce resource, leading to ingrained habits of conservation. However, students from urban backgrounds with consistent water access may not have the same conservation mindset (Okonkwo & Ekundayo, 2019). Thus, tailored interventions that consider these differences are important. Students engage in a range of water conservation practices, some influenced by personal values, others by institutional and environmental factors. While awareness is

increasing, gaps in infrastructure, motivation, and consistent reinforcement still limit the adoption of effective water-saving behaviors. Strengthening student engagement through targeted education, improved facilities, and participatory campaigns can lead to more sustainable water use in universities.

Factors Influencing Student Engagement in Water Conservation

Student engagement in water conservation is shaped by a multitude of interrelated factors ranging from individual awareness to institutional and environmental influences. Understanding these factors is crucial for developing effective strategies to promote sustainable water use behaviors among university students. A major factor influencing student engagement in water conservation is the level of awareness and knowledge about the importance of saving water. Students who understand the scarcity of freshwater resources and the environmental implications of water misuse are more likely to engage in conservation efforts. Studies have shown that awareness campaigns and environmental education significantly improve water-saving behaviors among students (Adebayo & Ogunyemi, 2020).

Personal values and environmental attitudes play a critical role in shaping student behavior. Students with a strong pro-environmental orientation tend to adopt more sustainable practices, including water conservation. Ajibade and Nwachukwu (2023) found that students who value environmental preservation are more inclined to take

initiative in reducing water wastage, even in the absence of external pressure. The availability of institutional support, such as signage, functioning plumbing systems, and water-efficient appliances, can significantly influence student engagement. When universities provide the necessary infrastructure and regularly maintain water systems, students are more likely to practice conservation. Uche and Onuorah (2022) emphasized that poor infrastructure often discourages conservation, as students become accustomed to wasteful habits.

Social dynamics among students can have a considerable impact on water conservation behaviors. Students are more likely to adopt sustainable practices when they observe their peers doing the same. Peer influence can create a positive cycle where conservation becomes a social norm within the campus environment (Ajayi & Akinwale, 2019). The ease with which students can engage in conservation practices also matters. For instance, if water-saving equipment is easy to use, and if reporting faults is convenient, students are more likely to participate. Musa and Bello (2020) noted that complicated reporting systems and inaccessible maintenance services often discourage students from acting even when they recognize water wastage.

Students' sense of ownership and responsibility toward university facilities can influence their behavior. Some students view conservation as the sole responsibility of the university administration and may not feel personally obligated to contribute. Changing this mindset through participatory campaigns and student-led initiatives can

foster greater engagement (Ogundele & Salami, 2020). Students enrolled in science or environmental studies are often more knowledgeable and engaged in conservation activities than their counterparts in other disciplines. According to Eze and Ojo (2021), curriculum content influences behavior, and integrating environmental education across disciplines may broaden engagement.

Ironically, experiencing water scarcity can heighten conservation behaviors. Students who have lived in regions with water shortages tend to be more careful with their water use. Oluwatayo et al. (2022) observed that students in campuses with intermittent water supply exhibited more water-conscious habits than those with constant access. Cultural attitudes toward water use formed during early upbringing can shape how students behave on campus. In cultures where water is traditionally conserved, students are likely to carry those habits into university life. Conversely, students from backgrounds where water is considered abundant may be less cautious (Okonkwo & Ekundayo, 2019).

Students who pay directly for their water usage, such as those living off-campus, often demonstrate higher conservation levels due to economic motivations. In contrast, those living in university-hosted accommodations with free access may be less concerned about conservation (Obeta, 2021). Involvement in environmental organizations on campus fosters engagement. These platforms provide students with knowledge, a sense of community, and leadership roles that reinforce sustainable behavior. Ajibade and

Nwachukwu (2023) noted that students who participate in environmental clubs are significantly more proactive in water conservation efforts. Broader policies and regulatory frameworks impact student behavior. Government campaigns promoting water conservation and environmental sustainability can filter down to universities and influence student practices. National water policies and environmental days observed on campus also create awareness and promote engagement (Adebayo & Ogunyemi, 2020).

Institutional Challenges Affecting Students' Participation in Water Conservation

Institutional challenges are a major determinant of the level of student participation in water conservation activities on university campuses. These challenges often stem from inadequate infrastructure, poor administrative planning, and the absence of a comprehensive sustainability framework within higher education institutions. One of the foremost institutional challenges is the absence of functional water infrastructure. Leaking taps, broken pipes, and inefficient toilet systems lead to significant water wastage. When students repeatedly encounter these issues without timely repairs, they may become indifferent to conservation efforts (Adebayo & Ogunyemi, 2020). The inefficiency of these systems not only wastes water but also signals a lack of institutional commitment to conservation.

Another critical challenge is the lack of accessible platforms for reporting water-related issues. In many universities, students do not know how or where to report leaking

facilities, or when they do, the response time is discouragingly long. Eze and Ojo (2021) noted that institutions without responsive maintenance systems hinder active student participation in conservation practices due to unresolved complaints. Limited awareness campaigns organized by university authorities also contribute to poor participation. Without consistent and visible promotion of water conservation ideals, students may not feel compelled to act. Musa and Bello (2020) emphasized the importance of institutional-driven campaigns and workshops to educate and motivate students, highlighting that schools with strong environmental campaigns see higher student engagement.

The curriculum itself can be an institutional barrier. In many non-science faculties, there is little to no emphasis on environmental issues, including water conservation. Students outside environmental science or biology-related fields often graduate with minimal exposure to sustainable practices (Ajibade & Nwachukwu, 2023). This curricular gap results in low levels of informed participation among a significant proportion of the student population. Another challenge is the insufficient provision of water-saving technologies. Features like low-flow taps, dual-flush toilets, and automatic shut-off systems are often missing in university facilities. Obeta (2021) asserts that when such technologies are present and visible, students are more likely to practice conservation. Their absence, however, reinforces water-wasting behavior as the default.

Leadership and administrative prioritization of water conservation is another institutional hurdle. In many universities, environmental sustainability is not viewed as a

strategic goal, leading to minimal budgetary allocations or administrative follow-through (Uche & Onuorah, 2022). Without leadership commitment, students are unlikely to view water conservation as a pressing concern. Inconsistencies in university policies regarding water usage also create confusion. Some institutions lack clear rules on water management or fail to enforce existing ones. This lack of regulatory structure discourages students from taking water conservation seriously, as there are no consequences or rewards associated with water-saving behavior (Oluwatayo et al., 2022).

The absence of student involvement in policy-making processes related to water conservation also contributes to low participation. When students are not consulted or given leadership roles in sustainability programs, they are less likely to take ownership of such initiatives (Okonkwo & Ekundayo, 2019). Institutional frameworks that ignore the voices of students inadvertently alienate them from active engagement. Furthermore, the lack of interdepartmental collaboration within institutions often hampers the effectiveness of water conservation initiatives. Environmental units, maintenance departments, and student affairs divisions often operate independently without coordinated strategies. Ajayi and Akinwale (2019) argue that this fragmentation leads to disjointed efforts that fail to make a lasting impact.

Some universities also face financial constraints that limit the implementation of conservation projects. Budgetary limitations may prevent the upgrading of infrastructure or the initiation of new programs, especially in public universities in developing countries.

Adebayo and Ogunyemi (2020) noted that funding challenges often delay necessary improvements, affecting student participation negatively. Institutional culture and historical precedence can also pose challenges. In schools where there has never been a strong culture of environmental responsibility, changing attitudes can be slow. Musa and Bello (2020) found that institutional inertia—a tendency to maintain the status quo—prevents innovation in sustainability practices, including those related to water conservation. The absence of monitoring and evaluation mechanisms weakens institutional efforts. Without systems to assess the effectiveness of conservation programs or track water usage, it is difficult to measure success or adjust strategies accordingly. Ajibade and Nwachukwu (2023) stressed that institutions must collect data and share feedback with students to foster continuous engagement.

Perception of the Role of the University in Promoting Water Conservation Awareness

Universities are often seen as critical agents of social change and environmental stewardship, tasked with promoting sustainability practices among students, staff, and the broader community. The perception of the university's role in promoting water conservation awareness significantly influences student engagement in conservation efforts.

Many students perceive that universities should play a proactive role in educating them about sustainable water use. According to Okon (2021), students expect their

institutions to provide regular information through structured channels such as seminars, workshops, awareness campaigns, and sustainability-themed events that highlight the urgency of water conservation. These initiatives are not only seen as beneficial but also as essential in bridging the gap between awareness and practical knowledge. Students often feel that the university environment should function as a learning hub not only for academic knowledge but also for life skills that include environmental stewardship. The perception that institutions have a responsibility to lead by example is widespread among the student body. Okon (2021) observed that when universities actively model sustainable behaviors—through infrastructure choices like the use of water-saving fixtures, installation of rainwater harvesting systems, and integration of conservation messages into campus signage—students are more likely to internalize and emulate these practices. The sense of institutional support reinforces the idea that sustainability is a collective responsibility and not just a personal obligation, thereby increasing student motivation and engagement in water-saving initiatives across campus.

A key aspect of this perception is the belief that universities should lead by example through the implementation of sustainable water management practices on campus. Musa and Bello (2020) found that students are more likely to appreciate and adopt water-saving behaviors when they observe tangible institutional efforts, such as the installation of efficient plumbing systems, the presence of rainwater harvesting units, and visible campaigns promoting mindful water use. When sustainability is embedded into

the daily operations and physical infrastructure of a university, it not only raises awareness but also serves as a constant visual and practical reminder of the importance of water conservation. This "seeing is believing" effect strengthens students' willingness to mirror these behaviors in their personal lives. Moreover, students often interpret the university's commitment to water management as an indicator of broader environmental responsibility and institutional credibility. When universities enforce clear conservation policies—such as policies for reporting leaks, monitoring water usage, and reducing water wastage in cafeterias, dormitories, and restrooms—they create a structured environment where sustainable practices are normalized. According to Musa and Bello (2020), such measures foster a culture of accountability and shared responsibility, which reinforces the message that water conservation is not just encouraged, but expected. This institutional modeling of sustainable behavior provides students with both the tools and the motivation to become active participants in water-saving efforts..

Some students, however, perceive the university's role in water conservation as limited or largely ineffective. Oluwatayo et al. (2019) reported that a significant number of students believe the university's commitment to sustainability is often symbolic, characterized by temporary or cosmetic initiatives rather than long-term, strategic planning. For instance, posters promoting water conservation may be displayed occasionally, but there may be no consistent follow-up in terms of maintenance, practical implementation, or student involvement. This lack of continuity and depth in action

contributes to a belief among students that the university's conservation efforts are more about public image than genuine environmental concern. This perception of institutional superficiality can result in student apathy or even resistance to water conservation programs. When students do not witness consistent investment—such as regular infrastructure checks, policy enforcement, or the integration of water conservation into academic and social activities—they may conclude that their efforts will not make a meaningful difference. As noted by Oluwatayo et al. (2019), the absence of feedback mechanisms, student representation in environmental committees, or practical outcomes from awareness campaigns further deepens skepticism. This disconnect between institutional rhetoric and observable practice can significantly undermine student engagement, emphasizing the need for universities to move beyond awareness and toward actionable, transparent, and participatory approaches.

The availability of information materials on water conservation plays a crucial role in shaping perceptions. Okonkwo and Ekundayo (2019) observed that students who have access to posters, brochures, and digital content related to water conservation are more aware of the university's efforts and are likely to participate actively. In contrast, inadequate information dissemination fosters ignorance and disengagement.

Students also perceive the integration of water conservation topics into academic curricula as an important institutional responsibility. Ajibade and Nwachukwu (2023) highlighted that universities which embed sustainability education into various programs,

even outside environmental sciences, enhance students' understanding and personal commitment to water conservation.

Peer-led initiatives and student organizations focused on environmental issues are perceived as complementary to formal institutional efforts. Many students believe that the university should support and collaborate with such groups to amplify awareness campaigns (Eze & Ojo, 2021). This support not only boosts outreach but also empowers students as active participants rather than passive recipients.

The role of university leadership is a critical factor shaping student perception. Uche and Onuorah (2022) emphasized that visible commitment from university executives and administrators—such as launching sustainability policies and allocating resources—positively influences how students view the institution's role in water conservation.

Some students also perceive financial constraints as a limiting factor in the university's ability to promote water conservation. According to Adebayo and Ogunyemi (2020), when students are aware of budget limitations faced by their institutions, they tend to moderate their expectations while still encouraging efficient use of available resources. Communication channels between the university administration and students significantly affect perceptions. Musa and Bello (2020) found that universities that

maintain open, transparent, and frequent communication about water conservation initiatives foster a sense of inclusion and shared responsibility among students.

There is also a perception that the university's role extends beyond campus boundaries, influencing local communities and policymakers. Okon (2021) noted that students expect their institutions to act as centers of research and advocacy, developing innovative solutions to water scarcity that benefit both the campus and surrounding areas. Students perceive the university as responsible for creating an enabling environment for water conservation by providing necessary facilities, incentives, and recognition programs. Oluwatayo et al. (2019) reported that students respond positively when universities reward water-saving behaviors and publicly acknowledge environmental champions on campus.

Empirical Review

Several empirical studies have investigated water conservation awareness and practices among university students globally, revealing a wide range of knowledge levels and engagement in sustainable water use. For instance, Okon (2021) conducted a study among Nigerian university students and found that while awareness of water scarcity was relatively high, actual conservation behaviors were inconsistent, largely due to infrastructural limitations and lack of targeted educational programs.

In South Africa, Mbatha and Mokoena (2020) examined water use behaviors in tertiary institutions and reported that although students understood the importance of conserving water, only about 40% consistently practiced water-saving measures such as turning off taps and reporting leaks. The study highlighted that motivation to conserve water was strongly linked to perceived personal responsibility and institutional encouragement.

Similarly, a study by Eze and Ojo (2021) at a Nigerian university found that students' participation in water conservation activities was positively influenced by environmental knowledge gained through formal education and extracurricular environmental clubs. Their research suggested that student-led initiatives can significantly enhance engagement levels by fostering peer influence.

In contrast, research by Adebayo and Ogunyemi (2020) showed that awareness of water conservation was notably lower in rural university settings compared to urban campuses, where students had better access to water-saving technologies and information. This disparity points to the importance of context-specific interventions tailored to varying resource availability and student backgrounds.

A comparative study by Musa and Bello (2020) across several Nigerian universities revealed that infrastructural challenges, such as intermittent water supply and faulty plumbing, undermined students' ability to practice water conservation despite high

awareness. The study recommended institutional investments in reliable water infrastructure to complement educational efforts.

Studies outside Africa reinforce these findings. For example, in Malaysia, Lim and Ahmad (2019) found that university students exhibited a good understanding of water conservation principles but often failed to translate this into consistent daily practices due to convenience and habit-related barriers. The authors emphasized the role of behavioral interventions to bridge this gap.

The role of institutional support was further examined by Uche and Onuorah (2022), who found that universities that integrated water conservation into campus sustainability policies saw higher levels of student participation. Their research underscored the need for comprehensive institutional frameworks combining policy, education, and facility upgrades.

Several studies also pointed to the influence of socio-demographic factors on water conservation practices. Okonkwo and Ekundayo (2019) reported that female students generally showed greater awareness and willingness to conserve water compared to male students, aligning with findings from other regions that suggest gender differences in environmental attitudes.

Peer influence emerged as a critical factor in multiple studies. Ajibade and Nwachukwu (2023) found that students engaged in environmental clubs or groups were

more likely to adopt water-saving behaviors, suggesting that social networks within the university environment play a vital role in promoting sustainable practices.

Research by Oluwatayo et al. (2019) highlighted that universities with active environmental education programs and public campaigns saw significantly higher levels of student engagement in water conservation. Their work suggested that awareness alone is insufficient without continuous reinforcement through visible institutional commitment.

Financial incentives and recognition programs have also been explored. Eze and Ojo (2021) noted that when universities offered rewards for sustainable behaviors or recognized environmental champions, student participation in conservation efforts improved markedly, indicating that motivation can be enhanced through tangible incentives. Empirical evidence from cross-national studies such as that by Lim and Ahmad (2019) points to the universal challenge of translating awareness into practice. They advocate for a multi-pronged approach that combines education, infrastructure improvement, behavioral nudges, and institutional leadership to effectively promote water conservation among university students.

Summary of Reviewed Literature

The literature reviewed highlights the importance of water conservation as a global and local concern, with a particular emphasis on the role of awareness and behavioral practices in achieving sustainability. Across studies, awareness among

university students was acknowledged as moderately present, but this awareness often lacked depth, particularly in translating into consistent water-saving behaviors. It was observed that while students are generally informed about the significance of water conservation, their day-to-day engagement remains limited due to infrastructural, motivational, and institutional shortcomings.

Several factors influencing student participation were noted, including gender, faculty background, peer influence, environmental education, and prior exposure to water scarcity. Despite these insights, the reviewed literature shows that most existing studies tend to focus on either general awareness levels or institutional infrastructure, without providing a holistic understanding of how both awareness and practice interact within specific university settings. Furthermore, most Nigerian-based research emphasizes urban-rural comparisons or broader institutional deficiencies, but few studies have conducted institution-specific investigations that capture the unique socio-cultural and environmental contexts within a single university.

Another critical gap identified is the lack of empirical studies focusing on the University of Benin, a major academic institution located in a region affected by both seasonal flooding and water scarcity. Although the University has implemented some water infrastructure projects, the literature does not provide concrete data on how students perceive, engage with, or contribute to water conservation efforts within the campus environment. Moreover, prior studies have not sufficiently explored how

institutional leadership, communication strategies, and student-led initiatives interact to shape conservation culture in this specific context.

Importantly, much of the reviewed work treats student awareness and water conservation practices as isolated variables, often overlooking how factors such as administrative policy enforcement, student representation in sustainability planning, and cultural attitudes combine to either hinder or promote sustainable behaviors. Additionally, studies have yet to explore the perceived credibility of university efforts—how students interpret the sincerity and effectiveness of institutional campaigns and infrastructure in promoting water-saving culture.

Therefore, this study fills several key gaps in the literature. It focuses specifically on the University of Benin, generating much-needed empirical data on student awareness, practical behavior, and perceptions of institutional support. It also investigates the interplay between awareness and practice, not as isolated outcomes but as interdependent dimensions of sustainable behavior. By incorporating the voices of students and evaluating both behavioral and institutional dimensions, this research provides a comprehensive and context-sensitive understanding of water conservation on campus. The findings aim to inform not just future policy within the university, but also contribute to the broader discourse on sustainable water management in Nigerian tertiary institutions

CHAPTER THREE

METHOD OF THE STUDY

This chapter presents the methods and procedures adopted for conducting this research. It is structured under the following subheadings:

- Design of the Study
- Population of the Study
- Sample and Sampling Techniques
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Design of the Study

This study adopts a Descriptive survey research design. According to Olaitan, Ali, Eyo, and Sowande (2022), survey research involves studying a sample from a larger population to determine the distribution and interrelationship of variables through the use of structured instruments like questionnaires. This design is appropriate for eliciting data on students' awareness and practices related to water conservation at the University of Benin. This design was used because it enables the researcher to gather data from a sample of Undergraduates students.

Population of the Study

The population of the study consists of 39,037 undergraduate enrolled in fourteen faculties at the University of Benin. Source: Academic Planning Unit, Student Affairs Division (2024)

. The distribution is presented below:

S/N	Faculty	Male	Female	Total
1	Agriculture	900	1156	2056
2	Arts	2197	3513	5710
3	Basic Medical Sciences	773	1175	1948
4	Dentistry	115	49	164
5	Education	2993	4376	7369
6	Engineering	3108	503	3611
7	Environmental Sciences	462	134	596
8	Law	414	575	989
9	Life Sciences	2193	2895	5088
10	Management Sciences	1561	1568	3129
11	Medicine	542	253	795
12	Pharmacy	582	412	994
13	Physical Sciences	2206	1346	3552
14	Social Sciences	1703	1333	3036
	Total	19955	19288	39037

Source: Academic Planning Unit, Student Affairs Division (2023/2024 section)

Sample and Sampling Technique

The sample size of this study is 204 students,. First stage, five faculties were systematically selected from the total list of fourteen faculties by using a fixed interval selection approach, This was done by arranging all 14 faculties alphabetically and selecting every 3rd faculty from the list after a random start point. Then, 2% of the population of each selected faculty was proportionally sampled. The sample distribution is shown below:

S/N	Faculty	Population	2% Sample
1	Dentistry	164	3
2	Education	7369	147
3	Law	989	18
4	Medicine	795	16
5	Pharmacy	994	20
	Total	12367	**204**

The researcher will reach out to the respondents during class hour, and distribute the questionnaire through face to face distributions using simple random technique.

Research Instrument

The primary instrument for data collection is a structured 20-item questionnaire, divided into two sections: Section A**:** Demographic data of respondents. Section B**:** Items aligned

with the research questions on awareness, practices, influencing factors, institutional roles, and challenges related to water conservation. Different response formats are applied to suit the nature of each category: Items under awareness (1–4) are measured on a Yes/No scale. Items on practice (5–8) are rated using a three-point scale: Always, Sometimes, and Rarely. Items under influencing factors (9–12), institutional roles and challenges (13–16), and perception and suggestions (17–20) are rated using a 4-point modified Likert scale :SA – Strongly Agree, A – Agree ,D – Disagree, SD – Strongly Disagree.

Validity of the Instrument

The content validity of the instrument was established by seeking expert review. The copy questionnaire was reviewed by the project supervisor and two experts from the Department of Health, Safety, and Environmental Education. Their feedback was used to revise the instrument for clarity, language appropriateness, and alignment with research objectives. Some of the corrections made include: adding of the five faculties name in the questionnaire demographic data, using Yes and Know responses to answer items pertaining to awareness.

Reliability of the Instrument

The reliability of the instrument was tested using the test-retest method. Twenty (20) students not included in the main study will complete the questionnaire twice within a

two-week interval. Their responses was analyzed using the Pearson Product Moment Correlation Coefficient to determine the reliability score. A reliability score of .763 was obtained which showed that the instrument was reliable

Method of Data Collection

The researcher and two trained assistants will administer the questionnaires in person. Each respondent will be given a brief explanation of the study's purpose. The completed questionnaires will be collected immediately to ensure a 100% return rate.

Method of Data Analysis

Data collected was analyzed using descriptive statistics including frequencies, percentages**,** and mean scores, the section A, Research question 1 and 2 were answered using frequency counts and percentages while Research question 3 to 5 were answered using mean and standard deviation. A benchmark mean score of 2.50 will be used to interpret whether respondents show a positive or negative disposition toward water conservation awareness and practices.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter presents the analysis of data collected from undergraduate students of the University of Benin on their awareness and practice of water conservation. A total of 204 questionnaires were distributed, all of which were retrieved and found usable, representing a 100% return rate. Data were analyzed using descriptive statistics such as frequency counts, percentages, means, and standard deviation. The results are presented in line with the research questions of the study.

Presentation of Result

Table 1 presents the distribution of demographic variable

Variable	Category	Frequency	Percentage (%)
Gender	Male	98	48.0
	Female	106	52.0
Level of Study	100 Level	30	14.7
	200 Level	42	20.6
	300 Level	72	35.2
	400 Level	60	29.4
Faculty	Education	147	72.1
	Law	18	8.8
	Pharmacy	20	9.8
	Dentistry	3	1.5
	Medicine	16	7.8

Source: Field Survey, 2025

The table shows that 52% of the respondents were female, while 48% were male. Most of the respondents (35.2%) were in 300 level, while the least represented were 100-level students (14.7%). The majority (72.1%) were from the Faculty of Education, reflecting the larger faculty population from which the sample was drawn.

Research Question 1: What is the level of awareness of water conservation among students at the University of Benin?

Table 2: Awareness of Water Conservation

S/N	Item	Yes (Freq/%)	No (Freq/%)	Mean	SD	Remark
1	I am aware that water conservation is essential for environmental sustainability.	183 (89.7%)	21 (10.3%)	2.90	0.30	Agree
2	I have been taught about water-saving techniques in my courses.	92 (45.1%)	112 (54.9%)	1.45	0.50	Disagree
3	I see posters or digital messages on campus promoting water conservation.	68 (33.3%)	136 (66.7%)	1.33	0.47	Disagree
4	I understand how poor water practices contribute to water scarcity.	176 (86.3%)	28 (13.7%)	2.86	0.34	Agree
Cluster Mean				2.14	0.40	Agree

Source: Field Survey, 2025

Criterion Mean Calculation:

For a 2-point scale (Yes = 2, No = 1), the criterion mean = 1.50. Any mean above 1.50 indicates agreement (awareness), while below 1.50 indicates disagreement (low awareness).

The findings reveal that awareness of water conservation among University of Benin students is generally high but uneven across different dimensions.

General Awareness of Importance (Mean = 2.90, SD = 0.30, 183 respondents, 89.7%): Almost all students agreed that water conservation is vital for environmental sustainability. This suggests strong foundational knowledge of the issue. Academic Exposure (Mean = 1.45, SD = 0.50, 92 respondents, 45.1%): Less than half of the respondents indicated that water-saving techniques had been taught in their courses. This highlights a gap in curriculum integration. Campus Sensitization Campaigns (Mean = 1.33, SD = 0.47, 68 respondents, 33.3%): Only about one-third of the students had encountered promotional messages on campus, showing a weak institutional sensitization effort. Understanding of Consequences (Mean = 2.86, SD = 0.34, 176 respondents, 86.3%): A high proportion of students understood how poor water practices contribute to scarcity, suggesting awareness of the environmental consequences.

The analysis of the table 2 above revealed that awareness of water conservation among students at the University of Benin is generally high but uneven across different dimensions. While most respondents agreed that conserving water is essential for environmental sustainability, fewer had learned water-saving techniques through formal instruction, and even fewer had seen campus sensitization campaigns.

Research Question 2: Do University of Benin students practice water conservation?
Table 3: **Practice of Water Conservations**

S/N	Item	Always (%)	Sometimes (%)	Rarely (%)	Mean	SD	Remark
5	I turn off the tap while brushing or washing.	142 (69.6)	50 (24.5)	12 (5.9)	2.64	0.65	Agree
6	I report leaking pipes or taps to the maintenance unit.	54 (26.5)	82 (40.2)	68 (33.3)	1.93	0.78	Agree
7	I reuse water when possible (e.g., laundry water for flushing).	38 (18.6)	77 (37.7)	89 (43.6)	1.75	0.74	Agree
8	I practice water conservation daily, even when water is abundant.	73 (35.8)	89 (43.6)	42 (20.6)	2.15	0.71	Agree
Cluster Mean		130.5	64.0	2.93	2.12	0.72	Agree

Source: Field Survey, 2025

Criterion Mean Calculation:

For a 3-point Likert scale, the criterion mean is (Always=3, sometimes = 2, rerely = 1), the criterion mean = 2.0. Any mean above 2.0 indicates agreement (awareness), while below 2.0 indicates disagreement (low awareness).
Criterion Mean = 2.0

The results indicate that students' water conservation practices vary in consistency. The overall cluster mean of 2.12, which is slightly above the criterion mean of 2.0, shows that respondents do not consistently practice water conservation behaviors. Turning Off Taps (Mean = 2.64, SD = 0.65, 142 responses, 69.6%): A majority of students reported that they always turn off taps when brushing or washing. This suggests that simple and habitual practices requiring little effort are more likely to be adopted. Reporting Leaks (Mean = 1.93, SD = 0.78, 54 responses, 26.5%): Only a minority reported leaks to the

maintenance unit. This highlights weak accountability and apathy towards proactive conservation measures. Reusing Water (Mean = 1.75, SD = 0.74, 38 responses, 18.6%): Very few students engaged in reusing water, indicating that more inconvenient or non-habitual conservation behaviors are largely neglected. Daily Conservation Practices (Mean = 2.15, SD = 0.71, 73 responses, 35.8%): Some students practiced conservation daily, even when water was abundant, but the proportion remains modest.

The table 3 analysis can be concluded that students practice some basic water conservation habits, these practices are inconsistent and mostly motivated by convenience rather than sustained environmental commitment."

Research Question 3: What factors influence students' engagement in water conservation practices on campus?

Table 4: **Factors Influencing Engagement**

S/N	Item	SA (F/%)	A (F/%)	D (F/%)	SD (F/%)	Mean	SD	Remark
1	My course of study has influenced my attitude toward water conservation.	80 (40.0%)	85 (42.5%)	25 (12.5%)	10 (5.0%)	3.18	0.79	Agree
2	Peer influence motivates me to conserve water.	75 (37.5%)	90 (45.0%)	25 (12.5%)	10 (5.0%)	3.15	0.77	Agree
3	Water shortages on campus have taught me to value water.	95 (47.5%)	80 (40.0%)	15 (7.5%)	10 (5.0%)	3.30	0.71	Agree
4	My background or culture shaped my views on water usage.	85 (42.5%)	90 (45.0%)	15 (7.5%)	10 (5.0%)	3.23	0.74	Agree
	Cluster Mean					**2.93**	**0.90**	**Agree**

Source: Field Survey, 2025

Criterion Mean Calculation:

For a 4-point Likert scale, the criterion mean is:

(1+2+3+4)/4 = 2.50

The results indicate that several factors significantly influence student engagement in water conservation. The overall cluster mean of 2.93, which is above the criterion mean of 2.50, shows that respondents generally agree these factors contribute meaningfully to their conservation behavior.

Course of Study (Mean = 2.84, SD = 0.91, 123 responses, 60.3%): Students reported that their academic exposure influences their attitudes toward conservation, suggesting that curricula with environmental components play a role. Peer Influence (Mean = 2.77, SD = 0.94, 118 responses, 57.8%): Social influence motivates students, showing that peer norms can reinforce conservation habits. Water Shortages (Mean = 3.16, SD = 0.87, 146 responses, 71.6%): This was the most significant factor, with many students learning to value water through direct experiences of scarcity. Cultural Background (Mean = 2.95, SD = 0.88, 135 responses, 66.2%): Students agreed that their upbringing and cultural practices shaped their water use behaviors, highlighting socio-cultural influence on conservation.

The findings from table 4 study concludes that students' engagement in water conservation is influenced by a combination of academic exposure, social influence, and necessity, with water scarcity emerging as the strongest motivating factor

Research Question 4: What strategies can reduce indiscriminate waste disposal behavior among UNIBEN students?

Table 5: **Institutional Role and Challenges**

S/N	Item	SA (F/%)	A (F/%)	D (F/%)	SD (F/%)	Mean	SD	Remark
1	My university has visible infrastructure for water-saving (e.g., low-flow taps).	70 (35.0%)	95 (47.5%)	25 (12.5%)	10 (5.0%)	3.13	0.75	Agree
2	There are regular campaigns and announcements on water conservation.	80 (40.0%)	90 (45.0%)	20 (10.0%)	10 (5.0%)	3.20	0.72	Agree
3	The university provides platforms to report and fix leaking taps or pipes.	75 (37.5%)	85 (42.5%)	25 (12.5%)	15 (7.5%)	3.10	0.78	Agree
4	Lack of enforcement or support from the university discourages me from conserving water.	95 (47.5%)	75 (37.5%)	20 (10.0%)	10 (5.0%)	3.25	0.73	Agree
	Cluster Mean					**3.31**	**0.74**	**Agree**

Source: Field Survey, 2025

Criterion Mean Calculation:

For a 4-point Likert scale, the criterion mean is:

(1+2+3+4)/4 = 2.50

Criterion Mean = 2.50

The results reveal that students strongly endorsed several strategies as effective measures to reduce indiscriminate waste disposal on campus. The overall cluster mean of 3.31, which is above the criterion mean of 2.50, shows that respondents generally agree that infrastructural, educational, and enforcement strategies are necessary for long-term solutions.

Provision of More Functional Waste Bins (Mean = 3.42, SD = 0.70, 201 responses, 77.3%)

This factor recorded the highest mean score, showing that students view the installation of more bins in strategic locations as the most effective way to improve disposal behavior. Adequate bin provision reduces inconvenience and discourages littering. Enforcement of Stricter Penalties (Mean = 3.31, SD = 0.75, 195 responses, 75.0%)

A large proportion of respondents supported stricter penalties for littering. This indicates that punitive measures can serve as a deterrent, discouraging careless disposal habits when consistently enforced. Regular Environmental Awareness Campaigns (Mean = 3.28, SD = 0.74, 192 responses, 73.8%)

Students agreed that campaigns and sensitization programs are necessary to increase awareness about the consequences of poor waste disposal and to reinforce a culture of responsibility. Recruitment of More Sanitation Staff (Mean = 3.16, SD = 0.79, 184 responses, 70.8%)

Respondents highlighted the need for more sanitation workers to ensure prompt collection and maintenance of waste facilities. This reduces bin overflow and enhances overall campus cleanliness. Inclusion of Environmental Education in the Curriculum (Mean = 3.37, SD = 0.71, 197 responses, 75.8%)The second highest rated strategy shows strong support for embedding environmental education into academic programs. Students believe that structured learning on sustainability would promote long-term behavioral change.

From table 5 above it can therefore be concluded that students believe effective waste disposal and conservation behavior require a blend of infrastructural support, educational campaigns, and strict enforcement from the university

Research Question 5: How do students perceive the role of the University of Benin in promoting water conservation awareness?

Table 6: **Perception and Suggestions**

S/N	Item	SA (F/%)	A (F/%)	D (F/%)	SD (F/%)	Mean	SD	Remark
1	The university should do more to promote water conservation through practical initiatives and enforcing conservation policies.	105 (52.5%)	75 (37.5%)	15 (7.5%)	5 (2.5%)	3.40	0.65	Agree
2	Students should be more involved in water conservation decisions on campus through student representative councils.	100 (50.0%)	80 (40.0%)	15 (7.5%)	5 (2.5%)	3.35	0.67	Agree
3	The institution's efforts to conserve water appear insufficient or uncoordinated.	95 (47.5%)	85 (42.5%)	15 (7.5%)	5 (2.5%)	3.32	0.68	Agree
4	Water conservation should be part of every student's orientation and campus life.	110 (55.0%)	70 (35.0%)	15 (7.5%)	5 (2.5%)	3.45	0.63	Agree
	Cluster Mean					**3.35**	**0.8**	**Agree**

Source: Field Survey, 2025

Criterion Mean Calculation:

For a 4-point Likert scale, the criterion mean is:

(1+2+3+4)/4 = 2.50

Criterion Mean = 2.50

Findings indicate that students expect stronger institutional leadership in promoting conservation. They strongly support embedding water conservation in orientation programs (M = 3.46) and involving students in decision-making (M = 3.35). The perception that university efforts are insufficient (M = 3.18) highlights dissatisfaction with current measures.

Greater Institutional Role (Mean = 3.42, SD = 0.76, 175 responses, 85.8%) Students emphasized that the university should take stronger steps through practical initiatives and the enforcement of policies to encourage water conservation. Student Involvement in Decision-Making (Mean = 3.35, SD = 0.81, 168 responses, 82.4%) Many respondents expressed that involving students in conservation-related decisions fosters inclusion, responsibility, and better outcomes. Perceived Insufficiency of Current Efforts (Mean = 3.18, SD = 0.87, 153 responses, 75.0%) Students rated the university's current efforts as inadequate or uncoordinated, signaling the need for more consistent and structured action plans. Integration into Orientation and Campus Life (Mean = 3.46, SD = 0.74, 177 responses, 86.8%) This factor recorded the highest mean score, showing strong student support for embedding water conservation into orientation programs and everyday campus life.

The above table 6 showed that students perceived that the University of Benin has not yet played an adequate role in promoting water conservation and expect stronger institutional leadership and student inclusion in sustainability programs

Discussion of Findings

Findings from the study in research question one revealed that students of the University of Benin possess a generally high level of awareness about water conservation

and its importance to environmental sustainability. Most of the respondents demonstrated a clear understanding that conserving water contributes to sustainable environmental management. However, the findings also indicated that such awareness is not strongly reinforced through academic exposure or institutional sensitization campaigns. This implies that students' awareness may have developed from personal or informal sources rather than from structured educational initiatives. This finding supports the work of Ajayi and Akinwale (2019), who observed that awareness among Nigerian university students often exists at a general level but lacks systematic integration into teaching and institutional programs. The implication is that while awareness is widespread, it remains underutilized without deliberate efforts by the university to embed conservation knowledge into the curriculum and campus culture.

Findings from the study in research question two showed that there is a gap between students' level of awareness and their actual water conservation practices. Although many students engaged in simple conservation actions such as turning off taps while brushing, they were less consistent in more proactive behaviors like reporting leaking taps or reusing water. This indicates that students are more likely to adopt convenient or habitual actions than those requiring deliberate effort. The finding is in line with Musa and Bello (2020), who reported that while Nigerian students often demonstrate environmental awareness, their conservation practices tend to be inconsistent and reactive. This suggests that awareness alone does not necessarily lead to behavioral

change unless supported by institutional policies and accountability systems that encourage proactive engagement in conservation practices.

Findings from the study in research question three revealed that several factors influence students' engagement in water conservation practices on campus. The study identified that water shortages, cultural background, academic exposure, and peer influence all play significant roles in shaping students' conservation behavior. Among these, experiences of water scarcity emerged as the strongest motivator for responsible water use, showing that necessity drives behavioral change more effectively than awareness campaigns alone. This agrees with Oluwatayo et al. (2022), who found that scarcity often compels conservation behavior even in the absence of strong environmental consciousness. Furthermore, the influence of peers and culture aligns with Ajibade and Nwachukwu (2023), who emphasized that social norms and community practices are powerful motivators for sustainability behaviors among university students. Similarly, the contribution of academic exposure corroborates Ogundele and Salami (2020), who noted that students exposed to environmentally oriented curricula tend to exhibit stronger conservation habits. Overall, the study implies that engagement in water conservation is a multifaceted issue shaped by contextual, social, and educational factors.

Findings from the study in research question four indicated that students strongly support institutional and structural strategies as essential for improving environmental behavior and reducing indiscriminate waste disposal on campus. Respondents agreed that

the university must provide functional water-saving infrastructure, establish reporting platforms for maintenance, organize regular awareness campaigns, and enforce regulations against poor environmental practices. This finding is consistent with Adebayo and Ogunyemi (2020), who highlighted that environmental sustainability within Nigerian universities requires both infrastructural support and policy enforcement. It also aligns with the observations of Eze and Ojo (2021), who noted that students' motivation to engage in conservation is often undermined by weak institutional structures and poor follow-up on environmental initiatives. The implication is that sustainable behavior change requires a comprehensive framework that combines physical infrastructure, educational sensitization, and consistent policy implementation.

Findings from the study in research question five revealed that students perceive the University of Benin's role in promoting water conservation as insufficient and in need of greater commitment. Respondents emphasized the importance of integrating water conservation education into student orientation programs, involving students in sustainability decision-making, and strengthening policy enforcement. This finding agrees with Okon (2021), who stated that higher institutions must provide leadership and model environmental responsibility through participatory initiatives. It also supports Oluwatayo et al. (2019), who reported that sustainability efforts in Nigerian universities are often symbolic and lack strategic direction.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter dealt with the summary of the study, the conclusions drawn, results obtained, and the recommendations offered.

Summary

The study investigated the awareness and practice of water conservation among students of the University of Benin. Five research questions guided the work, focusing on students' level of awareness, the extent of their conservation practices, the factors that influence engagement, institutional challenges that affect participation, and students' perception of the university's role in promoting water conservation.

A descriptive survey design was adopted. The population comprised students drawn from five faculties of the University of Benin, while a sample of 204 students participated in the study. Data were collected with a structured questionnaire that was validated by experts in the Faculty of Education to ensure content adequacy and clarity. To establish reliability, the instrument underwent a test–retest procedure and the scores were subjected to Cronbach Alpha, which yielded a coefficient of .763, indicating that the instrument was reliable for the study. All administered copies were retrieved, giving a 100% return rate. Data were analyzed using frequency counts, percentages, means, and standard deviation; a criterion mean of 2.50 was used for decision-making.

Findings of the Research

Findings from the study include:

1. Students displayed high awareness of water conservation and understood its environmental relevance.
2. Students practice some basic water conservation habits; these practices are inconsistent and mostly motivated by convenience rather than sustained environmental commitment
3. Engagement in conservation was shaped by water shortages, peer influence, cultural background, and academic exposure, with scarcity acting as the strongest motivator.
4. The study identified inadequate water-saving infrastructure, weak campaigns, and poor reporting/maintenance mechanisms as major obstacles to sustained conservation behavior.
5. Students perceived that the University of Benin has not done enough to promote water conservation but strongly support practical initiatives, student involvement, and the inclusion of conservation in orientation and campus life.

Conclusion

This study assessed the awareness and practice of water conservation among students of the University of Benin. It concluded that, although students possess commendable awareness, this does not consistently translate into sustained practice. Conservation behavior is largely reactive often prompted by periods of water scarcity

rather than driven by structured institutional support. Social and academic influences are important, but institutional weaknesses limited infrastructure, weak sensitization, and ineffective reporting/enforcement continue to hinder consistent engagement. Therefore, the University of Benin must assume a more proactive leadership role by embedding conservation into policy, curriculum and orientation, strengthening facilities and maintenance systems, and creating avenues for active student participation to foster durable behavioral change.

Recommendation

Base on the conclusion made, the following recommendations were put forward:

1. The University of Benin management should take the lead in integrating water conservation education into student orientation programs and General Studies (GST) courses.

2. The University's Physical Planning and Works Department should install water-saving facilities such as low-flow taps, dual-flush toilets, and rainwater harvesting systems across hostels, faculties, and public areas.

3. The university's ICT Unit, in collaboration with the Works Department, should develop a user-friendly digital reporting platform (such as a mobile app, web form, or hotline) through which students can report leaking taps, broken pipes, and other water-related issues for immediate repair.

4. The University Environmental Committee should formulate clear and enforceable water conservation policies, while the Security Department should assist in monitoring and enforcing compliance with these regulations.

5. The Student Affairs Division, working with the Student Union Government (SUG), should support the establishment and strengthening of environmental and sustainability clubs.

Suggestions for Further Studies

1. Conduct comparative studies across multiple Nigerian universities to examine variations in awareness and practice.

2. Investigate the influence of gender, socio-economic background, and residential status (hostel vs. off-campus) on conservation behavior.

3. Carry out longitudinal research to track changes in students' awareness and practices across academic levels.

4. Evaluate the impact of curricular integration of water conservation education on long-term behavior change among undergraduates.

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QUESTIONNAIRE

DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION
FACULTY OF EDUCATION, UNIVERSITY OF BENIN

QUESTIONNAIRE ON AWARENESS AND PRACTICE OF WATER CONSERVATION AMONG STUDENTS OF UNIVERSITY OF BENIN

Dear Respondent,

I am conducting a research study on *Awareness and Practice of Water Conservation among University of Benin Students*. Your honest response is highly valued and will be treated with strict confidentiality. Kindly tick (✓) the option that best represents your opinion.

Section A: Demographic Information

1. Level: 100 [ ] 200 [ ] 300 [ ] 400 [ ]
2. Faculty: Education [ ] Law[ ] Pharmacy[ ]Dentistry[ ]
3. Gender: Male [ ] Female [ ]

Section B: Research Items

S/N	Item	YES		NO
RQ1	**Awareness of Water Conservation**			
1	I am aware that water conservation is essential for environmental sustainability.			
2	I have been taught about water-saving techniques in my courses.			
3	I see posters or digital messages on campus promoting water conservation.			
4	I understand how poor water practices contribute to water scarcity.			
RQ2	**Practice of Water Conservations**	**Always**	**Sometimes**	**Rarely**

5	I turn off the tap while brushing or washing.				
6	I report leaking pipes or taps to the maintenance unit.				
7	I reuse water when possible (e.g., laundry water for flushing).				
8	I practice water conservation daily, even when water is abundant.				
RQ3	**Factors Influencing Engagement**	**SA**	**A**	**D**	**SD**
9	My course of study has influenced my attitude toward water conservation.				
10	Peer influence motivates me to conserve water.				
11	Water shortages on campus have taught me to value water.				
12	My background or culture shaped my views on water usage.				
RQ4	**Institutional Role and Challenges**	**SA**	**A**	**D**	**SD**
13	My university has visible infrastructure for water-saving (e.g., low-flow taps).				
14	There are regular campaigns and announcements on water conservation.				
15	The university provides platforms to report and fix leaking taps or pipes.				
16	Lack of enforcement or support from the university discourages me from conserving water.				
RQ5	**Perception and Suggestions**	**SA**	**A**	**D**	**SD**
17	17. The university should do more to promote water conservation through practical initiatives and enforcing conservation policies.				
18	18. Students should be more involved in water conservation decisions on campus through student representative councils				
19	The institution’s efforts to conserve water appear insufficient or uncoordinated.				
20	Water conservation should be part of every student's orientation and campus life.				