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Research Paper

The Role of Zakat and Waqf Institutions in addressing Sustainable Water Management and Security Challenges among the Organization of Islamic Cooperation Countries

Adamu Abubakar Muhammad[1*], Adam Muhammad Ardo[2], Shafa'at Ahmad Aliyu[3], Adama Lawal Tafida[4]

[1,2] Federal University of Kashere Gombe State, Nigeria

[3] Federal University of Education Zaria, Nigeria

[4] Ahmadu Bello University Zaria, Nigeria

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Abstract

Significant issues with water management and security face the countries of the Organization of Islamic Cooperation (OIC); these challenges are worsened by pressures from economic expansion, population growth, and climate change. Islamic financial instruments such as Zakat and Waqf provide creative means of addressing these issues. This paper examines the possible effects of Zakat and Waqf on sustainable water management and security solutions in the Organization of Islamic Cooperation (OIC) countries, emphasizing their historical relevance, current uses, and potential future developments. A multidisciplinary method was used to conduct a thorough analysis, incorporating viewpoints from Islamic finance, environmental science, and public policy. A qualitative research method was used through literature review, and interview with about twelve (12) pertinent people from six (6) categories of people to gather data. The conclusions of this research imply that Zakat and Waqf have a great deal of potential to support OIC nations' sustainable water management and security. The study concludes with actionable suggestions for governments, NGOs, policymakers, and community leaders with the goal of maximizing the application of Zakat and Waqf to resolve water-related issues. In order to accomplish sustainable development goals, this research emphasizes how crucial it is to include traditional Islamic financial tools into contemporary water management systems.

Keywords: *Organization of Islamic Cooperation; Security Solutions; Sustainable Water Management; Zakat and Waqf*

INTRODUCTION

Water is regarded as a gift and a boon from Allah; it is necessary for existence and survival, as well as for basic economic growth and environmental sustainability. Islam encourages human sustainable development and the protection and sustainable use of water, forewarning against its waste and viewing its provision as a highly meritorious act of charity. These lessons emphasize the importance of water to Islamic philosophy not only for bodily survival but also for spiritual and societal well-being (Muhammad, et al., 2023).

Its scarcity is a major problem for the world at large, especially in many Islamic nations where infertile conditions are prevalent. To guarantee the provision of clean and safe water for present and future generations, sustainable water management and security are essential. Islamic financial products such as Zakat and Waqf provide special solutions in this regard that agree with socioeconomic development and environmental sustainability. These tools, which have their roots in Islamic jurisprudence, can be used to mobilize funds and support neighborhood-based projects to address water-related issues.

Water is emphasized in the Qur'an as a necessary resource for life, and Islamic teachings support its preservation and fair distribution.

Corresponding author's email: abubakaradamu1980@gmail.com

(أَوَلَمْ يَرَ الَّذِينَ كَفَرُوا أَنَّ السَّمَاوَاتِ وَالْأَرْضَ كَانَتَا رَتْقًا فَفَتَقْنَاهُمَا وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ أَفَلَا يُؤْمِنُونَ (الأنبياء: 30.

Have those who have disbelieved not considered that the heavens and the earth were a joined entity, and We separated them and made from water every living thing? Then will they not believe? (Qur'an, 21:30).

Islamic nations can improve their water security by allocating Zakat funding to water projects, including the building and upkeep of irrigation systems, wells, and water purifying facilities. By increasing access to clean water and lowering the prevalence of waterborne illnesses, these initiatives not only offer short-term alleviation but also support long-term sustainability (Gunawan et al., 2024).

Another important Islamic endowment is the donation of land or other assets for philanthropic, provided that the proceeds are always directed toward the community's welfare. Waqf has historically been essential for providing money for public infrastructure, such as water delivery systems (Abdullahi, 2019). The Waqf concept makes it possible to establish endowments that continuously produce income, which may then be used to fund a range of development initiatives.

Prior research on the usage of zakat and waqf in water security and management has not paid much attention to how they are specifically applied to water-related problems. In Islamic communities, water scarcity can be alleviated, and access to water. In areas where water is scarce, waqf funds have been used to construct and maintain water infrastructure, ensuring long-term access to clean water. Additionally, they have been used to finance regional water projects, especially in rural and underdeveloped areas. By providing funds for managing water shortages or improving sanitation, zakat contributions can directly affect populations that are already at risk.

Waqf money has been successfully directed into water management systems, enhancing water accessibility and quality, as demonstrated by several successful case studies. To scale up water management projects, cooperation between Waqf institutions, governments, and nongovernmental organizations is essential. However, lack of awareness, sustainability concerns, administrative and regulatory obstacles, and policy integration are some of the implementation difficulties.

To improve accountability and transparency in the distribution of money, policy proposals include incorporating such organizations into national water security plans. Since it may help with the continuous management and growth of water infrastructure in areas with limited resources, it is also crucial to increase the role of zakat and waqf as a sustainable source of water funding. Furthermore, there is increasing interest in using Zakat for creative water solutions like rainwater collection and water conservation initiatives.

LITERATURE REVIEW

Numerous studies have been conducted on the use of waqf as a socioeconomic development instrument. Researchers like ADB (2013); CGIAR (2018); Dairoby & Akbar (2024); FAO (2020); Hasanah et al. (2019); GWP, (2000) and ICARDA (2019) highlight the historical importance of Zakat and waqf in alleviating poverty, Water Productivity in Agriculture, Water Resource Development, and supplying public goods.

According to Aliyu (2018), Waqf can be used for the establishment and upkeep of water amenities, such as public fountains, canals, and reservoirs, in the field of water management. By ensuring that water supplies are efficiently managed and dispersed, these facilities not only offer vital water services but also encourage sustainable habits. For example, the Ottoman Empire made considerable use of Waqf to construct and maintain water infrastructure, which had a positive

impact on general welfare (UNDP, 2016).

In Islamic nations, the combination of Zakat and Waqf can provide a solid and trustworthy framework for addressing water security issues. Waqf guarantees the durability and upkeep of water projects, but Zakat offers immediate financial resources to meet pressing water demands (Muhammad et al., 2023). This synergy can foster community participation and ownership, leading to more effective and culturally appropriate water management solutions.

Furthermore, Zakat and Waqf's combined efforts support Maqasid al-Shariah's tenets, which seek to conserve and safeguard basic human necessities like water (Muhammad et al., 2022). Organizations in Islamic nations can address the issue of water shortage while simultaneously advancing social justice, economic growth, and environmental stewardship by using these Islamic financial mechanisms.

Prosperity, security, peace, and sustainable water management are intricately linked. Effective water resource management can lessen poverty, ease social tensions, and prevent conflicts. It emphasizes the need for everyone to have access to safe and fair water future (UN-Water, 2024).

Therefore, among the organizations of Islamic countries, Zakat and Waqf provide useful instruments for sustainable water management and security solutions. By integrating them, water resources can be protected and distributed fairly while also offering long-term sustainability. Islamic nations can efficiently solve water-related issues while respecting justice, equity, and sustainability by using these Islamic financial instruments.

This research aims to analyze the socioeconomic challenges faced by married women in Northeastern Nigeria in establishing and sustaining family-owned businesses, analyze the role of waqf in providing financial and nonfinancial support, assess the impact of waqf-based interventions, and propose strategies. The study also contributes to the body of knowledge by highlighting the untapped potential of waqf as a tool for economic empowerment, focusing on a vulnerable yet critical segment of society.

RESEARCH METHOD

The purpose of this qualitative study is to investigate how organizations that provide zakat and waqf might help organizations of Islamic Cooperation (OIC) countries address issues related to sustainable water management and security. A case study technique is used in the research design, considering various contexts, cultures, and behaviors. How Zakat and Waqf institutions help with water management issues, how they improve water security, and how beneficiaries view the effects of these programs on water security are among the research questions. Semi-structured interviews with important stakeholders, including administrators of zakat and waqf, government representatives and policymakers, community leaders and beneficiaries of zakat and waqf, and specialists in water management, were among the data gathering techniques. The effectiveness of these activities will be thoroughly examined through focus groups with local communities. Reviews of publications and reports from OIC nations will be used for document analysis, and case studies will highlight instances in which Zakat and Waqf institutions have successfully contributed to sustainable water management. Interviews and focus group discussion will be conducted as part of the study where six (6) participants from the six (6) categories of the identified stakeholders selected as a sample and coded as follows: administrators of zakat and waqf (AZW), government representatives (GRS), policymakers (PMS), community leaders (CLS), beneficiaries of zakat and waqf (BZW), and specialist in water management (SWM). To identify recurring themes, patterns, and insights in the gathered data, thematic analysis will be employed. Confidentiality, cultural sensitivity, and informed consent are examples of ethical factors. Language challenges, generalizability, and participant access are among the limitations. Policy recommendations, best

practices for incorporating Zakat and Waqf institutions into water security projects, and a thorough understanding of how these institutions are used for sustainable water management and security are among the anticipated results.

FINDINGS AND DISCUSSION

Water Management and Security Issues in OIC Countries

Critical water difficulties are facing the nations of the Organization of Islamic Cooperation (OIC), endangering both their socioeconomic growth and the sustainability of the environment. Many OIC member countries are located in arid or semi-arid areas, where a constant problem is water shortage. Increased demand for water resources has resulted from population growth, urbanization, and climate change, aggravating water scarcity. Freshwater resources in nations like Saudi Arabia, Egypt, and Jordan are severely stressed, and forecasts for the next several decades point to worsening circumstances (Islamic Development Bank, 2020).

In many OIC nations, inadequate infrastructure makes water management even more difficult. Significant water loss and contamination are caused by aging water distribution networks, a lack of investment in contemporary water treatment facilities, and ineffective farming methods (Gunawan et al., 2024). For instance, antiquated irrigation systems in Pakistan and Indonesia waste water, which impacts food security and agricultural output (Hasanah et al., 2019).

The 57 members states that make up the Organization of Islamic Cooperation (OIC) in different regions are facing a serious water shortage. The lack of water, pollution, and poor infrastructure characterize this problem and have a substantial negative influence on environmental sustainability and socioeconomic growth. The following were identified as the main obstacles to sustainable water management and security in OIC countries based on worldwide data and particular issues reported in UN publications and other sources.

Water Scarcity

In many OIC nations, especially in arid and semi-arid regions, water scarcity is a serious problem. Over 2 billion people, according to the UN, reside in nations with severe water stress, and this figure is projected to increase as a result of variables like population expansion, climate change, and economic development (UN-Water, 2020). One of the world's most water-scarce regions is the Middle East and North Africa (MENA), home to many OIC nations.

For example, Saudi Arabia, a significant member of the OIC, relies mostly on desalination to meet its water needs because of its extremely restricted freshwater resources. Less than 100 cubic meters of renewable water are thought to be available to each person in the nation annually, which is significantly less than the 1,000 cubic meters required to meet the water shortage criterion (World Bank, 2021). Jordan also experiences extreme water shortage; the country's per capita water availability is much less than the 500 cubic meters per person per year criteria for absolute water scarcity.

The World Resources Institute (2019) states that nations like Saudi Arabia, Yemen, and Jordan have exceptionally high baseline water stress levels, indicating that more than 80% of the water available is taken out annually for home, industrial, and agricultural use. Due to the excessive extraction of water resources, aquifers are depleted, water is less available, and drought susceptibility increases.

Climate Change and Variability

In the OIC countries, climate change has worsened water scarcity and variability. Water availability and distribution are affected by altered precipitation patterns, increased frequency of extreme weather events, and rising temperatures. For instance, extended droughts and decreased

rainfall have affected the water supply and agricultural output of North African nations like Morocco and Algeria. Comparably, rising sea levels in nations like Bangladesh and the Maldives are endangering coastal aquifers and raising the salinity of freshwater sources.

Population Growth and Urbanization

In OIC countries, rapid urbanization and population growth raise water demand and strain already-stressed water supplies. Sanitation, wastewater management, and water supply are issues that urban areas frequently face. Significant water loss and pollution are caused by inefficient water use practices and poor infrastructure in places such as Cairo, Egypt and Karachi, Pakistan. According to UN projections, the number of people living in urban areas in OIC countries will increase, requiring urgent upgrades to water management systems.

Water pollution is another important problem affecting the quantity and quality of water resources in the OIC member states is water pollution. Water bodies become contaminated due to industrial discharges, agricultural runoff, and insufficient wastewater treatment, presenting major health hazards and decreasing the amount of clean water available for residential and agricultural use.

Millions of people in Pakistan depend on the Indus River for irrigation and drinking water, yet the river is severely contaminated by untreated industrial effluents and agricultural pesticides (WWF-Pakistan, 2017). Comparably, Bangladesh's Buriganga River, which passes through Dhaka, the country's capital, is among the world's most polluted waterways. The river is unsafe for human use because it is tainted with hazardous chemicals from tanneries and other industries (Gunawan, et al. 2024).

Poor Infrastructure

In many OIC nations, inadequate water infrastructure is a major obstacle to efficient water management. Significant water losses and inefficiencies are caused by aging and poorly maintained water supply infrastructure. The water situation is further exacerbated by inadequate investments in contemporary infrastructure for water purification and distribution.

Yemen is a prime example of a nation with severely deficient water infrastructure. Millions of people lack access to clean drinking water because of the ongoing conflict's significant damage to water supply infrastructure. Nearly 18 million Yemenis lack access to sanitary facilities and clean water, contributing to the country's widespread epidemics of waterborne illnesses, including cholera (UNICEF, 2020).

Nigeria, another member of the OIC, has experienced comparable problems with its water supply. Significant water losses occur due to antiquated infrastructure and ineffective water management, even despite plentiful water resources. According to World Bank estimates, approximately 60% of Nigerians lack access to improved sanitation facilities and approximately 29% lack access to improved water sources (World Bank, 2019).

The severity of the water situation in the OIC countries is demonstrated by global statistics. Over 2 billion people lack access to safely managed sanitation services, and 785 million lack access to basic drinking water services, according to the World Health Organization (WHO, 2019). Many of these people live in OIC nations, where urbanization and rapid population expansion tax the region's already meager water supply.

Extreme water scarcity is experienced by many OIC members in the MENA region. Although only 1% of the world's renewable freshwater resources are found in the region, it is home to around 5% of its inhabitants. According to the World Bank, by 2050, climate change could reduce water availability in the region by an additional 10-15%, further worsening water stress (World Bank, 2018).

Agricultural water use: A comparison of the two types

In several OIC member nations, agriculture uses the most water, accounting for roughly 70%–90% of all withdrawals. However, significant water losses are due to antiquated technology and ineffective irrigation techniques. For example, nations such as Iran and Iraq mostly depend on flood irrigation, leading to inefficient water use and elevated evaporation rates. For these areas to sustain food production and improve water security, agricultural water management is essential.

Water Quality and Pollution

Concerns over water contamination, which affects both surface water sources and groundwater sources, are developing among the OIC countries. Water bodies can be contaminated by industrial processes, agricultural runoff, and untreated sewage discharge, endangering ecosystems and human health. For instance, the extensive use of chemical pesticides and fertilizers in Bangladeshi agriculture has contaminated rivers and groundwater with dangerous materials like arsenic. Maintaining public health and environmental sustainability requires ensuring water quality through efficient pollution control methods.

These water-related issues have a significant impact on social stability, economic growth, and public health. Innovative and long-lasting solutions are needed to address these problems, such as raising money through Islamic financial tools like Zakat and Waqf to support water management projects and ensure long-term water security for OIC countries.

Role of Zakat and Waqf in addressing Sustainable Water Management and Security Challenges among OIC countries

Two important Islamic financial tools, Zakat and Waqf have a lot of potential to help OIC countries with their pressing water problems. Sustainable water management and security initiatives can be funded in large part by the voluntary endowment of Waqf for public welfare and the mandatory almsgiving of Zakat (Dairoby, et al. 2024).

The Zakat Foundation of America, for example, has provided funding for some water projects in nations like Bangladesh and Sudan. These projects include building and maintaining water infrastructure like desalination plants, wells, and water purification systems that give communities access to clean drinking water, as well as supporting educational initiatives that encourage water efficiency and conservation. These initiatives help improve water sustainability by reducing waste and increasing water sustainability (Zakat Foundation of America, 2021).

Through the enhancement of water infrastructure and the promotion of sustainable water use practices, these initiatives not only meet the short-term needs for water but also help ensure long-term water security.

Water projects are among the public utilities that have traditionally been funded by Waqf. The creation of Waqf endowments with a focus on water management can offer long-term funding for the development, maintenance, and operation of water infrastructure. Reservoirs, irrigation systems, and public water fountains can be constructed and maintained with Waqf funds. Investing in cutting-edge technologies for water desalination and purification might be one of the modern applications of Waqf, guaranteeing a steady and sustainable supply of clean water (Dairoby, et al. 2024).

In the past, Waqf has been essential in providing financial support for public amenities, such as water delivery systems. For instance, the Ottoman Empire used Waqf funds to construct and maintain a vast network of water infrastructure, including reservoirs, aqueducts, and fountains (Çizakça, 2021).

Waqf can be revived in the modern era to assist with projects aimed at sustainable water management. Water infrastructure construction and maintenance might receive ongoing support

through the creation of Waqf endowments for water-related projects. To alleviate water scarcity in OIC nations, modern Waqf applications involve investing in technologies for water desalination, purification, and effective irrigation.

Funding Water Infrastructure Projects

Funds from Zakat can be used to build and maintain sanitation and water supply infrastructure, especially in economically exploited areas. For example, in Sudan, Zakat money has been used to construct water pumps and wells, increasing rural residents' access to clean water (Ahmed & Ahmed, 2021). Historical Contributions: Water reservoirs, irrigation canals, and public fountains were built and maintained thanks to the funding provided by Waqf endowments. Notable examples of public water utilities are the Waqf-funded Sabil-Kuttab constructions in Cairo (Çizakça, 2021).

Supporting Water Conservation Initiatives

Programs for education that encourage water conservation can be funded by Zakat. Such programs can promote community involvement in water management and increase knowledge about the value of water-saving measures (El-Katiri, 2013). Waqf can be used in modern contexts to assist sustainable water initiatives, as is the case in Malaysia. For example, the Waqf institution has provided funding for the construction of water treatment plants and rainwater collection systems (Lamido & Haneef, 2021).

Emergency Relief

Zakat funding can be quickly mobilized to offer emergency water relief during droughts or natural catastrophes, ensuring that the afflicted communities have access to clean and safe drinking water (Kahf, 2004). Waqf funds will be used for long-term sustainability projects related to water projects, with the principle endowment being maintained and the income being used to cover ongoing operating expenses. According to Obaidullah (2019), this strategy provides a steady stream of revenue that is essential for the maintenance and growth of water infrastructure.

As a result, Waqf and Zakat can both encourage public-private collaborations and draw in more funding from foreign donors and the private sector. The Organization of Islamic Cooperation (OIC) countries can improve water security in the long run by utilizing these Islamic financial instruments to not only handle current water scarcity challenges but also establish resilient water management systems.

Case Studies of Zakat and Waqf in regard to Water Management and Security Challenges

Zakat in Indonesia

Zakat monies have been efficiently employed by Indonesia, a country facing considerable water-management issues, to address water scarcity. To supply clean water to rural areas, local Zakat committees have funded the construction of community wells and rainwater gathering systems. According to Hasanah et al. (2019), these initiatives have enhanced community participation in sustainable water management while simultaneously improving access to water.

Waqf in Malaysia

Malaysia established the Waqf An-Nur Corporation to utilize Waqf for sustainable water management. This group provides funding for a range of social welfare projects, including programs related to sanitation and water supply (Misbah, et al. 2022). A noteworthy undertaking is the construction of a water treatment facility in Johor, which supplies impoverished areas with clean water. According to Lamido and Haneef (2021), these initiatives have increased water availability

and encouraged sustainable water use practices. Waqf's ongoing support guarantees the plant's upkeep and operation, and it also helps to assure long-term water security by implementing rainwater harvesting systems in mosques and community centers (Yaacob et al., 2015).

Waqf in Turkey

In Turkey, several Waqf endowments that finance water infrastructure projects are managed by the General Directorate of Foundations. In the past, urban inhabitants received free water from public fountains called "sebils," which were supported by the Waqf. These endowments still contribute to current water management programs (Çizakça, 2021).

Integrated Approach in Bangladesh

In Bangladesh, difficulties related to water management have been met with a hybrid strategy that makes use of both Zakat and Waqf. The Islamic Development Bank (IDB) has provided funding for projects that install tube wells and other quick fixes for water access using Zakat funds, while Waqf monies are utilized for long-term infrastructure development, such as building reservoirs and water treatment plants (Islamic Development Bank, 2020). This comprehensive strategy guarantees both immediate alleviation and long-term viability.

Integrated Approach in Nigeria

In Nigeria, a strategy that combines the use of Waqf and Zakat has been used to address poverty and water management issues. Imam Abubakar Adamu Muhammad established the TafarkinTsira Islamic Centre Azare (TATICA), a charitable organization and Islamic center, in Azare, Bauchi state. Although it was founded in 2019, it was formally registered as a foundation with the Nigerian Corporate Affairs Commission in 2020 with the aim of offering socioeconomic, educational, and spiritual support to both affluent and underprivileged individuals. The center's commendable socioeconomic welfare programs and projects, which have improved lives in both rural and urban regions, demonstrate its primary skill in collecting, distributing, and administration of Zakat, Waqf, and Sadaqat. Among the notable programs embarked on are the Ramadan Iftar Program" (R-IP), Women Empowerment Program (WEP), and Clean Water for Better Life Program (CWBL) were not less than 5 wells were provided every year since 2022 and mostly located in villages where there is no means of water unless in the rainy season (Muhammad et al., 2023).

Challenges in Sustainable Water Management and Security Solutions in OIC Countries

OIC nations confront particular difficulties in resolving their water-related concerns, such as unstable political environments, financial limitations, and governance problems. Ongoing hostilities have destroyed water infrastructure and hampered efforts to provide affected populations with potable water in countries such as Syria and Iraq. It is challenging to establish and maintain water management programs in these areas due to political unrest (Amal et al., 2024).

The water crisis is also influenced by economic factors. several OIC nations, mostly in South Asia and Sub-Saharan Africa, lack the financial means to invest in contemporary water management and infrastructure (Arshad & Muhamad, 2017). Their inability to adequately manage pollution and water scarcity is hampered by this financial constraint. The challenges of governance, such as institutional weakness and corruption, make water management difficult. Water resources are mismanaged in some OIC nations, like Nigeria, for example, as a result of corruption, shoddy regulatory systems, and lax implementation of water regulations. Ineffective governance causes pollution, over-extraction, and wasteful use of water resources.

Although Zakat and Waqf have great potential to address sustainable water security and management, a few issues must be resolved:

1. Regulatory and Legal Frameworks: Robust regulatory and legal structures are necessary for the effective application of Zakat and Waqf for water management. To promote accountability and transparency, governments must provide clear criteria for collecting, managing, and disseminating Zakat and Waqf funds.
2. Public Awareness and Participation: It is imperative to raise public awareness of the possibilities of Zakat and Waqf in resolving water-related challenges. Increased participation in and contributions to Zakat and Waqf funds can be encouraged through educational campaigns and community engagement programs.
3. Institutional Capacity: For Zakat and Waqf to be used effectively, institutions overseeing them must be strengthened. Programs for Zakat committees and Waqf boards to receive training can improve their capacity to organize, carry out, and oversee water projects.
4. Partnerships and Collaboration: The influence of Zakat and Waqf can be increased through cooperation between nongovernmental organizations, the private sector, and governments. Public-private partnerships have the potential to draw in more funding and technical know-how for projects pertaining to water.
5. Integrated Water Resources Management (IWRM): IWRM is a comprehensive strategy that encourages the integrated use of land, water, and related resources in development and management. Implementing IWRM techniques can help OIC nations allocate water more effectively, increase stakeholder involvement, and promote cross-sectoral cooperation. For example, Morocco's National Water Plan, which incorporates policies for demand management, pollution prevention, and water resource preservation, embodies IWRM concepts.
6. Water-Efficient Technologies and Practices: Cutting down on water use and boosting output requires the use of water-efficient technologies and practices. Water consumption efficiency in agriculture can be greatly improved by employing strategies such as drip irrigation, rainwater gathering, and drought-resistant crop cultivars. Implementing smart water management systems, leak detection technology, and wastewater recycling and reuse can prove advantageous for urban areas. For instance, to increase its water supply and lessen its dependency on groundwater, Qatar has made investments in state-of-the-art desalination and wastewater treatment facilities.
7. Climate Change Adaptation and Resilience: Ensuring long-term water security in OIC countries requires building resilience against climate change. This entails creating adaptation plans to improve ecosystems, infrastructure, and community resilience to climate change. The effects of climate change on water resources can be reduced by taking steps like building climate-resilient infrastructure, restoring natural water systems, and putting in place early warning systems for extreme weather events. For example, Turkey’s National Climate Change Adaptation Strategy and Action Plan laid out concrete steps to strengthen climate resilience and improve water management.
8. Institutional and Policy Reforms: Robust institutions, open policies, and strong governance are necessary for effective water management. Strengthening water management institutions, encouraging stakeholder participation, and upgrading regulatory frameworks should be the main goals of reform intended to improve water governance in OIC countries. Enhancing efficiency and accountability can also be achieved by promoting public-private partnerships and decentralizing water management duties. The Water Code of Tunisia provides institutional and legal frameworks for managing water resources, and other OIC nations wishing to undertake comparable changes can use it as a model.
9. Public knowledge and Education: Promoting education and increasing public knowledge about water management and conservation is essential for developing sustainable culture.

Campaigns for public awareness, neighborhood-based projects, and educational activities can inform people and groups about the value of water conservation and how to safeguard water supplies. It can also be beneficial to include religious leaders and use Islamic teachings on environmental stewardship to motivate Muslim populations to practice water conservation.

In an interview with the selected stakeholders, multiple issues were raised, and several inputs, experiences, and ideas were highlighted as follows:

Interview Question: How might zakat and waqf help OIC countries deal with issues of water scarcity and management?

Participant's Response: *In OIC nations, zakat and waqf can be very helpful in financing water-related initiatives. While waqf, as a charitable endowment, can be used to fund long-term infrastructure projects like installing wells, water filtration systems, or even sponsoring research on sustainable water use, zakat, as a religious obligation, is frequently utilized to benefit vulnerable groups. To allocate zakat and waqf funding to initiatives that enhance water access and encourage water conservation, we have teamed up with local governments and non-governmental organizations (AZW).*

Interview Question: How can the use of zakat and waqf funds be transparent and accountable?

Participant's Response: *We have a robust monitoring and reporting system in place, and all zakat and waqf-funded projects are subject to audits and assessments to ensure the funds are used effectively. We also work closely with local governments and respectable non-governmental organizations that oversee these funds and ensure their appropriate use (PMS).*

Interview Question: How can arms of government intervene in the regulatory framework of zakat and waqf institutions in OIC countries?

Participant Response: *Governments can provide a regulatory framework that encourages zakat and waqf institutions to contribute to water management initiatives. This could include tax incentives and facilitating partnerships between these institutions and other stakeholders (GRS).*

Interview Question: How can government policies support zakat and waqf institutions in water management initiatives?

Participant Response: *Governments can provide a regulatory framework that encourages zakat and waqf institutions to contribute to water-related projects. This could include tax incentives, facilitation of partnerships between these institutions and other stakeholders, and ensuring that zakat and waqf funds are directed toward projects that align with national water security goals. Additionally, governments can offer technical expertise and support in planning and implementing water management systems (SWM).*

Through various mechanisms, Zakat and Waqf can make substantial contributions to OIC countries' sustainable water management.

Interview Question: What role do you think zakat and waqf can play in achieving the United Nations Sustainable Development Goal (SDG) 6 on Clean Water and Sanitation?

> Participant's Response: *Zakat and waqf are powerful tools for supporting SDG 6 in OIC countries. By channeling funds from zakat and waqf into water infrastructure, sanitation, and education on water conservation, these institutions can make significant contributions toward ensuring access to clean water. Governments must align their efforts with these institutions to maximize their impact. Furthermore, collaborations with international bodies and NGOs can help scale up such initiatives (CLS).*

Interview Question: How has the support from zakat and waqf institutions affected access to water in your community?

> Participant's Response: *The support we have received from zakat and waqf institutions has been transformative. In our community, these institutions have funded the construction of a local well and provided sustainable water solutions. In addition, through education programs, they have helped raise awareness about water conservation practices. This has not only improved access to clean water but has also empowered local residents to take better care of their water resources (BZW).*

Interview Question: What are the main challenges you face in ensuring the sustainability of water management projects funded by zakat and waqf?

> Participant's Response: *One of the main challenges is to ensure that water systems remain functional in the long term. Frequently, funding runs out or local capacity is insufficient to maintain the infrastructure. To address this, we need more long-term commitments from zakat and waqf institutions and better coordination between the beneficiaries, local governments, and these institutions are needed to ensure maintenance and sustainability (SWM).*

Interview Question: How do you perceive the role of zakat and waqf in tackling water scarcity in OIC countries?

> Participant's Response: *Zakat and waqf have great potential in addressing water scarcity, particularly in regions where governments may struggle with funding. These institutions can be critical players in financing water infrastructure projects like dams, desalination plants, and irrigation systems. They can also support water-saving technologies and community-based initiatives that conserve water resources. Combining their funding with technical expertise from water specialists can lead to sustainable solutions (AZW).*

Interview Question: What strategies can be implemented to ensure that water management projects funded by zakat and waqf are sustainable in the long term?

> Participant's Response: *To ensure sustainability, integrating local knowledge and needs into water projects is crucial. This can be achieved by involving local communities in the planning and decision-making process. Additionally, zakat and waqf institutions should prioritize funding projects that focus on both short-term relief and long-term solutions, such as rainwater harvesting systems, water conservation education, and community-led water management. It is also important to create partnerships with experts in water management and environmental*

science to ensure that the right technologies are used (GRS).

CONCLUSIONS

Sustainable water management and security are becoming major priorities for many communities worldwide, particularly in the OIC member states. The need for secure stability and clean, readily available water has increased due to the growing global population and climate change. Numerous approaches have been put forth to address this issue, but Zakat and Waqf have been shown to be useful instruments for fostering sustainable water security and management. They provide creative and long-lasting solutions to the pressing problems associated with water management, particularly in OIC countries. By using these, OIC nations can raise significant funds to assist with water management initiatives, guaranteeing both socioeconomic stability and long-term water security. Strong legislative frameworks, public awareness campaigns, institutional capacity building, efficient water management techniques, strategic alliances, and significant expenditures on water infrastructure are all necessary for the successful application of Zakat and Waqf for water management.

LIMITATION & FURTHER RESEARCH

This study suggests recommendations for waqf institutions to support married women in family businesses, enhance awareness campaigns, strengthen capacity building, improve resource mobilization, establish monitoring and evaluation systems, integrate waqf into development policies, provide regulatory support, encourage public-private partnerships, and promote community participation. It also recommends leveraging existing networks to foster greater community involvement in waqf programs. Further research is needed to explore comparative studies, impact assessments, technology roles, integration models, and policy analyses, especially in non-OIC countries specifically the poor countries from across the continents.

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