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Awqaf System for Sustainable WASH Services in Developing Countries: A Viable Alternative to Donor-Dependent Models

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Abstract: Access to safe drinking water, adequate sewerage systems, and reliable hygiene services (WASH) infrastructure is fundamental to public health and socio-economic development. In many developing countries like Pakistan, however, WASH services are often underfunded and heavily reliant on external donors. Financing from the funding agencies is mounting the amount of public debt in these countries and enhancing the size of already existing twin deficit. This paper proposes the utilization of a system of Awqaf (Islamic endowment model) as a sustainable and community-driven alternative to external loans or aid. It also explores the viability of integrating a revitalized system of Awqaf as a sustainable financing and governance model for WASH infrastructure. Unlike donor-based models, the Awqaf approach is rooted in local culture, encourages community ownership, and can provide long-term, debt-free funding through self-sustaining endowment mechanisms. The theoretical framework of the study links financial innovation (waqf-based instruments such as cash waqf, waqf sukuk, and blended waqf-PPP models) with financial inclusion, arguing that this connection can strengthen service sustainability and fiscal stability. This policy research compares Awqaf-based initiatives with conventional donor-funded WASH projects using selected case studies, and assesses their performance in terms of sustainability, equity, cost-effectiveness, and institutional resilience. Findings suggest that, with proper legal and administrative frameworks, the Awqaf model can complement or, in some contexts, substitute international funding while strengthening local governance structures. This system could play a pivotal role in achieving sustainable development goals related to water and sanitation in the Global South.

Keywords: waqf, WASH, sustainable development, donor dependency.

Introduction

Access to safe and clean drinking water, adequate sanitation, and improved hygiene (WASH) services is a fundamental right of all human being. Healthy society is the cornerstone of well-being, and socio-economic development of a nation. This is recognized by all the international organizations, agencies and foundations, (World Bank, ADB, OECD's Development Assistance Committee (DAC) and The United Nations) and they incorporated WASH as a central part of the Sustainable Development Goals (SDG 6: Clean Water and Sanitation), and their policy agenda, aiming to achieve universal and equitable access by 2030. Yet, despite decades of donor-funded projects and government interventions, millions of people in developing countries—particularly in South Asia and Sub-Saharan Africa—remain deprived of reliable WASH services. According to UNICEF and the World Health Organization, nearly two billion people globally still lack safely managed drinking water, while more than three billion are without safe sanitation facilities. This persistent gap highlights structural weaknesses in the current financing and governance of WASH services.

In these African and South Asian countries including Pakistan, the financing challenge is particularly acute. Public investment in WASH infrastructure is chronically low due to fiscal constraints, shortage of accurate and required technology, poor political will, biased fiscal management leads to persistent macroeconomic instability. Consequently, external donor agencies such as the World Bank, African and Asian Development Bank (AADB), Official Development Assistance (ODA) and bilateral aid organizations often step in to finance WASH projects. Their interventions have slightly improved access in selected areas along with a heavy burden of external funding. Donors provide grants, concessional loans, and other credit mechanisms to sponsor WASH infrastructure projects. The World bank report (2023) only 15% of ODA for WASH projects was provided as grants and given to the poorest countries. This funding trend has significant drawbacks: donor agencies' preferences are not aligned with local needs; their aids are often tied with conditionalities, and interest-based credit and fluctuated currencies' values enhanced debt burden and twin deficit issue in recipient countries. Heavy reliance on external resources has perpetuated financial vulnerability of these nations.

Now it is a time to explore alternative financing models that are financially sustainable, culturally embedded and socially inclusive. The waqf system of Islamic civilization can be a better alternative. Waqf is a perpetual charitable endowment of assets or wealth dedicated to serving public welfare purposes. Historically, waqf institutions financed schools, hospitals, orphanages, roads, water and sanitation facilities across the Muslim world. This system had a critical mechanism of social

welfare, enabling community-driven provision of public goods long before the rise of modern welfare states. Revitalization of waqf system in contemporary contexts offers a potential homegrown alternative to donor dependency, particularly in developing countries like Pakistan.

The waqf for WASH services is particularly relevant because water and sanitation have traditionally been among the most common purposes of waqf endowments. During the Ottoman empire cities sustained their water supply systems through waqf-financed aqueducts, fountains, and bathhouses. Same as, in the Indian subcontinent, waqf foundations-maintained wells, stepwells, and drinking water facilities for communities and travellers. These historical examples provide an evident for suitability of waqf as a financing model for modern WASH infrastructure, particularly in societies where trust in government institutions may be low, but community-based religious endowments retain strong legitimacy.

At present, however, the role of waqf in developing countries of Africa and Asia remains underutilized. While Islamic banking and finance have expanded rapidly over the past two decades, institutional reforms to strengthen and modernize waqf systems have lagged. Waqf assets often remain locked in legal disputes, poorly managed, or limited to traditional religious and educational purposes. Harnessing waqf for broader development objectives, such as WASH, would therefore require legal reforms, innovative financial products, and transparent governance frameworks. Encouragingly, some countries have begun experimenting with modern waqf-based instruments. For instance, Malaysia has successfully implemented cash waqf models to fund health and education projects, while Indonesia has launched waqf-linked sukuk (Islamic bonds) to finance social infrastructure. These models provide useful lessons for sample countries, where the financing gap for WASH remains urgent.

This paper explores the potential of the waqf system as a suitable and viable financing and governance model for WASH services in developing countries. This study provides arguments for the revival of waqf system as: waqf supplies a debt-free, long-term financing for WASH infrastructure, promotes community ownership and improving sustainability, strengthens local governance structures and align development financing with cultural and religious values, enhancing public trust. The contribution of this research lies in framing waqf not only as a religious institution but as a policy instrument capable of addressing one of the most pressing development challenges of the 21st century. By comparing waqf-based initiatives with conventional donor-funded WASH projects, the study evaluates their performance in terms of sustainability, equity, cost-effectiveness, and institutional resilience.

The remainder of this paper is organized as follows. Next section reviews the existing literature on donor-funded WASH models, fiscal vulnerabilities, and the historical and modern applications of waqf. Then a theoretical framework linking waqf-based financing with sustainable WASH outcomes presented. Outlines the methodology and case study approach discussed followed by selected case studies analyses from Pakistan, Malaysia, Indonesia, and Turkey. Next discuss the findings with proposed policy roadmap. Finally, concludes with recommendations for policymakers, practitioners, and researchers.

Literature Review: Donor-Dependent Models of WASH Financing

Water, sanitation, and hygiene (WASH) services have traditionally been financed in developing countries through a mix of public spending, donor aid, and, in some cases, private sector participation. Donor agencies such as the World Bank, The International Development Association (IDA) being a World Bank that helps the world's low-income countries. IDA's grants and low-interest loans help countries i, Asian Development Bank (ADB), African Development Bank, UNICEF, and bilateral partners have been central actors in financing WASH infrastructure in South Asia and Africa. These interventions typically come in the form of loans, grants, or technical assistance.

While their funded projects' sustainability remains questionable in long-term. They are often project-specific and time-bound, least recognition about the importance of operations and maintenance of a project. Provision of concessional loans or conditional financing increases the public debt burden in the recipient countries. They mainly emphasize on technological solutions without realising cultural or community environments which lead to low levels of adoption and sustainability.

Empirical studies highlight that many donor-supported WASH projects fail to achieve intended outcomes beyond the project horizon. For instance, World Bank evaluations of water supply projects in Sub-Saharan Africa found that nearly 40% of systems became non-functional within a few years due to lack of maintenance funding and local ownership. Similarly, in South Asia, sanitation projects financed through external aid frequently suffer from poor community participation and weak institutional integration, undermining their impact.

Fiscal Implications of Donor Financing

Donor reliance also interacts with broader macroeconomic issues, particularly the twin deficit problem—simultaneous fiscal and current account deficits. In South Asia and Africa loan-financed development projects contribute to rising public debt, while external borrowing pressures the

current account through debt servicing obligations. This dynamic creates a vicious cycle: governments borrow externally to finance infrastructure, which in turn worsens macroeconomic imbalances and reduces fiscal space for social investment. This study picked few countries from Africa and Asia as sample countries to analyse their position as recipients of funded projects.

Table. 1

World Bank funded Projects

USD in Millions

Country	Project Name	Total Fund	Grant	Credit	Source
Afghanistan	Water, Sanitation, Hygiene and Institutional Support Project	200	50/150		IDA / Trust Fund
Somalia	Barwaaqo, Water for Rural Resilience	70	70		IDA
Kenya	WASH	458	50	200	IDA
Bangladesh	WASH	200		200	IDA
Pakistan	Chattogram Water Supply Improvement Project	280		280	IDA
Pakistan	Punjab Rural Sustainable Water Supply and Sanitation	442		442	IDA
Pakistan	Karachi Water and Sewerage Services Improvement Project	240		240	IDA
Sudan	Rural Water Supply and Sanitation Project	70		70	IDA
Morocco	Rural Water Supply and Sanitation Project	19		10	IDA

Source; World Bank, Development Projects.

Table. 1 highlight that most of the world bank funded projects to the developing countries of Africa and Asia are in form of loan which enhanced the debt burden on the recipient countries. IDA funded WASH projects are on concessional credit. IDA charges a zero or very low interest with 30 to 40 years tenor. IDA also provide grants to those countries which are at higher risk of debt distress. Hutton & Varughese (2016) indicated that till the completion of SDGs (2030) the world bank estimated an additional investment requirement for WASH which will exceed to US\$ 1.7 trillion. Existing shortfall of funds in some countries would tend to be raise the investment demand by six times in WASH sector. Governments are vulnerable to fill this financing gap due to internal fiscal constrain and already existing high debt levels (World Bank 2019).

Reinhart and Rogoff (2011) highlighted the risks of aid- and debt-driven development, where external financing substitutes rather than complements domestic resource mobilization. For

WASH services, this dependence can create a moral hazard, whereby governments delay structural reforms or local revenue generation mechanisms because donor money fills the financing gap. Existing literature evident that excessive reliance on external debt hinder economic growth especially in Asia and Africa (Daud and Podivinsky, 2011, Hwang et al., 20210, Van Cuong, 2018, Zaghdoudi, 2020, Asteriou et al., 2021, Hassan and Meyer, 2021, Mohsin et al., 2021, Mondal and Maitra, 2021, Olaoye, 2022, Okwoche and Makanza, 2023, Dawood et al., 2024, Edo and Oigiangbe, 2024, Otieno and Daniel, 2025). Ultimately, such reliance undermines sovereignty and long-term sustainability and pressures fiscal management.

Waqf in Historical Perspective

The waqf system has emerged in various Muslim societies. Derived from Islamic jurisprudence, waqf refers to a perpetual benefit of an asset or wealth for society which remain unsold and inherited and make responsible a Muslim to work for the societal benefit, individual social responsibility (ICR). The revenues generated from the asset are used to support designated beneficiaries or public welfare projects. Haddad (2024) evaluated the capacity of waqf in water management in Muslim civilizations. He illustrated that initiated waqf for water provided equal opportunity for excess of water resources to all sectors and regions, boosted economic development, cared public health and welfare and protected environment.

Historically, waqf institutions provided services: i) Educational services: madrasas, schools, and libraries. ii) Health services: hospitals, clinics, nursing home, and herbal medicines. iii) social welfare services: orphanages, soup kitchens, Inn, and shelters. iv) Infrastructure facilities: roads, bridges, caravanserais, wells, water canals, bathrooms and water fountains.

In the presence of the Prophet SAW, the first waqf was a grove of 600 date palms of Hazrat Talha RA, to fed Medina's poor, a Jewish's seven orchards were donated as charity (waqf) according to his will by the Prophet SAW. Same as Hazrat Abdullah ibn Omar RA, and Hazrat Anas RA, donated their cherished properties in charity on the advice of the Prophet SAW. Hazrat Othman RA. on the wish of the Prophet SAW, bought the Ruma well and waqf it for the fellow Muslims to resolve the shortage of drinking water at that time. After the Prophet SAW demise waqf endowment remained a pillar in the life of Islamic society, non-Muslims in the Muslim society also developed waqf for their community's welfare.

During Ottoman empire public fountains and bathhouses were almost entirely sustained through waqf endowments. In Cairo and Damascus, hospitals operated for centuries on the income

generated by endowed lands and properties. In South Asia, waqf played a similar role in maintaining stepwells, mosques with water facilities, and free accommodations for travellers.

Decline of Waqf Institutions

Despite its historical importance, the waqf system declined in many Muslim countries during the colonial and post-colonial periods. Khan (2020) European colonizer was unable to comprehend the waqf system and disturbed the endowment through restructuring economy. British colonial administrators considered wealth as private business resource and never be a publicly endowed chartable fund. So, they often confiscated waqf properties or brought them under bureaucratic control, reducing community participation. In the post-independence era, many governments nationalized Awqaf, placing them under ministries of religious affairs or endowment boards. While this was intended to improve oversight, it often led to bureaucratic inefficiency, corruption, and underutilization of waqf assets (Komilov, 2023).

In Pakistan, for instance, waqf properties are regulated under provincial Awqaf departments. However, many assets remain poorly documented, embroiled in legal disputes, or generate limited income. As a result, waqf has been largely confined to maintaining mosques and shrines, rather than contributing to broader development sectors like health, education, or WASH.

Waqf As an Alternative: Modern Revival of Waqf Legislation

Over the hundred years period when there is no discussion of waqf. Now this trend is over and many countries either Muslim or non-Muslim are taking certain steps for the revitalisation of waqf. They are enacting new laws to recover, preserve and develop waqf properties in Algeria, Jordan, Kuwait, Sudan and Türkiye (Stibbard et al.2012). Non-Muslim countries with Muslim minority are realizing the effectiveness of waqf. UK. USA, Singapore, India.

Innovations in Waqf

Waqf is categories in varieties. Based on beneficiaries there are four types of waqf, charitable Waqf, family Waqf, joint Waqf, and Self-dedicated Waqf. Based on number of users it is categorised as public waqf and private waqf. According to the type of waqf asset it categorised as property waqf, corporate waqf and cash waqf.

Sukuk waqf is helpful in the enhancement of public facilities and waqf property efficiently develop Islamic economic merchandise and end up a low-cost funding device for public region investment. It can provide equitable development opportunity for a city or cities that have budget deficit problems for development. Indonesia launched waqf-linked sukuk, which invested in

infrastructure projects with social benefits. This model combines the perpetual nature of waqf with the liquidity of sukuk markets.

The Sukuk linked waqf (SLW) is operative since 2016 in Indonesia, public and private enterprises issued it (Masyita, 2019 and Zohella). Türkiye has revived municipal level waqf models to finance local development projects, drawing on its Ottoman heritage.

These innovations show that waqf can be adapted to modern contexts, combining traditional endowments with contemporary financial instruments to address development challenges.

Waqf and WASH: A Conceptual Fit

Water supply and sanitation have historically been among the most common purposes of waqf. From fountains in Ottoman Istanbul to stepwells in Mughal India, communities have long used waqf to ensure access to clean water. This makes WASH an especially suitable sector for waqf revival. Unlike donor aid, waqf is perpetual and locally owned, ensuring sustainability beyond project cycles. Moreover, waqf financing aligns with cultural and religious norms in Muslim-majority countries, which enhances legitimacy and community buy-in. Recent pilot projects suggest the potential of waqf for WASH. In Bangladesh, cash waqf has been mobilized to provide drinking water in rural areas. In Malaysia, waqf funds have supported small-scale sanitation facilities in low-income communities. These initiatives remain limited in scale but demonstrate the feasibility of linking waqf with basic service provision.

Research Gaps

Despite these developments, scholarly research on the role of waqf in financing WASH services remains scarce. Most literature on waqf focuses on education, health, or poverty alleviation, while WASH has been largely overlooked. Similarly, donor-driven WASH studies emphasize financial sustainability and governance but rarely consider indigenous financing alternatives such as waqf. This gap highlights the need for systematic research to evaluate waqf's potential as a viable alternative to donor-dependent WASH model.

Theoretical Framework

The financing of water, sanitation, and hygiene (WASH) services in developing countries is closely tied to questions of sustainability, governance, and equity. Donor-driven models have long been the dominant paradigm, yet their limitations—including debt burdens, conditionalities, and lack of local ownership—have prompted the search for alternative approaches. This paper proposes a

conceptual framework where waqf (Islamic endowment) functions as a financing and governance mechanism for WASH services. The framework rests on the theoretical linkage between financial innovation, community-based ownership, and long-term sustainability.

At its core, the model posits that waqf-financed WASH systems are more sustainable and resilient compared to donor-dependent models because they generate perpetual resources and embed community trust and participation. By drawing from both Islamic economics and development finance theory, the framework integrates waqf into the broader discourse on sustainable infrastructure financing.

Linking Waqf to Sustainable Financing

In conventional financing, resources for WASH are either raised through taxation, tariff, borrowing, or external aid. These mechanisms are constrained by fiscal limitations and political economy challenges. Waqf, however, introduces a fifth pathway, a community-driven perpetual endowments.

Theoretically, this aligns with the principle of resource perpetuity in Islamic economics, where endowed assets cannot be liquidated but must generate ongoing benefits for society. In financial terms, waqf functions like a trust fund, where the principal is preserved and only returns are utilized. Applied to WASH, this creates a continuous revenue stream for maintaining infrastructure, covering operational costs, and expanding services without incurring debt.

A group of individuals who collectively depend on a common-pool resource can develop their own effective systems for governing and managing that resource (Ostrom 1919). Waqf model similar with idea of Ostrom, when communities have ownership and decision-making power over resources, they are more likely to manage them sustainably. Waqf has potential to manage financial capital and institutional legitimacy for such collective action.

Waqf and Community Inclusion

The success of WASH interventions often depends on social inclusion and behavioural change. Donor-funded projects sometimes fail because they impose external solutions without fully engaging local communities. Waqf, in contrast, is embedded in local cultural and religious values, which increases trust and participation. Theoretically, this can be explained through social capital theory. Waqf builds bonding social capital within communities by pooling resources for a common good and bridging social capital by linking religious motivations with developmental outcomes. In practical terms, community members who contribute to waqf funds are more likely to take

ownership of water points, sanitation facilities, and hygiene initiatives. This sense of ownership enhances sustainability by reducing free-riding and ensuring local monitoring.

Waqf, Equity, and Access

Equitable access to WASH services is a persistent challenge in developing countries, where rural and marginalized populations are often excluded. Donor models sometimes exacerbate inequity by prioritizing urban or high-visibility projects. The waqf system, however, has historically been pro-poor and inclusive. Since waqf contributions are voluntary and motivated by religious duty, funds are typically directed toward underserved communities. This aligns with Islamic distributive justice theory, where wealth is not only a private right but also a trust with social obligations. In the proposed framework, waqf-financed WASH facilities prioritize equity by targeting areas where government or donor resources are limited.

Waqf and Institutional Resilience

Sustainability also requires institutional resilience—the ability of governance systems to adapt, maintain functionality, and deliver services over time. Donor-funded projects are vulnerable to political changes, withdrawal of aid, or external shocks. Waqf, by contrast, creates locally anchored institutions with independent funding streams for long term commitment. This is consistent with the resilience theory emphasizes decentralized, adaptive, and community-based systems. By institutionalizing community-managed financing, waqf can reduce vulnerability to external fluctuations and strengthen local governance structures.

Conceptual Model: The theoretical framework can be summarized in the following sequence:

1. **Financial Innovation through Waqf:** Establishing cash waqf, waqf sukuk, or hybrid models generates perpetual funding streams.
2. **Community Ownership and Inclusion:** Religious legitimacy and local participation enhance trust and engagement.
3. **Sustainable Financing for WASH:** Revenues are reinvested into operations, maintenance, and expansion of services.
4. **Improved Equity and Access:** Prioritization of marginalized groups ensures inclusive service delivery.
5. **Institutional Resilience:** Locally anchored waqf-based governance reduces dependency on donors and external shocks.
6. **Development Outcomes:** Enhanced access to safe water, sanitation, and hygiene

contributes to health improvements, poverty reduction, and achievement of SDG 6.

In brief, this theoretical framework positions waqf as a transformative financing and governance model for WASH services in developing countries. Unlike donor-driven models that are externally dependent and debt-inducing, waqf is locally embedded, perpetual, and inclusive. By linking financial sustainability, social inclusion, and institutional resilience, the framework provides a robust foundation for empirical exploration.

Methodology: Research Design

This study employs a qualitative-quantitative mixed-method approach to assess the viability of the waqf system as a sustainable financing and governance model for WASH services in African and Asian developing countries. The research design is based on three components:

1. Comparative Case Study Analysis: Examination of international experiences (e.g., Malaysia, Indonesia, Kuwait, Saudi Arabia and Turkey) where waqf has been applied to social infrastructure, alongside current donor-dependent WASH model in developing countries.
2. Descriptive Statistical Analysis: Use of secondary data from sample countries highlight trends in WASH financing and fiscal implications of donor dependence.
3. Policy Framework Assessment: Evaluation of Countries' legal, institutional, and financial frameworks to determine the feasibility of integrating waqf-based models for WASH.

This design allows for triangulation—cross-verifying findings through multiple methods to enhance validity and robustness.

Data Sources

The study relies primarily on secondary data from both international and domestic sources: For comparative study and descriptive analysis all data are taken from World Bank's publications. For policy framework analysis data are taken from Awqaf departments, waqf properties, revenues and management practices. Case studies and reports from Malaysia, Indonesia, and Turkey on modern waqf applications.

Case Study Methodology

The case study approach follows Yin's framework for comparative case research, which is suitable for examining "how" and "why" questions in complex institutional contexts.

- Sample country (Primary Case): Analysis of WASH financing through donor aid, government budgets, and potential scope for waqf-based models.
- Malaysia (Comparative Case): Cash waqf for health and education, showing relevance for

WASH adaptation.

- Indonesia (Comparative Case): Waqf-linked sukuk for infrastructure projects.
- Türkiye (Comparative Case): Municipal level waqf revival for local service provision.

By comparing sample country with these countries, the study identifies transferable lessons and contextual constraints.

Analytical Framework

The analysis is structured around four dimensions:

1. Sustainability: Does the financing model provide long-term, debt-free resources for WASH?
2. Equity: Does the model improve access for marginalized or underserved populations?
3. Cost-effectiveness: Are resources utilized efficiently, minimizing waste and leakage?
4. Institutional Resilience: Can the model withstand political and economic shocks?

Donor-funded and waqf-based models are evaluated against these dimensions using available empirical data and qualitative assessments.

Descriptive Statistical Techniques

Quantitative analysis is descriptive in nature, given the exploratory scope of this study. The following tools are applied:

- **Trend Analysis:** To examine a country's reliance on donor funding and external debt for WASH projects over the last two decades.
- **Comparative Ratios:** For example, ratio of donor-financed WASH projects to domestically financed projects.
- **Fiscal Impact Estimation:** Using available data to calculate the contribution of donor-funded WASH projects to public debt accumulation.
- **Awqaf Revenue Potential:** Estimation of potential revenues if idle waqf assets are productively managed (based on case studies from Malaysia and Indonesia).

Policy and Legal Review

To assess feasibility, the study also reviews Pakistan's regulatory and institutional frameworks governing waqf and public infrastructure:

- **Awqaf Acts (provincial laws):** Governing waqf management in Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan.

- **Public-Private Partnership (PPP) framework:** For integration of waqf into infrastructure projects.
- **Islamic finance regulations by SBP:** For potential waqf-linked sukuk issuance.

This legal review helps identify both **opportunities and barriers** to institutionalizing waqf for WASH.

Limitations

The study acknowledges several limitations: **Data Constraints:** Official statistics on waqf assets in sample countries e.g, Pakistan are fragmented and often outdated. **Attribution Challenges:** Isolating the impact of financing models (donor vs. waqf) on WASH outcomes is difficult due to overlapping factors (e.g., governance, technology, community participation). **Comparative Generalizability:** Lessons from Malaysia, Indonesia, and Turkey are not directly implementable for WASH projects. There is a huge difference in countries legal, cultural, and institutional settings. Despite these limitations, the methodology provides a structured and transparent approach for evaluating waqf as a viable financing mechanism for WASH.

In short, this methodological framework integrates comparative case studies, descriptive statistical analysis, and policy review to explore the role of waqf in financing WASH services. By grounding the analysis in both empirical data and institutional realities, the study seeks to generate actionable insights for policymakers and practitioners in Pakistan and other developing countries.

Case Studies and Empirical Analysis

To evaluate the feasibility of using the waqf system for sustainable WASH financing, this section analyses selected case studies from Pakistan, Malaysia, Indonesia, and Turkey. Pakistan is the primary focus, given its current reliance on donor-driven models and the underutilized state of its waqf assets. The comparative cases of Malaysia, Indonesia, and Turkey provide practical insights into how waqf has been successfully modernized and integrated into social infrastructure financing. The analysis draws on descriptive statistics, secondary reports, and policy documents. It evaluates each case study along four dimensions identified in the methodology: sustainability, equity, cost-effectiveness, and institutional resilience.

Pakistan: Donor Dependency and Untapped Waqf Potential

Current Financing of WASH

Pakistan's WASH sector faces significant financing challenges. According to UNICEF (2022), nearly 21% of Pakistan's population lacks access to basic drinking water services, and 64% lacks

access to safely managed sanitation. Despite this gap, public expenditure on WASH remains below 0.3% of GDP. Consequently, external donors—including the World Bank, Asian Development Bank (ADB), and bilateral partners—fund a significant share of large-scale projects.

Since 1950 the World Bank has provided over \$48.3 billion in assistance. Currently 54 projects are in progress with a commitment of \$15.7 billion (World Bank 2024). The State Bank of Pakistan (SBP) reports that external project loans for water supply and sanitation averaged USD 400–500 million annually between 2015 and 2022. While these inflows expand infrastructure, they also add to external debt obligations, worsening the fiscal and current account deficits. In 2025 alone, debt servicing consumed nearly 40% of Pakistan’s federal budget, crowding out social sector spending.

Awqaf Assets in Pakistan

Pakistan has a vast portfolio of waqf assets managed by provincial governments. According to Awqaf departments’ reports:

- Punjab: ~32,000 waqf properties (including land and buildings).
- Sindh: ~10,000 properties.
- Khyber Pakhtunkhwa: ~6,000 properties.
- Balochistan: ~3,000 properties.

Despite this wealth, revenue generation remains extremely low due to poor management, legal disputes, and corruption. For example, Punjab Awqaf reported annual revenue of less than PKR 2 billion (~USD 7 million) in 2021, a fraction of the potential value of these assets. If properly managed or monetized through instruments such as cash waqf or waqf sukuk, these assets could generate hundreds of millions annually for social infrastructure, including WASH.

Potential of Waqf for WASH

Using SBP and PBS data, this study estimates that redirecting even 10% of revenues from productive waqf assets could cover nearly half of the annual financing needs for rural WASH projects. For instance, rural water supply schemes in Punjab require PKR 25–30 billion annually, which could be partly financed through waqf-based endowments rather than external loans.

Malaysia: Cash Waqf and Community Financing

Malaysia has pioneered the use of cash waqf as a modern instrument to finance health, education, and community services. Individuals contribute small amounts of cash to waqf funds administered by State Islamic Religious Councils. These funds are invested in Shariah-compliant assets, and the

returns are used for social projects. Johor state established a cash waqf program to fund healthcare services, including dialysis centres. The perpetual nature of waqf ensures continuity of financing, unlike donor-funded health projects that end with funding cycles. The same mechanism could be applied to build and maintain small-scale water supply systems and sanitation facilities, particularly in rural or peri-urban areas. Malaysia's experience demonstrates that transparent management, community trust, and supportive legal frameworks are key to scaling up waqf for social infrastructure.

Indonesia: Waqf-Linked Sukuk for Infrastructure

Indonesia has gone a step further by integrating waqf with Islamic capital markets. In 2016, Indonesia issued the world's first cash waqf-linked sukuk, where proceeds were invested in social projects such as schools and clinics. The model combines the perpetual nature of waqf with the liquidity and scalability of sukuk. The Indonesian Ministry of Finance partnered with the Indonesian Waqf Board to issue sukuk backed by cash waqf contributions. The funds financed rural schools and healthcare centres. A similar model could be used in Pakistan to issue waqf sukuk for financing large-scale water treatment plants, sewerage networks, or safe drinking water supply systems in urban areas. By embedding waqf within the national financial system, Indonesia has created a more resilient and scalable financing model.

Turkey: Reviving Municipal Waqf Traditions

Turkey has drawn on its Ottoman heritage to revive municipal level waqf initiatives. Local governments collaborate with waqf institutions to finance small-scale infrastructure projects, such as public fountains, parks, and community centres. In Istanbul, waqf funds have been used to restore historical water fountains and expand access to clean water in low-income neighbourhoods. These projects directly benefit marginalized communities, aligning with the pro-poor orientation of traditional waqf. Municipal collaboration ensures efficient resource utilization and minimizes duplication of efforts. Türkiye's model highlights the importance of local governance structures in managing waqf-based projects.

Comparative Insights

Dimension	Donor-Funded WASH (Pakistan)	Waqf-Based Models (Malaysia, Indonesia, Turkey)
Sustainability	Time-bound, dependent on donor cycles; adds to debt.	Perpetual, debt-free, community-owned financing.
Equity	Urban-biased; limited reach to marginalized groups.	Prioritizes underserved groups; culturally embedded.
Cost-Effectiveness	High administrative costs; conditionalities.	Lower overheads; community managed.
Institutional Resilience	Vulnerable to donor withdrawal and fiscal crises.	Anchored in local governance, resilient to external shocks.

The comparison clearly shows that while donor funding fills short-term gaps, waqf-based models offer long-term, culturally legitimate, and financially sustainable solutions for WASH.

Empirical Analysis of Pakistan’s Financing Gap

If managed productively, waqf assets in Pakistan could generate revenues of USD 500–700 million annually (conservative estimate), covering at least one-third of the financing gap. Coupled with community cash waqf and innovative waqf sukuk, the entire gap could potentially be bridged without relying on external debt.

In sum, the case studies and empirical analysis demonstrate that waqf can serve as a viable, sustainable, and culturally rooted alternative to donor-dependent WASH financing. While countries face structural challenges in terms of waqf asset management, lessons from Malaysia, Indonesia, and Turkiye illustrate practical pathways for reform. With proper governance, these countries’ vast waqf assets could be transformed into a powerful engine for WASH service provision, reducing debt dependence and advancing progress toward SDG 6.

Reassessing Donor Dependency in WASH Financing

The findings from previous section highlight a recurring theme: donor-driven WASH financing, while useful for plugging immediate investment gaps, is fundamentally unsustainable for developing countries like Pakistan. The reliance on concessional loans and grants ties the sector to external funding cycles, leaving it vulnerable to geopolitical shifts and donor priorities. Moreover, loan-based financing has aggravated Pakistan’s fiscal and external debt burden, feeding into the twin deficit problem. This raises a crucial policy question: can developing countries like Pakistan

continue to rely on donor support without jeopardizing fiscal sustainability? The evidence suggests that donor dependency creates a structural imbalance. It fosters a culture of external reliance, weakens local ownership, and discourages the mobilization of indigenous financial resources. Against this backdrop, the waqf system emerges not merely as an alternative but as a strategic necessity to diversify financing sources and reduce vulnerability.

Waqf as a Sustainable Financing Instrument

The sustainability of waqf stems from its perpetual nature. Unlike donor projects that terminate once funding cycles end, waqf assets generate ongoing returns. Historical evidence from Ottoman, Mughal, and other Muslim societies underscores the enduring capacity of waqf to sustain public goods, including water fountains, wells, and sanitation facilities, over centuries.

The comparative case studies confirm this potential. Malaysia's cash waqf schemes demonstrate that even modest community contributions, if pooled and invested effectively, can finance health and education services on a continuous basis. Indonesia's waqf-linked sukuk shows that scaling waqf through capital markets can generate significant resources for social infrastructure. Türkiye's revival of municipal-level waqf traditions illustrates how localized, community-driven waqf projects can deliver pro-poor services.

This means that mobilizing waqf could transform WASH financing from a donor-dependent model into a self-reliant, perpetual system. The descriptive analysis in Section 5 suggests that if even a fraction of Pakistan's waqf assets were productively managed, they could bridge a substantial portion of the financing gap for WASH.

Community Inclusion and Trust

One of the persistent challenges in WASH interventions is ensuring community participation. Donor-driven models often face resistance because they impose external solutions, sometimes without fully understanding local socio-cultural contexts. Waqf, however, enjoys deep-rooted legitimacy in Muslim societies. By aligning financing with religious and cultural values, waqf fosters trust and encourages community participation.

The cash waqf model, for instance, empowers individuals to contribute directly to public services, fostering a sense of ownership. Communities that contribute to waqf-based WASH facilities are more likely to maintain and sustain them. This community-driven approach resonates with Ostrom's theory of collective resource management, where inclusion and participation are critical for sustainability.

Equity and Access

Modern waqf models, if designed properly, can prioritize equity in WASH. For example: Rural areas could benefit from cash waqf contributions directed toward small-scale water supply schemes. Urban slums could be targeted through waqf sukuk-financed sewerage networks. Marginalized groups, such as women and children, could benefit from hygiene and sanitation projects funded by dedicated waqf portfolios. This pro-poor orientation makes waqf not just an alternative financing tool but also a mechanism for social justice.

Institutional Resilience and Local Governance

Another critical insight from the comparative cases is the role of governance. Donor projects are often subject to political shifts, withdrawal of aid, and global economic shocks. Waqf-based models, anchored in local institutions, are inherently more resilient. Türkiye's municipal-level waqf initiatives highlight the potential of embedding waqf into local governance structures. This localization ensures adaptability, accountability, and efficiency. For developing countries, integrating waqf with municipal and provincial governments could enhance resilience while reducing bureaucratic inefficiencies. However, this requires addressing significant institutional challenges. Pakistan's waqf assets are currently underperforming due to mismanagement, legal disputes, and corruption. Without comprehensive reforms, the transformative potential of waqf cannot be realized.

Challenges in Implementing Waqf-Based WASH Models

Despite its potential, several challenges must be addressed before waqf can be successfully integrated into WASH financing framework:

1. **Weak Governance of Awqaf Properties:** Provincial Awqaf departments lack transparency and efficient management systems. Many assets are idle or entangled in legal disputes.
2. **Legal and Regulatory Barriers:** Current laws restrict the use of waqf assets primarily to religious or shrine-related purposes. Broader development applications require legal reforms.
3. **Capacity Constraints:** Waqf management requires financial expertise, which is currently lacking within provincial departments. Without professional asset management, revenues will remain underutilized.
4. **Community Awareness:** While waqf is culturally familiar, awareness about modern waqf

instruments such as cash waqf or waqf sukuk remains limited.

5. **Integration with Public Policy:** For waqf-based financing to be effective, it must be embedded within national WASH strategies, rather than functioning in isolation.

Opportunities for Reform and Innovation

While challenges exist, the opportunities for reform are significant. Lessons from Malaysia, Indonesia, and Turkey suggest the following strategies for Pakistan:

- **Cash Waqf Mobilization:** Establishing state-backed cash waqf funds specifically earmarked for WASH projects. It was evident that historic waqf system never faced the issue of financial shortage. So how can the present waqf would be incapable to fill financial gap, the gap mainly in the approach and capability of the responsible to utilise the available resources in effective and efficient manner (Abdullah, 2015). Over the past two decades, revitalization of waqf as a tool for socio-economic development. Several countries have experimented with innovative waqf-based models. Concept of Cash Waqf has introduced in Kuwait, Qatar, Emirates, Jordan, Indonesia, Saudi Arabia, Egypt, Türkiye, Bangladesh, Malaysia, Singapore, Europe and America. Where collection of cash waqf as movable assets and then invested in Shariah-compliant instruments. The returns are used to finance social services such as schools, hospitals, and scholarships, (Nofianti, 2024). Malaysia's State Islamic Religious Councils have pioneered such initiatives. Digital waqf based on fintech may raise cash funds and enhance the confidence of the depositors. Increase philanthropic partnerships for *Awqaf* development by leveraging technology like blockchain. This will unlock *waqf* asset equity, lower costs, improve accountability and trust, and address risks.
- **Waqf Sukuk Issuance:** Partnering with central bank and Islamic banks to issue sukuk backed by waqf contributions for financing large-scale water treatment and sewerage projects. Khan and Badjie (2022) evident that sukuk (Islamic bond) is an effective financial instrument to fund waqf projects. Through issuing sukuk waqf institution collect achieve capital and reutilize them into WASH projects at state (provincial) level.
- **Public-Private-Waqf Partnerships (PPWPs):** Encouraging collaboration between government, private sector, and waqf institutions to manage and finance WASH facilities. Its time to link waqf and modern finance to invent new solutions to channelise waqf resources efficiently and achieve SDG targets, such as provision of water, sanitation, poverty reduction, clean environment and health (Khan & Badjie, 2022). Malaysian, National Waqf Policy is developed to leverage waqf resources towards public and community services. This approach may use as a case study for the developing countries

facing financial gap in WASH sector, to open a venue for local authority to collaborate with community heads and corporates to finance and invest in waqf funds full fill the basic requirement of WASH at community level. Then all waqf institutions align with each other and enhance coordination and collaboration among managers to lead a task of WASH project with significant responsibility. Malaysian waqf managers have been achieved their task efficiently.

- **Digitization of Waqf Records:** Using digital platforms to register, monitor, and transparently manage waqf assets, ensuring accountability.
- **Legal Reforms:** Expanding the permissible uses of waqf to explicitly include health, education, and WASH services.

Policy Implications

The discussion points to several policy implications: By reducing reliance on donor loans, waqf-based financing can ease debt pressures and contribute to macroeconomic stability. Waqf provides a culturally embedded pathway to achieving SDG 6, while also contributing to SDG 1, SDG 3, and SDG 11. Waqf ensures equity by channelling resources to marginalized populations, thus complementing government efforts of inclusive development. Reforming waqf management could improve institutional strength and governance beyond WASH, creating spillover benefits for other sectors.

In sum, this discussion highlights the transformative potential of waqf as a financing mechanism for WASH services in developing countries. Unlike donor-dependent models, waqf offers sustainability, inclusivity, and resilience. However, realizing this potential requires structural reforms in governance, legal frameworks, and community engagement. By integrating modern waqf instruments with national WASH strategies, countries could reduce donor dependency and unlock a homegrown, culturally legitimate pathway to sustainable development.

Policy Roadmap for Waqf-Based WASH Financing

The discussion above confirms that countries' reliance on donor-driven financing for WASH services is unsustainable in the long run. A structured policy roadmap is essential to transition toward a waqf-based model. This roadmap must integrate legal, institutional, financial, and community dimensions while ensuring alignment with national strategies such as the country's Vision 2025 and global commitments like the Sustainable Development Goals (SDGs).

Strategic Policy Pillars

The roadmap rests on four interlinked policy pillars:

1. **Legal and Regulatory Reform** – Updating existing waqf laws to permit broader socio-economic uses, including WASH.
2. **Institutional Strengthening** – Professionalizing Awqaf departments and establishing waqf development authorities.
3. **Innovative Financial Instruments** – Launching cash waqf, waqf sukuk, and blended waqf-public partnerships for WASH.
4. **Community Engagement and Awareness** – Mobilizing public trust and contributions through awareness campaigns, transparency mechanisms, and digital waqf platforms.

Policy Actions and Implementation Pathway

Policy Domain	Action Items	Responsible Institutions	Timeframe
Legal Reforms	Amend provincial Ausaf Acts to explicitly include health, education, and WASH as permissible uses.	Provincial assemblies, Ministry of Law, CII*	Short-term (1–2 yrs)
	Develop uniform federal framework for waqf regulation and governance.	Federal Govt., Council of Islamic Ideology (CII)	Medium-term (3 yrs)
Institutional Capacity	Establish a National Waqf Development Authority (NWDA) with specialized WASH financing units.	Ministry of Religious Affairs, Central bank, provincial Awqaf	Medium-term (3–5 yrs)
	Train Awqaf staff in financial management and project planning.	NWDA, Islamic banks, universities	Short-term (1–2 yrs)
Financial Innovation	Launch Cash Waqf Funds for WASH via Islamic banks.	Central bank, Islamic banks, NWDA	Short-term (1–2 yrs)
	Issue Waqf-Linked Sukuk to finance large-scale water and sewerage infrastructure.	Central bank, Ministry of Finance, SX, Islamic banks	Medium-term (3–5 yrs)
	Pilot Public-Private-Waqf Partnerships (PPWPs) for urban sanitation.	Local governments, NWDA, NGOs	Medium-term (3–5 yrs)

Policy Domain	Action Items	Responsible Institutions	Timeframe
Community Engagement	Digitalize waqf records and introduce mobile-based platforms for small donations.	NADRA, Central bank, fintech startups	Short-term (1–2 yrs)
	Launch awareness campaigns linking waqf contributions to SDG 6.	Ministry of Information, civil society organizations	Ongoing

*CII = Council of Islamic Ideology

Financing Model Proposals

1. Cash Waqf for Community-Based WASH: Individuals donate cash into dedicated waqf funds managed by Islamic banks. Returns on investments are channelled into building rural water supply schemes, hand pumps, and sanitation facilities. Example: Like Malaysia’s “Waqf Selangor Muamalat,” this model could finance localized WASH services in Pakistani villages.

2. Waqf Sukuk for Infrastructure: Government issues sukuk backed by waqf contributions and revenues from existing waqf properties. Funds raised are invested in large-scale projects such as wastewater treatment plants and urban sewerage networks. Example: Indonesia’s “Cash Waqf-Linked Sukuk” provides a replicable model.

3. Public-Private-Waqf Partnerships (PPWPs): Collaborative projects where private contractors build WASH infrastructure using waqf funds. Local communities manage facilities with oversight from Awqaf authorities. Ensures efficiency, accountability, and sustainability.

Risk Management and Governance

A successful waqf-based WASH system requires a robust governance framework to manage risks:

Risk	Mitigation Strategy
Mismanagement of waqf funds	Independent audits, transparent reporting, digitization of waqf records.
Corruption or elite capture	Community oversight boards and inclusion of civil society organizations in monitoring.
Lack of community participation	Awareness campaigns, mobile waqf donation apps, and participatory project design.

Risk	Mitigation Strategy
Low returns on waqf investments	Diversified Islamic finance portfolios, shariah-compliant investment strategies.
Political resistance	Advocacy through Council of Islamic Ideology and alignment with national SDGs.

Implementation Roadmap (Timeline)

Phase	Key Activities	Timeframe
Phase I: Foundations	Legal reforms, creation of NWDA, training of Awqaf officials, pilot cash waqf funds	Years 1–2
Phase II: Expansion	Launch waqf sukuk, expand cash waqf funds, digitalize waqf assets	Years 3–5
Phase III: Integration	Institutionalize PPWPs, integrate waqf financing into national WASH strategies	Years 6–8
Phase IV: Consolidation	Nationwide scale-up, monitoring, and global partnerships	Years 9–10

The proposed policy roadmap demonstrates that countries can gradually transition from donor dependency toward a waqf-driven, community-based, and sustainable WASH financing model. By combining legal reforms, institutional strengthening, financial innovation, and grassroots participation, countries can create a resilient financing ecosystem for water and sanitation services. This roadmap is not just a financing plan but also a governance transformation agenda. It offers countries a unique opportunity to integrate religious, cultural, and community values into modern development strategies, thereby enhancing legitimacy, sustainability, and social equity.

Conclusion and Recommendations

This study has examined the potential of waqf (Islamic endowment) as a viable and sustainable alternative to donor-dependent financing of WASH (Water, Sanitation, and Hygiene) services in developing countries like Pakistan. The analysis has shown that countries' overreliance on external loans and donor assistance to finance WASH has contributed to growing fiscal and external imbalances, while also failing to guarantee sustainability and equity in service delivery. Donor-funded models are often constrained by short funding cycles, donor priorities, and weak community ownership, leaving them vulnerable to both financial and institutional risks. In contrast, waqf-based financing presents a debt-free, community-anchored, and perpetual resource mobilization mechanism. Historical experience from Islamic civilizations demonstrates the effectiveness of waqf in providing public goods such as water supply, sanitation, education, and healthcare. Contemporary practices in Malaysia, Indonesia, and Turkey further illustrate how modern waqf instruments—such as cash waqf, waqf-linked sukuk, and community-managed endowments—can successfully finance infrastructure and social services.

For country which possesses significant but underutilized waqf assets, the integration of this system into the WASH sector offers multiple benefits. It can reduce dependency on external financing, strengthen local governance, promote community participation, and align development initiatives with religious and cultural values. Importantly, waqf-based WASH financing also supports Pakistan's commitments to Sustainable Development Goal 6 (Clean Water and Sanitation) while contributing to broader goals such as poverty reduction (SDG 1), health (SDG 3), and sustainable cities (SDG 11). Nevertheless, realizing this potential is contingent upon addressing several structural and institutional challenges, including the weak governance of waqf properties, lack of transparency, outdated legal frameworks, and limited financial innovation.

Without systematic reforms, the waqf system cannot serve as a credible alternative to donor-based financing.

Future Research Directions

While this paper provides a conceptual and policy-oriented framework, several areas warrant further empirical investigation: Revenue Potential of Waqf Assets to WASH, comparative studies measuring outcomes of waqf-based WASH projects versus donor-funded projects in terms of equity, cost-effectiveness, and sustainability. Qualitative research on public trust, participation, and willingness to contribute to modern waqf instruments. Expanded cross-country analysis beyond Malaysia, Indonesia, and Turkey, especially in South Asia and Sub-Saharan Africa.

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