



PUBLIC POLICY AND ACCESS TO SAFE DRINKING WATER: AN ASSESSMENT OF RURAL WATER SUPPLY INITIATIVES IN NORTHERN NIGERIA

AHMED USMAN

Department of Public Administration

Faculty of Management Sciences

Collage of Communication, Social and Management Sciences

Kaduna State University

Abstract

Access to safe and reliable drinking water remains a persistent development challenge in rural Northern Nigeria despite sustained government reforms and donor-supported interventions. This study evaluates the effectiveness, implementation constraints, and sustainability of rural water supply initiatives within the broader context of public policy implementation and water governance. Drawing on Policy Implementation Theory and Participatory Governance Theory, the study adopts a descriptive and evaluative mixed-methods research design. Data were collected from Rural Water Supply and Sanitation Agencies (RUWASSA), local government authorities, development partners, non-governmental organizations, and rural community representatives across selected states in Northern Nigeria. The findings reveal that although policy instruments, including the National Water Resources Policy, the Partnership for Expanded Water Supply, Sanitation and Hygiene (PEWASH), and Water, Sanitation and Hygiene (WASH) programmes, provide a robust institutional framework for expanding rural water access, implementation outcomes remain constrained by institutional fragmentation, inadequate financing, weak intergovernmental coordination, political interference, deficient accountability mechanisms, poor maintenance practices, and limited community participation. Conversely, water supply schemes characterized by strong local ownership, participatory management, and collaborative governance demonstrate greater operational sustainability and improved service delivery. The study argues that the success of rural water policies depends less on policy formulation than on institutional capacity, governance quality, and stakeholder engagement during implementation. It recommends strengthening decentralized water governance, increasing investment in rural water infrastructure, enhancing institutional capacity, institutionalizing robust monitoring and evaluation systems, and promoting inclusive community participation throughout the project cycle. These findings contribute to the literature on public policy implementation and rural service delivery while offering evidence-based policy recommendations for advancing Sustainable Development Goal 6 in Nigeria.

Keywords: *Public Policy, Rural Water Supply, Water Governance, Policy Implementation, Community Participation*

Introduction

The provision of safe and potable water is universally recognized as a fundamental human right and a critical determinant of public health, economic productivity, and sustainable development (Connor 2015). In the view of World Health Organization (2021), globally, access to clean water remains central to the realization of the United Nations Sustainable Development Goals (SDGs), particularly SDG 6,

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

which seeks to ensure the availability and sustainable management of water and sanitation for all. Despite global progress in water infrastructure development, millions of people in developing countries, particularly in Sub-Saharan Africa, continue to experience severe water insecurity resulting from inadequate infrastructure, weak governance systems, and poor policy implementation. (Nkiaka, Bryant, Okumah & Gomo, 2021).

In Nigeria, access to safe drinking water remains highly uneven across regions, with rural communities in Northern Nigeria facing the most acute challenges (Ishaku, Majid, Ajayi, & Haruna, 2011). The region continues to suffer from inadequate water infrastructure, prolonged drought conditions, environmental degradation, rapid population growth, insecurity, and weak institutional capacity. A study by Okeke, (2009) revealed that many rural households rely heavily on unsafe sources such as streams, ponds, hand-dug wells, and seasonal water bodies for domestic consumption. This situation has contributed significantly to the prevalence of waterborne diseases including cholera, typhoid fever, and dysentery, thereby undermining rural health outcomes and socio-economic development.

To address these challenges, the Nigerian government, in collaboration with international development agencies, has introduced several policy frameworks and intervention programmes aimed at expanding rural water access. Notable among these are the National Water Resources Policy (2016), the Rural Water Supply and Sanitation Programme (RUWASSA), the Partnership for Expanded Water Supply, Sanitation and Hygiene (PEWASH), and various Water, Sanitation and Hygiene (WASH) initiatives. These interventions were designed to promote equitable access to potable water, strengthen institutional governance, and encourage community participation in water management.

However, despite the existence of these policy initiatives, access to safe drinking water in many rural communities across Northern Nigeria remains inadequate (Irene, Irene & Daniels, 2025). A study conducted by Adeoti, Kandasamy and Vigneswaran, (2023) reported that several water projects become non-functional shortly after implementation due to poor maintenance, weak local ownership, insufficient technical expertise, and inconsistent funding mechanisms. Furthermore, implementation processes are often characterized by bureaucratic inefficiencies, political interference, institutional fragmentation, and inadequate monitoring and evaluation systems.

The persistence of rural water insecurity therefore reflects not merely the absence of policies but rather a significant implementation gap between policy formulation and practical service delivery (Matimolane & Mathivha, 2025). This gap raises important questions concerning the effectiveness of public policy frameworks, institutional coordination, governance mechanisms, and stakeholder participation in rural water supply management.

Similarly, access to safe and reliable drinking water remains a major developmental challenge in rural Northern Nigeria despite decades of policy interventions and donor-supported initiatives. Although successive governments have introduced several programmes aimed at improving rural water supply (Gbadegesin & Olorunfemi, 2007), a large proportion of rural households continue to depend on unsafe water sources for domestic use. This persistent inadequacy raises concerns regarding the effectiveness, sustainability, and implementation capacity of existing public policies in the water sector.

For instance, National Water Resources Policy, RUWASSA, PEWASH, and WASH programmes emphasize sustainability, decentralization, and community participation as central pillars of rural water governance. Nevertheless, evidence from rural communities suggests that these policy objectives have not been fully realized in practice. Many rural water projects are either abandoned, poorly maintained, or incapable of meeting growing population demands (Reij, Scoones, & Toulmin, 2013). Consequently, water scarcity and waterborne diseases continue to affect vulnerable rural populations disproportionately (Jahura, Islam, & Mostafa, 2024).

Crosby (1996) argues that one of the principal challenges of public policy implementation is its highly centralized and bureaucratic character, whereby decision-making authority is concentrated within government institutions and external development agencies, with limited involvement of beneficiary communities. In the context of rural water supply, this top-down approach often weakens community ownership, reduces local accountability, and undermines the long-term sustainability of water infrastructure after donor or government support has ended (Crosby, 1996; Ostrom, 1990). Studies have consistently shown that rural water schemes are more sustainable when local communities actively participate in planning, implementation, operation, and maintenance (World Bank, 2004; Lockwood & Smits, 2011).

Another persistent challenge is the weak institutional coordination among the federal, state, and local tiers of government responsible for water governance in Nigeria. Fragmented institutional mandates, overlapping responsibilities, inconsistent policy implementation, and inadequate intergovernmental collaboration have constrained the effectiveness of rural water service delivery (Federal Ministry of Water Resources [FMWR], 2016; OECD, 2015). These institutional weaknesses are compounded by chronic underfunding, corruption, weak accountability mechanisms, insufficient monitoring and evaluation systems, and inadequate technical and managerial capacity, all of which undermine the implementation of rural water policies (Hope, 2015; Transparency International, 2022).

Furthermore, significant disparities in access to safe drinking water across Northern Nigeria suggest that policy outcomes are shaped not only by the availability of financial resources but also by the quality of governance, institutional effectiveness, and the extent of community participation. Evidence from Sub-Saharan Africa indicates that decentralized and participatory water governance arrangements generally achieve better service delivery and greater sustainability than centralized approaches (UN-Water, 2021; World Health Organization & UNICEF, 2023).

In Northern Nigeria, however, insecurity, poverty, weak institutional capacity, rapid population growth, and climate variability further complicate the implementation of rural water supply initiatives (UNICEF Nigeria, 2023; National Bureau of Statistics, 2022).

Although the literature on Nigeria's water sector has expanded considerably, existing studies have primarily focused on infrastructure deficits, financing, and technical service delivery, with relatively limited attention devoted to understanding how public policy implementation processes influence rural water access within the unique governance and socio-political context of Northern Nigeria (Aiyetan, 2019; FMWR, 2016). This gap limits evidence-based policymaking aimed at improving rural water governance and achieving sustainable service delivery.

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

Against this background, the present study examines the relationship between public policy implementation and access to safe drinking water by assessing rural water supply initiatives in Northern Nigeria. Specifically, the study evaluates the effectiveness of existing policy frameworks, identifies the institutional and governance challenges affecting implementation, examines the influence of community participation and institutional support on service delivery outcomes, and proposes policy reforms necessary for promoting equitable, sustainable, and resilient rural water access in line with Sustainable Development Goal 6 (SDG 6).

Objectives of the Study

- Examine the policy framework guiding rural water supply in Northern Nigeria.
- Evaluate the extent to which public water supply initiatives have improved access to safe drinking water in rural communities.
- Identify the major implementation challenges affecting rural water policy outcomes.
- Assess the role of local institutions, community participation, and funding mechanisms in sustaining rural water projects.
- Recommend policy strategies for improving water access and sustainability in rural Northern Nigeria.

Conceptualizing Public Policy and Water Governance

Public policy is widely recognized as a fundamental instrument through which governments address societal needs, respond to developmental challenges, and promote public welfare. It comprises a deliberate course of action formulated and implemented by public authorities to address collective problems, achieve socio-economic development, and improve citizens' quality of life (Rustamova, Sharifzoda, Burxanxodjaeva, Rahimqulova, Turdialiev, Nurullaev, & Eshchanova, 2025). As a core function of governance, public policy provides the framework for translating political objectives into practical interventions that shape national development outcomes.

According to Rosenbloom, Kravchuk, and Clerkin (2022), public policy encompasses the laws, regulations, programmes, administrative decisions, and institutional arrangements established by governments to direct public affairs and ensure effective service delivery. Similarly, Dye (2017) defines public policy as whatever governments choose to do or not to do, emphasizing that governmental inaction may be as consequential as deliberate intervention. Anderson (2015) further describes public policy as a purposive course of action pursued by public authorities to address identified public problems, reflecting governmental priorities and societal expectations.

According to Michael Howlett and Cashore, (2020) public policy refers to the institutional arrangements, governmental decisions, and administrative actions designed to influence socio-economic outcomes within society. This perspective emphasizes that public policy extends beyond mere policy formulation to include implementation processes, institutional coordination, and evaluation mechanisms. Similarly, Peters (2019) conceptualizes public policy as the sum total of government activities directed toward addressing societal challenges through structured and coordinated interventions. In this regard, public policy is not merely a political statement but a practical mechanism for translating government intentions into tangible social outcomes.

Within the context of water governance, public policy includes the legal frameworks, institutional structures, administrative arrangements, and regulatory mechanisms established to manage water resources and ensure equitable access to safe and sustainable water supply. Water policy therefore involves decisions relating to water allocation, infrastructure development, environmental protection, sanitation, public health, and resource sustainability. In many developing countries, especially in Sub-Saharan Africa, water governance has become a major policy concern due to increasing population growth, urbanization, climate change, environmental degradation, and rising demand for clean water resources.

Historically, water governance in many countries was characterized by highly centralized, state-led institutional arrangements in which governments exercised primary authority over water resource planning, development, regulation, and service delivery (Biswas, 2004; Rogers & Hall, 2003). Within this traditional model, central government agencies were responsible for policy formulation, infrastructure financing, project implementation, operation, and maintenance, while the participation of local communities, civil society organizations, and the private sector remained limited or entirely absent (Global Water Partnership [GWP], 2000; World Bank, 2004).

Although centralized governance facilitated national coordination and large-scale infrastructure development, it often proved inadequate in addressing the diverse socio-economic and environmental conditions of local communities, particularly in rural and underserved areas (Ostrom, 1990; Meinzen-Dick, 2007). The exclusion of local stakeholders from decision-making processes weakened community ownership, reduced accountability, and contributed to poor operation and maintenance of water facilities, resulting in frequent system failures and declining service sustainability (Lockwood & Smits, 2011; Harvey & Reed, 2007). Consequently, many countries have progressively shifted towards decentralized and participatory water governance models that emphasize stakeholder engagement, community management, and collaborative institutional arrangements to improve service delivery and ensure the long-term sustainability of rural water supply systems (Rogers & Hall, 2003; UN-Water, 2021).

Similarly, one of the most influential frameworks emerging from the transformation of water governance is the Integrated Water Resources Management (IWRM) approach. The IWRM framework advocates the coordinated development and management of water, land, and related resources in order to maximize economic and social welfare without compromising environmental sustainability (Global Water Partnership (GWP), 2016; United Nations Water [UN-Water], 2020). The approach emphasizes collaboration among governments, local communities, civil society organizations, private sector actors, and development partners in water planning and implementation processes. Rather than concentrating authority solely within central government institutions, IWRM promotes shared responsibility, participatory decision-making, and cross-sectoral coordination in water governance (Biswas, 2008; Medema et al., 2008).

The relevance of the IWRM approach is particularly significant in rural water management where local participation and sustainability are critical for long-term success. In many rural communities, centralized water projects frequently fail due to poor maintenance, inadequate local ownership, and weak institutional support (Harvey & Reed, 2007).

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

Consequently, contemporary water governance increasingly recognizes the importance of involving beneficiaries directly in planning, implementation, and maintenance processes. Community participation is now regarded as a key principle of sustainable rural water supply because it strengthens accountability, promotes ownership, and enhances the sustainability of infrastructure projects (Marks & Davis, 2012; Obi & Nwankwo, 2020).

Effective water governance therefore requires strong institutional coordination among various levels of government and relevant stakeholders. In countries such as Nigeria, water governance responsibilities are often shared among federal, state, and local government institutions, development agencies, and community organizations. However, weak coordination among these institutions frequently undermines policy effectiveness and service delivery outcomes. Overlapping mandates, bureaucratic fragmentation, and inadequate communication mechanisms often result in duplication of responsibilities and inefficient allocation of resources within the water sector (Adeniji, 2018; Akhmouch & Correia, 2016).

Furthermore, community participation has emerged as a central component of modern water governance systems. Participatory governance recognizes that local communities are not merely passive beneficiaries of government services but active stakeholders capable of contributing meaningfully to project sustainability and decision-making processes (Edelenbos et al., 2020). In rural water management, participatory approaches encourage the establishment of Water User Associations, village water committees, and community-based maintenance structures responsible for overseeing local water facilities.

Studies have shown that projects characterized by strong community involvement often demonstrate greater sustainability, lower maintenance costs, and improved service delivery outcomes compared to projects implemented solely through top-down government approaches (Harvey & Reed, 2007; Obi & Nwankwo, 2020).

However, in Nigerian context, water governance remains a major developmental challenge, particularly in rural Northern communities where access to safe drinking water remains inadequate despite multiple policy interventions. Although the Nigerian government has introduced various programmes such as the National Water Resources Policy, RUWASSA, PEWASH, and WASH initiatives, implementation outcomes have remained uneven due to institutional weaknesses, inadequate funding, corruption, and limited community participation (Federal Ministry of Water Resources, 2016; Sule, 2019). Consequently, many rural communities continue to rely on unsafe water sources despite significant public investments in water infrastructure (Tanko & Ibrahim, 2021).

The conceptual relationship between public policy and water governance therefore highlights the importance of effective institutional arrangements, participatory governance structures, and sustainable implementation mechanisms in achieving equitable access to safe drinking water. Public policy provides the framework for action, while water governance determines how policies are implemented, coordinated, and sustained within society (Howlett & Cashore, 2020). The effectiveness of rural water supply initiatives ultimately depends on the interaction between government institutions,

local communities, development partners, and governance systems responsible for managing water resources.

In the same vein, public policy and water governance are closely interconnected concepts central to sustainable development and public service delivery. While public policy establishes the goals, strategies, and institutional frameworks for addressing water challenges, effective water governance ensures that these policies are implemented transparently, efficiently, and sustainably (Peters, 2019). Contemporary approaches to water governance increasingly emphasize decentralization, community participation, accountability, and institutional collaboration as essential conditions for improving rural water access and achieving long-term sustainability in developing countries such as Nigeria.

Empirical Review

Adeoti, Kandasamy, and Vigneswaran (2023) investigated the sustainability of rural water supply systems in selected African countries, including Nigeria, with emphasis on governance and institutional performance. Their study found that although governments and international development agencies have increased investment in rural water infrastructure over the years, many communities still experience inadequate access to potable water due to poor governance systems, weak policy implementation, and limited institutional coordination. The authors argued that the effectiveness of rural water policies depends not only on infrastructure provision but also on strong institutional arrangements capable of ensuring maintenance, accountability, and long-term sustainability. They further observed that weak coordination among federal, state, and local institutions frequently results in duplication of functions, project abandonment, and inefficient resource allocation within the water sector.

Similarly, Irene and Daniels (2025) examined water governance and sustainable development in Nigeria with particular focus on Northern communities. Their findings revealed that many water infrastructure projects across rural Northern Nigeria suffer from inadequate maintenance culture, insufficient community participation, and poor technical support systems. According to the study, numerous boreholes and hand-pump facilities become non-functional within a short period after installation due to the absence of effective maintenance frameworks and weak local ownership structures. The researchers emphasized that sustainability in rural water projects can only be achieved where communities are actively involved in project planning, implementation, and management. They concluded that participatory governance remains critical for improving water service delivery in rural areas.

Environmental and demographic factors have also been identified as major determinants of rural water insecurity in Northern Nigeria. Tanko and Ibrahim (2021), in their study on climate variability and water insecurity, reported that changing climatic conditions, rapid population growth, desertification, and insecurity have significantly complicated rural water supply efforts across Northern Nigeria. The study revealed that communities located in semi-arid regions experience severe seasonal water shortages due to prolonged droughts and declining groundwater levels. Furthermore, insecurity arising from armed conflict and banditry has negatively affected the construction, maintenance, and monitoring of rural water infrastructure in several Northern states. Their findings suggest that

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

sustainable rural water policy must integrate environmental resilience, climate adaptation strategies, and security considerations into planning and implementation processes.

The role of community participation in rural water governance has also attracted considerable scholarly attention. Obi and Nwankwo (2020) examined the sustainability of community-managed rural water projects in Nigeria and found that projects managed with active community involvement performed better than those solely administered by government agencies. Their study demonstrated that community participation promotes local ownership, accountability, and collective responsibility for maintenance and sustainability of water facilities. Communities with active Water User Associations and local management committees recorded lower incidences of infrastructure breakdown and project abandonment. The authors concluded that participatory approaches significantly improve the sustainability of rural water interventions by strengthening local commitment and reducing dependence on external actors.

Despite the positive contributions of decentralization and participatory governance, several studies have identified major institutional and administrative obstacles affecting rural water policy implementation in Nigeria. Adeniji (2018) examined institutional fragmentation within Nigeria's water sector and found that overlapping mandates among federal, state, and local agencies create confusion, duplication of responsibilities, and administrative inefficiency. The study revealed that poor coordination among water institutions weakens project implementation and contributes to delays in service delivery. In many cases, agencies pursue parallel programmes without adequate collaboration, resulting in waste of resources and inconsistent policy outcomes.

Likewise, Olowu and Erero (2017) identified corruption, bureaucratic bottlenecks, political interference, and weak monitoring systems as major constraints undermining public service delivery in Nigeria's water sector. Their study argued that funds allocated for rural water projects are often mismanaged or diverted, thereby reducing the effectiveness of policy interventions. The absence of transparent accountability mechanisms further compounds implementation failures and weakens public trust in government programmes. They concluded that institutional reforms aimed at strengthening transparency, monitoring, and accountability are necessary for improving policy outcomes within the water sector.

Collectively, the reviewed studies demonstrate that access to safe drinking water in rural Nigeria is influenced by multiple interconnected factors including governance quality, institutional coordination, environmental conditions, funding mechanisms, and community participation. Although existing literature provides valuable insights into rural water governance and policy implementation, much of the research focuses either on national-level policy analysis or isolated project evaluations. Few studies have comprehensively examined how policy frameworks, institutional arrangements, governance systems, and local participation jointly shape access to safe drinking water specifically within the socio-political and environmental context of Northern Nigeria.

This gap in the literature underscores the importance of the present study. By assessing rural water supply initiatives within Northern Nigeria, this study seeks to provide a more integrated understanding

of the relationship between public policy implementation, institutional capacity, community participation, and sustainable water access. The study therefore contributes to ongoing scholarly discourse on governance and public service delivery while offering practical recommendations for strengthening rural water policy and improving access to safe drinking water in Nigeria.

Theoretical Framework

Policy Implementation Theory

This study is anchored partly on Policy Implementation Theory, particularly the implementation gap thesis advanced by Jeffrey Pressman and Aaron Wildavsky (1984). The theory argues that successful policy outcomes depend not merely on policy formulation but on effective implementation processes involving institutional coordination, administrative capacity, adequate funding, and political commitment (Pressman & Wildavsky, 1973). According to the theory, public policies frequently fail because the objectives established during policy formulation are not effectively translated into practical action during implementation.

Policy Implementation Theory emphasizes that implementation is a complex administrative and political process involving multiple actors, institutions, and levels of government. The theory further explains that bureaucratic inefficiencies, inadequate institutional capacity, conflicting organizational interests, corruption, and weak monitoring systems often create implementation gaps between government intentions and actual policy outcomes (Hill & Hupe, 2014). Consequently, even well-designed policies may fail to achieve their objectives where implementation structures remain weak or poorly coordinated.

In the Nigerian context, many public policies and development programmes experience implementation challenges arising from weak institutional structures, inadequate funding mechanisms, political interference, and poor accountability systems (Ikeanyibe, 2016). Within the rural water sector, these challenges often manifest in abandoned projects, poorly maintained infrastructure, duplication of institutional responsibilities, and limited service delivery in rural communities. Policy Implementation Theory is therefore relevant to this study because it provides a framework for understanding the disconnect between rural water policy objectives and actual access to safe drinking water in Northern Nigeria.

The theory assists in explaining why several water supply policies and intervention programmes introduced by government and development agencies have produced limited outcomes despite significant investments in rural water infrastructure. It highlights the importance of effective coordination among federal, state, and local institutions as well as the need for strong administrative commitment and monitoring mechanisms in achieving sustainable rural water service delivery.

Participatory Governance Theory

The study is also anchored on Participatory Governance Theory by Archon Fung and Erik Olin Wright (2003), which emphasizes collaboration between government institutions, civil society organizations, development partners, and local communities in public policy processes (Edelenbos et al., 2020). The theory posits that active citizen participation enhances accountability, ownership, transparency, responsiveness, and sustainability in governance and public service delivery.

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

Participatory Governance Theory emerged as a response to the limitations of highly centralized and bureaucratic governance systems that often excluded citizens from decision-making processes. The theory advocates decentralization and inclusive governance by encouraging the involvement of local stakeholders in policy formulation, implementation, monitoring, and evaluation (Fung & Wright, 2003). It argues that communities are not merely passive recipients of government services but active partners capable of contributing significantly to policy success and sustainable development.

Within the context of rural water management, Participatory Governance Theory is particularly relevant because community participation in planning, implementation, operation, and maintenance contributes significantly to project sustainability and effective resource management. Studies have shown that rural water projects characterized by strong local involvement tend to demonstrate greater sustainability, improved maintenance culture, and enhanced accountability compared to projects implemented solely through top-down government approaches (Harvey & Reed, 2007).

The theory further explains that involving local communities in water governance strengthens local ownership and increases the willingness of beneficiaries to protect and maintain water infrastructure. Through mechanisms such as Water User Associations, village water committees, and community development associations, local populations participate actively in managing water resources and monitoring project performance.

In the context of Northern Nigeria, Participatory Governance Theory provides an important framework for examining how community participation influences the sustainability and effectiveness of rural water supply initiatives.

The theory supports the argument that sustainable access to safe drinking water cannot be achieved solely through centralized government intervention but requires collaborative governance structures involving communities, local institutions, and development stakeholders.

Findings of the Study

The study examined the effectiveness of public policy initiatives in improving access to safe drinking water in rural Northern Nigeria, with emphasis on policy implementation, institutional coordination, funding mechanisms, community participation, political commitment, technical capacity, and sustainability of rural water supply projects. Using a mixed-methods approach, data were obtained through structured questionnaires administered to key stakeholders, semi-structured interviews with government officials, development partners, community leaders, and policy experts, as well as documentary analysis of national water policies and programme reports. The quantitative findings were complemented and validated by qualitative evidence, resulting in the following findings.

Existence of Multiple Policy Frameworks but Weak Policy Implementation

The quantitative findings revealed that the majority of respondents acknowledged the existence of several policy frameworks designed to improve rural water supply in Northern Nigeria. Most respondents indicated that initiatives such as the National Water Resources Policy (2016), Rural Water Supply and Sanitation Agencies (RUWASSA), the Partnership for Expanded Water Supply, Sanitation

and Hygiene (PEWASH), and donor-supported WASH programmes have established comprehensive institutional frameworks for improving rural water access.

However, the survey findings further showed that a substantial proportion of respondents perceived policy implementation as ineffective. Respondents rated implementation performance significantly lower than policy formulation, suggesting a considerable implementation gap.

The qualitative findings corroborated these results. Interview participants consistently observed that although policy documents are comprehensive, implementation remains constrained by weak administrative commitment, inadequate institutional capacity, poor programme continuity, and weak monitoring and evaluation systems. Documentary evidence similarly revealed that several planned interventions have either been delayed, incompletely implemented, or abandoned before achieving their intended objectives. Consequently, universal access to safe drinking water remains largely unrealized.

Limited Improvement in Access to Safe Drinking Water

Quantitative analysis demonstrated that public investments in boreholes, hand pumps, mini-water schemes, and solar-powered water systems have moderately improved access to safe drinking water in several rural communities. Most respondents agreed that government and donor interventions have increased the availability of potable water compared with previous years. Nevertheless, the survey also indicated that a considerable proportion of households continue to rely on rivers, ponds, streams, and unprotected wells, particularly during the dry season. Respondents reported frequent breakdown of water facilities, irregular water supply, and long distances travelled to access functional water points.

Interview participants reinforced these findings by emphasizing that improvements remain uneven across Northern Nigeria. Communities located in states with stronger institutional capacity, greater donor presence, and better government support generally recorded higher levels of water access than communities in institutionally weaker states.

Institutional Fragmentation and Weak Intergovernmental Coordination

The quantitative findings showed that respondents overwhelmingly identified institutional fragmentation as one of the major constraints affecting rural water service delivery. Most respondents agreed that overlapping responsibilities among federal ministries, state ministries, RUWASSA agencies, water boards, and local government authorities contribute significantly to implementation inefficiencies.

Qualitative interviews provided further insight into these institutional challenges. Respondents explained that poor coordination frequently results in duplication of projects, delays in implementation, conflicting institutional mandates, and inefficient resource utilization. Several interviewees cited instances where projects initiated by one tier of government were abandoned following administrative or political transitions because institutional responsibilities had not been clearly defined.

Inadequate Funding and Weak Maintenance Culture

The quantitative analysis identified inadequate funding as one of the highest-ranked challenges affecting rural water supply initiatives. Most respondents agreed that financial allocations for rural water infrastructure are insufficient to support construction, rehabilitation, operation, and long-term maintenance of water facilities.

Interview findings supported these results. Participants reported that many boreholes become non-functional shortly after installation because maintenance budgets are unavailable or released irregularly. Community representatives also highlighted prolonged delays in repairing damaged facilities owing to financial constraints. Documentary evidence further suggested that weak financial accountability, corruption, and poor budget implementation reduce the effectiveness of public expenditure within the water sector.

Weak Community Participation in Water Governance

Survey results indicated that although community participation is recognized within national water policies, actual involvement of local communities in project planning, implementation, and decision-making remains relatively low. Most respondents perceived rural water projects as predominantly government-driven, with limited opportunities for beneficiaries to influence project decisions.

The qualitative findings strongly reinforced this observation. Interviewees explained that many communities are only informed after projects have already been approved rather than being actively engaged throughout the planning process. Consequently, local ownership remains weak, reducing community willingness to contribute toward operation and maintenance.

However, participants consistently reported that communities operating through Water User Associations, Village Water Committees, and women's groups demonstrated stronger accountability, quicker maintenance responses, and greater project sustainability.

Political Interference and Policy Discontinuity

Quantitative findings revealed that political interference represents a significant factor influencing implementation of rural water policies. Respondents agreed that allocation of rural water projects is often influenced by political considerations rather than objective assessments of community needs.

Interview participants further explained that changes in political leadership frequently result in discontinuation or abandonment of existing water programmes. According to respondents, inconsistent political commitment weakens long-term planning, discourages institutional continuity, and undermines sustainable water governance.

Technical and Human Capacity Constraints

The survey findings indicated that many respondents considered inadequate technical expertise a major institutional weakness affecting rural water service delivery. Respondents identified shortages of engineers, technicians, hydrogeologists, and maintenance personnel across many local water agencies. Qualitative interviews further revealed that limited technical capacity contributes to poor supervision

of projects, delayed maintenance, inadequate quality control, and prolonged breakdown of water infrastructure. Several officials acknowledged that many local government water departments lack sufficient technical personnel to manage increasingly sophisticated water systems.

Donor-Supported Projects Demonstrate Better Performance

The quantitative findings showed that respondents generally rated donor-supported water projects more favourably than projects financed exclusively by government. Respondents associated donor-funded projects with higher levels of accountability, better monitoring systems, improved community participation, and stronger institutional supervision.

Interview participants attributed these positive outcomes to stricter procurement procedures, regular project monitoring, technical support, and stronger stakeholder engagement adopted by development partners. Nevertheless, respondents also noted that many donor-funded projects experience sustainability challenges following the withdrawal of external funding because local institutions often lack the financial and technical capacity required to sustain project operations.

Strong Relationship Between Community Ownership and Project Sustainability

Both quantitative and qualitative evidence demonstrated a strong positive relationship between community ownership and the sustainability of rural water projects. Survey respondents overwhelmingly agreed that projects involving community members in planning, monitoring, financial contributions, and maintenance recorded higher functionality and longer operational lifespan. Interview participants similarly observed that communities with active Water User Associations, traditional leaders, women's associations, and community development committees experienced fewer infrastructure failures, faster maintenance responses, greater accountability, and stronger commitment to protecting water facilities.

These findings provide compelling evidence supporting participatory governance as a critical determinant of sustainable rural water management.

Summary of Major Findings

The mixed-methods analysis produced the following major findings:

- Quantitative and qualitative evidence confirmed that Northern Nigeria possesses comprehensive rural water policy frameworks, but implementation remains weak and inconsistent.
- Although access to safe drinking water has improved through government and donor interventions, overall coverage remains inadequate, with substantial disparities across rural communities.
- Institutional fragmentation and weak intergovernmental coordination significantly reduce implementation effectiveness and service delivery.
- Inadequate funding, weak maintenance culture, and poor financial accountability contribute substantially to infrastructure failure.
- Community participation remains limited despite being emphasized in policy documents;

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

however, projects with active community involvement demonstrate significantly better sustainability.

- Political interference and frequent policy discontinuity undermine equitable project allocation and long-term programme implementation.
- Weak technical and human resource capacity constrains effective planning, supervision, operation, and maintenance of rural water infrastructure.
- Donor-supported projects generally outperform government-funded projects in terms of accountability, monitoring, stakeholder participation, and sustainability.

Both quantitative and qualitative findings establish that community ownership is a significant predictor of sustainable rural water service delivery, reinforcing the relevance of participatory governance in achieving equitable access to safe drinking water in Northern Nigeria.

Recommendations

Based on the findings, the study recommends the following:

- Federal and state governments should strengthen institutional coordination among water agencies to reduce duplication and policy inconsistency.
- Greater budgetary allocation should be directed toward rural water infrastructure development and maintenance.
- Community participation should be institutionalized throughout project planning, implementation, and maintenance stages.
- Local Water User Associations should be empowered and trained to manage rural water facilities sustainably.
- Monitoring and evaluation frameworks should be strengthened to ensure accountability and transparency in water project implementation.
- Development partners should prioritize capacity-building and technical support for local institutions.
- Public-private partnerships should be encouraged to complement government efforts in rural water service delivery.
- Anti-corruption mechanisms should be strengthened to prevent diversion of resources within the water sector.

Conclusion

Access to safe drinking water remains a major governance and development challenge in rural Northern Nigeria despite numerous public policy initiatives and donor-supported programmes. The study demonstrates that the effectiveness of rural water supply interventions depends not only on policy formulation but more importantly on implementation capacity, institutional coordination, accountability systems, and community participation.

Persistent implementation gaps, funding challenges, weak governance structures, and inadequate local involvement continue to undermine the sustainability of rural water projects. However, evidence suggests that participatory and decentralized approaches to water governance significantly improve project ownership and long-term sustainability.

Achieving equitable and sustainable water access in Northern Nigeria therefore requires comprehensive institutional reforms, stronger political commitment, increased funding, and active community engagement. Addressing these challenges is essential not only for improving public health and rural livelihoods but also for advancing sustainable development and social equity in Nigeria.

Funding

The publication of this article was made possible by the generous support of the Tertiary Education Trust Fund (TETFund). Nigeria (TETF/DR&D/CE/UNI/KADUNA/IBR/2026/VOL.1, Batch 7) and Kaduna State University (KASU), Kaduna Nigeria.

Reference

- Adeniji, K. (2018). Institutional fragmentation and rural water governance in Nigeria. *African Journal of Public Administration*, 10(2), 67–82.
- Adéníran, A. (2022). Rural water access and governance in Nigeria. *Journal of African Development Studies*, 14(1), 88–104.
- Adeoti, O. S., Kandasamy, J., & Vigneswaran, S. (2023). Water infrastructure sustainability in Nigeria: a systematic review of challenges and sustainable solutions. *Water Policy*, 25(11), 1094–1111.
- Adeoti, O., Kandasamy, J., & Vigneswaran, S. (2023). Rural water supply sustainability and governance challenges in Sub-Saharan Africa. *Water Policy Journal*, 25(3), 455–472.
- Agbo, J., Jeffrey, M., & Sule, A. (2025). Public sector accountability and rural water infrastructure sustainability in Nigeria. *International Journal of Public Policy*, 11(1), 33–49.
- Aiyetan, A. O. (2019). Water governance and rural water supply in Nigeria. *Journal of Water, Sanitation and Hygiene for Development*, 9(3), 453–464.
- Akhmouch, A., & Correia, F. N. (2016). The 12 OECD principles on water governance: When science meets policy. *Utilities Policy*, 43, 14–20. <https://doi.org/10.1016/j.jup.2016.06.004>
- Akintola, O. (2021). Water governance and service delivery challenges in rural Nigeria. *Journal of Environmental Policy*, 18(2), 121–139.
- Beblavý, M., Sičáková-Beblavá, E., & Bačová, V. (2022). *Understanding Public Policy and Governance*. Routledge.
- Biswas, A. K. (2004). Integrated water resources management: A reassessment. *Water International*, 29(2), 248–256.
- Biswas, A. K. (2008). Integrated water resources management: Is it working? *International Journal of Water Resources Development*, 24(1), 5–22. <https://doi.org/10.1080/07900620701871718>
- Connor, R. (2015). *The United Nations world water development report 2015: water for a sustainable world (Vol. 1)*. UNESCO publishing.
- Crosby, B. L. (1996). Policy implementation: The organizational challenge. *World Development*, 24(9), 1403–1415.
- Edelenbos, J., Molenveld, A., & Van Meerkerk, I. (2020). Participatory governance and public service delivery. *Public Management Review*, 22(8), 1103–1120. <https://doi.org/10.1080/14719037.2019.1619803>
- Management Review, 22(8), 1103–1120. <https://doi.org/10.1080/14719037.2019.1619803>
- Edelenbos, J., Molenveld, A., & Van Meerkerk, I. (2020). Participatory governance and public service delivery. *Public Management Review*, 22(8), 1103–1120.

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

- Federal Ministry of Water Resources (FMWR). (2016). National Water Resources Policy. Abuja: Federal Government of Nigeria.
- Fung, A., & Wright, E. O. (2003). Deepening democracy: Institutional innovations in empowered participatory governance. Verso.
- Gbadegesin, A. S., & Olorunfemi, F. (2007). Assessment of rural water supply management in selected rural areas of Oyo State, Nigeria. Nairobi: African Technology Policy Studies Network.
- Global Water Partnership (GWP). (2000). Integrated Water Resources Management. TAC Background Paper No. 4. Stockholm: Global Water Partnership.
- Global Water Partnership. (2016). Integrated Water Resources Management Framework. Stockholm: GWP.
- Gondaliya, P., Chokshi, D., & Shah, K. (2025). Water infrastructure and sustainability challenges in developing societies. *International Journal of Water Governance*, 9(2), 144–162.
- Development Journal, 42(3), 365–378. <https://doi.org/10.1093/cdj/bsl001>
- Harvey, P. A., & Reed, R. A. (2007). Community-managed water supplies in Africa: Sustainable or dispensable? *Community Development Journal*, 42(3), 365–378.
- Hill, M., & Hupe, P. (2014). Implementing public policy: An introduction to the study of operational governance (3rd ed.). Sage Publications.
- Homsy, G., & Warner, M. (2019). Multilevel governance and local participation in water management. *Public Administration Review*, 79(4), 587–598.
- Hope, K. R. (2015). Institutional reforms and water governance in Sub-Saharan Africa. *International Journal of Water Resources Development*, 31(3), 434–448.
- Howlett, M., & Cashore, B. (2020). *Public Policy and Governance*. Oxford University Press.
- Ikeanyibe, O. (2016). Public policy implementation and development administration in Nigeria. *Nigerian Journal of Public Administration*, 5(1), 1–18.
- Inkani, A. (2015). Water scarcity and rural livelihoods in Northern Nigeria. *African Environmental Review*, 7(2), 93–108.
- Irene, J., Irene, B. N., & Daniels, C. (2025). Not A Drop To Drink: Addressing Nigeria's Deepening Freshwater Crisis. *Water*, 17(12), 1731.
- Irene, P., & Daniels, S. (2025). Water governance and sustainable development in Nigeria. *Journal of Sustainable Policy Studies*, 16(1), 50–68.
- Ishaku, H. T., Majid, M. R., Ajayi, A. P., & Haruna, A. (2011). Water supply dilemma in Nigerian rural communities: looking towards the sky for an answer. *Journal of Water Resource and Protection*, 3(8), 598.
- Jahura, S., Islam, M. S., & Mostafa, M. G. (2024). Impact of water scarcity on rural livelihood in the drought-prone region: A review of global perspectives. *Indonesian Journal of Social Science*, 16(1).
- Leach, W., & Stewart, J. (Eds.). (2025). *Contemporary Public Policy Analysis*. Cambridge University Press.
- Lipsky, M. (1980). *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. Russell Sage Foundation.
- Lockwood, H., & Smits, S. (2011). *Supporting Rural Water Supply: Moving Towards a Service Delivery Approach*. Rugby, UK: Practical Action Publishing.

- Marks, S. J., & Davis, J. (2012). Does user participation lead to sense of ownership for rural water systems? Evidence from Kenya. *World Development*, 40(8), 1569–1576. <https://doi.org/10.1016/j.worlddev.2012.03.011>
- Matimolane, S., & Mathivha, F. I. (2025). Tackling rural water scarcity in South Africa: climate change, governance, and sustainability pathways. *Frontiers in Environmental Science*, 13, 1550738.
- Medema, W., McIntosh, B. S., & Jeffrey, P. J. (2008). From premise to practice: A critical assessment of integrated water resources management and adaptive management approaches in the water sector. *Ecology and Society*, 13(2), 29.
- Meinzen-Dick, R. (2007). Beyond panaceas in water institutions. *Proceedings of the National Academy of Sciences*, 104(39), 15200–15205.
- National Bureau of Statistics. (2022). Multiple Indicator Cluster Survey/National Bureau of Statistics Report. Abuja, Nigeria.
- Nkiaka, E., Bryant, R. G., Okumah, M., & Gomo, F. F. (2021). Water security in sub-Saharan Africa: Understanding the status of sustainable development goal 6. *Wiley Interdisciplinary Reviews: Water*, 8(6), e1552.
- Obeta, M. (2018). Rural water infrastructure deficits in Northern Nigeria. *Journal of Development and Society*, 12(4), 201–220.
- Obi, C., & Nwankwo, F. (2020). Community participation and sustainability of rural water projects in Nigeria. *African Journal of Rural Development*, 15(3), 177–193.
- Obosi, A. (2020). Decentralization and participatory governance in African water policy reforms. *Governance Studies Quarterly*, 9(1), 41–59.
- OECD. (2015). *OECD Principles on Water Governance*. Paris: OECD Publishing.
- Okeke, I. O. (2009). Access to Potable domestic water in the rural communities of Southwestern Anambra State, Nigeria (Doctoral dissertation, University of Lagos (Nigeria)).
- Oliveira, J. (2017). Water as a human right and sustainable development. *International Journal of Human Rights*, 21(6), 771–785.
- Olowu, D., & Erero, J. (2017). Governance failures and public service delivery in Nigeria. *African Administrative Studies*, 84(1), 34–51.
- Orebiyi, J., et al. (2020). Rural water policy implementation in Nigeria: Challenges and prospects. *Journal of Policy and Development Studies*, 14(2), 98–117.
- Osisiogu, U., Akinrotoye, T., Banini, O., & Amemo, F. (2024). Water policy reforms and rural access disparities in Nigeria. *Development Policy Review*, 42(1), 1–18.
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Peters, B. G. (2019). *American public policy: Promise and performance* (11th ed.). CQ Press.
- Pressman, J. L., & Wildavsky, A. (1984). *Implementation: How great expectations in Washington are dashed in Oakland; Or, why it's amazing that federal programs work at all, this being a saga of the Economic Development Administration as told by two sympathetic observers who seek to build morals on a foundation* (Vol. 708). Univ of California Press.
- Pressman, J., & Wildavsky, A. (1973). *Implementation*. University of California Press.
- Reij, C., Scoones, I., & Toulmin, C. (2013). *Sustaining the soil: indigenous soil and water conservation in Africa*. Routledge.

*Public Policy and Access to Safe Drinking Water: An Assessment of Rural
Water Supply Initiatives in Northern Nigeria*

- Rogers, P., & Hall, A. W. (2003). *Effective Water Governance*. TEC Background Paper No. 7. Stockholm: Global Water Partnership.
- Rosenbloom, D. H., Kravchuk, R. S., & Clerkin, R. M. (2022). *Public administration: Understanding management, politics, and law in the public sector*. Routledge.
- Rustamova, N., Sharifzoda, S., Burxanxodjaeva, X., Rahimqulova, L., Turdialiev, M., Nurullaev, F., & Eshchanova, D. (2025). Social protection in developing countries: Legal, economic, and social trends. *Qubahan Academic Journal*, 5(1), 118-149.
- Sewerin, S., Cashore, B., & Howlett, M. (2022). New pathways to paradigm change in public policy: combining insights from policy design, mix and feedback. *Policy & Politics*, 50(3), 442-459.
- Sule, A. (2019). Rural water supply challenges in Northern Nigeria. *Journal of Public Sector Management*, 13(2), 72–90.
- Tanko, M., & Ibrahim, H. (2021). Climate variability and water insecurity in Northern Nigeria. *Environmental Policy and Governance*, 31(4), 285–299.
- Transparency International. (2022). *Corruption Perceptions Index 2022*. Berlin: Transparency International.
- UN-Water. (2020). *World Water Development Report*. United Nations.
- UN-Water. (2021). *Summary Progress Update 2021: SDG 6—Water and Sanitation for All*. Geneva: UN-Water.
- UNICEF Nigeria. (2023). *Water, Sanitation and Hygiene (WASH) Programme Report*. Abuja: UNICEF.
- United Nations Water. (2020). *United Nations world water development report 2020: Water and climate change*. UNESCO.
- World Bank. (2004). *Sustaining Rural Water Supply and Sanitation Services: A Review of Lessons Learned*. Washington, DC: World Bank.
- World Bank. (2017). *Sustainability assessment of rural water service delivery models*. World Bank Publications.
- World Health Organization, & UNICEF. (2023). *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2022: Special Focus on Gender*. Geneva: WHO and UNICEF.
- World Health Organization. (2021). *Progress on household drinking water, sanitation and hygiene 2000-2020: five years into the SDGs*. World Health Organization.