



A N ASSESSMENT OF FACTORS MILITATING AGAINST ADEQUATE WATER SUPPLY AND DISTRIBUTION IN SOKOTO STATE, NIGERIA

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ABSTRACT

This study examined the multifaceted challenges impacting water supply and distribution in Sokoto State, Nigeria. Employing a qualitative approach, conducted a thorough analysis of factors such as non-compliance with water management policies, lack of community participation, rapid urbanization, infrastructure deficiencies, political interference, erratic power supply, and corruption. Methodologically, data collection involved literature reviews, documented newspaper interviews, internet among others, providing a

Introduction

Water is a vital component essential for environmental, human, and social processes, playing a crucial role in sustaining life, development, and various economic activities. Its significance in agriculture, industrial processes, and as a source of energy underscores its irreplaceable nature (Ademiluyi and Odugbesan, 2008). However, for sustainable development, the provision of clean and unpolluted water is imperative (Adewumi and Babatola, 2009). Recognizing this, the United Nations set the provision of clean water as a key target in the millennium development goals during the 2000 United Nations summit (Ahianba et al., 2008). In 2015, a joint report by the World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) highlighted that approximately 844 million people worldwide lacked access to safe water, with the majority residing in rural areas of developing countries (WHO 2017; UNICEF, 2017). The consequences of this lack of improved water sources, particularly in developing nations, are severe, with significant implications for human development (Babatola and Oguntuase, 2008).

International bodies, including the United Nations (UN) and various organizations, have taken substantial steps to address the global challenge of inadequate access to safe and portable drinking water, particularly in African countries (UNDP, 2016). The United Nations Sustainable Development Goals (SDGs), initiated in 2015 with a target completion date of 2030, specifically focus on encouraging countries, including those in Africa, to work towards providing access to safe and affordable drinking water. Additionally, the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS)



comprehensive understanding of the issue. Major findings indicate a complex interplay of these factors, hindering the efficient execution of initiatives aimed at ensuring uninterrupted water access. The repercussions extend across public health, economic sectors, and environmental sustainability. Notably, the existing infrastructure's poor state and power supply inconsistencies exacerbate the challenges. In light of these findings, recommendations include a robust approach to policy implementation, active community engagement strategies, targeted infrastructure development, depoliticizing water projects, ensuring power supply stability, and implementing anti-corruption measures. These measures, if earnestly pursued, offer pathways to address the identified challenges and create a foundation for sustainable water management in Sokoto State. The study concludes by emphasizing the urgent need for collaborative efforts to enact these recommendations and enhance the overall resilience of the water supply system in Sokoto State.

Keywords: Militating, Water Supply, Distribution, Adequate, Sokoto

initiative offers policymakers a comprehensive analysis of strengths and challenges in the water and sanitation sector (Munamati, 2016). The World Health Organization (WHO) has been instrumental in developing guidelines and standards for drinking-water quality, providing a framework for countries to assess and manage their water resources (Luo et al., 2018). UNICEF's Water, Sanitation, and Hygiene (WASH) Program actively supports global communities, with a particular focus on African countries, to improve water supply, sanitation, and hygiene conditions. African initiatives such as the African Ministers' Council on Water (AMCOW) and the African Water Facility (AWF) have been established to promote cooperation and joint actions among African countries in water resources development and provide financial and technical support for water projects (Luha and Bartrana 2015, Hopewell and Graham 2014).

The Global Water Partnership (GWP) and Water.org have also contributed significantly by supporting countries in the sustainable management of water resources and providing innovative financing solutions for water and sanitation projects, respectively (Onda et al., 2014). Despite these efforts, numerous African countries, including Nigeria, still face challenges in ensuring adequate water supply. As of January 2022, approximately 60 million Nigerians lacked access to clean water sources (WHO, 2022, and UNICEF, 2022), with a considerable impact on various states, particularly those in the northern regions.

Highlighting the case of Sokoto State, WASH-NORM II (2019) reports that only about 38% of the average population in Sokoto State has access to basic water supply. This places Sokoto State as having the second-highest percentage of people with access to unimproved water supplies in Nigeria, trailing only Zamfara State (Green Habitat Initiative (GHI), 2019). The inadequacy of water supply and distribution in Sokoto State is a significant challenge, particularly affecting rural areas where over 80% of the population resides. This scarcity has adverse consequences, including an increased risk of waterborne diseases, poor sanitation and hygiene, reduced agricultural productivity, and heightened poverty. The study aims to investigate the factors impeding adequate



water supply and distribution in Sokoto State, recognizing the social and health implications on its residents.

The objectives of this research are to

- 1) Examine the State policies on water supply in Sokoto State
- 2) Identify the factors militating against adequate water supply and distribution in Sokoto state.
- 3) Explain the consequences of Inadequate Water Supply and Distribution in Sokoto State
- 4) Develop recommendations for addressing the factors affecting adequate water supply and distribution in Sokoto State.

Literature Review

Numerous studies have explored household access to water supply, shedding light on critical factors influencing the performance of water facilities. For instance, O&M (2002) emphasized the role of inefficient organization as a key factor contributing to poor water supply facility performance in many sub-Saharan African cities. AWDR (2003) identified unaccounted-for water as a significant problem in various African cities. Examining temporal variations in electricity and water supply in Makurdi, Nigeria, between 1927 and 1960, Akpen (2005) argued that the absence of government and native authority hindered the provision of social services such as water.

Gabriel (2005) delved into the dynamics of public-private partnership (PPP) in water supply provision in Congo-Brazzaville, highlighting the need for PPPs to consider economic and social impacts and assess consumers' needs for a successful shift from supply-driven to demand-led orientation. Wahaj et al. (2007) reported that a significant portion of the world's 1.2 billion poor people, mostly women, reside in water-scarce countries without access to safe and reliable water supplies. Naiga et al. (2015) found that policy inconsistencies were a major factor affecting local collective action for sustained access to safe water in rural Uganda. In Abeokuta Southwest, Nigeria, Odjegba et al. (2015) reported insufficient water supply due to population pressure and inadequate distribution/coverage.

Duran-Encalada et al. (2017) assessed the impact of global climate change on water quantity and quality in the US-Mexican trans-border region, using a conservative model. They noted the potential of their approach to improve conditions, prevent risks leading to social unrest, and hinder economic development. Egbinola (2017) investigated the trend in access to safe water supply in Nigeria, identifying poor financing, management, and low capital allocation in the water sector as major challenges.

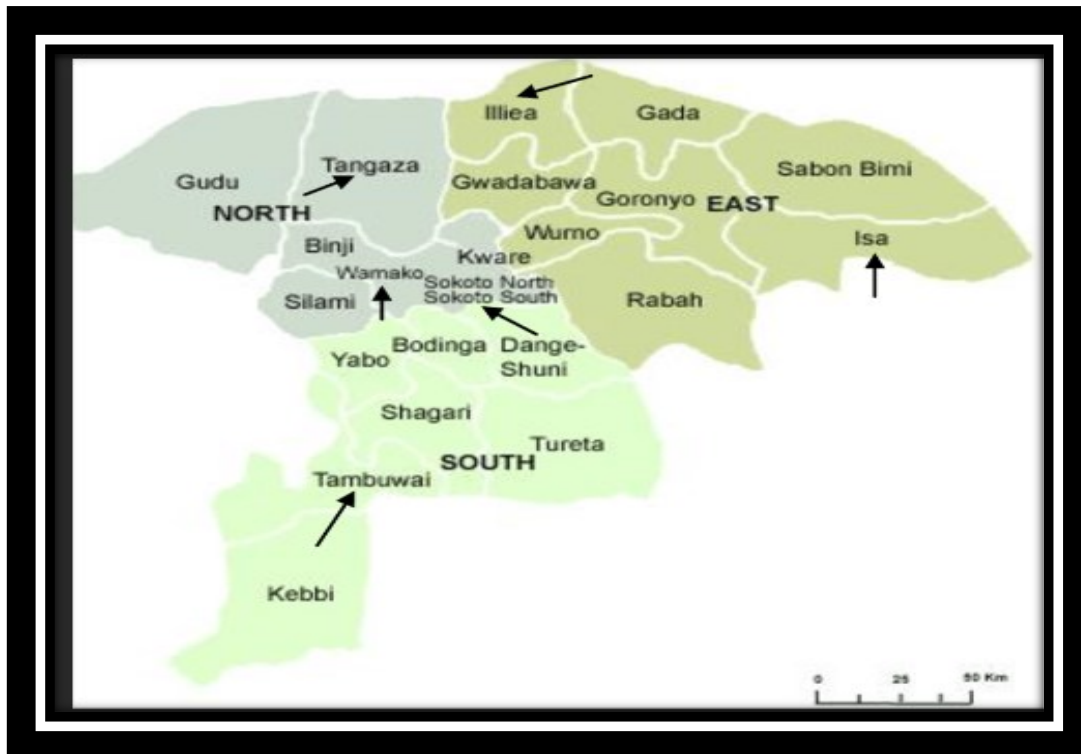
Despite the wealth of research on factors affecting household water supply, there is still a knowledge gap, particularly regarding factors influencing water supply and distribution in Sokoto State in 2023. This study aims to fill this gap by examining the challenges affecting water supply and distribution in Sokoto State, providing valuable insights and recommendations to enhance access to potable water for improved health and sanitation in the region.

The Study Area and Methodology

Sokoto State, one of Nigeria's 36 states, is situated approximately at 13.0609°N latitude and 5.2422° E longitude. Located in the northwestern part of the country, it boasts a population exceeding five million, making it one of Nigeria's most populous states. Bordered by the Republic of Niger to the

north and west, covering a stretch of 363 km, Sokoto State shares its eastern border with Zamfara and is flanked to the south and west by Kebbi, partially traversed by the Ka River. The state capital and largest city is Sokoto. Known for its arid climate, Sokoto State is among the driest regions in Nigeria and is susceptible to drought. The primary sources of water in Sokoto State include surface water and groundwater. Surface water is derived from rivers, lakes, and reservoirs, while groundwater is tapped from aquifers. Key rivers in Sokoto State include the Sokoto River, Rima River, and Zamfara River. Major reservoirs include the Goronyo Dam, Bakolori Dam, and the Sokoto Rima River Basin Authority (SRRBDA) Dam. Despite these water sources, the water supply infrastructure in Sokoto State faces significant inadequacies. Urban water supply falls under the jurisdiction of the state government, while rural areas are the responsibility of local governments. However, both levels of government have struggled to provide sufficient water supply to meet the needs of the population.

Map of Sokoto State



Method of Data Collection and Analysis

To achieve the objectives of this paper, a comprehensive approach was employed, relying on secondary sources of data. The research drew from various channels, including libraries, newspapers, magazines, the internet, and an extensive review of literature focused on factors and challenges affecting water supply. Additionally, policy documents and theoretical works were consulted to gain insights into the specific challenges facing water supply in Sokoto State, Nigeria. Key information was sourced from reputable organizations such as the World Health Organization



(WHO), United Nations Organizations (UNO), United Nations International Children's Emergency Fund (UNICEF), Federal Ministry of Water Resources (FMWR), Sokoto Basin Development Authority (SBDA), UN-Habitat publications, and Water Aid. Historical and traditional water management strategies were explored using data obtained from the National Archives and other public agencies dedicated to water-related matters. To capture the contemporary perspective, interviews and findings reported by various newspaper correspondents were included. These sources provided valuable insights into the ongoing issues and challenges hindering adequate water supply and distribution across different administrations of the Sokoto State government. A meticulous content analysis was applied to scrutinize and interpret the gathered data. This approach facilitated a systematic examination of the information, enabling the identification of recurring themes, patterns, and critical factors contributing to the challenges faced by the water supply system in Sokoto State

Discussion of Research Findings

Sokoto State Water Policies Since 1999

The Federal Ministry of Water Resources (FMWR) serves as the primary national coordinating body for the water sector in Nigeria. This complex function involves regulatory, support, and operational activities. Responsibilities for water resources development are distributed among various government agencies, including the Federal Ministry of Water Resources, State Water Agencies, and non-governmental or donor agencies like CBO, NGO, UNDP, UNEP, Water AID, EU, World Bank, and UNICEF (Emoabino and Alayande, 2007). Government agencies indirectly related to water resource development, such as the Federal and State Ministries of Agriculture and Environment, also play crucial roles.

States, including Sokoto State, have developed policies aimed at providing adequate water supply to their populations. The Sokoto State Water Resources Management Plan, initiated in 2012, serves as a comprehensive framework for water resource management (Sokoto State Water Board, 2012). The Sokoto State Water Sector Reform Policy, introduced in 2014, focuses on enhancing the efficiency and effectiveness of the water sector, incorporating strategies for privatization and increased private sector investment (Abubakar, 2023). The Sokoto State Rural Water Supply and Sanitation Policy (2015) outlines strategies for constructing new water and sanitation facilities and rehabilitating existing ones (Sokoto State Government Bulletin, 2015). The Sokoto State Water Supply and Sanitation Sector Investment Plan (2017-2021) details strategies for infrastructure development and water quality improvement (Premium Newspaper, Jan 2021). The Sokoto State Climate Change Adaptation Strategy and Action Plan (2022-2026) addresses climate change impacts, including water scarcity, drought, and flooding. In addition to these policies, the Sokoto State Government has implemented several programs and projects to enhance water supply and distribution:

- Sokoto State Water Supply Expansion Program (2013-2017): Aimed at expanding urban water access through the construction of new treatment plants and pipelines.
- Sokoto State Rural Water Supply and Sanitation Project (2018-2022): Focused on improving rural water and sanitation services by constructing new facilities and rehabilitating existing ones.



- Sokoto State Water Quality Improvement Project (2020-2024): Aiming to enhance water quality through the construction of treatment plants and facility rehabilitation.

Despite these efforts, challenges persist. The UNDP report indicates that over 50% of Sokoto State's population lacks access to clean drinking water (UNDP, 2023), and water pollution remains a significant concern. Various factors contribute to this disparity, warranting further exploration in the subsequent section.

Factors Militating against Quality Water Supply and Distribution In Sokoto State

The factors influencing adequate water supply and distribution in Sokoto State are intricate, with each having distinct and detrimental effects on water access for Sokoto inhabitants. Drawing from gathered and analyzed materials, several factors stand out:

Lack of Effective Compliance to Water Management Policies

The stakeholders' failure to adhere to existing policies on water management and development poses a significant challenge to the system, impeding its efficiency. Notably, several initiatives were introduced in Sokoto State with the aim of ensuring uninterrupted water supply. In 2012, the Sokoto State Water Resources Master Plan (SSWRMP) was launched, followed by the Sokoto State Water Sector Reform Policy in 2014. Subsequent efforts include the initiation of the Sokoto State Rural Water Supply and Sanitation Policy in 2015 and the Sokoto State Water Supply and Sanitation Sector Investment Plan covering the period 2017-2021. Additionally, the Sokoto State Climate Change Adaptation Strategy and Action Plan emerged in 2022-2026. Despite these endeavors and substantial investments, often running into billions, the goal of meeting the water demand in the state remains unfulfilled. Ishaku et al. (2011) argue that one key reason for the unmet expectations is the incomplete implementation of government policies. For instance, the Sokoto State Water Supply Expansion Program was only partially executed, and the Sokoto State Rural Water Supply and Sanitation Project are still ongoing. Criticism has also been directed at the effectiveness of certain policies, such as the Sokoto State Water Sector Reform Policy, which has been faulted for not adequately promoting private sector investment in the water sector. Furthermore, limitations in the capacity of the Sokoto State Water Board and other water-related institutions within the state hinder the full implementation of water policies.

Lack of Community Participation:

Community participation in water management in the region is notably lacking, with minimal involvement except in the establishment of private alternative sources like wells and boreholes. This trend has resulted in adverse consequences, particularly for the economically disadvantaged, who end up paying more for water by relying on water vendors charging higher prices. An investigation conducted by Ubandawaki, a correspondent for Vanguard Newspaper, in January 2023 in Sokoto, revealed the burgeoning business of water vendors. These vendors have found the water trade to be highly lucrative, with an average seller using a 12 Jerry Can wheelbarrow reportedly earning up to five thousand naira (₦5,000:00) daily. The cost per full 25-liter Jerry can of water is cited at 150 naira (₦150), underscoring the financial burden borne by residents dependent on these vendors for their water supply (Ubandawaki, 2023)



Rapid Rate of Urbanization and Environmental Sustainability:

Population growth poses a significant challenge to water supply and distribution in Sokoto State. As the population expands, the demand for water naturally increases. However, the existing water supply infrastructure in Sokoto State is insufficient to cater to the needs of the growing population. This inadequacy results in water shortages and compromises water quality. For instance, a study conducted by the Sokoto State Water Board revealed that the average water consumption per capita in Sokoto State is only 15 liters per day. This falls well below the World Health Organization's recommended minimum of 50 liters per day. Shockingly, the study also highlighted that over 50% of the population in Sokoto State lacks access to clean drinking water. Water, being the most essential commodity for life, is of paramount importance. Sokoto has now become one of the most densely populated state capitals in the northern part of the country. Coupled with an increasing number of internally displaced persons seeking refuge due to the activities of kidnappers, bandits, and cattle rustlers in the rural areas, the availability of portable drinking water has emerged as a major concern for the residents of the state capital. Despite substantial investments by both past and present administrations in Sokoto State, the sustainability of its water resources is under threat, both in terms of quantity and quality. A report by Rakiya from Daily Trust on June 1, 2019, highlighted the lack of planning and poor maintenance as major factors impeding adequate water supply in Sokoto. In an interview, the then Sokoto State Commissioner for Water Resources, Alhaji Umar Muhammad Bature, argued that the government, over the years, has failed to plan adequately in response to the rapid population growth.

Poor State of Infrastructure

The dilapidated state of water supply facilities, aging plants, vehicles, and machinery presents a significant challenge to numerous water supply projects in Sokoto State. It is not uncommon to observe broken water pipes without any corresponding efforts by the relevant authorities to repair or replace such pipes. This situation results in water wastage and contamination, posing risks to both health and the economy. For instance, more than 60% of water supplied to high-density areas in Sokoto is squandered due to poorly maintained service pipes and plumbing facilities in homes. Furthermore, the lack of metering for over 90% of supplies has led to a lax attitude toward water usage, resulting in increased wastage and a lack of conservation practices. Implementing smart technologies and metering can enhance end-use efficiency, offering a viable solution to conserve water resources. Former Sokoto State Commissioner for Water Resources, Alhaji Umar Muhammad Bature, emphasized that the water board's capacity in Sokoto is sufficient. However, the neglect of machinery and failure to meet the present demand are significant challenges. He pointed out that the water distribution network, in existence since 1988—approximately 35 years—lacks expansion of pipelines, hindering water from reaching some major areas. This limitation constitutes a substantial factor impeding portable water supply and distribution within Sokoto and its environs. This viewpoint aligns with the statement made by Hon Attahiru Yusuf Yabo, a former commissioner for water resources, during an interview with Abubakar of Premium Times. Yabo acknowledged that low water levels in Bakalori and Goronyo, the two dams serving water to the state, contribute to the challenges affecting adequate water supply, resulting in unnecessary scarcity.



Political Factors

The Sokoto State government faces allegations of politicizing water supply, notably in the awarding of water supply projects. Critics argue that these projects are often granted to companies owned by or affiliated with government officials, a trend observed since the inception of the democratic dispensation in 1999, continuing to raise concerns. There are accusations that the government disproportionately allocates water resources to areas supportive of the administration, even if these regions have less pressing water needs. Consequently, this approach has resulted in water shortages in other parts of the state, creating a range of negative consequences such as corruption, inefficiency, and inequity in water supply. An investigative report by Ubandawaki, a correspondent for Vanguard Newspaper in January 2003, shed light on the impact of this politicization in areas like Kofar Marke, Gidan Haki, Tsohuwar Kasuwa, Kofar Atiku, Tudun Wada, and Central Market. Residents in these areas were reported to purchase a 25-liter water jerry can for 200 naira, and the average household reportedly used an estimated 220 liters of water daily, showcasing the severity of the situation (Ubandawaki, 2023). Alhaji Shuaibu Abdullahi, a resident of Ahmadu Bello Way Sokoto, emphasized that water scarcity in the area since the beginning of 2022 seemed insurmountable due to perceived politicization of the water issue in the state metropolis (Ubandawaki, 2023). He lamented that attempts to communicate with the Governor were often thwarted, with individuals labeling them as politically motivated pressure groups critical of Governor Tambuwal's administration.

A further analysis from an interview conducted by Premium Times Newspaper on January 2, 2023, highlighted the adverse effects of water scarcity on education. Pupils in Sokoto metropolis reported late to school as they spent hours searching for water from their parents before preparing for their journey to school (Abubakar, 2023). A school representative from a well-known public secondary school in Sokoto revealed that morning assemblies were rarely conducted, attributing the students' tardiness to the lack of water in their homes. This issue, according to the representative, wasn't unique to their school but affected the performance of all institutions in the state, including tertiary institutions. In an interview with Premium Times, the then State Commissioner for Water Resources, Hon Attahiru Yusuf Yabo, identified political sabotage as a cause of water scarcity in the state. He emphasized the attempt by certain individuals within the system to discredit the state government in the eyes of the general public. Yabo pointed to a situation where those responsible for treating and releasing water allegedly released untreated water to communities despite having the necessary chemicals in their stores—an act he condemned as sabotage incompatible with responsible administration (Abubakar, 2023).

Epileptic Power Supply

Another significant factor, as mentioned by stakeholders, is the erratic power supply from the national grid. Daily power shedding in the state makes it challenging for the state water works to receive sufficient power for water treatment and distribution to the public. While this explanation faced criticism from some residents who argued that the state owed the power company a substantial sum, leading to the pronounced power outages affecting all state activities, it aligns with a report by Benjamin, a correspondent with the Leadership Newspaper in December 2022. The report revealed how Kaduna Electric disconnected both Sokoto and Zamfara States due to significant outstanding debts, impacting various state facilities, including the state water board,



tertiary institutions, and government house, for about four months (Benjamin, 2022). According to Abdulazeez Abdullahi, the Head of Corporate Communication of the power company, Sokoto state government owed outstanding electricity bills amounting to N1,496,313,156.

Corruption

Corruption remains a major issue in the water sector of Sokoto State, leading to the misallocation of resources and the construction of substandard water infrastructure. The lack of adequate monitoring of projects by coordinating agencies has detrimental effects on economic progress and social benefits intended by the government. The inefficient operations, inadequate maintenance, financial losses, and unreliable service delivery witnessed can be attributed to corruption. According to Sokoto State Government's budget, the total expenditure on water projects during the administrations of Bafarawa, Aliyu Wamakko, and Aminu Waziri Tambuwal as governors of Sokoto State exceeded N3 billion (Abubakar, 2023). It is evident that a significant portion of these funds might have been misappropriated, embezzled, or subjected to various forms of malfeasance. This observation aligns with a study by Transparency International, which identified corruption as a major problem in the water sector in Sokoto State (TI, 2020).

Impact of Insufficient Water Supply and Distribution

Inadequate water supply and distribution can have numerous adverse effects on human health, the economy, and the environment, as highlighted by UNICEF (2022), WHO (2011), FAO (2020), and the World Bank (2020):

Elevated Risk of Waterborne Diseases:

Waterborne diseases stem from consuming water contaminated with harmful bacteria, viruses, or parasites. Insufficient water supply and distribution amplify the risk of waterborne diseases, as individuals might be compelled to consume or use contaminated water for sanitation purposes. For instance, the World Health Organization's study revealed that over 2 billion people globally lack access to safely managed drinking water, significantly contributing to the spread of diseases like cholera, typhoid, and diarrhea.

Diminished Sanitation and Hygiene

Inadequate water supply and distribution can result in compromised sanitation and hygiene practices. Individuals lacking access to sufficient water may struggle to wash their hands adequately or flush toilets. Poor sanitation and hygiene contribute to the proliferation of diseases such as diarrhea, cholera, and hepatitis A. UNICEF's study found that over 40% of Sokoto State's population lacks access to basic sanitation services, a major factor in the prevalence of diseases like diarrhea and cholera.

Decreased Agricultural Productivity

Agriculture stands as a crucial sector in Sokoto State's economy. However, insufficient water supply and distribution can impede agricultural productivity, as farmers may not have enough water for crop irrigation and livestock care. For instance, the Food and Agriculture Organization of the United Nations reported that over 80% of Sokoto State's agricultural land relies on rainfall for



irrigation. With climate change inducing more frequent and severe droughts, agricultural productivity is declining, contributing to heightened food insecurity.

Rising Poverty Levels

Inadequate water supply and distribution can lead to increased poverty, as individuals without access to ample water may need to allocate more funds to water expenses and related health issues. Moreover, the impact on agricultural productivity can result in job losses and income reductions. According to a World Bank study, households in Sokoto State spend an average of 20% of their income on water, posing a substantial financial burden, particularly for low-income households.

Conclusion

In conclusion, the water supply and distribution challenges in Sokoto State are deeply rooted in a web of interconnected factors, each exacerbating the other. The lack of adherence to water management policies, insufficient community involvement, and political interference have crippled well-intentioned initiatives, rendering them ineffective. The ramifications of this extend beyond mere inconveniences, manifesting in increased health risks, economic burdens, and environmental strain. The current state of infrastructure, coupled with power supply issues and corruption, further compounds these challenges. To surmount these issues, a holistic and collaborative approach is imperative, necessitating improved policy implementation, enhanced community engagement, infrastructure development, and a commitment to transparency and accountability.

Recommendations:

1. **Policy Implementation:** Ensure the comprehensive implementation of water management policies, addressing the gaps identified in previous initiatives. Regular reviews and updates should be conducted to adapt to evolving challenges.
2. **Community Engagement:** Foster active participation of local communities in water management. Encourage the establishment of community-led water projects and raise awareness about water conservation practices.
3. **Infrastructure Development:** Invest in upgrading and expanding water supply infrastructure to meet the demands of a growing population. Prioritize maintenance and repairs to minimize water wastage.
4. **Political Neutrality:** Depoliticize water supply projects to ensure fair resource allocation. Encourage transparency in project awarding processes and prioritize areas with the greatest need.
5. **Power Supply Stability:** Address power supply challenges to ensure water treatment and pumping facilities operate consistently. Resolve outstanding electricity bills to prevent disconnections that disrupt water supply.
6. **Anti-Corruption Measures:** Implement stringent measures to curb corruption in the water sector. Enforce accountability in the allocation and utilization of funds dedicated to water projects.

By implementing these recommendations, Sokoto State can move towards a more resilient and sustainable water supply system, fostering the well-being and prosperity of its residents.



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